WALTER SZREK'S
ANNOTATED COLLECTION

CALCU-LATING DEVICES

CALCU-LATING DEVICES

2024

Drawing by my granddaughter Sophia Szrek de Sousa Pereira, 9 years old.

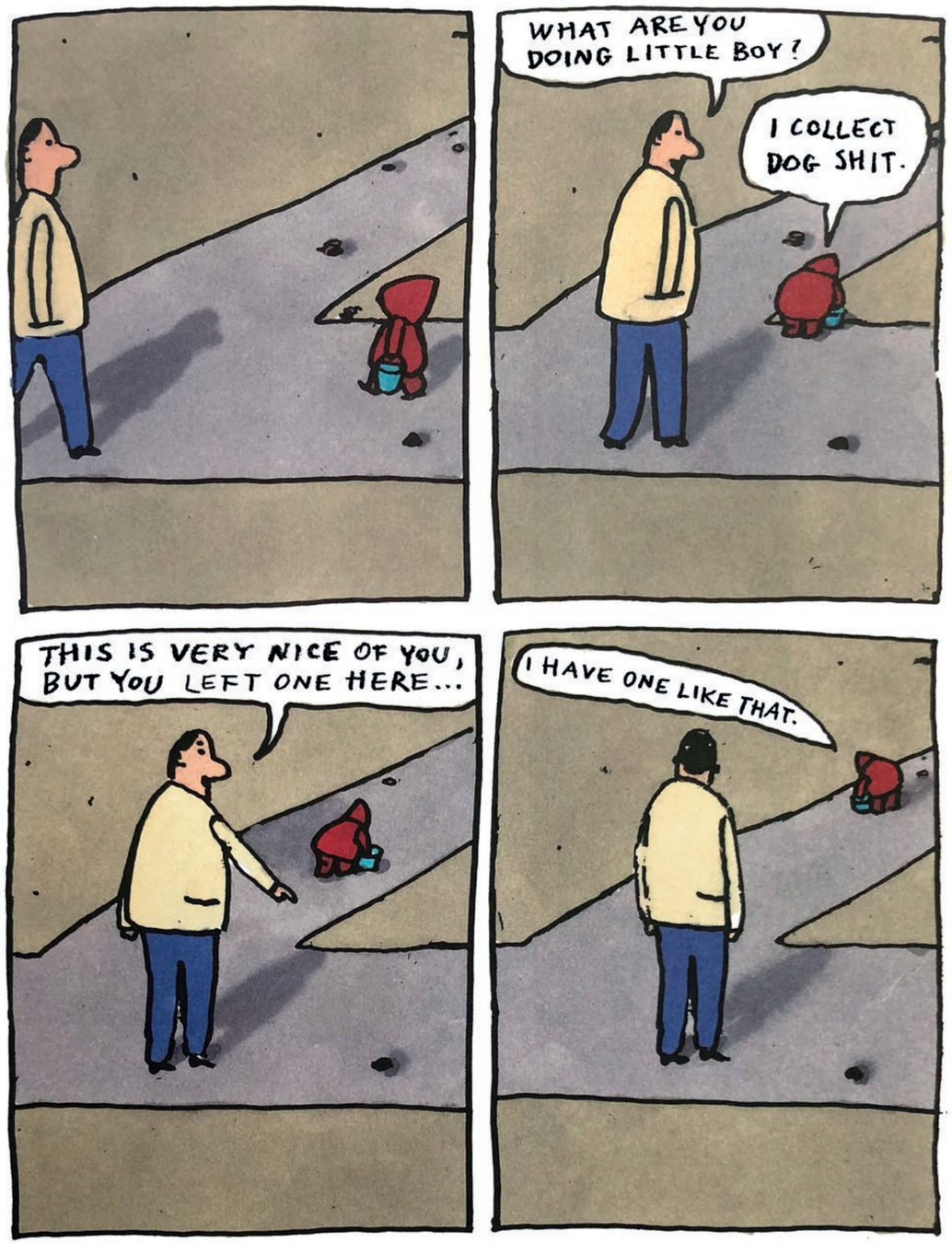
Oh dear, how puzzling it all is!
I'll try if I know all the things I used to know.
Let me see:
four times five is twelve,
and four times six is thirteen,
and four times seven is – oh dear!
I shall never get to twenty at that rate!

Lewis Carroll
Alice in Wonderland

1

>IN-TRO-DUC-TION


EVER-READI CALCULATOR
INSTRUCTIVE EDUCATIONAL CORRECT
RECNOMATIC
by AURORA
KUM'S DRILL-TEST



Created and drawn by Marek Raczkowski

INTRODUCTION TO "INTRODUCTION"

I got a year 2000 bug: I started collecting mechanical calculating devices in year 2000. I bought a Russian (Original) Odhner "A" from year 1907 at the antique flea market 'Kolo', in Warsaw, Poland. I fell in love with this machine. We were living in Warsaw for a few years as 'expats', many years after we emigrated from Poland to the United States.

And so it started… Over the years I was gathering a lot of different mostly calculating devices, but unlike some collectors, I was not able to get rid of any. As one of the collectors called my collection – it was a "black hole". Devices would get in, and they would never get out. Within my collection one can find a mixture: from very sophisticated and rare devices to simple and common ones. The process of collecting is also a process of learning. At the beginning you collect what you like. Later, you also collect what you like but what changes is that you learned a lot and may get to like different things. I happen to like all the devices in my collection. There is something special about each of them.

Collecting brought to my life a few very special people with whom I became friends. Especially Mr. Tadeusz Kabzinski, Herbert Schneemann and Valéry Monnier. Mr. Kabzinski originally repaired my machines. He passed to me his love and passion of these devices. Unfortunately, he did not pass any of his skills.

I spent a lot of time with Herbert. We both worked (mostly him) on the website www.Rechenmaschinen-Illustrated.com. We spent a lot of quality time discussing these devices and also life, politics, etc.

Valéry is my special friend. He is a genius and an artist. Each time we chat over Skype, I learn something. Valéry taught me how to recognize things that are unique and interesting. I also got from him a few of the most interesting devices I own. Our work together on Slonimski's devices taught me a lot. Together with Valéry and Janusz Zalewski we wrote an article about Slonimski's adding devices: Chaim Slonimski and his adding devices, published in ACM magazine. Valéry created two great web sites: Arithmetical machines and instruments, 19th century (ami19.org) and www.arithmometre.org. Valéry also created beautiful replicas of different devices. I own a few of these replicas. Mr. Kabzinski passed away in 2003. Herbert in 2014.

ME AND COLLECTING

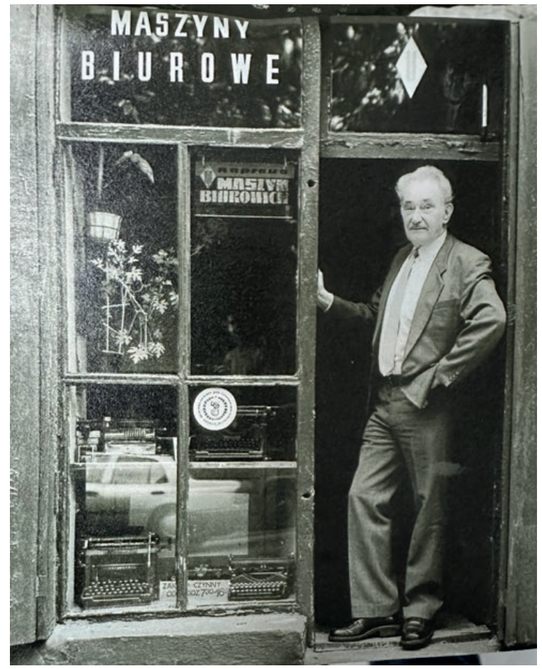
I think many collectors are "addicts" as collecting is an addiction. One can smoke, collect books, collect paintings, drink, etc. I am one of these addicts. I have collected different things most of my life. I have this inability to get rid of any of these items. First, as a student, I started collecting Polish posters. Now, close to 1,000 beautiful posters have found their place under a bed in our house, some hang in the hallway. They are not alone there. A nice Michelin lamp and a few Michelin signs found their place there, too. Both poster and Michelin collections are 'under control' now – They do not grow any more.

Same with my beer bottle opener collection. It is peacefully confined in 7 big boxes in the cellar downstairs. Just a few of them are here and there waiting for their proper use.

CREDITS

I want to thank a few very special people for contributing to this catalogue:

- Professor Ewa Wyka, who enabled the collection to remain intact at Collegium Maius Muzeum of Jagiellonian University (Muzeum Uniwersytetu Jagiellońskiego Collegium Maius), one of the oldest Universities in Europe.
- My wife Irena and daughters Asia, Helena and Monika, without whom the collection would never have been created.
- Mr. Kabzinski, Herbert Schneemann, and Valery Monnier, my best 'collecting friends' from whom I learned a lot,
- Two Piotrs: Strzalkowski i Kaczmarek, who shared their thoughts on yet another version of the catalogue.
- Marta Gierych, who created a beautiful printed version of my original catalogue.



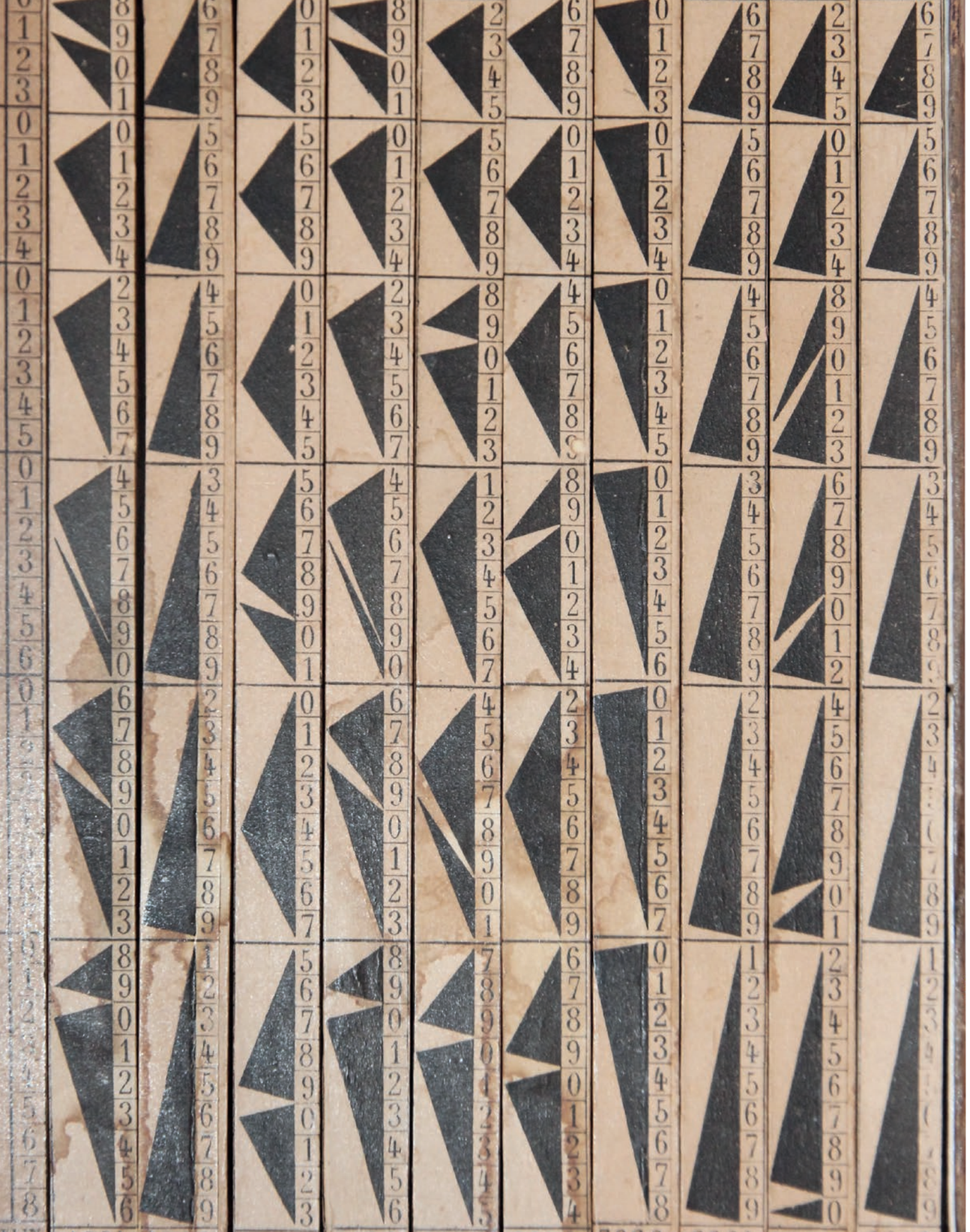
Mr. Kabzinski in front of his office and machines repair shop, in Praga neighborhood in Warsaw.


MICHELIN
VÉLO
MICHELIN
MICHELIN
X AS nouveau !
MICHELIN
Pneus Trac


Thale
Thale
420


KOMITET OBCHODU 10-LECIA ODPARCIA NAJAZDU ROSJI SOWIECKIEJ
18/XX 1930
ROCZNICA
ODPARCIA NAJAZDU
ROSJI SOWIECKIEJ
PRYWATNE ŻYCIE HENRYKA VIII
Teatr Powszechny
ksym Gorki
BRUNSVIGA
MICHELIN

ORGANIZATION OF THIS <^v> CATALOGUE



This catalogue consists of several sections:

- **Introduction**
- **Interesting links** to "calculating sites" and credits to some places where I learned about calculators
- **Highlights** – a snapshot into some of the most interesting devices and other artifacts from the collection
- **Rooms** – pictures of the devices grouped by calculating criteria. Rooms are designed to contain almost all the pictures for this specific class, and to link to the detailed catalogue section for their class.
- **Details** – detailed catalogue of almost all artifacts in the collection. This is the actual catalogue of all the devices.
- **Papers** – highlights of the paper collection (mostly related to calculating machines).

Classification

I sometimes classify a machine in the "wrong" category, as it should often belong to a different category or be a category of its own. Good examples are Millionaire and Mercedes Euklid, that are not step drum machines but were included together with step drum machines. It is difficult to be right with classification when a device is rare or very rare. There are no sources that one may rely on. I used my best judgment. Often, I would either leave this space empty or categorize the device in two categories, e.g., rare / very rare. The same with the production year. I relied on different sources to set the year. Where I knew the date, I would have used an actual production year, not when the machine was first introduced to production. Sometimes, I put an approximate year if the actual year was not known, and I could approximate it. I marked the devices according to their name, production year (this gave some chronological spin to the collection) and by rarity.

Rarity

When a device is depicted as very rare, it means that the device comes to the market once in several years. If the device is rare, it comes to the market a few times within a year or two. Unique device means only one example is known. To confirm it, I verified the sources easily available such as Rechnerlexikon, Rechenmaschinen-Illustrated, some other specialized sites and Google search. One known means to the best of my knowledge it is the only one existing, so it does mean that these machines are extremely rare and possibly the only ones existing. This categorization is very subjective and is only based on my knowledge and experience.

Historical significance

Stars (*) are used to mark devices as historical. When the device is depicted as historically important, this means that this device had an impact on the development of the industry, or the method calculations are done. One should not confuse rarity and historical importance. Devices can be rare, but not of historical significance, e.g. only a few manufactured and never continued. In addition, such devices have not introduced anything special or any new methods in the way calculations are done.

Device vs. machine

The word device is used to depict devices that do not mechanically enforce carry, e.g., abacuses, Fowler adders, Slonimski Adder, Slonimski Multiplier, Genaille-Lucas, Addiators, von Funke Adder. etc. The word machine is used where carry is enforced mechanically: pin wheel machines, step drum machines etc. Device in plural form (devices) is used to depict both machine and device.

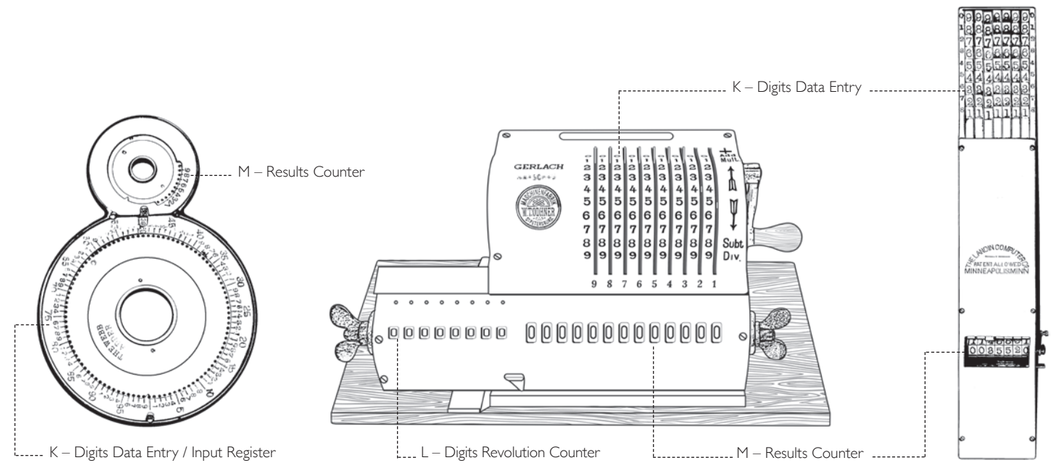
Arithmometer

The word arithmometer is used for step drum machines and for the machines that specifically have arithmometer in their name e.g., Odhner Arithmometer.

Precision

Multiplying devices precision is described as K × L × M, i.e., K – digits data entry (setting sliders or columns of keys), L – digits revolution counter, and M – digits result counter. E.g., Curta I (8 × 6 × 11) has eight digits for data entry (known as "setting sliders"), a six-digit revolution counter, and an eleven-digit results counter. Very early Thomas Arithmometers did not have the revolution counter register (L).

Adding devices precision is described as K × M., i.e., K digit of data entry (setting sliders/keys) and M results., e.g., Landin Computer (7 × 7) is 7 for data entry (setting sliders) and 7 digits for result.

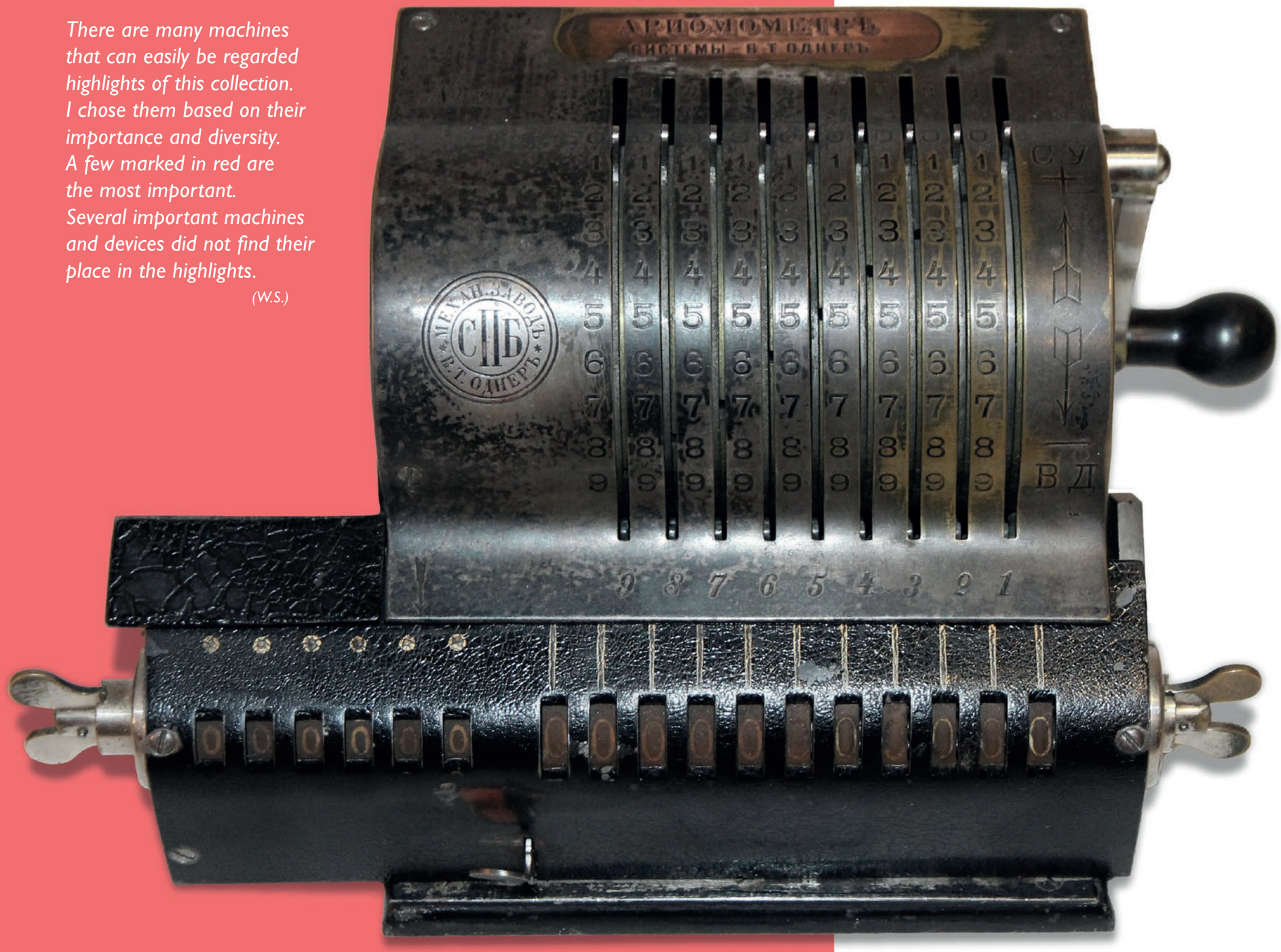



3


>HIGH-
LIGHTS

There are many machines that can easily be regarded highlights of this collection. I chose them based on their importance and diversity. A few marked in red are the most important. Several important machines and devices did not find their place in the highlights.

(W.S.)



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ODHNER 21

Russia, 1890

The most important machine in the collection. The first known production Odhner, Serial 21 (Russia, 1890). Wilgodt T. Odhner invented this type of calculating machines. The machine supports all basic arithmetic operations (+ - × /). This is a so-called short handle model. In 1897 Odhner replaced a short handle (on the right) with a longer one, as some users were injured operating the machine. There are four more short handle Odhners in the collection. In XX C Odhner type machines became the most popular calculating machines.

WS-267

I.F.H.B. HISTORISCHE
Bürowelt Nr. 104, July 2016
Odhner – serial number 21

Until now, the Odhner calculator with the serial number 52 was regarded as the oldest known. This machine is in a museum in Stockholm. In April 2016 Walter Szrek (Rhode Island, USA) succeeded to bid an even older machine in Sweden. She has the number 21, she has a crank handle made of plastic, probably ebonite (a hard rubber that is also used for piano keys and pipe mouthpieces and clarinets). Price according to the internet portal: over €10,000.

W. Szrek is co-editor of "Rechenmaschinen-Illustrated.com", together with H. Schneemann (1941–2014)

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1 NAPIER BONES

Scotland, early XVIII Century

Multiplication of any number 1- 9. Multiplicand selected using rods. Mental addition of carries. Roth (France 1844) simplified mental adding. Slonimski (Russia 1844) eliminates mental adding requires choosing the next "rod". Genaille-Lucas provides a graphical solution without mental adding and next rod manipulation.

WS-173

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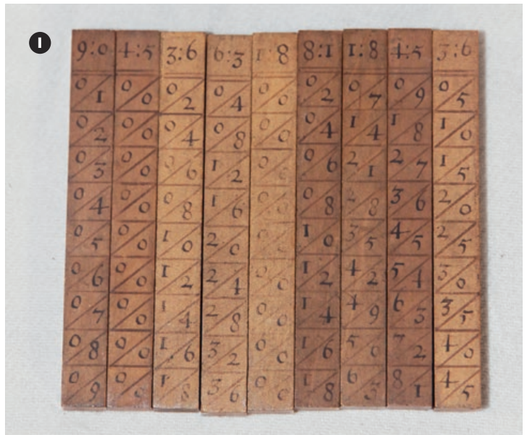
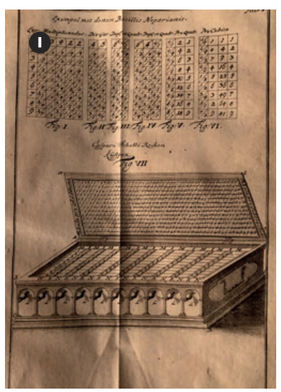
2 NAPIER BONES

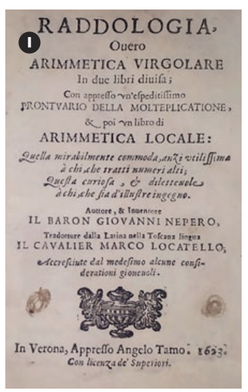
Scotland, early XVIII Century

Early multiplying device.

WS-174







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3 ARITHMOMETER THOMAS DE COLMAR

France, 1852

2nd most important machine in the collection. Thomas de Colmar Arithmometer, serial 164. One of the first arithmometers (France, 1852). First commercial device to support all arithmetical operations. Very early Thomas machines did not have a counter register (the register on the bottom of the movable carriage). Thomas machines enabled understanding the need for using calculating machines. This was fundamental in the creation of the calculating machines industry. After Thomas' patents expired, arithmometers were manufactured in several countries.

WS-222

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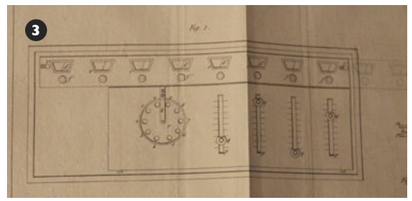
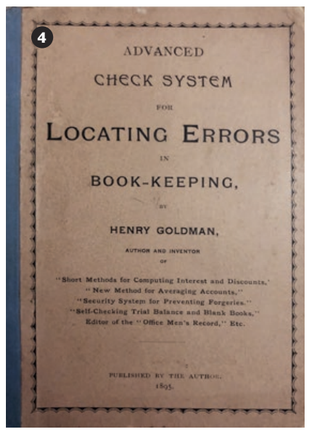
4 ARITHMOMETER THOMAS DE COLMAR EXPERIMENTAL

France, 1880-1890

Thomas de Colmar experimental Arithmometer with multiplier (1880-1890). Never went into production. Only two made. One known to survive. With multiplier (right bottom corner). Instead of rotating the handle 7 times, just move the multiplier to position 7.

WS-224





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1 ARITHMACHINE

Germany, 1899

Goldman's Arithmachine (US, 1899) adding machine. Sliding bars adding machine. Later Goldman introduced Contostyle (Germany, 1906) and back in NY Arithstyle. Precursor of several other machines such as Argos, Behr etc

WS-28

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2 LANDIN COMPUTER

US, 1891

Landin Computer adding machine (US, 1891). First commercial sliding bars adding machine. The only one known. Precursor of many different machines of this type such as Rapid Computer, Comptator, Surot/Addi/BuG, SuN, Multo, …

WS-1

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3 BRUNSVIGA B

Germany, 1894

Brunsviga B serial 364 (1894). Brunsviga licensed Odhner patents and started manufacturing Odhner type machines in Germany in 1894. After original Odhner patents expired, Odhner type machines were manufactured in many countries. Only 24 early Brunsviga models are known to survive. Initially Brunsvigas had a short handle which was soon (1895) replaced by a longer one, as users were often hurting themselves.

WS-741

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4 BRUNSVIGA C

Germany, 1896

Brunsviga C serial 1453 (1896). Very rare low-cost model. Little hand on the top is a Schuster logo, reseller of Brunsviga machines in Berlin. The machines with "Schuster hands" are very rare and sought after by collectors. This machine has short handle same as original Brunsviga B. After initial few machines, another model "C" (C-2) with a longer, still short, handle was introduced.

WS-740

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5 FOWLER

US, 1863

Fowler adding device. Very early US commercial device to simplify adding. Sliding bars allow adding and indicate carry. Results on the back. In 1890 Fowler introduced an improved version – Universal adder. Precursor of the Locke and Bamberger Universal adders.

WS-142

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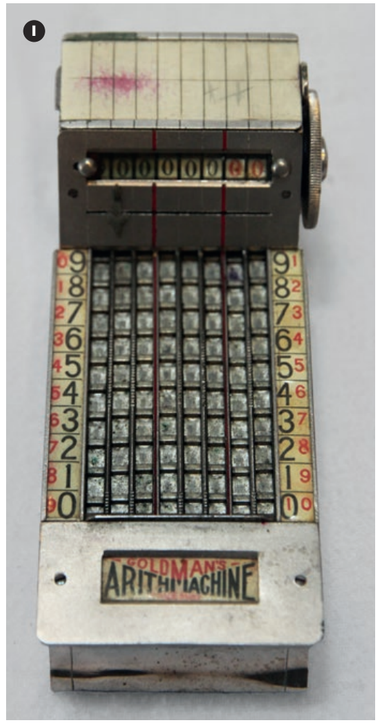
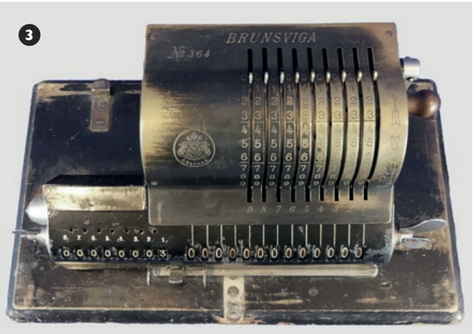
6 BURKHARDT ARITHMOMETER 72

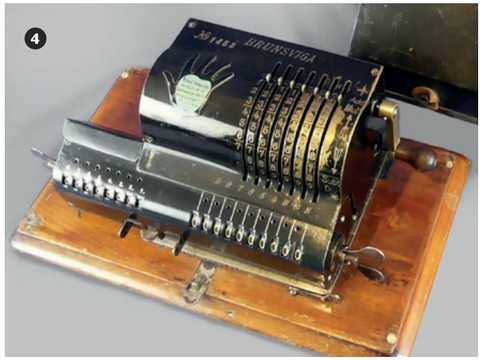
Germany, 1878-1879

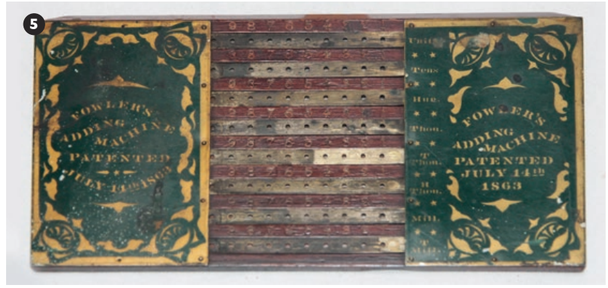
Very early Burkhardt arithmometer serial 72. One of the first Thomas type machines manufactured in Germany. Arthur Burkhardt improved Thomas' design and started manufacturing Arithmometers.
Burkhardt is regarded a father of calculating industry in Germany.

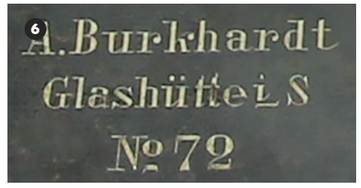
WS-236

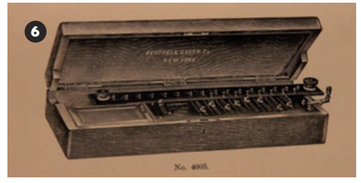


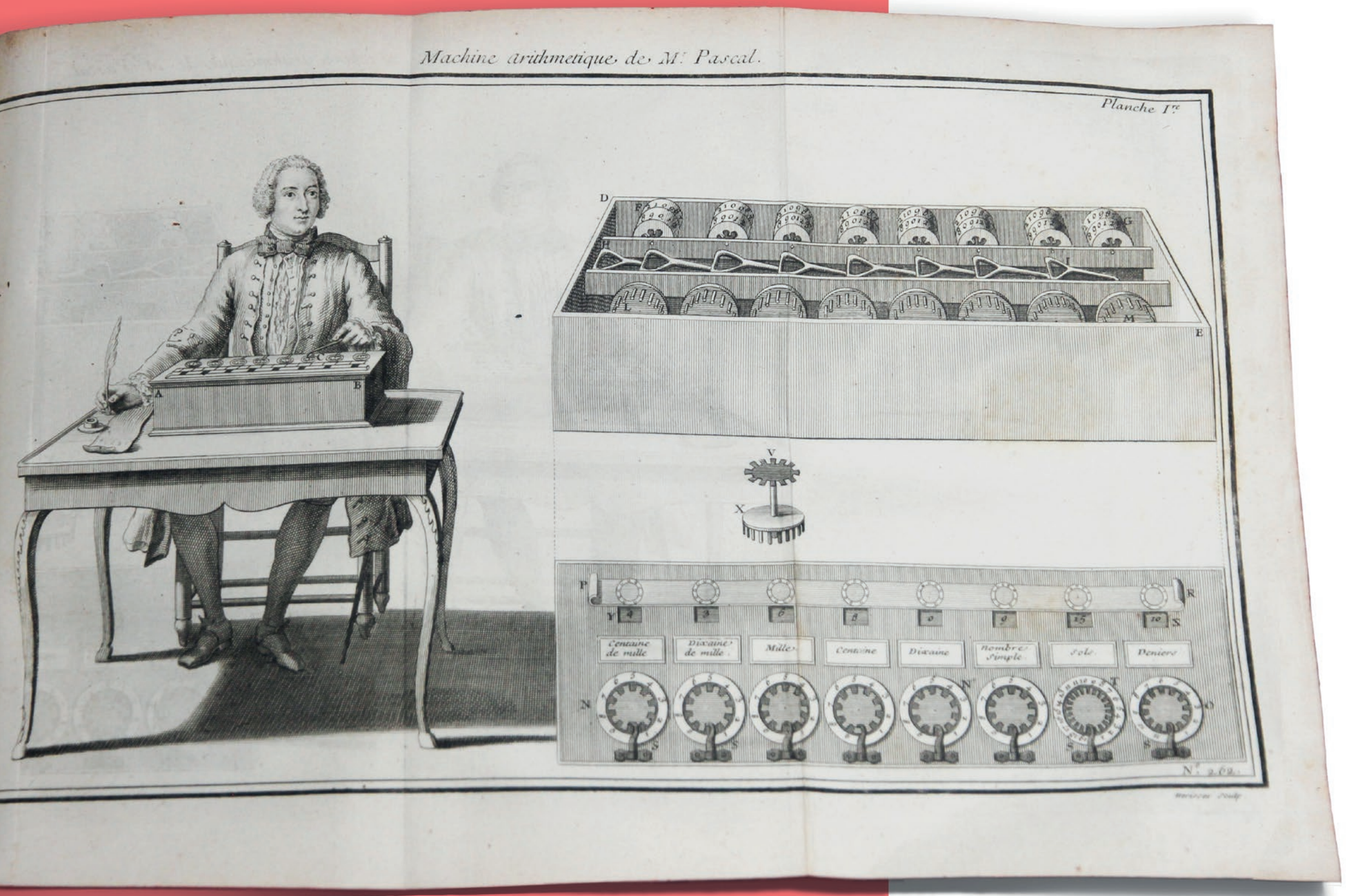












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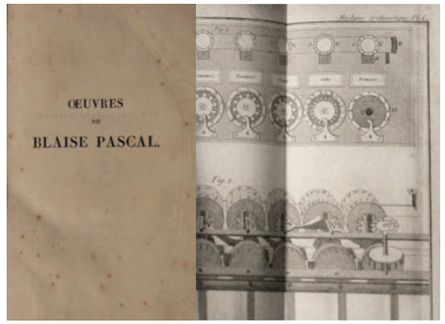
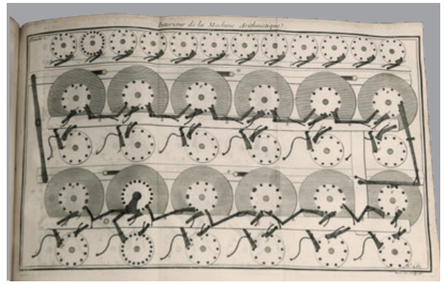
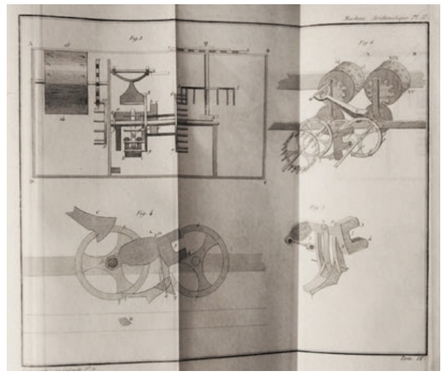
OEUVRES DE BLAISE PASCAL

France, year?

Pascal's adding machine from Gallon's (1735 & 1760), complete all 7 volumes with French inventions till this time, with over 500 inventions, each with description and beautiful engravings.







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1 9 DIGIT ROTH

France, 1842

9-digit Roth adder for Indian money.
David Roth's adders were the first adding machines manufactured in a quantity more than a few since Pascal made 50 Pascalines 200 years earlier. The only Roth device known to support Indian currency.
This is also the first known device to support Indian currency.
Small quantity of Roth adders was manufactured. Nine- and two-digit Roth adders are extremely rare.
Probably less than 100 Roth Adders were manufactured.

WS-36

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2 2 DIGIT ROTH

France, 1842

2 Digit Roth Adder

WS-37

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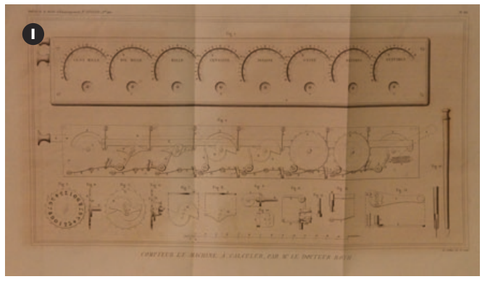
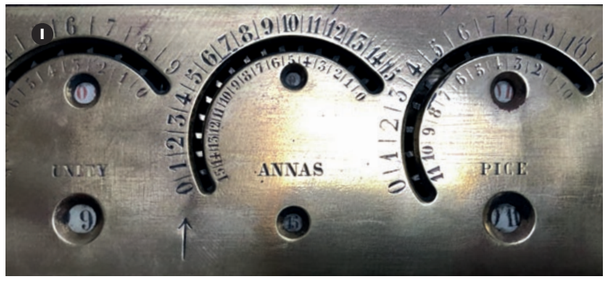
3 2 DIGIT ROTH

UK, 1860

2 Digit Roth Adder

WS-38





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4 FILIPOWSKI

UK, 1860

Hershell Filipowski multiplying device. Based on Slonimski's mathematical theorem: for all multipliers [0, 9], regardless of the state of carryovers, there are 28 states of carryovers. To multiply, neither mechanical carry nor mental addition is needed. Filipowski's device has 56 rods, each representing 1 of 28 states of carryovers. During multiplication both multiplication result and a rod corresponding to the next digit position (state) is determined. Only one other, in Science Museum in London, is known.

WS-180

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5 ARITHMOGRAPH DUBOIS

France, 1866

Very interesting and rare multiplying device based on Napier bones principle.

WS-646

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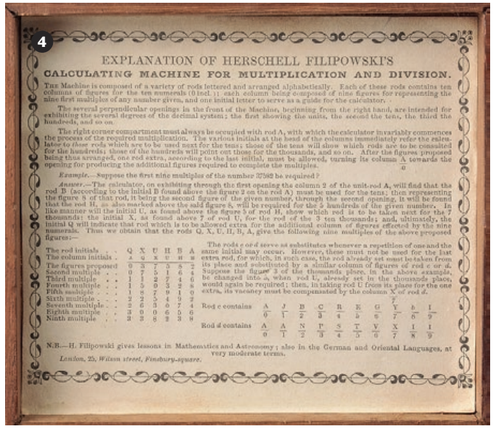
6 CHAPIN ADDER

US, 1870

G.W. Chapin Adder. The first adder of this type manufactured in US. The only one known.

WS-201



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BALDWIN ARITHMOMETER

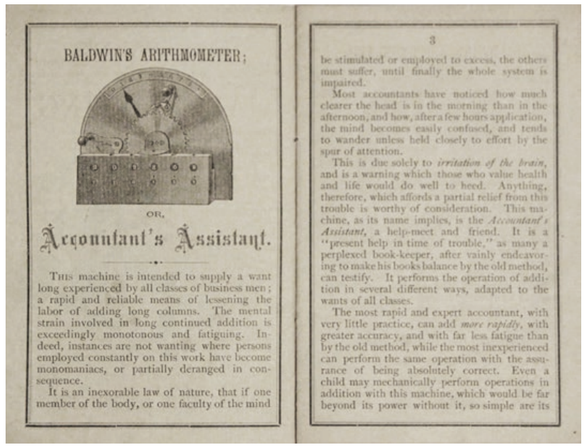
US, 1874

Baldwin Arithmometer. Very rare adding machine by Frank Baldwin, one of the creators of calculating machines industry in US.

In October 1872, I married Mary K. Denniston of Williamsport, Pennsylvania, who was visiting relatives in St. Louis. The year after, we moved to Philadelphia where I rented a small shop and started to make ten of the calculating machines. While thus engaged, I saw the expediency of a small machine to supplement the larger one, and designed an adding machine which I named the 'Arithmometer,' and this patent, dated July 28, 1874, was the first one of the kind granted me by the United States Patent Office. It was also one of the first adding machines sold in the United States.

I placed both machines on exhibition at the Franklin Institute, Philadelphia, and was awarded the John Scott Medal for the most meritorious invention of the year… The Government granted me patent rights in 1875.

WS-607


BALDWIN'S ARITHMOMETER;

OR,

Accountant's Assistant.

THIS machine is intended to supply a want long experienced by all classes of business men; a rapid and reliable means of lessening the labor of adding long columns. The mental strain involved in long continued addition is exceedingly monotonous and fatiguing. Indeed, instances are not wanting where persons employed constantly on this work have become monomaniacs, or partially deranged in consequence.

It is an inexorable law of nature, that if one member of the body, or one faculty of the mind be stimulated or employed to excess, the others must suffer, until finally the whole system is impaired.

Most accountants have noticed how much clearer the head is in the morning than in the afternoon, and how, after a few hours application, the mind becomes easily confused, and tends to wander unless held closely to effort by the spur of attention.

This is due solely to *irritation of the brain*, and is a warning which those who value health and life would do well to heed. Anything, therefore, which affords a partial relief from this trouble is worthy of consideration. This machine, as its name implies, is the *Accountant's Assistant*, a help-meet and friend. It is a "present help in time of trouble," as many a perplexed book-keeper, after vainly endeavoring to make his books balance by the old method, can testify. It performs the operation of addition in several different ways, adapted to the wants of all classes.

The most rapid and expert accountant, with very little practice, can add *more rapidly*, with greater accuracy, and with far less fatigue than by the old method, while the most inexperienced can perform the same operation with the assurance of being absolutely correct. Even a child may mechanically perform operations in addition with this machine, which would be far beyond its power without it, so simple are its


MADE BY
RELIANCE MACHINE
WORKS
PHILA.
5 & 0


F. S. BALDW
PATE
JULY 28

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1 ELLIOTT BROTHERS

United Kingdom, 1882

The first UK Arithmometer, very rare. Elliott Brothers were manufacturers of scientific instruments in XIX and XX Century in London.
"Essential as the arithmometer was becoming to the Prudential's business, the machine could not be treated as a fully reliable resource. The company's archives preserve a few fragmentary but revealing records of repair work carried out on their arithmometers during the 1870s. Springs would snap and other more serious mechanical defects were not uncommon. The effort of the quinquennial valuation severely tested the machines' robustness: in one month alone in 1877 12 machines required attention for one or more repairs. To guard against the dangers of both operator and mechanical error, the Prudential typically carried out its calculations in parallel, using one machine to check the results of another. But the company was so concerned with guaranteeing reliability that it sponsored the development of an English version of the arithmometer in the hope of obtaining improved performance. An 1879 letter to The Times *announced 'a premium of £300 in addition to the full price of 20 perfect English-made machines'. When the prize was paid in January 1882, £200 went to the instrument makers Elliott Brothers."*

Stephen Johnston (1997)

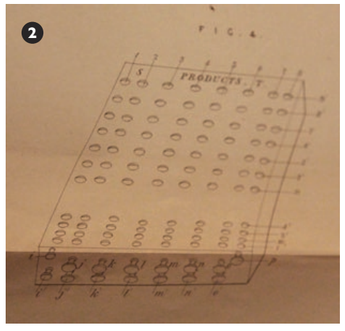
WS-527

2 SLONIMSKI MULTIPLICATION DEVICE

Poland, 1844 (recreation France, 2009)

Recreation of 1844 Slonimski's multiplying device by Valéry Monnier (France, 2009). Slonimski created the first multiplication device without mechanical carry or adding carry in memory (1844). None of Slonimski's devices survived. Filipowski's multiplication device, above, differently implements Slonimki's theory.

WS-650



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3 ARCHIMEDES JUNIOR

Germany, 1925

Two miniature arithmometers: Archimedes F Junior (Germany 1925) and Curta I (Lichtenstein 1949).
Junior weights 8.8 pounds and is 21 × 16 × 6 cm.
Precision: 6 × 6 × 10. Junior was quite heavy and bulky.
It had also a limited precision. Not many were manufactured.

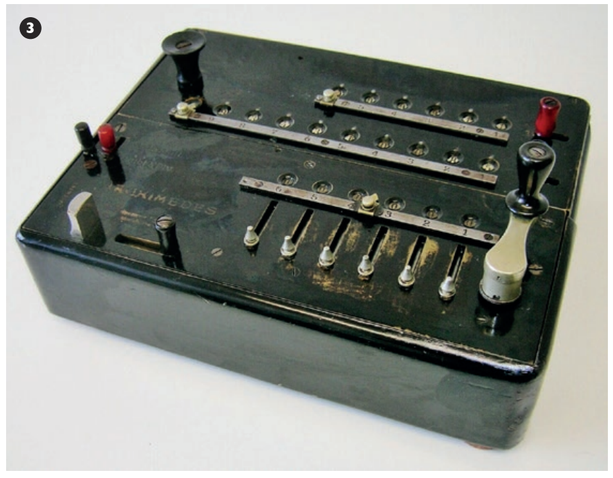
WS-753

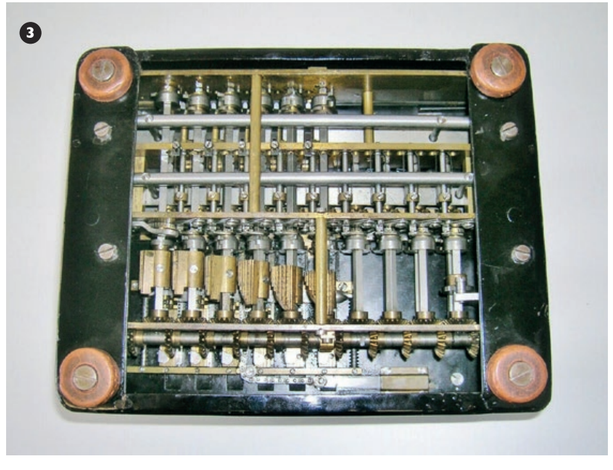
4 CURTA I

Lichenstein, 1949

Curta I weighs 0.75 pounds and 13 × 7 × 7 cm. Curtas were small, light, and very convenient to use. Over 140,000 were manufactured: 80,000 Curta I and 60,000 Curta II. Precision: 8 × 6 × 11.

WS-238





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1 KULI

Germany, 1909

The most advanced column adder from maker of Adix. It is also much bigger. Traditional Adix is a small pocket column adder. This device allows to remember carry between columns and simplifies adding columns. This is done at the price of bulkiness. It is no longer a pocket adding device. Because of this, and much higher price not many Kuli adders were manufactured.

WS-130

*

2 ABACUS (JAPAN)

Japan (?), XIX century (?)

Abacus (Japan (?), XIX C (?)). Valéry Monnier thinks the Japanese (?) abacus might have been used as a game counter.

WS-436

*

3 SMALL BONE RUSSIAN SCHOTY

Russia, XIX century

Such small abacuses could be kept in a pocket or the purse.
A very small bone Russian schoty.
Another small abacus in the photograph below (Poland).

WS-437

****

4 SPALDING

US, 1884

Very early and interesting column adder. User adds multiple numbers by adding numbers in each column consecutively.

WS-623

*****

5 COMPTOMETER

US, 1887

Very rare, first model of one the most important US calculating machines. Comptometers (constantly improved) were manufactured till 1970s. They were very reliable and fast to operate. The first electronic calculators Anita Mark VII and Anita Mark VIII came from the Sumlock Comptometer Corp.

WS-657

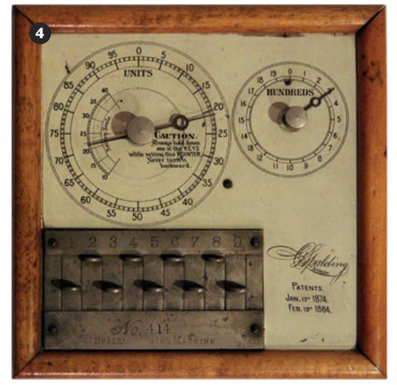
****

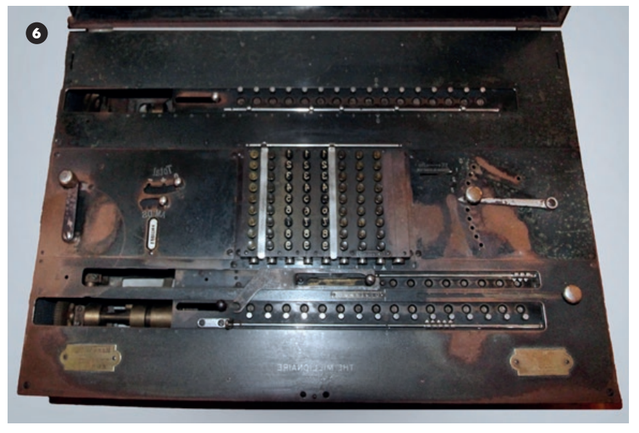
6 MILLIONAIRE

Switzerland, 1918

Millionaire with Totalizator. Millionaire was the first commercially successful machine with direct multiplication. This machine is very rare, it has an additional totalizator (on top). It is also non-electric. Only few machines were equipped with totalizator. 38 machines of this model were manufactured (non-electric, with Totalizator). Two are known.

WS-660





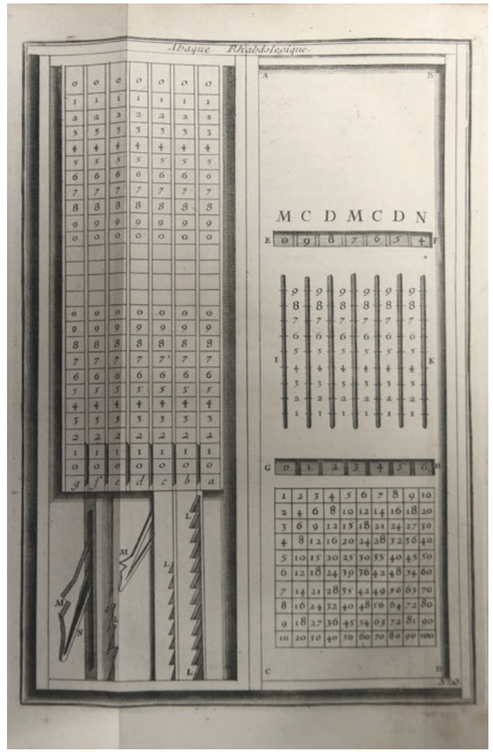
*****

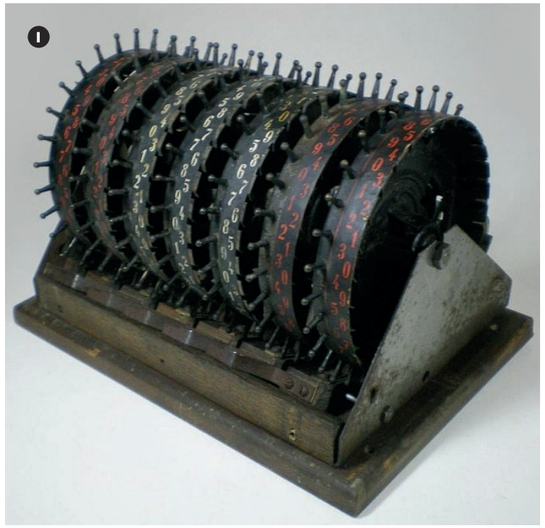
DIAKOV

Russia, 1878

Precursor of chain style adders like Gem, Webb Ribbon Adder, Dux IV etc. The device does not have an automated carry, just the carry indication. Black field indicates carry needs to be added on the next position. Diakov adder received the gold medal at the Paris World Exhibit in 1878.
Only one known (?).

WS-22



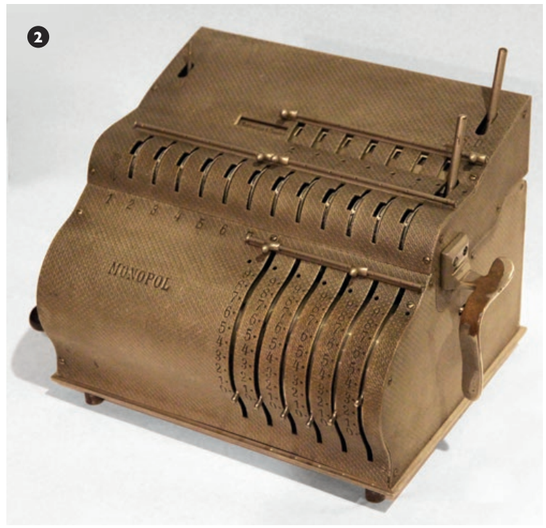


1 SIRIUS

Germany, 1912

Very rare. Few are known.

WS-202



2 MONOPOL

Germany, 1902

Very interesting, very rare, very heavy and "very" collectible Odhner type machines.

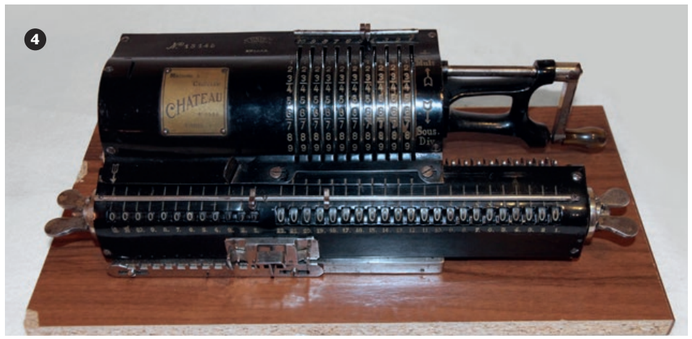
WS-678

3 L'ÉCLAIR

France, 1912

Huge, Odhner type calculating device. It is very rare, heavy, unusual, and interesting.

WS-330



****

4 22 DIGIT ODHNER

France, 1929 (?)

22-digit Odhner type calculating machine (Chateaux).
It is 2 more digits than modern 64-bit computers. The first Odhner type machine with such capacity. Only one known.

WS-327

*****

5 GRAVE ET LENOIR

France, 1850s

On the left 1st known demonstration slide rule – Gravet et Lenoir (France, 1850s). No other one known. Next a very rare first American demonstration slide rule. Keuffel & Esser 4061(?), (US, 1900).

WS-696

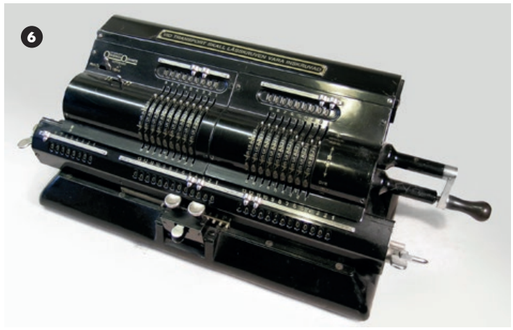
*

7 DUAL ADDER

US, end of XIX / early XX century

64 × 32 cm – big. Only one such double adder known.

WS-612



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6 ODHNER TANDEM

Sweden, 1931

Odhner's 1st attempt to create duplex machine. These types of machines were useful for "complex" calculations such as calculation of artillery trajectories, land surveying or navigation. Only few are known to exist.
Later Odhner manufactured "double" Odhners: models 35 and 135. The first manufactured machine of model 135 is also in the collection.

WS-745

****

❶ WEBB ADDER

US, 1889

Very early Webb adder 1889 model (US). Charles Webb invented a few calculating devices, in 1868 he patented his Webb adder, later in 1889 he patented an improved version. This device is a very early 1889 model, different from later versions. Only one known.

WS-57

*

❷ BEAUCOURT

France, 1912

Beaucourt adder. Very rare column adder with an unusual rotary "telephone" dial input.

WS-50

**

❸ HOLIAC

US, 1963

Logic teaching aids to emulate computer operations. Parker W. Snapp designed these devices to teach students how the computer works. Only one known to exist.

WS-622

*****

❹ GROESBECK

US, 1870

Groesbeck adding device. It was the first device of this type manufactured in US that had some commercial success.

WS-39

❺ ARCHIMEDES

Germany, 1930

Fractions' teaching device. Each apple shows how it can be divided (fractioned) into different size pieces. E.g., one of the apples is divided in ½, ¼, and two 1/8 pieces.

WS-643

❻ FINGERS

Germany, 1921

Fingers by Lehrer Wlecke. Teaching device for basic arithmetical operations. Different from other teaching aids. Designed for teaching arithmetic to children with poor numeracy skills.

WS-171

***

EUREKA

France, 1889

For teaching multiplication table and adding. User sets one "marker" on a multiplicand and another on a multiplier. Arrow shows the result. Eureka was a precursor of several toys/educational devices. E.g., Consul the Educated Monkey (1916).

WS-159

***

LITTLE ACCOUNTANT

Germany, late 1800s

Teaching device for multiplication and adding.
Very similar to Eureka.

WS-158

****

❶ GENAILLE-LUCAS

France, 1885

Genaille-Lucas multiplication device. The first device to directly read multiplication results without mechanical carry or without mentally adding carry (Napier, Roth) or selecting a state of the next position (Slonimski, Filipowski, Joffe).

WS-178

**

❷ GENAILLE-LUCAS INTEREST CALCULATOR

France, 1885

Genaille-Lucas interest calculator,
Les Reglettes Financieres.

WS-179

**

❸ NUMEROMETER

US, 1885

Very simple adding device. When a device indicated carry user had to add one in the next decimal position. Lowest position was for adding 1/8 fractions. Only one known.

WS-608

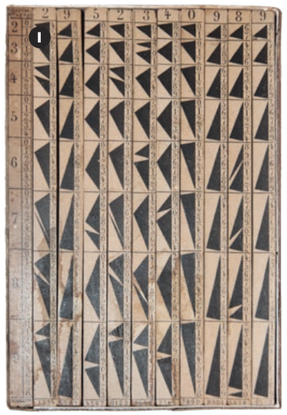
**

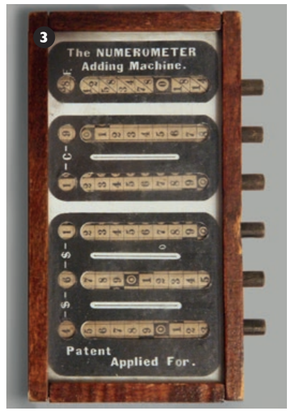
❹ TOTALISATEUR TRONCET

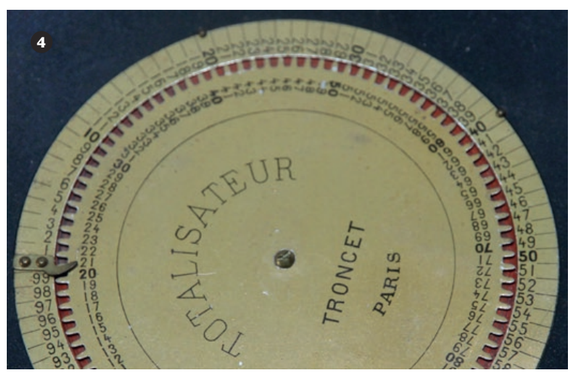
France, 1895

A simple dial adder. Unlike Arithmograph Troncet (1889) it did not support carry enforcement. Because of this, and its size, it never became popular.

WS-48







FOXY GRANDPA'S MULTIPLIER

US, 1904

Foxy Grandpa was a comic strip created by cartoonist Carl E. Schultze. This simple tin reckoner was an advertising for a shoe company.

"*The strip revolved around Foxy Grandpa, an elderly gentleman, with two mischievous grandsons (Club and Bunt) who constantly try to trick him. Foxy Grandpa, however, always managed to get the better of the two boys, combiing brains with a perverse sense of humor, while demonstrating skills at acrobatics, illustration and construction of various small devices.*" (Wikipedia)

WS-186

HIGHLIGHTS

****

1 ARITHMOGRAPHE TRONCET with integrated with a Genaille

France, 1907

Arithmographe Troncet (addiator) integrated with a Genaille multiplying device. It is an unusual variety of Genaille multiplication device (189?). Only one known.

WS-150

*****

2 ARITHMOGRAPHE TRONCET pour les quatre operations; Le Calcul Instantane

France, 1889

Arithmographe Troncet (addiator). Troncet popularized addiators invented 40 years earlier by Kummer. Addiators were cheap, easily portable and allowed to add and subtract. Several different companies manufactured them. Addiators became the most popular "personal" adding devices. They were manufactured till 1970's. At the end of their lifetime hexadecimal and octal versions were used to debug computers..

WS-149

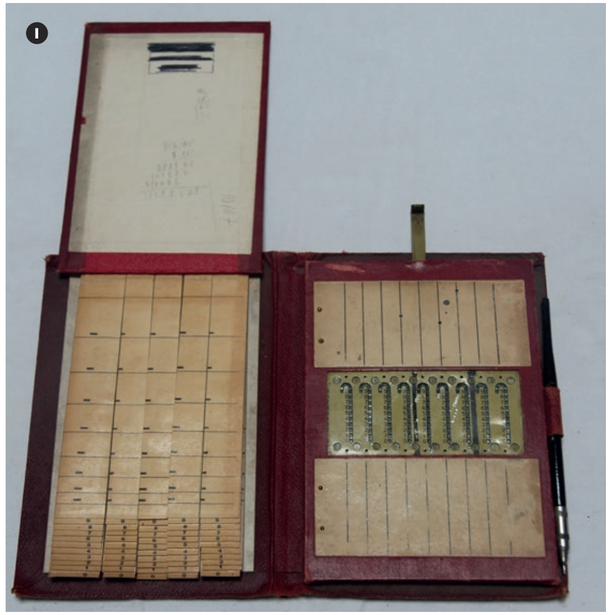
****

3 ARITHMOGRAPHE TRONCET with Napier

France, 1907

Arithmographe Troncet an integrated with Napier multiplication device.

WS-151



**

4 DILWORTH

US, 1906

Dilworth adder, the first US addiator. Dilworth adder did not support Kummer/Troncet carry enforcement. Device indicated that carry needs to be added and user needed to add 1 on the next decimal position manually.
Only one is known.

WS-758

**

5 HEXADAT AND OCTADAT

Germany, 1967 and 1968

Devices for debugging computer programs – for calculations in hexadecimal (Hexadat, 1967) and octal (Octadat, 1968) arithmetic. They were both made by Addiator in Germany. Earliest device was a rotary IBM Hexadecimal Adder (US, 1962). Hex Adder was introduced by Hexco Inc in US in 1968.

WS-153

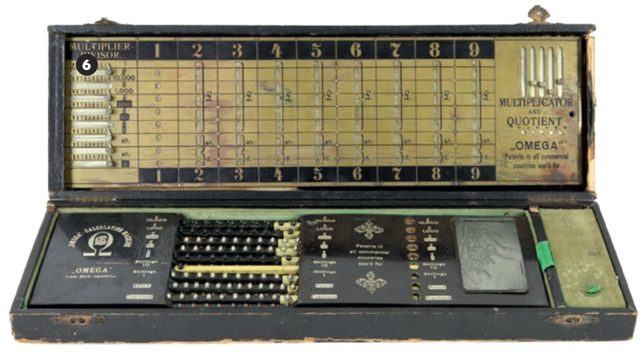
****

6 OMEGA BAMBERGER

Germany, 1905

Combined adder with Napier multiplying device. This device supports "Napier" multiplication for British currency. The only known Napier device to support British currency. The only one known to exist.

WS-749



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1 DUX IV

Denmark, 1910

Band adder with totalizator. Very rare. Based on the same calculating principle as Gem adders (US, 1904).

WS-20

2 PITAGORA-900

Italy, 1920s

Multiplication device for single digits. Just a beautiful, simple design.

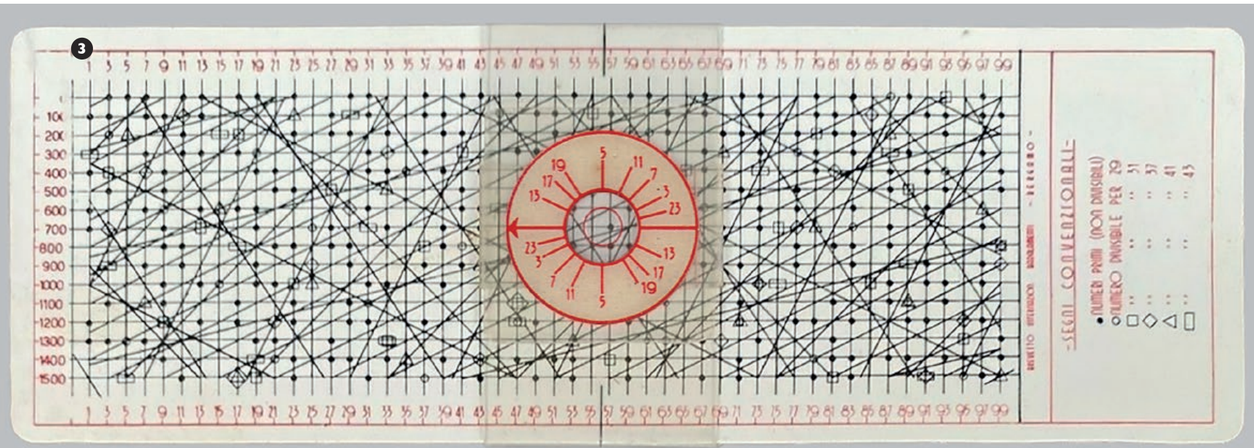
WS-200

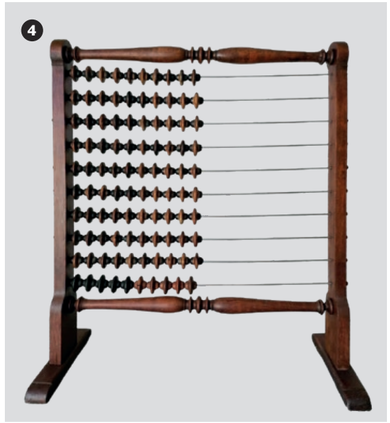
3 BADALAMENTI

Italy, 1958

Badalamenti Factorization Rule. Allows to find prime factors of numbers. Badalamenti won gold medal at the XI international salon of inventions at Brussels in 1962. Very rare and unique type of device.

WS-747





4 DEMONSTRATION SCHOOL ABACUS

Germany, XIX century

Demonstration school abacus.

WS-746

5 COMMONWEALTH ADDING MACHINE

US, 1915

Commonwealth Adding Machine. Very rare, manufactured only for a very short time.

WS-658

6 MUTLIREX-MULTOR

Austria, beginning of XX century

Multirex-Multor multi-digit multiplying device. "This little magic device shouldn't be missing from any pocket or intellectual's desk. "Multirex" protects the nerves, saves 50% time and allows to eliminate any human brain error, especially in mental arithmetic". Very rare, unusual, and very complex to use :).

WS-770

*

7 QUIXSUM

Providence, RI, USA, 1924

Very rare fractions' adder for feet, inches and fractions of the inches. Made in Providence RI, where we used to live.

WS-105

HIGHLIGHTS

*

1 VON-FUNKE

Germany, 1945+

Von Funke adding device. Very interesting and different method of calculation. Josef von Funke, in 1925, designed a device that was enforcing carry based on the geometrical principle. For each number added, a corresponding proportional "part" of a carry is "added".

WS-752

2 MECHANICAL ACCOUNT

Providence, RI, USA, 1900

The devices made in Providence were Mechanical Account (1900) Created by Joseph Turck and a little shopping device. In 1911 Turck joined Felt&Tarrant (Comptometer) where he became a chief designer. Turck also published "Origin of Modern Calculating Machines" (1921).

WS-264

3 UNITAS

Germany, 1907

This arithmometer is equipped with a totalizator, a register to keep results of several calculations. Devices with totalizator were rarer as they added complexity and increased the price. Other machines with totalizators in the collection are: Millionaire (Switzerland, 1918), Todd Visible Adding Machine (US, 1926), Brunsviga Trinks MG prototype (German, 1926), Comptometer ST (Super Totalizator) (US, 1928), DUX.IV (Denmark, 1910). Unitas was manufactured by Ludwig Spitz, same company that made Multirex in Austria.

WS-228

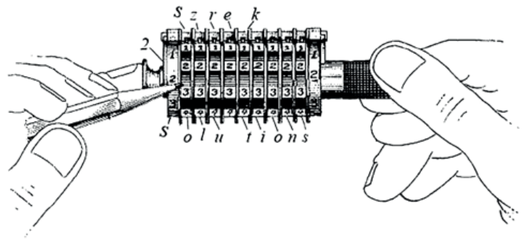
*

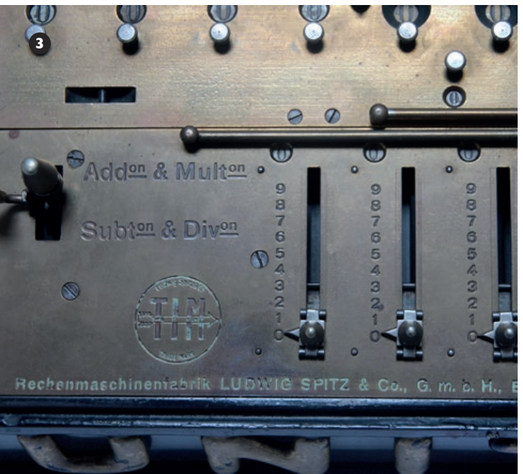
4 MIDGET

US, 1910

Midget Adding Machine. Small US device for adding only. Few machines were manufactured.
Drawing by Piotr Kaczmarek, was used on the company business card of Szrek2Solutions LLC.

WS-49





HIGHLIGHTS

1 SPECIAL PURPOSE FACTORIZATION DEVICE

US, 1836

Special purpose factorization device (1836) The device shows factors of the numbers. It is not clear the device's use, as not all numbers' factors are present. Only one known.

WS-718

*****

2 PROTOTYPE FRACTION ADDER

US, XIX century

Protoype fraction adder. The actual adder was never manufactured.

WS-620

*****

3 FOSSA MANCINI

Italy, 1896

Fossa-Mancini Somatrice Automatica. The first Italian adding machine manufactured in a small quantity. Precursor of many machines of the same type.

WS-203

****

4 YOUNG

US, 1851

Interest calculating device. Samuel Young patented three simple and similar calculating devices (1849, 1851 and 1858). Smithsonian Institution owns patent models for 1849 and 1851 devices. Except patent models owned by Smithsonian Institution, this is the only known example of Young's calculating devices.

WS-144

*****

5 HATFIELD

US, 1854

Hatfield adder. Aaron Hatfield invented the first (US) rotary adder commercially sold. Only a small number of these devices survived.

WS-43

*

7 CYCLONE

US, 1897

Cyclone Adding Machine. A unique adding machine. Only one known to exist. It is very nice, big, heavy and a bit cumbersome to use.

WS-44

****

6 HART

US, 1878

Hart's Mercantile Computing Machine adder.

WS-45

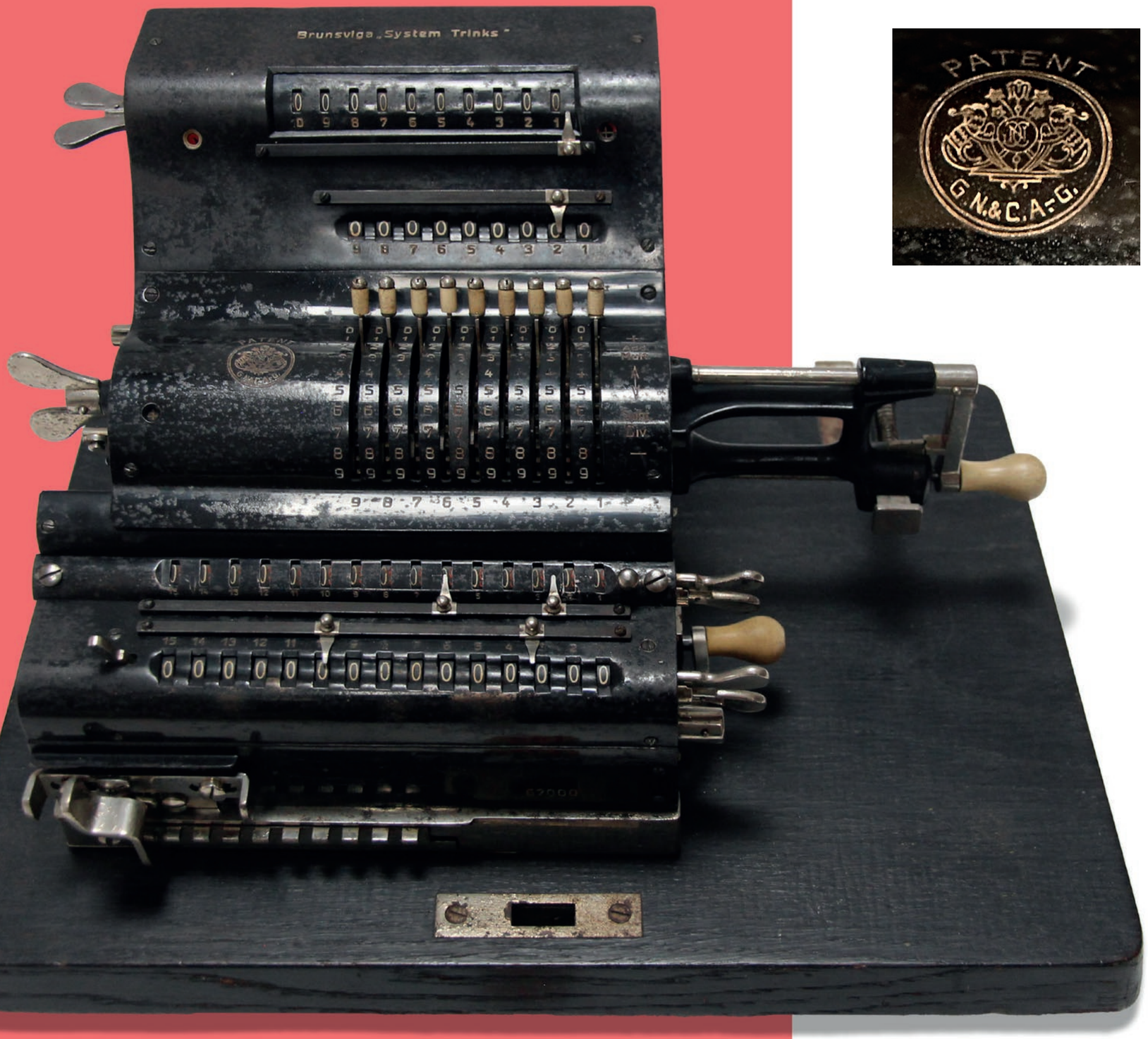
**

8 SIBLEY

US, 1930

Sibley's set of "attached together" slide rules to create a graph of results of multiple operations. (~1930). Elbridge Sibley was a statistician. He designed this slide rule for his own needs, to be able to estimate calculations' results. User makes all the desired operations on slide rules, then covers the device with a transparent graph paper and "draws" a graph of results. Device was owned previously by Elbridge Sibley. Only one known.

WS-698



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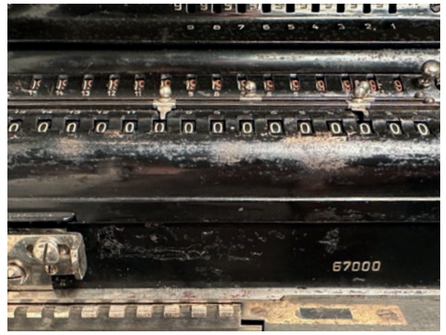
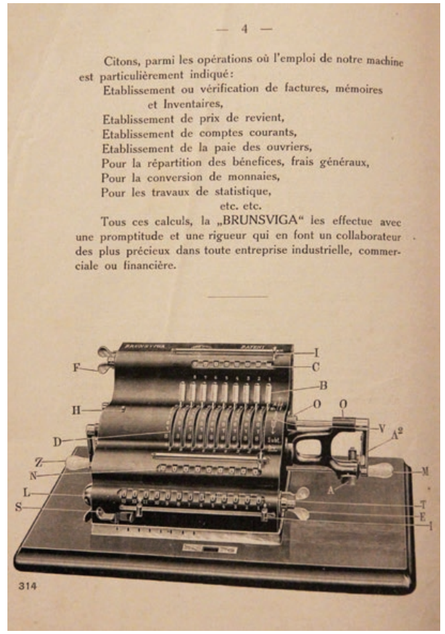
BRUNSVIGA TRINKS

Germany, 1924

Brunsviga Trinks MG prototype with totalizator (1924). Brunsviga made 6 different prototypes of model MG. None went into production. Only two (different) prototypes survived. This machine is listed in Brunsviga collection catalogue.

WS-363





— 4 —

Citons, parmi les opérations où l'emploi de notre machine est particulièrement indiqué:

Etablissement ou vérification de factures, mémoires et Inventaires,
Etablissement de prix de revient,
Etablissement de comptes courants,
Etablissement de la paie des ouvriers,
Pour la répartition des bénefices, frais généraux,
Pour la conversion de monnaies,
Pour les travaux de statistique,
etc. etc.

Tous ces calculs, la „BRUNSVIGA" les effectue avec une promptitude et une rigueur qui en font un collaborateur des plus précieux dans toute entreprise industrielle, commerciale ou financière.

*****

1 FRENCH ADDING MACHINE PROTOTYPE

France, mid XIX century

French adding machine prototype mid XIX C. This device was in Malassis collection. This device is attributed to Roth.

WS-42

*****

2 BALDWIN

US, 1873

Baldwin's patent model for Lumber measurer (1873).
Up to 1880 Patent Office required that with every patent submission a patent model must be provided. This patent model is for Baldwin's lumber measurer, *"a machine which automatically measured and recorded four different kinds of lumber at the same time. This device set me thinking about computing machines…"* (Baldwin Interview 1919).
Frank Baldwin was one of the creators of US calculating industry. See Baldwin Arithmometer.

WS-713

***

3 GORDON

US, 1878

Gordon's Adding Machine. Very rare adder.
A few are known to exist.

WS-85

**

4 BILL

US, 1878

Bill's Patent model for Adding Machine.

WS-714

**

5 UNKNOWN

US, 1850s

Unknown device (adder). This is, I think, a patent model.

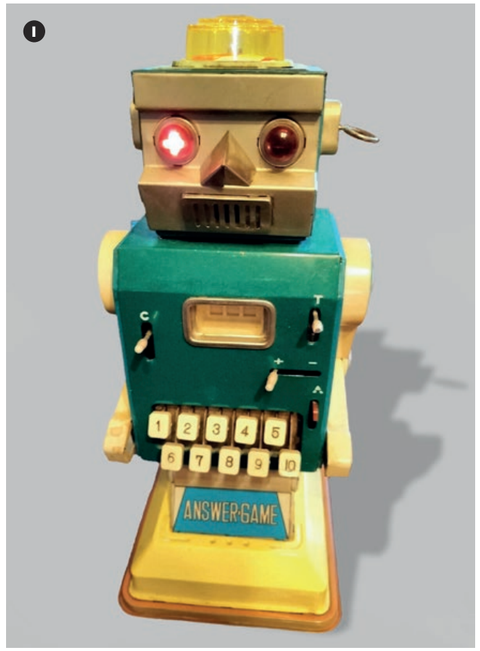
WS-184

1 ANSWER GAME MACHINE

Japan, 1962

The Answer Game Machine. The battery-operated robot was made by Ichida, a Japanese toy robots' manufacturer in 1962. Very rare.

WS-778



**

2 GALTON BOARD

Germany, „before 1932"

Very rare Galton Board. Galton Boards (also called QUINCUNX) are not used for adding or any other calculations. They demonstrate distribution of independent random events. Galton Boards are manufactured since the end of the XIX C or beginning of XX C.
This device is from "before 1932", the repair date on the back. Galton boards in Wikipedia: The Galton board consists of a vertical board with interleaved rows of pegs. Beads are dropped from the top and, when the device is level, bounce either left or right as they hit the pegs. Eventually they are collected into bins at the bottom, where the height of bead columns accumulated in the bins approximate a bell curve.

WS-779

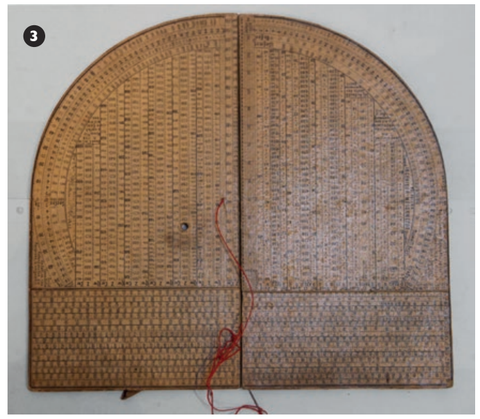
***

3 MATHEMATISCHE BREFTASCHE

Germany, 1860

Matematicsche Brieftasche
mit Ingenieur-Messknecht. A book with an interesting device for land surveying.

WS-719



*****

4 MACHINE À LIRE

France, 1923

Jallais's "Machine à lire" (France, 1923). Machine designed to teach children to read. Umberto Eco wrote that this was one of the most amazing devices he ever saw.

WS-731

*****

5 LE TRANSPOSITEUR

France, 1912

Le Transpositeur à permutation secrètes georges lugagne, pocket encrypting/decrypting device by Georges Lugagne.

WS-197

*****

6 LE SPHINX

France, 1930

French cryptographic device. An improved mechanical version of the "transpositeur" by Paul Godillon.

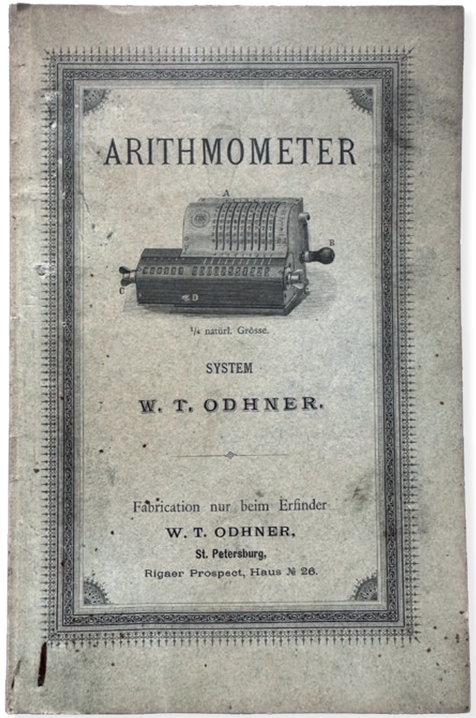
WS-196

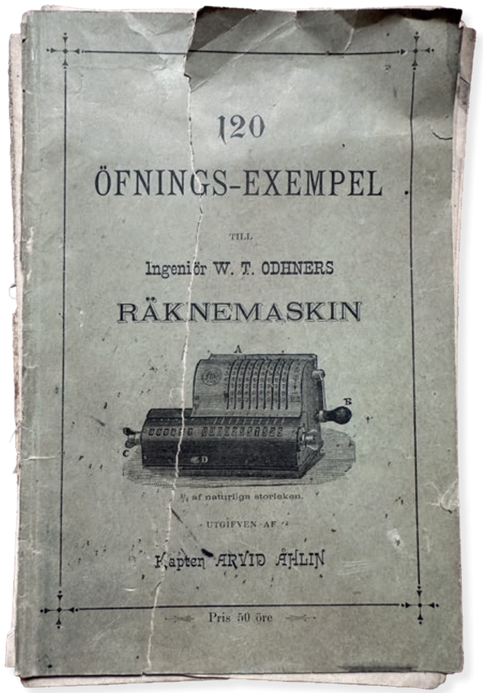
7 MAUREL ALARM CLOCK

France, 1850s

Timoleon Maurel was a French clockmaker who designed Arithmaurel calculating machine. His machine won a gold medal in 1849 French Exhibition.

WS-737





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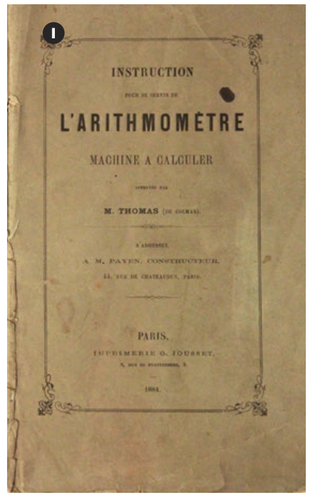
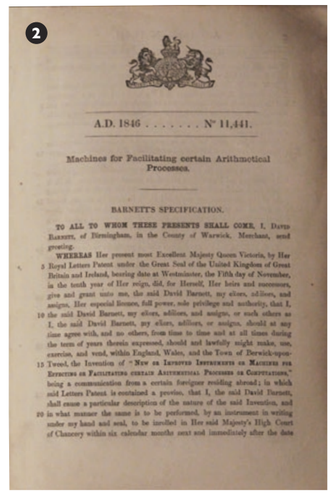
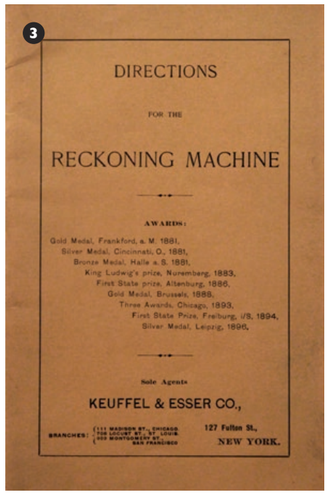
ODHNERS ARITHMOMETER INSTRUCTIONS

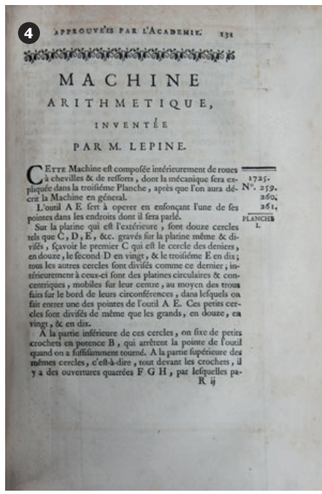
Germany, Russia, 1891

First Odhner Arithmometer's instructions in German and Russian (1890) and a Swedish booklet (1891) with sample usage for Odhner Arithmometer. These operating instructions are very rare. Use examples are extremely rare.









*****

1 1854 INSTRUCTIONS

France, 1854

1854 instructions for operating Thomas Arithmometer

*****

2 SLONIMSKI PATENT

UK, 1846

Slonimski's UK patent for his adding and multiplying devices (1846). Slonimski sold UK and US patent rights for his devices to David Barnett and Samuel J. Neustadt from Birmingham, GB. They patented his adder and multiplying device to get exclusive rights to make them. They never manufactured them.

*****

3 K&E 1896 INSTRUCTIONS

US, 1896

K&E instructions for operating Burkhardt Arithmometer

*****

4 GALLON'S MACHINES

France, 1735

Lepine's invention from Gallon's "Machines et Inventions Approuvee…", complete 6+1 volumes (1735). The books are a compilation of French inventions from 1650 till 1768. With each invention description there are also beautiful engravings illustrating these inventions.

*****

1 THOMAS DE COLMAR PATENT

France, 1820

Thomas de Colmar original 1820 patent for his arithmometer in "Description des Machines et Procedes…" (1828). These are patent specifications for Thomas de Colmar's first patent.

*****

2 LEUPOLD'S "THEATRUM ARITHMETICO GEOMETRICUM"

Germany, 1762

Leupold's "Theatrum Arithmetico Geometricum" (printed in 1762). The best book on calculation published in XVIII C. Between 1724 and 1739 Jacob Leupold published "Theatrum Machinarium" – an encyclopedia of technology in ten volumes. This is the eighth volume. Engravings of calculating instruments, machines and surveying devices, including those of Schott, Grillet, Leibniz, Poleni, and Leupold himself.

*****

3 RADDOLOGIA

Italy, 1623

"Raddologia" by Napier. Book introduces Napier's bones and it includes Arimmetica Locale, treatise on Binary arithmetic. First Italian edition (1623).

*****

4 SCHREIBMASCHINE AND RECHENMASCHINEN

Germany, 1925

Ernst Martin's "Schreibmaschine" (1920) and "Rechenmaschinen" (1925).
Rechenmaschinen is regarded "The Bible" for calculating devices collectors. To illustrate and add value to this book Hebert Schneemann and myself created a website www.rechenmaschinen-illustrated.com.

****

5 THE BUSINESS MACHINES AND EQUIPMENT DIGEST

US, 1927

1927 edition of "The Business Machines and Equipment Digest" by Equipment Research Corporation. Very rich and interesting compendium of different office machines and devices.

****

6 CATALAGUE OF CNAM COLLECTION OF CALCULATING INSTRUMENTS

France, 1906

Catalogue of CNAM Collection of calculating instruments etc.

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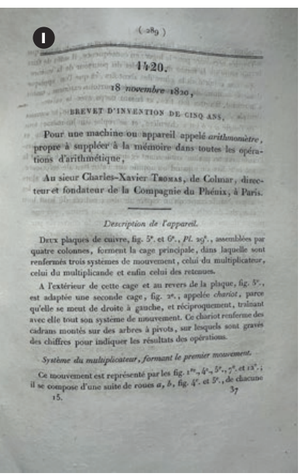
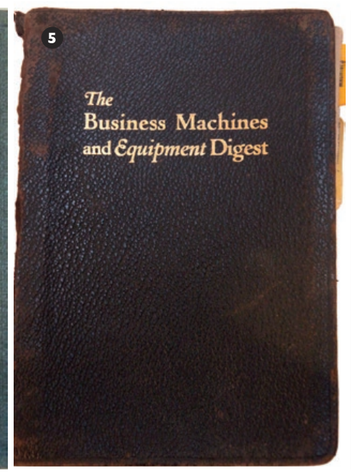
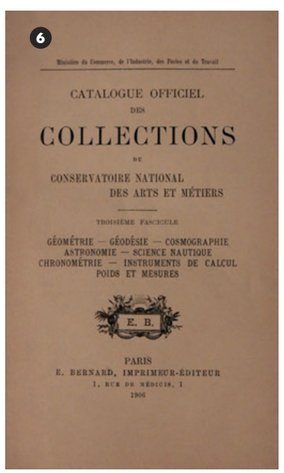
7 CATALOGUE OF THE COLLECTION IN THE SCIENCE MUSEUM

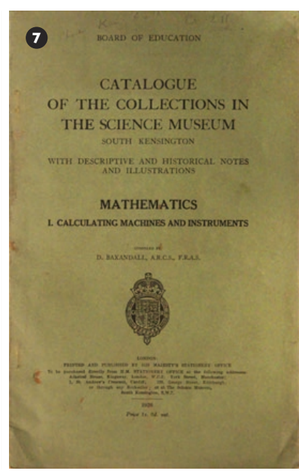
United Kingdom, 1926

"Catalogue of the Collection in the Science Museum", "Calculating Machines and Instruments", Baxandall.







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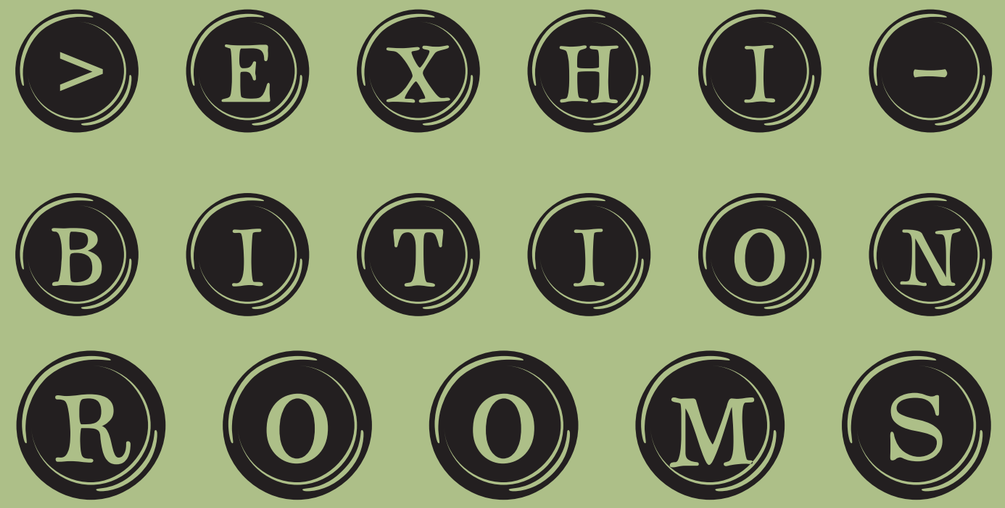

>EXHI-
BITION
ROOMS

Note:

devices are grouped in exhibition rooms (categories). Some devices may belong to more than one room. The choice of room was arbitrary. In a room similar looking devices might be represented by a single picture. All devices' details are in CATALOG DETAILS.

EXHIBITION ROOMS

CHAIN ADDERS
ROTARY ADDING MACHINES
ROTARY MANUAL CARRY
WEBB ADDERS
CONCENTRIC ADDERS
VERIFICATION
PENCILS AND PENS
DRUM PENCIL BOXES
FRACTION ADDERS
SLONIMSKI ADDERS
HEXADECIMAL AND OCTAL ARITHMETIC
COLUMN ADDERS
SIMPLE ADDERS
ABACUS
TRONCET / KUMMER TYPE
EDUCATIONAL DEVICES
NAPIER, SLONIMSKI, GENAILLE, ROTH
- Napier
- Roth
- Slonimski Multipliers
- Genaille-Lucas
- Multirex-Multor

READY RECKONERS
ADDING MACHINES – PARALLEL WHEELS
KEYBOARD ADDING MACHINES
- Comptometers
- Miscellaneous Keyboard Machines

MISCELLANOUS ADDERS
STEP DRUM MACHINES
- Thomas de Colmar
- British
- Swiss
- German
- Curta
- Brunsviga-10, Monroe
- Mercedes

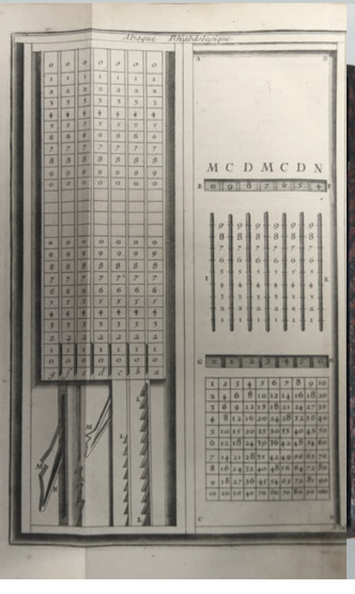
PINWHEEL MACHINES
- Russian Odhners
- Soviet Odhners
- Other Soviet Odhner Type Machines
- Swedish Odhners
- Facit
- Poland
- Hungarian Odhner Type – Preciosa
- Japan
- UK
- Czechoslovakia
- US
- France
- German Pinwheel Machines
- Brunsviga Germany
- Triumphator
- Thales

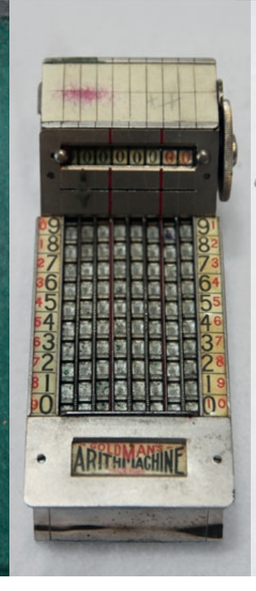
SECTORS
SLIDE RULES
WATCHES
PATENT MODELS
CRYPTOGRAPHIC DEVICES
MISCELLANEOUS

EXHIBITION ROOMS

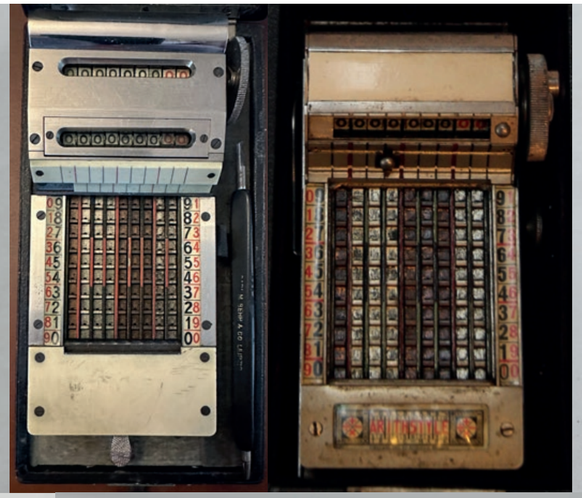
CHAIN ADDERS

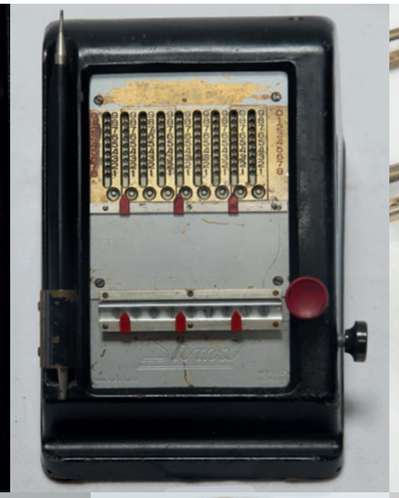
These devices use a band/chain (like Diakov, Triumph, Gems), spiral (like Cheape), or a set of slide bars that could be moved vertically to indicate numbers added (Landing, Arithmachine, Rapid Computer, …). These devices usually support addition and subtraction. For subtraction a complement's method is used. Diakov, a big square device below, was the first device of this type. It won a Gold Medal in Paris World Exhibition in 1878. Landin (1891) was the first slide bar machine; Arithmachine (1899). They inspired several manufacturers to provide machines working on the same principle. Historical devices: Diakov (one known, 1878), Landin (one known, 1891), Arithmachine (few known, 1899). Very rare: Contostyle (first manufactured, 1906), Argos (1913), Behr/Greif (1908), Cheape (1917), Surot (1920), Addo (1919), Triumph (1910), some Gem adders (1904), Dux (1910), Bassett (1910). Engraving of Perrault's adder is from Gallon's "Machines et Inventions Approuvee" (1735).

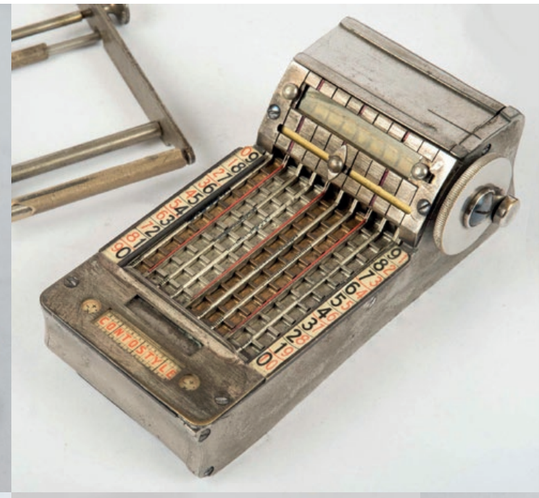


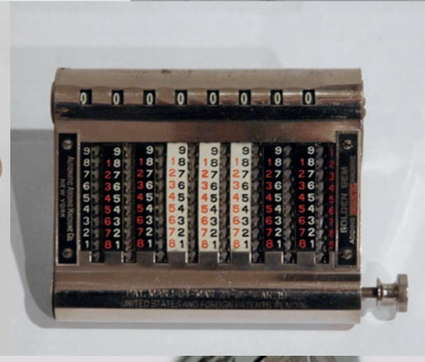


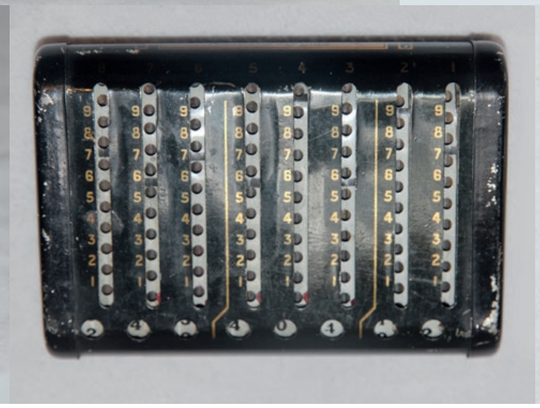
EXHIBITION ROOMS

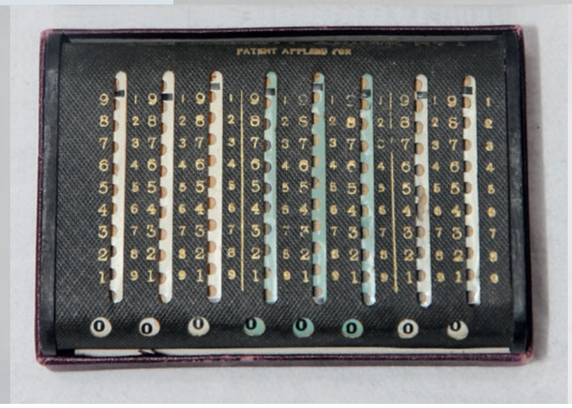








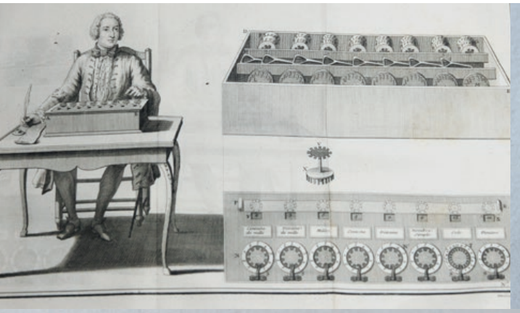


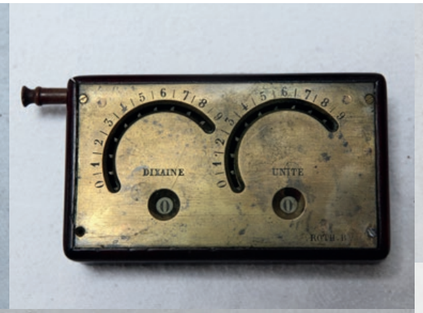


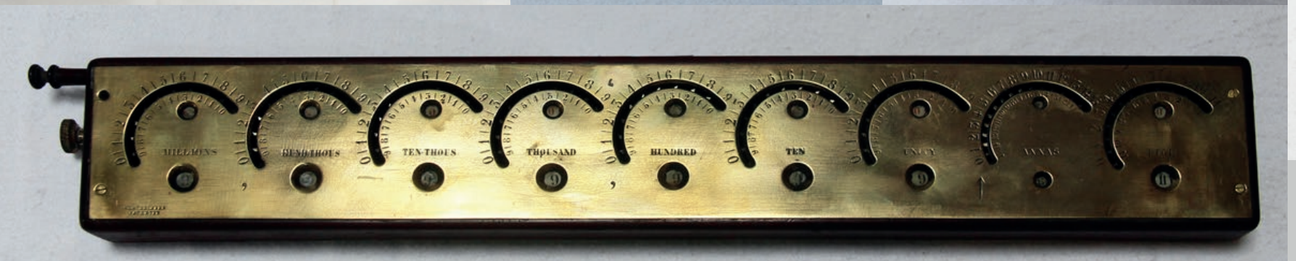
EXHIBITION ROOMS

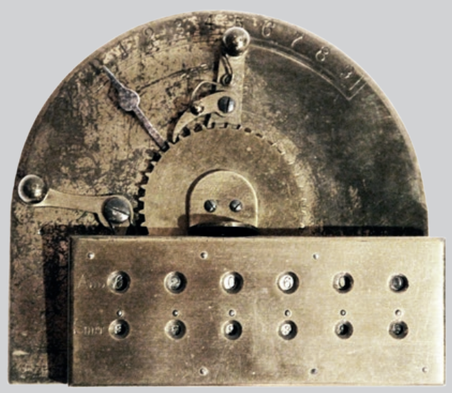
ROTARY ADDING MACHINES

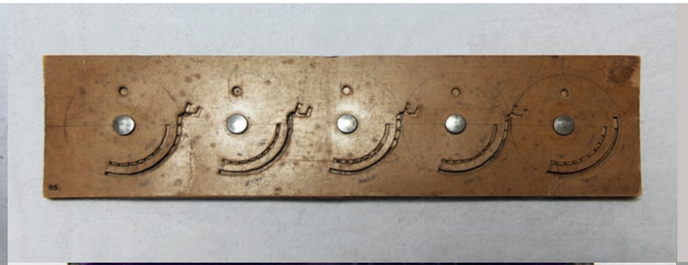
First adding machines were invented by Schickard (1623) and Pascal (1642). The main ingeniousness of their invention was how to input the numbers (for addition). These devices usually support addition and subtraction. Subtraction is either by a complement's method or, on several machines, by moving wheels in a reverse direction. Roth invented a few different calculating devices (in this collection: 3 machines below (1842) and a reproduction of multiplication device). Roth introduced the first relatively cheap and successful rotary adding machine. Baldwin Arithmometer (1874) is the first calculating machine introduced by one of the fathers of calculating machines industry in US. The Bonham & Schram adder design was repeated by several successful manufacturers. Historical and very rare: Roth (three adders, 1842), Baldwin Arithmometer (1874), Bonham & Schram (1905). Very rare: mid XIX C Roth adding machine prototype (attributed to Roth), Groesbeck (1870), Cordingley's Comptometer (1890), Compteur Lafond (1899), Universal Recorders (cash register or rather a huge adder (1932)), Midget Adding Machine (1910), Conto A (1912), B and C, Bonham & Schram (1905) – very rare predecessor of many successful rotary adding devices, Tellad (1958) shopping cart adder (unique) with original grocery advertisements, Gypsy Hosiery Adding Machine (advertising hosiery early XX C), O.J. Adder (1950) – very interesting British Money adder, Baum (1913), 5 digit Calcumeter (1901). Stephenson (1873) type adders are rare except of original model, Yale and Mindling which are very rare. Similar Belator, Mon Ami and Mein Freund are also very rare. Pascal's engraving is from Gallon's "Machines et Inventions Approuvee" (1735).

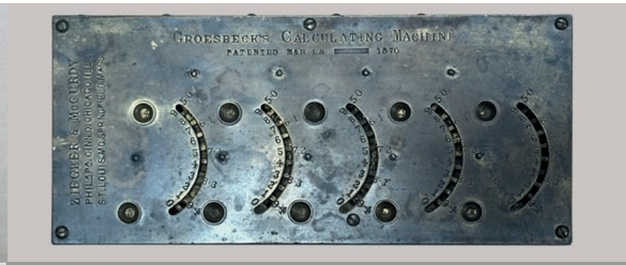












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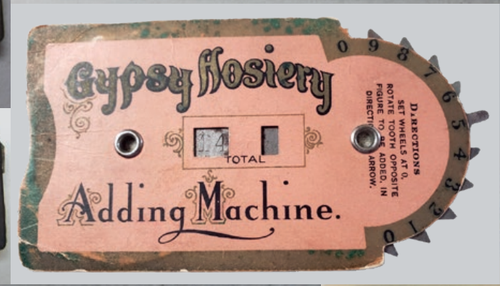
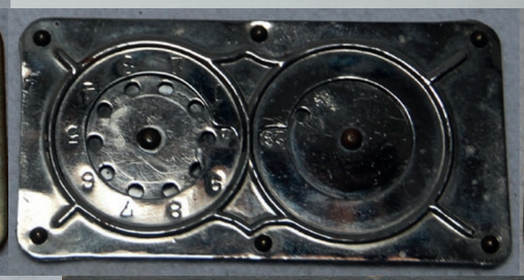
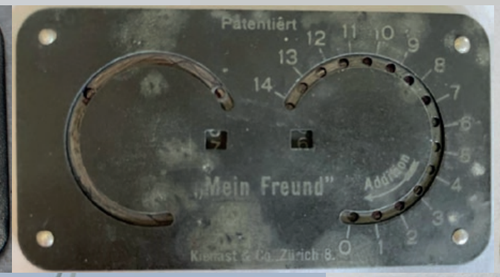
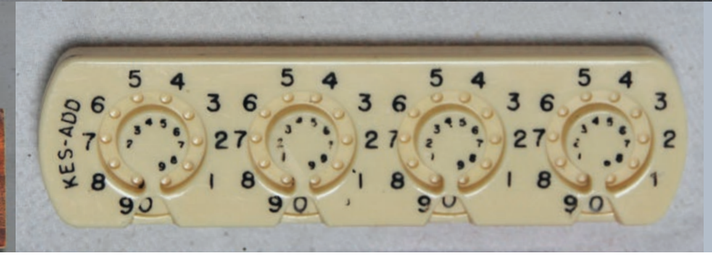




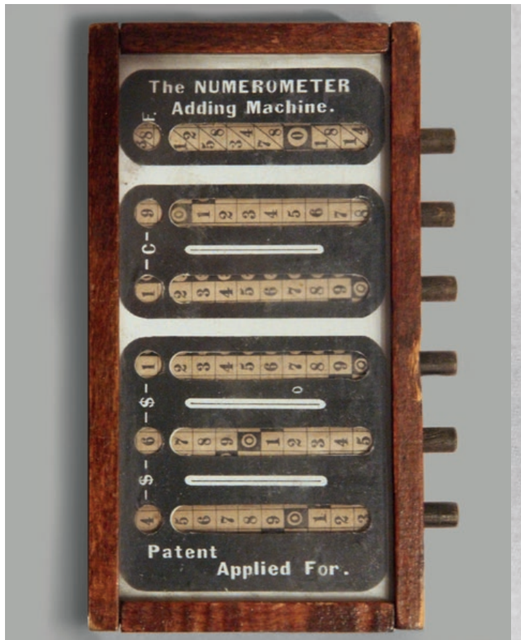


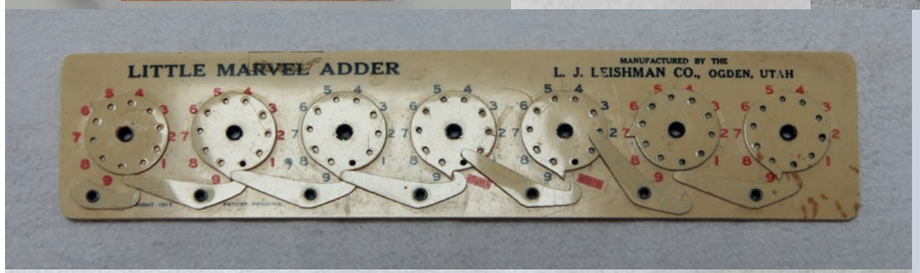


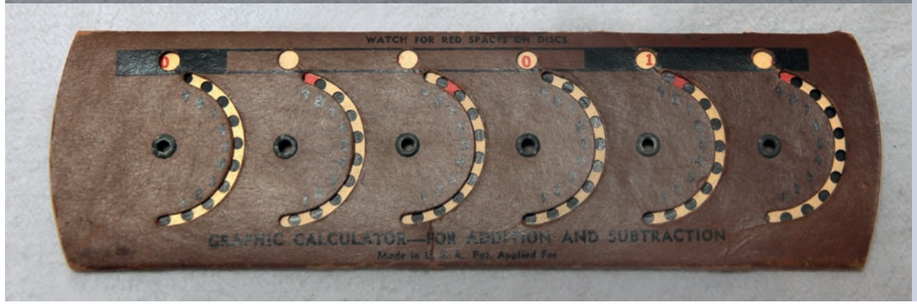
EXHIBITION ROOMS

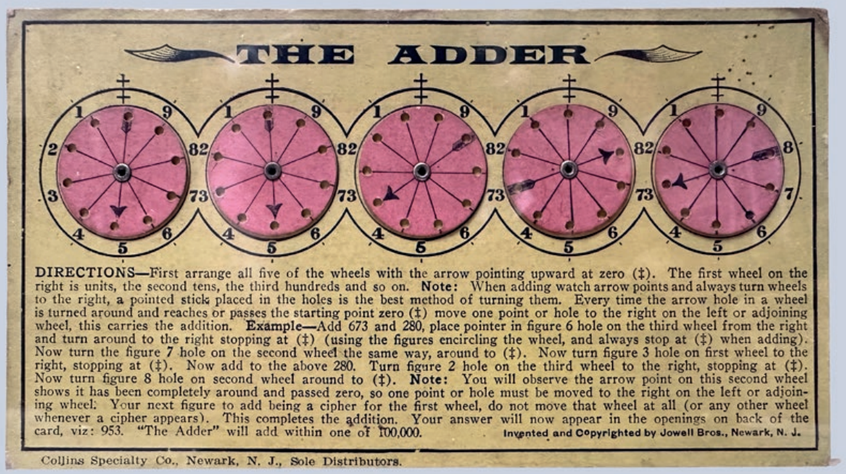
ROTARY MANUAL CARRY

These devices were used for addition and subtraction. They did not enforce carry mechanically but indicated carry should be added manually on the next decimal position. They were impractical. Numerometer (1885) is most likely unique. Other devices are rare or very rare: Totalisateur Troncet (1895), Sebastian (1898 and 1904), British Money Adder (1890?), Little Marvel Adder (1917), Matson (1949) – a very rare device with a unique way of enforcing the carry. These devices always support addition and quite often subtraction. Subtraction is either by a complement's method or, on some devices, by turning in a reverse direction.





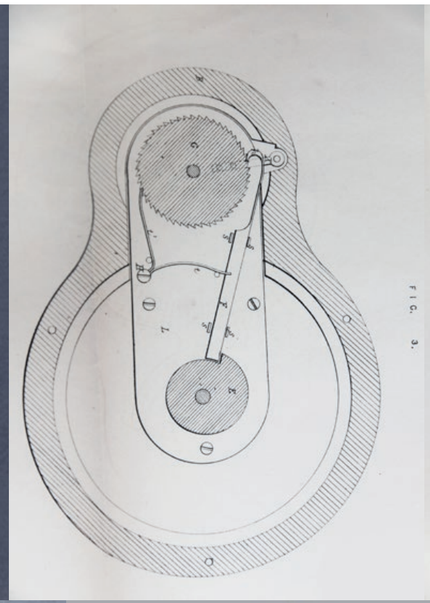


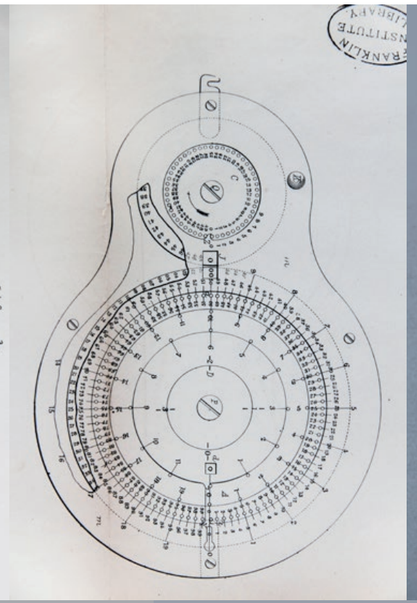


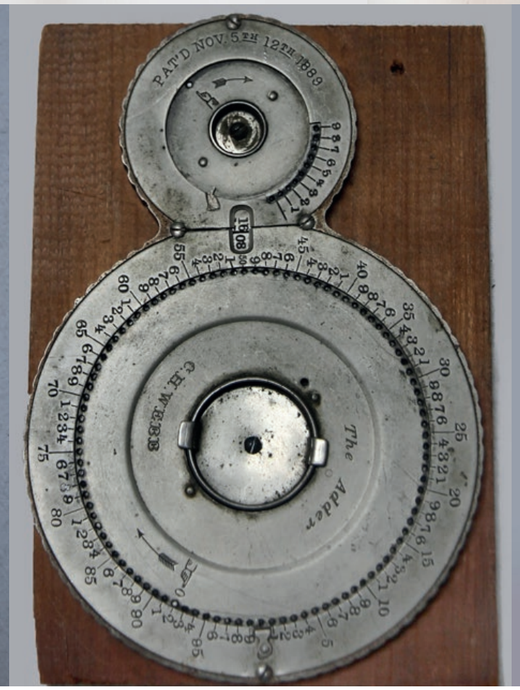
EXHIBITION ROOMS

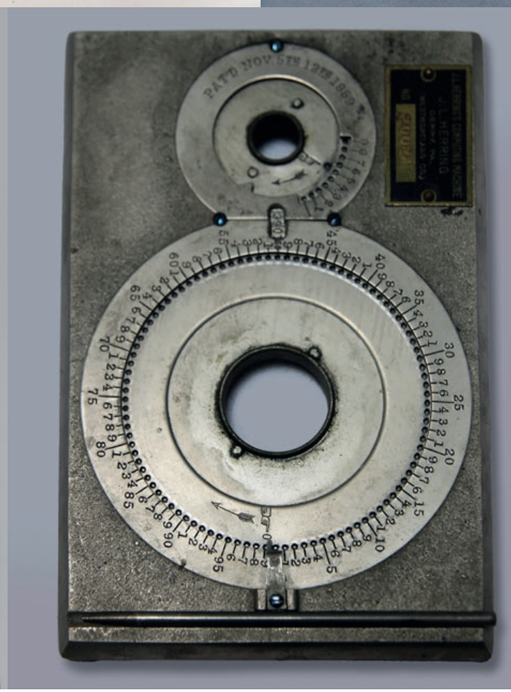
WEBB ADDERS

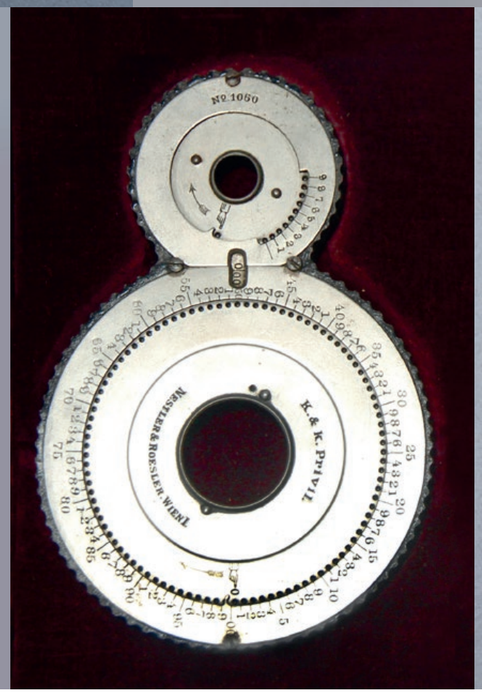
Very interesting adders invented by Charles Webb (1868). Very rare or unique adders: very early 1889 Webb Adder without middle hole (unique), Nestler & Roestler, Herring adders, 1868 patent Webb Adders. Other adders are rare. Engraving is from Webb's 1868 British patent.

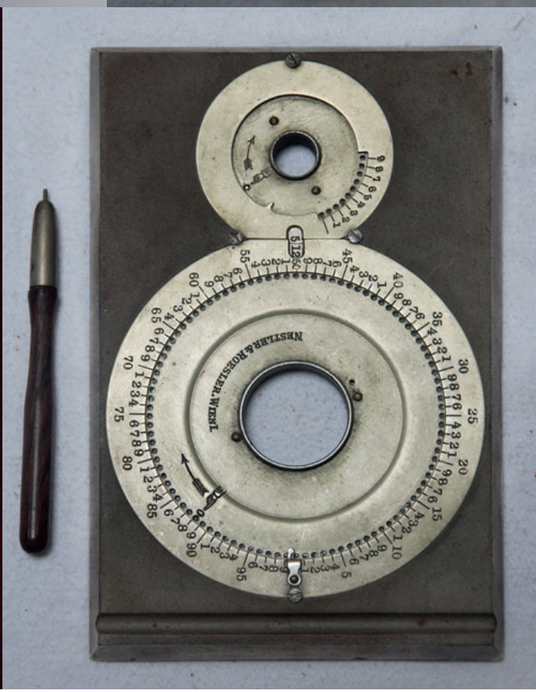








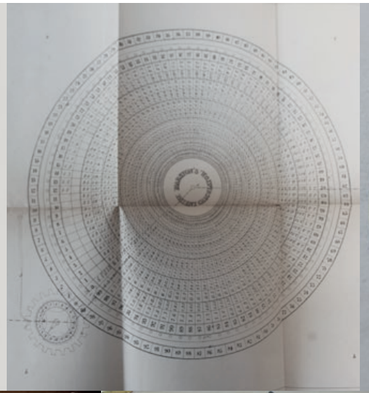




EXHIBITION ROOMS

CONCENTRIC ADDERS

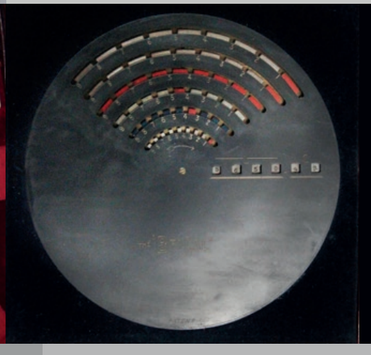
These devices usually do not require adding manually carry. To show correct results of addition they either mechanically enforce carry or, like von Funke and IFAC, "generate" carry using geometric principia. Hatfield (1854) is a historical device. It is the first American adder sold commercially. Unique or very rare adders: Hatfield (1854), Hart Mercantile Computing Machine (1878), Gordon (1878), Cyclone Adding Machine (1897), Beacourt (column adder), big duplex adder (unique), Von Funke, IFACH, Brical "C" (it is not a concentric adder, included here because of other Bricals), (big) Brical decimal adder, Brical, supporting operations up to £22,000, Gais Calculs, advertising Ezy-Tab. Rare Adders: Adal, Optima, BriCal for compound addition. Engraving is from 1842 Marston's British patent.

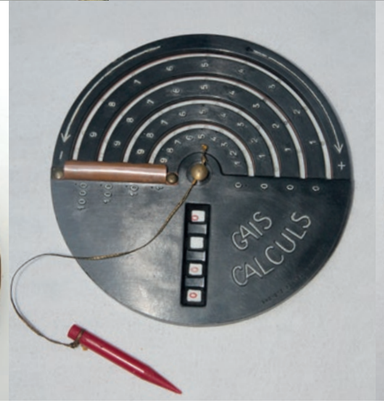


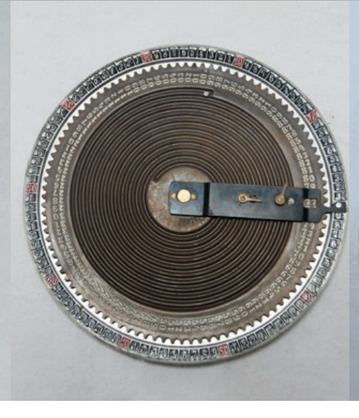












VERIFICATION

These devices were used for verification of numbers or calculation results. Unique or very rare: verifier of divisibility by 11 (Kontroler Delitelnosti 11, identity cards number's verification in Czechoslovakia), Prewett Addograph was used for verification of addition. Early model of Prewett Addorgraf is most likely unique.

PENCILS AND PENS

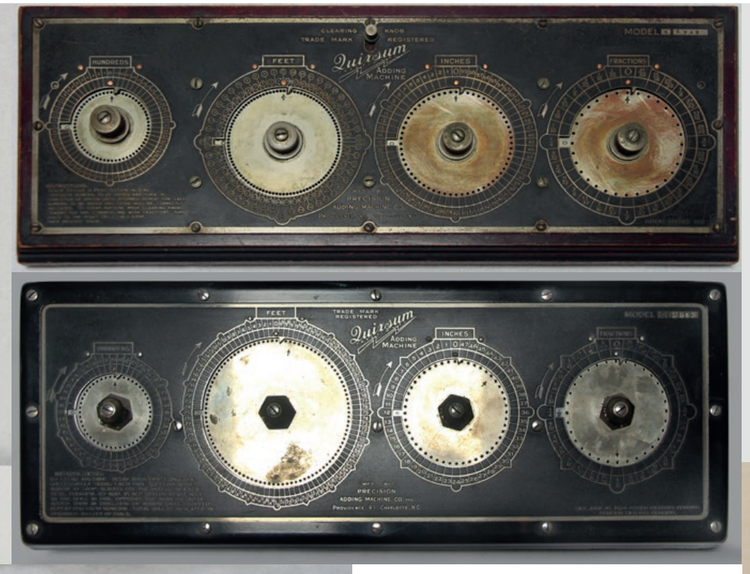
Pens and pencils were often used as multi-use devices. For calculation they can be combined with adding device, multiplication table, slide rule or electronic calculator. Chicago recording scale is a multiplication device/reckoner that could be mounted on any pencil. Very rare: Houk and Adding Pencil Company (1925-1929), Chicago recording scale (1905). Rare: Calcupen. Makeba Kombinator, and Ruxton Multi-Vider rare (?).

DRUM PENCIL BOXES

Some pencil boxes had built-in multiplication table. Very rare: Cemadeni Russian pencil box (1890?). Space ship (1960?) is rare / very rare.

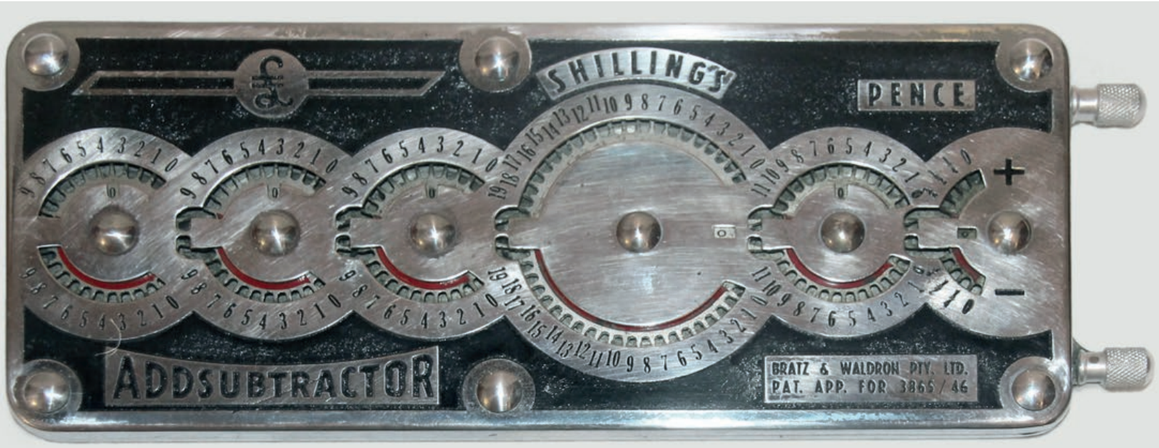
FRACTION ADDERS

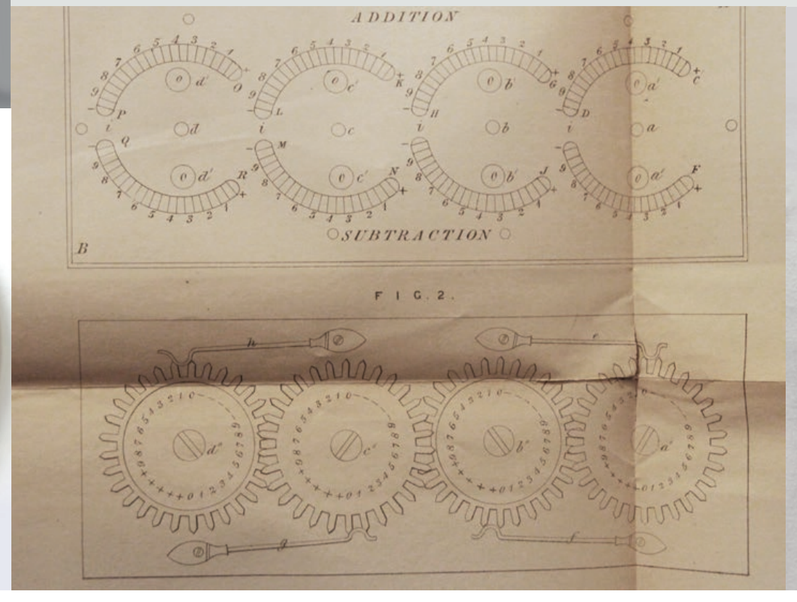
Fraction adders were used for calculations of fractions that were not in decimal systems (base 10). E.g. yards, feet, inches and fraction of the inches. Unique: XIX C fraction adder (patent model?). Very rare: Quixsum model B and Elemato Dimension Adder. Some fraction adders, e.g., non-decimal currency calculators, can be found in other rooms.



SLONIMSKI ADDERS

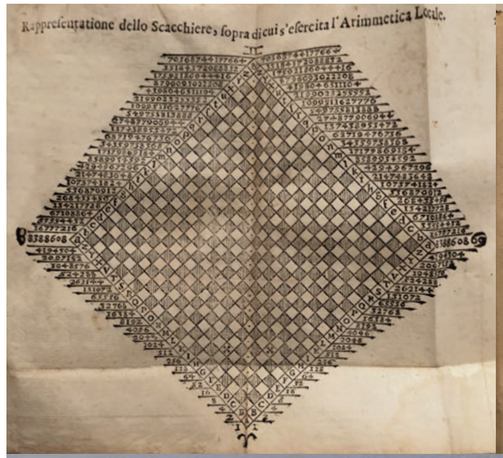
Slonimski invented a rotary adding device indicating carry and allowing to enforce carry on the next position. Support for both adding and subtraction. Based on his idea for adding device with circular wheels, Kummer (Heinrich Kummer – Computer Timeline (computer-timeline.com)) invented much simpler and practical Addiator by replacing wheels with a sliding bar and a "hook" to enforce carry. Troncet commercialized Kummer's idea. There are only a few devices based on the original Slonimski's idea. Addsubtractor (1946) and Bair-Fulton (1928) are very rare. Engraving is from Slonimski's adding device's British patent (Barnett (1847)).

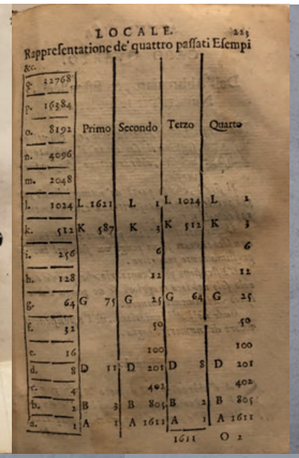


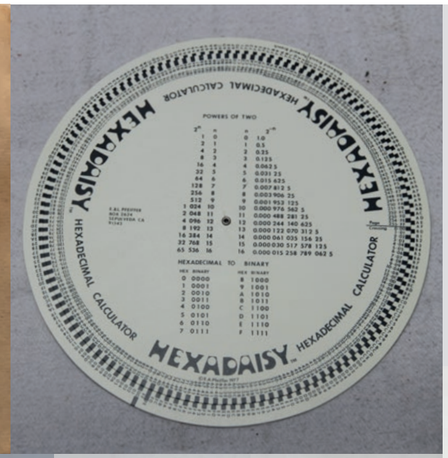


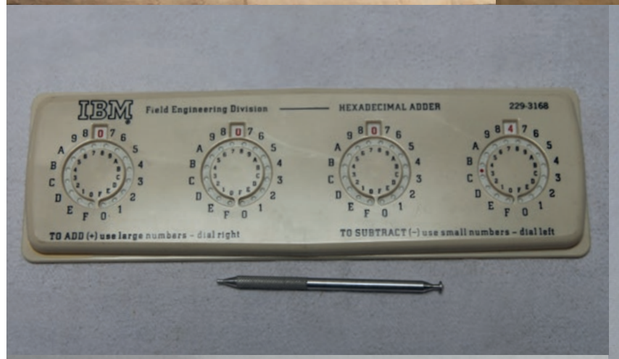
HEXADECIMAL AND OCTAL ARITHMETIC

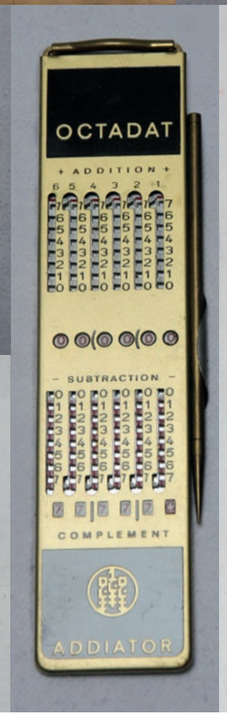
During early development of computers mechanical calculators with Octal and Hexadecimal arithmetic were used as help for debugging. Support for addition and subtraction. All these devices are rare. Holiac (1963) below is a unique device emulating computer's (arithmometer) operation. Arimmetica Locale (binary arithmetic treatise) "Engravings" are from Napier's Raddologia (1623).

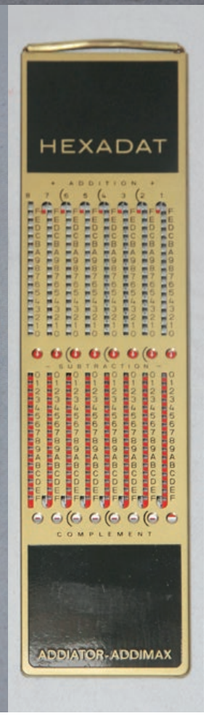


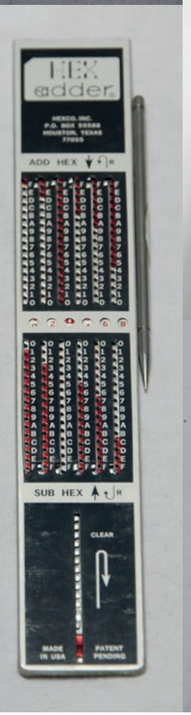






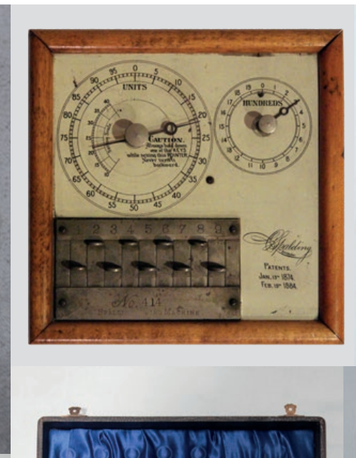






COLUMN ADDERS

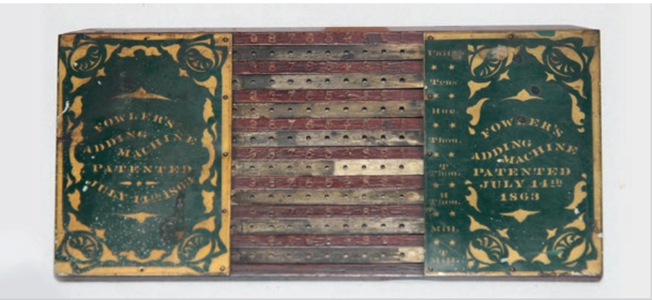
Column adders are designed to add many numbers by columns, the way we do it manually. Spalding (1884), The Adder (1902), Certa (1903), Kuli (1909) and Diera (1906) are very rare. Adix (1903), depending on the model, is either very rare or rare. In Concentric Adders you can also find Beacourt (1912), which is also a column adder.

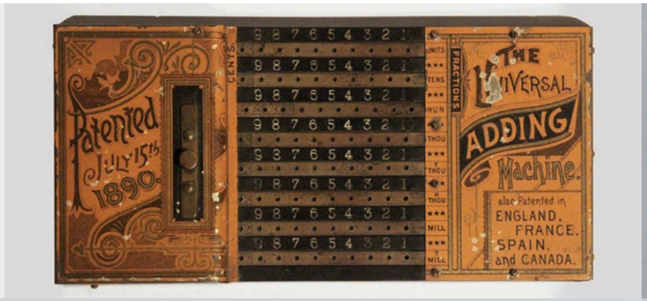


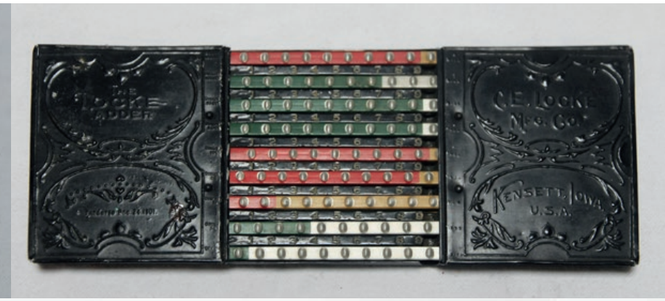
EXHIBITION ROOMS

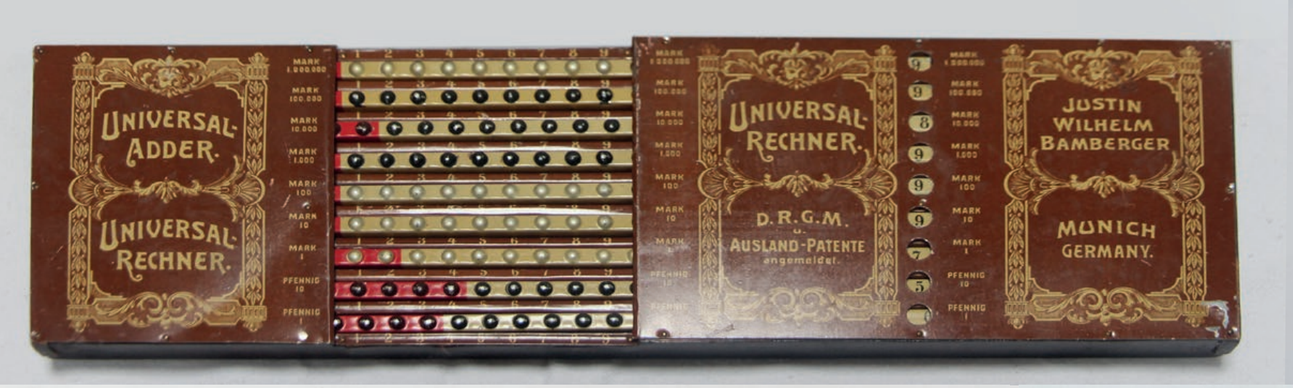
SIMPLE ADDERS

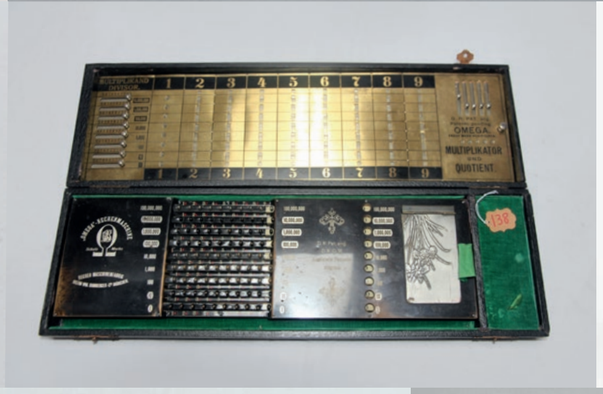
These devices enable multi column adding. Manually "entered" carry. Historical and unique: Young interest calculator (1951) and Dilworth, the first US addiator (1905), and Omega (1905) with British currency Napier's multiplier is the only known Napier multiplier device for British currency. Appelby (1856) is unique. Perfection Adder (1895), Fowlers (1863 and 1890 Universal), Locke (1901), Bamberger (Universal Adder 1903) and decimal Omega (1905) are very rare. Also in this room we can find addiators without Kummer/ Troncet, like carry. Dilworth (1906) is the first US addiator. It is the only one known. Semplix model 1 (1926) and Sascol (both Italian addiators) are rare. These addiators are also shown in other rooms.

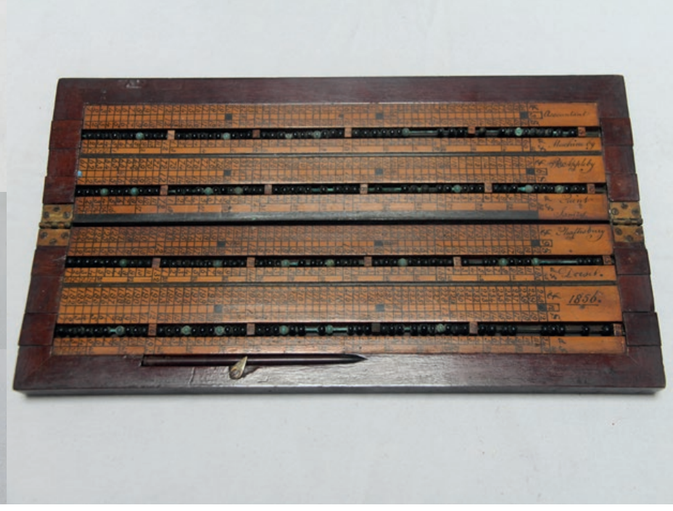


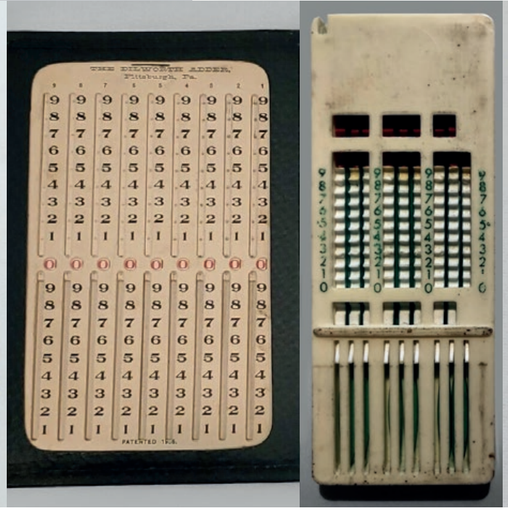








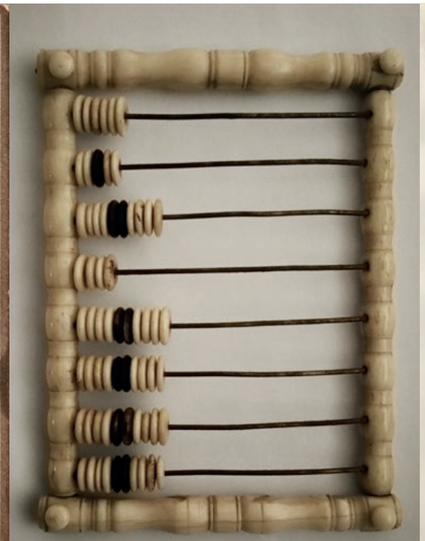


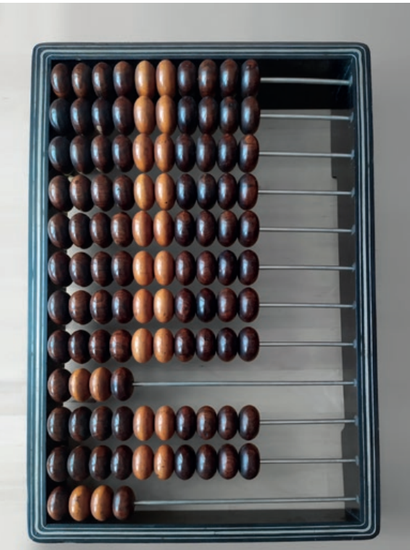


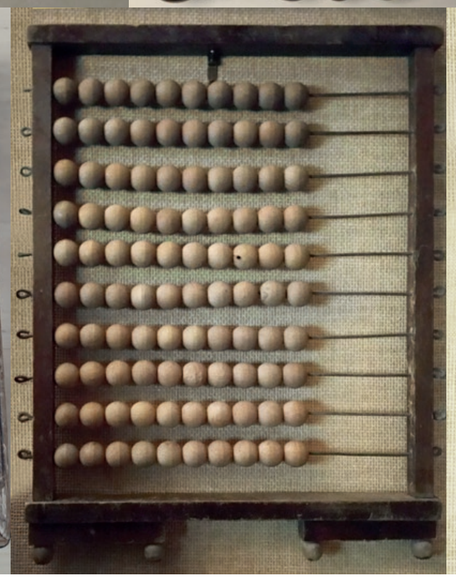
EXHIBITION ROOMS

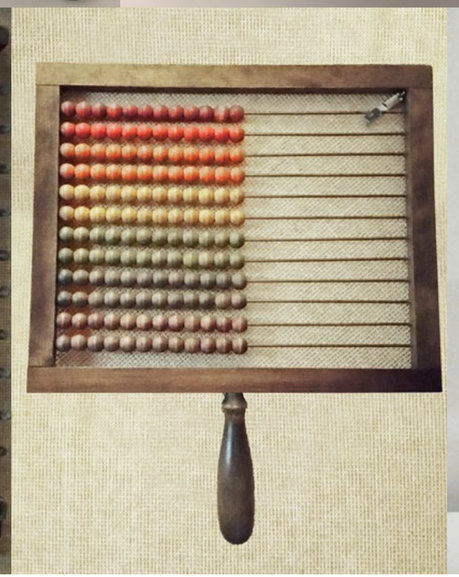
ABACUS

Abacuses are the most ancient adding devices. They survived till today, as they are very simple and intuitive to use and are great for teaching arithmetic. In Japan, till now, there are "abacus" competitions. Using soroban (Japanese type of abacus), competitors can amazingly fast add huge numbers, much faster than we can add them using electronic calculators. Chinese small "coral" abacus (XIX C), Russian small bone abacus (XIX C), German (XIX C?) and Swedish demonstration abacuses are very rare. American abacuses below are rare.









EXHIBITION ROOMS

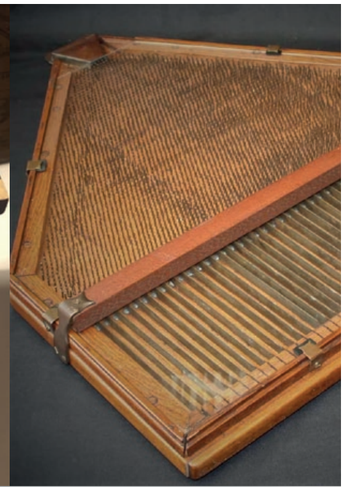
TRONCET / KUMMER TYPE

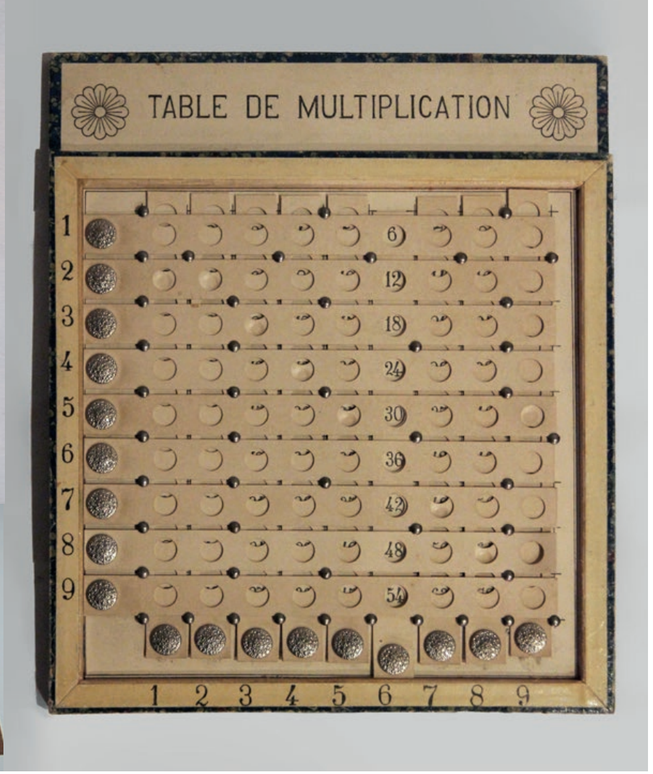
Slonimski (1840) invented a rotary adding device indicating carry and allowing to enforce carry on the next position. Based on his idea for adding device with circular wheels, Kummer (Heinrich Kummer – Computer Timeline (computer-timeline.com)) (1847) invented much simpler and practical Addiator by replacing wheels with a sliding bar and a "hook" to enforce carry. Troncet commercialized Kummer's idea. Troncet adders were sometimes sold with additional multiplying device. Troncet with Genaille multiplying insert (1889?) and Dilworth (the first US addiator (1905)) are unique. Liczydełko is, most likely, unique. Troncet with Napier's multiplier (1907), Totalisateur Troncet (1895), Trick, Octadat – octal adder, Russian "Pocket Arithmometer" (Rebo) are very rare. Hex adders and Kopernik are rare or very rare. Some addiators (Dilworth (1905), Semplix (1926) and Sascol (1954)) do not have a hook to enforce carry, just an indicator that carry needs to be added manually on the next position. Troncet addiators and Dilworth are historical devices. There are more Addiators in the collection that are only listed in Catalog Details.

EXHIBITION ROOMS

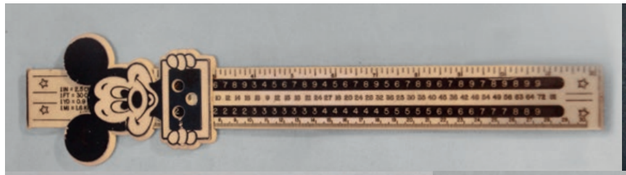
EDUCATIONAL DEVICES

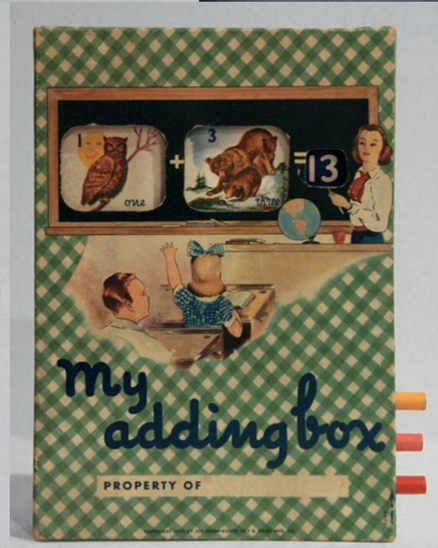
A lot of devices were invented to help students to learn. Many of them are also aesthetically very beautiful. These artifacts were used to teach multiplication tables, adding, fractions etc. In this room we do not show devices which are shown in other rooms (abacuses, demonstration slide rules etc.). Le Grand Disque Chiffré (1860?), Eureka (1889), The Little Accountant (late 1800ies), Fingers (1921), Archimedes ("fractioning" Apples 1930), Table de Multiplication (1910s?), Steinhilber Abacus, Kuhn's Drill Test, Smith and Doller Arithmetical Scales (1880-1890), Badalamenti Factorization Rule (device to find factors of the number), Sonnenschein Arithmometer (1879-1886), Robot Answer Game Machine, Galton Board – statistics teaching device and some other devices are very rare. Most of other devices are very rare or rare.

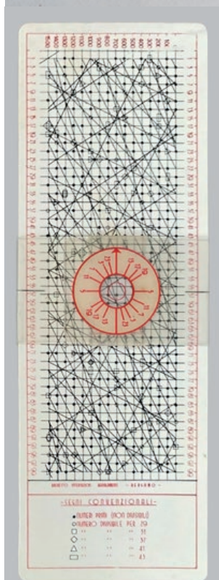


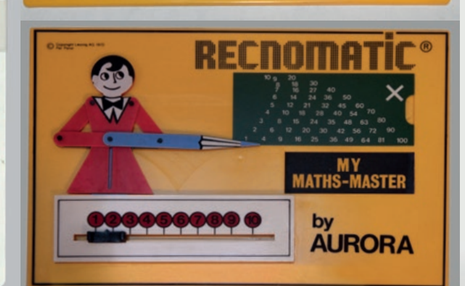


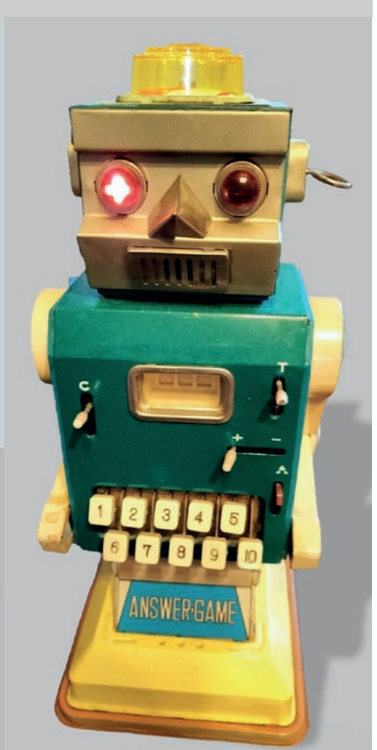
EXHIBITION ROOMS











NAPIER, SLONIMSKI, GENAILLE, ROTH AND OTHER DEVICES

Napier invented a method of doing multiplication using so called Napier's Bones or Napier's Rods. Napier's Bones simplified adding the carryover to the next decimal position. This method was earlier invented by Arabic scholars. One needed to add carry on each position manually/mentally, which made it simpler to add carry, but it still was a source of mistakes. Roth tried to improve it and invented a Roth multiplier, one still needed to add carry mentally, if required. Selig Slonimski invented a machine that eliminated adding mentally, however his machine was complicated to use, as user needed to set the "state" of the next column's position. His invention was based on the mathematical theory that he invented. None of Slonimski's devices survived, Valéry Monnier recreated Slonimski's multiplying device in 2009. Filipowski's device (1860) was created on the basis of Slonimski's theory. There are only two known Filipowski's devices, the second one is in the Science Museum in London. Genaille-Lucas invented a simple graphical method of reading multiplication results directly. Filipowski (1860), Omega with Napier's multiplier in British currency (1905?) and early Napier bones (early XVIII C) are of historical importance. Arithmograph Dubois (1866), Omegas (1905), Genails (1885), Arithmographe Troncet with Genaille and Arithmographe Troncet with Napier multiplying device (1907), "ILO" are very rare. Arithmograph Troncet with Genaille multiplier is unique. Replica of Slonimski's multiplying device made by Valéry Monnier is one of two recreations of Slonimski's multiplying devices made. Multirex-Multor is a device designed for multiplying multiple digit numbers. Engravings are from Raddologia (Napier 1623) and "Theatrum Aritmetico Geometrum" (Leupold 1762).

Napier

Roth

Replica by Valéry Monnier, Multiplicateur et diviseur à réglette dit "prompt multiplicateur et diviseur" in the CNAM collection.

Slonimski Multipliers

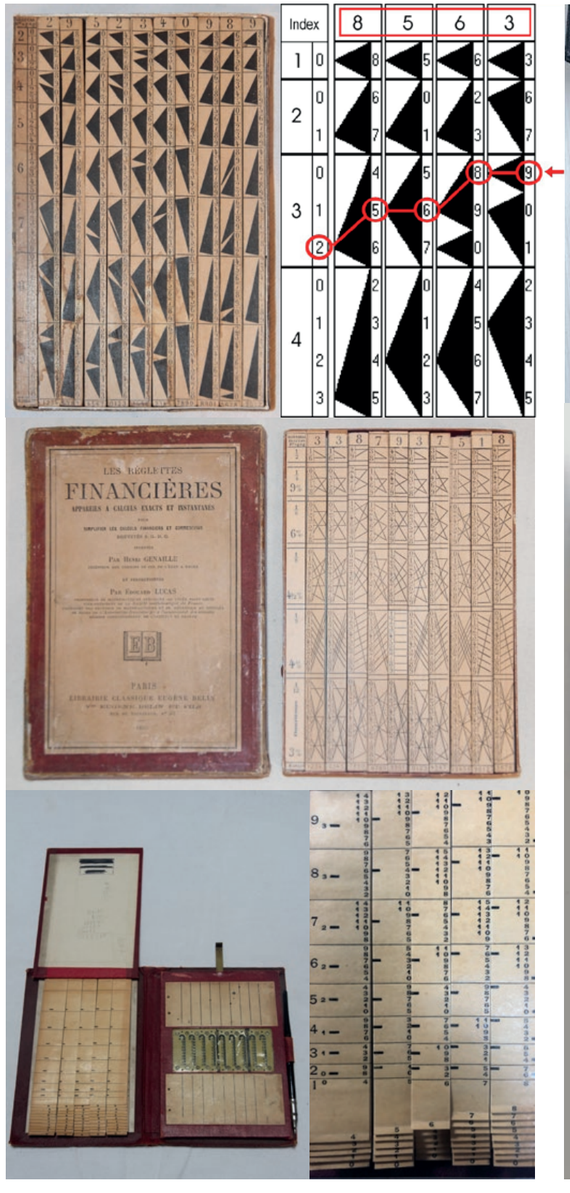
Zelig Slonimski invented a method for multiplication where carry was not added (to the next decimal position) but the value on the next positions was enforced by a next state of all possible carryovers (there were only 28 of them). None of his original devices survived. The only (surviving) devices using Slonimski's methodology is Filipowski (1860). There are only two known, another one is in the Science Museum in London. It is possible that some Joffee bars, also based on Slonimski's theorem, survived. Below you can find the replica of Joffee bars by Valéry Monnier. The engraving is from British patent of Slonimski's multiplier (Barnett, 1846).

Genaille-Lucas

Genaille (1885) invented a very interesting device that allowed to see multiplication results by following the graph, like the one below. Lucas (mathematician and popularizer of mathematical games and puzzles) helped him. Troncet, French inventor of Addiators, created a combination of Addiators and a multiplier that he based on the Genaille's idea. Troncet device, and a multiplication form of Genaille multiplier is unique.

Multirex-Multor

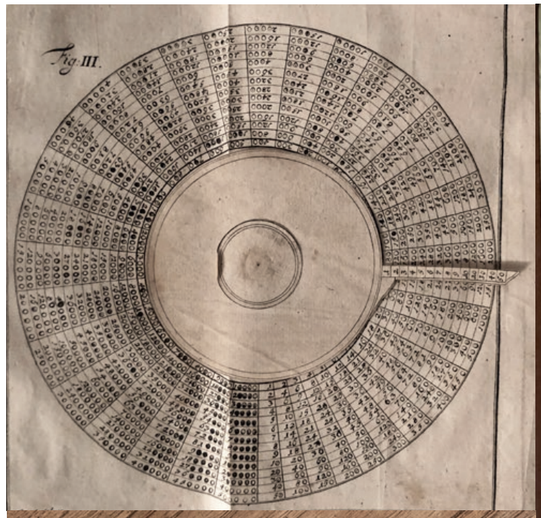
Multirex-Multor – for multiplying multi-digit numbers. The horizontal stripes are bundled on top of each other for each point and carry 1 to 9 times the number on the outside right. By pulling out the horizontal stripes to the right according to the digits of the first product factor, all multiples of its digits are displayed. The multiples appear in the elongated cut-outs of the base plate. Multirex – Calculator Dictionary (rechnerlexikon.de).

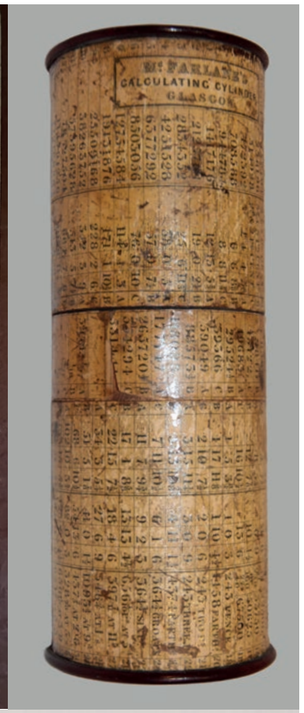


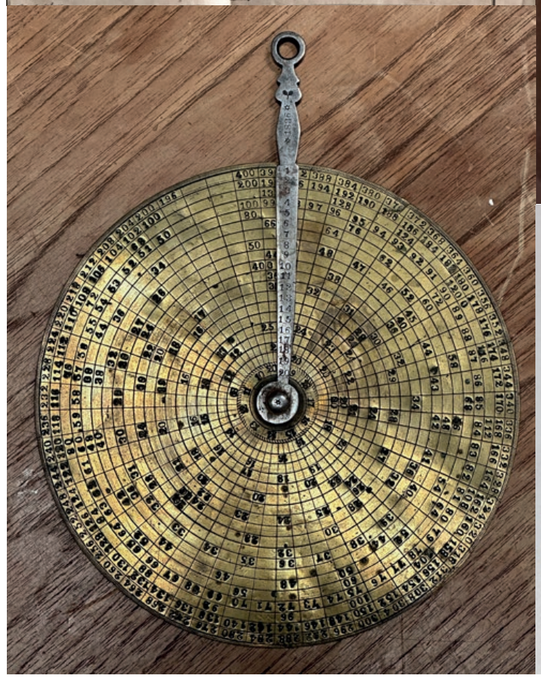
READY RECKONERS

Ready reckoners are devices showing numerical calculations' results in the table. Some ready reckoners are included in other rooms, not in this one. All devices below are either rare or very rare.

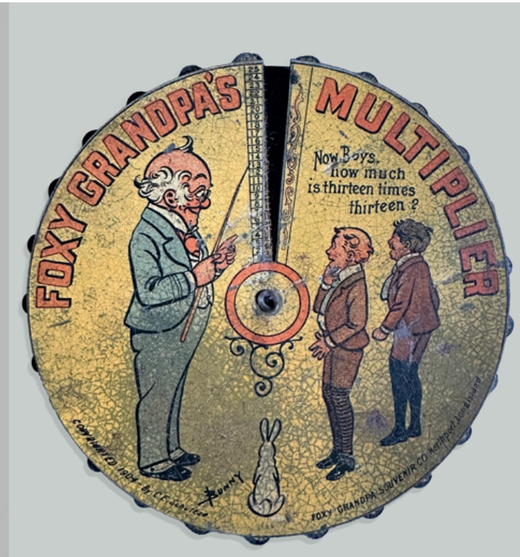
Several XIX C very rare devices. Several early XX C devices are very rare. The engraving is from Leupold's "Theatrum Aritmetico Geometrum" (1762 edition).

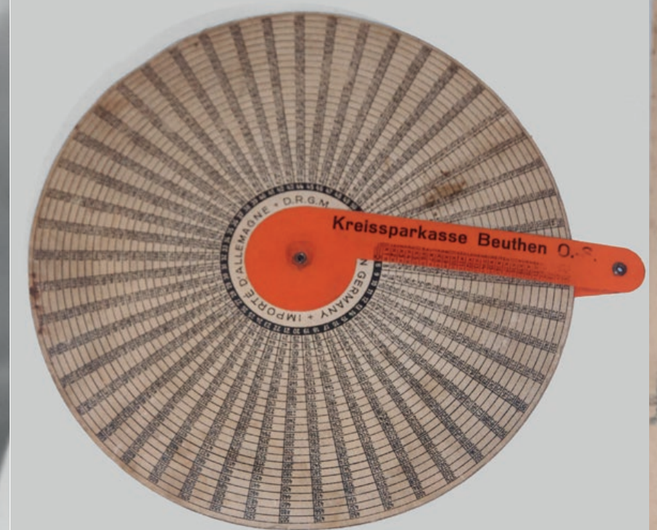






EXHIBITION ROOMS





EXHIBITION ROOMS

ADDING MACHINES – PARALLEL WHEELS

These devices were invented in XIX C. In Smithsonian institution there are several patent models for this type of machines. Chapin (1870) seems to be the first device made, not a patent model. It is the only one known. Fossa-Mancini (1896) is the first commercialized Italian calculating machine. It is very rare. Chapin (1870) and Fossa-Mancini (1896) are historically important. Renea (1930?) is a prototype, never manufactured. Syrius (1912), Lipsiaddi (1914) are very rare. Many other devices are rare.

KEYBOARD ADDING MACHINES

Keyboard machines were the easiest and the fastest devices to operate. Although designed to do additions and subtractions, they could be used for all basic arithmetical operations: "+", "-", "x" and "/". Comptometer manufactured by Felt and Tarren was the first commercially successful adding machine. The company existed (in different forms) for over 100 years. First Comptometer model (1887) is very rare and historically important. Commonwealth (1915) is a very early machine with 10 keys keyboard. It is unique. Other wooden Comptometer (1896), Comptometer A (1904), Burroughs Calculator (1912) are very rare. Several other devices are rare.

Comptometers

Miscellaneous Keyboard Machines

MISCELLANOUS ADDERS

This is both adding and counting device.

STEP DRUM MACHINES (ARITHMOMETERS)

Step drum machines relates to the way calculations are done mechanically. These machines allow to perform four basic arithmetical operations: "+", "-", "x" and "/". Usually, these machines are relatively big and bulky. Thomas de Colmar type machines are called arithmometers. Thomas de Colmar established the first manufacturing of step drum machines (www.arirhmometre.org). Not including two prototypes, from 1822 and 1848, a very small production of his Arithmometers started in 1850 (in France). In 1878 Burkhardt started production of arithmometers in Germany. In 1882 Elliott brothers introduced their arithmometer in UK. Within a few years step drum machines started dominating the industry. This domination lasted till Odhner and Brunsviga popularized Odhner type calculating machines based on a different principle: pinwheel machines. In US keyboard type machines, such as Comptometer and Burroughs, dominated the market. After the WW II Curta introduced his miniature calculators based on a step drum principle.

Thomas de Colmar

There are several historical machines in this "room": one of the first known Thomas arithmometers (serial 164, 1852), one of the first known Burkhardt arithmometers (serial 72, 1878) and one of a few known Elliott Brothers arithmometers (1882, the first British arithmometer). Experimental Thomas arithmometer with multiplier (1880-1890) is unique. It was designed to simplify multiplication. It never went into production. In addition to mentioned above, there are also several very rare arithmometers: 20 digit Thomas (1870), British arithmometers Tates (1882) and Tates-Layton (1903), Burkhardt arithmometers (1878, 1882, 1883), Bunzel (1898?), two Peerless Babies,one of them early (1904?) in a wooden box, Peerless II, Saxonia II (1901) and V, X×X (1906), very rare Unitas (arithmometer with totalizator, 1907), "miniature" Archimedes F Junior (1925), very rare 1918 Millionaire with Totalizator (Millionaire is not a step drum machine, it is a direct multiplication machine (e.g. for multiplication by 7 instead of adding 7 times the number, the number is directly multiplied by 7)), MADAS XI Male, early Curta with pointy shifting pins, early Curta II, rare Monroe executive model with slides. Most of the devices in this category are very rare or rare, Engravings are from Thomas de Colmar's patent publication and early instructions.

British

Swiss

Millionaire and MADAS were made by the same H.W. Egli company in Switzerland. Both machines were highly sophisticated. Millionaires are historical devices. In many ways Millionaire is a unique and a very special type of calculating machine. It is the first successful commercially direct multiplication machine. It requires only one turn of the crank handle to multiply the number entered on the sliders by a multiplier number. This was accomplished by creating a mechanical representation of the multiplication table which could be read and used by the machine. There are two examples of this machine in the collection: one with (model VIII TD, 38 manufactured) and another without totalizer (Model VIII). Creator of Millionaire, Otto Steiger, was only 18 when he invented this machine. A very rare apparatus to set a constant as an entry for calculation for Millionaire is also a part of the collection.
MADAS VII T Malta is rare (450 manufactured), MADAS IX Maxima is very rare (51 manufactured). Both machines can perform automated multiplication and division.

German

Curta

Curta is a miniature four functions (+-/x) calculating machine. It has an extremely compact and elegant design. There were two models: Curta I and Curta II. The most sought for is early model with pointy shifters below.

Brunsviga-10, Monroe

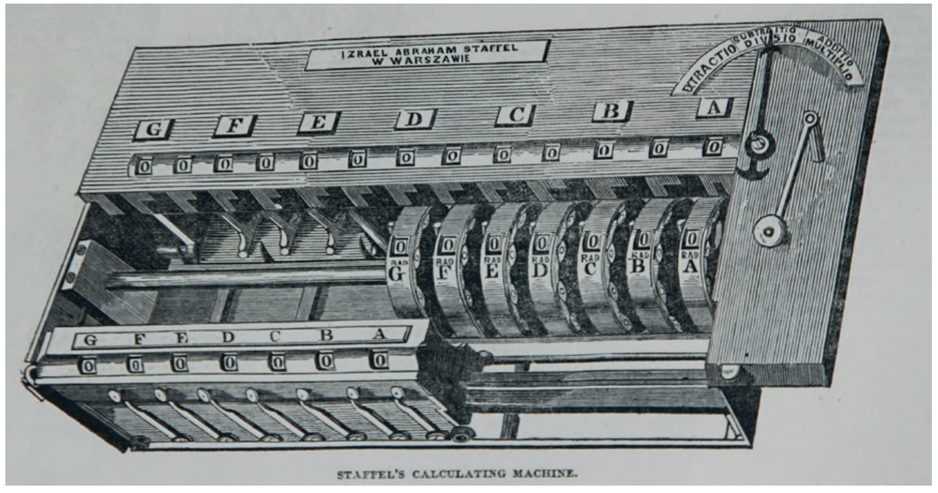
Brunsviga is known for being one of the most important pinwheel machines manufacturers. Brunsviga also developed few models of step drum (divided step drum) machines, from which Brunsviga 10 was the most successful. Monroe was created by Baldwin and Monroe in 1911. There are two historical devices by Baldwin in this collection: lumber measurer patent model (1873) and Baldwin Arithmometer (1874).

Mercedes

Christel Hamann was an exceptional inventor. He invented several calculating devices, each working on a different principle. For Mercedes Euklid he invented a calculating mechanism: proportional level, which allowed for fast operations and was also very reliable. All Euklid machines below, except model 29, are very rare. Model 29 is common. In this collection there are several machines designed by Hamann: Mercedes Euklid (5 machines below), Berolina and Multi-Divo (pinwheel machines), Tricks (addiator), Hamman-Manus A and C switching-latch-wheel calculating mechanism (German Schaltklinke).

PINWHEEL MACHINES

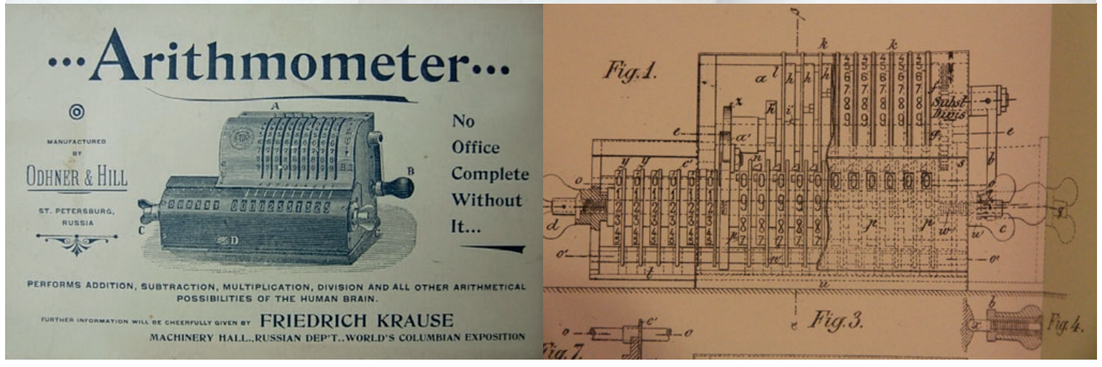
From "Rechenmaschinen" by Ernst Martin: Pinwheel machine is "*frequently called the Odhner machine because Odhner was the first in Europe to employ the pinwheel mechanism in calculating machines. By pinwheel I mean a gear with a variable number of teeth. Odhner may, in fact. have reinvented this mechanism, but this has not been definitely established yet. It should be noted that prior to Odhner, the variable toothed gear had been patented by Frank Stephen Baldwin in America and had been used in devices for a number of years. It seems also to have been known to Leibniz, Poleni and Dr. Roth.*" Staffel machine (1845) was also based on the same principle. Staffel offered his machine to Emperor Alexander II. Odhner, who was living in St. Petersburg, must have learned about it, and designed and built his "Odhner" Arithmometer using the same calculating principle (pinwheel). After building a few prototypes (1877), Odhner redesigned his Arithmometer and started production in 1890. In 1892 he licensed his machines to Brunsviga. In XX C Odhner type machine became the most popular calculating machines in Europe. Pinwheel machines' collection is very rich and important. There are several historical machines, important collections within this collection and very rare calculating machines. Historical machines: five short handle Odhner machines, including 1890 Odhner serial number 21 (the first known machine of this type) and short handle Brunsviga B (1893). There are several unique machines or prototypes, including Brunsviga MG (1924). Very rare machines include 1930 Odhner Tandem (only two more machines known), first manufactured Odhner (duplex) 135, Odhner Arithmos 6 (only one known), small Odhner 9 (only two known), two very rare Odhner Bs and Odhner Cs and other very rare Odhner models, Monopol (1902), Chateaux Brothers – the first known 22 digit (output) Odhner type machine (1909), L'Éclair (1912), Orga (1921), many very rare Brunsvigas and several other machines. Collection of Russian Odhners, early Soviet Odhners and Swedish Odhners are very rich and important. Collections of Brunsvigas, Triumphators and other machines collection is also very rich. Collection of double machines is interesting: Odhner Tandem, 35 and 135, Brunsvigas MDIIs, MDIIRs and Brunsviga 13z/2 Duplex, Thales Geo. Engraving below: Staffel machine from "The Illustrated London News" (special edition accompanying London World Exhibition 1851).



STAFFEL'S CALCULATING MACHINE.

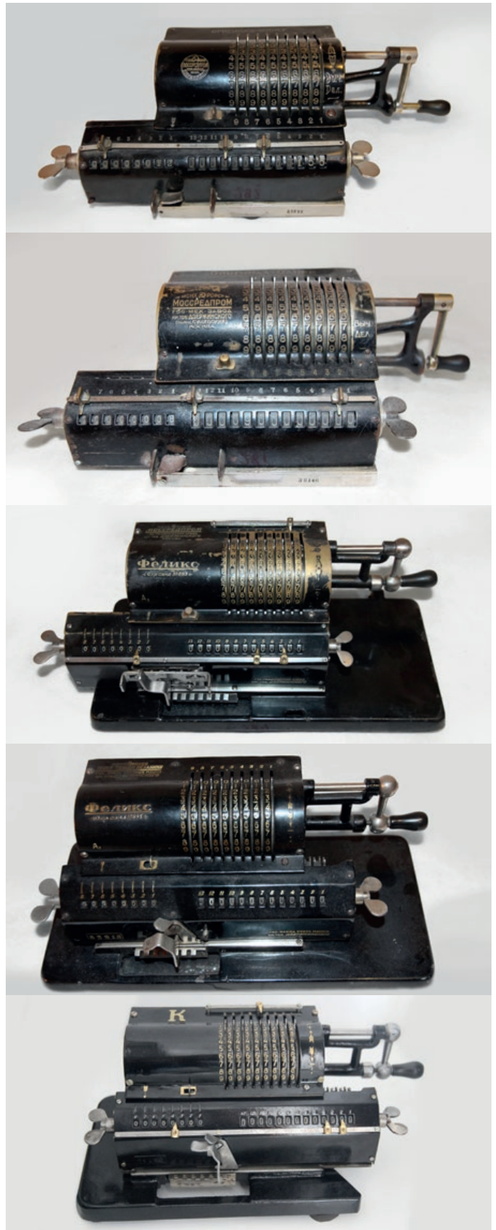
Russian Odhners

Odhner made a small number of prototypes of (Odhner) Arithmometers in 1874. He tried to market them with not much success. Odhner redesigned his Arithmometer and started production in St. Petersburg in 1890. He sold rights for selling and manufacturing in Germany to Brunsviga (1892). It took several years for Odhner type machines to dominate European market. Odhner 21 is the first known production Odhner and it is a father or a mother of all Odhner type machines ever made. There were millions of them. Short handle Odhners are historically important and very rare. Several other Odhners shown below are very rare: Odhners B (15-digit output register) and C (18-digit output register). Odhners with "complications": fast clear of registers and/or advanced carriage shift are either rare or very rare. Odhner 21 is the most important machine in this collection. Engraving below is from Odhner British patent publication (1891).



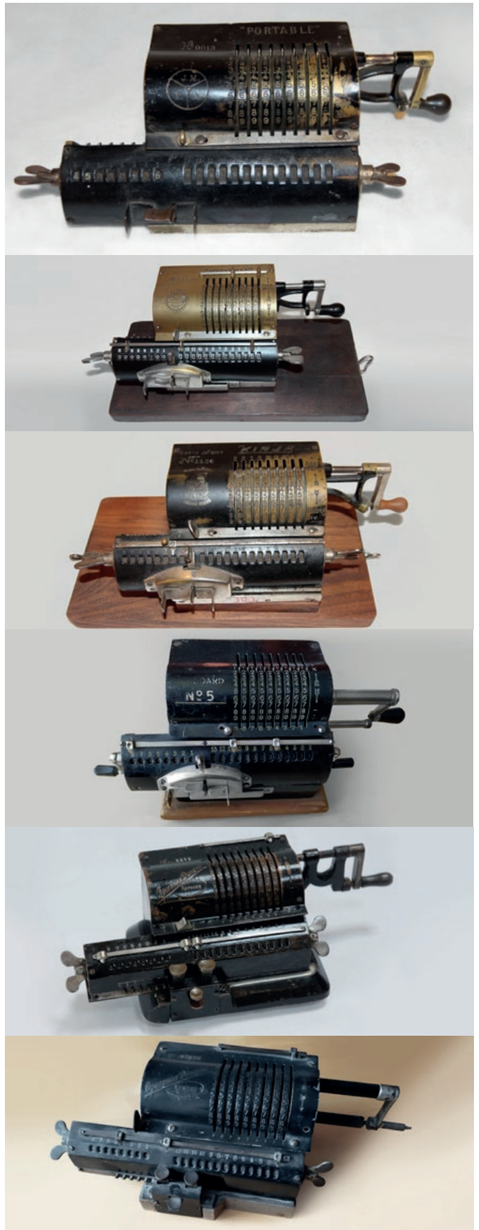
Soviet Odhners

After the revolution the production of Odhners split. Odhner family moved production to Sweden and established its own production there. Soviet authorities moved production of Odhners to Moscow. In a few years (1928) a new smaller machine, "Felix", was introduced and replaced Odhner production in Moscow. Soviet Odhners machines are very rare, early Felix machines are rarely found.



Other Soviet Odhner Type Machines

All these machines are very interesting and very rare. Production was very small. The first "Portable" (serial 13) has a unique logo and a very early "primitive" carriage shift mechanism.

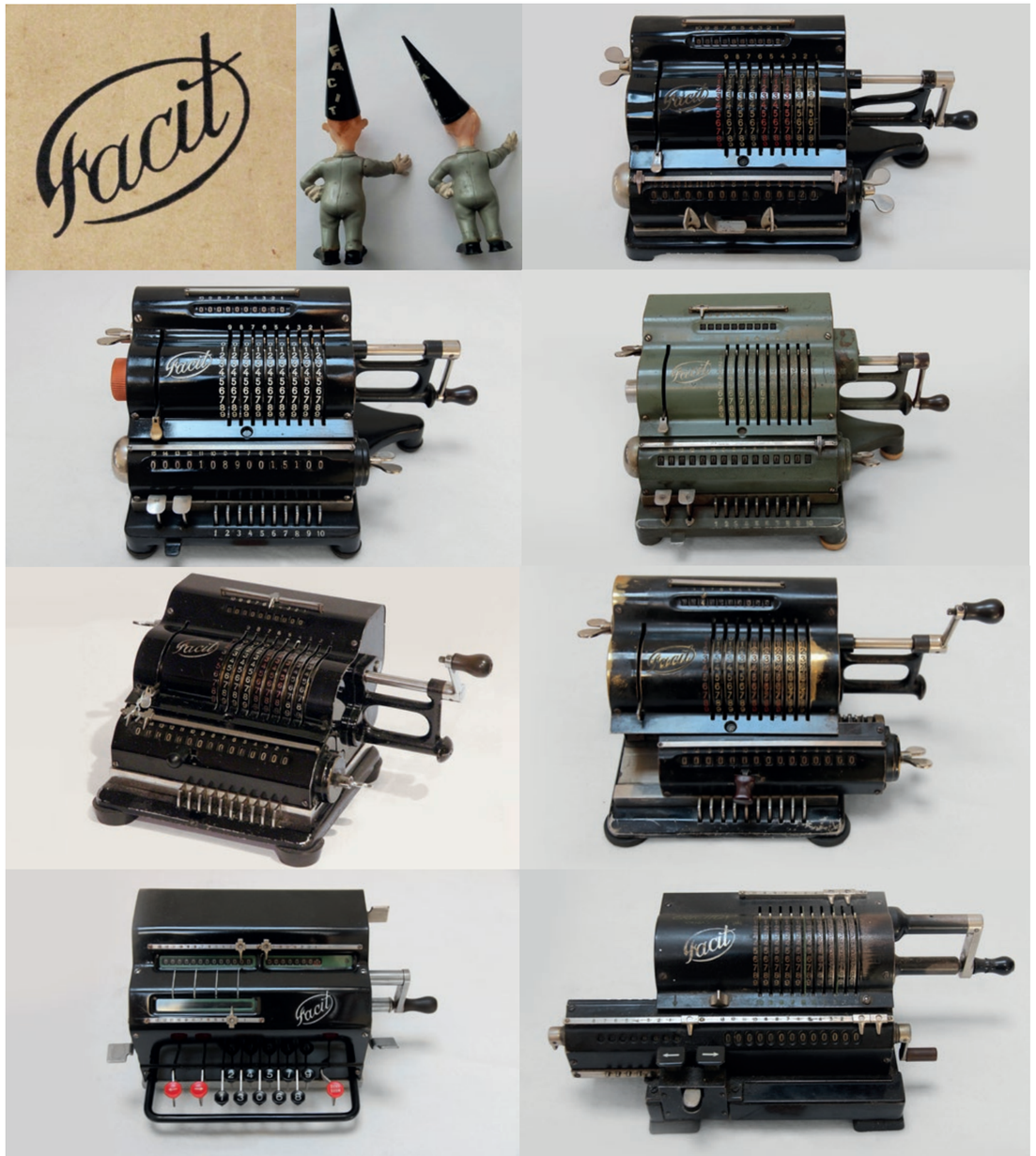


Swedish Odhners

After the Russian revolution Odhner family moved from St. Petersburg to Sweden and established its own production there, continuing the mark Original Odhner. There are several very rare and rare machines in the Swedish Odhner "room". Very rare: small Original Odhner 9 (only one other is known), Arithmos 6 (unique), Original Odhner Lucid (the only Odhner type machine for calculation in British currency), Arithmos 1, 3 and 5, Original Odhner Tandem (only 3 known), Original Odhner 35 and 135 (first Original Odhner 135 manufactured). Rare: several other Odhner models.

Facit

Facit production was established in 1918. In 1932 Facit introduced Facit T, the first keyboard style Odhner type machine. Facit Original with serial 77 is the 2nd known Facit. Facits 10s with push button to change direction of counter register are very rare.



Poland

Facit machines were manufactured under license in 1960s and 70s.

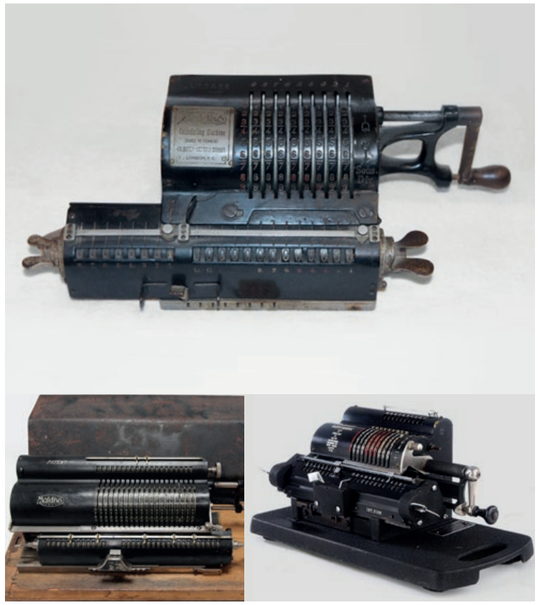
Hungarian Odhner Type – Preciosa

Japan

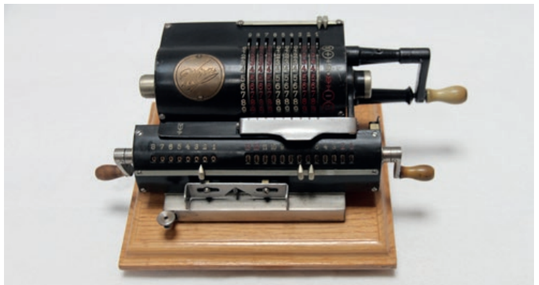
UK

Muldivo – Thales and Chateaux Freres UK import and Britanic

Most of the pinwheel machines sold in UK were imported. Muldivo was importing Chateaux Brothers from France and Thales from Germany. Odhner (see Swedish Odhners) made a British currency model (Lucid). There was a relatively small production of Britanic machines. Two Muldivo machines below are very rare: one of the first sold under Muldivo name and a very rare Thales GE sold as Muldivo.



Czechoslovakia

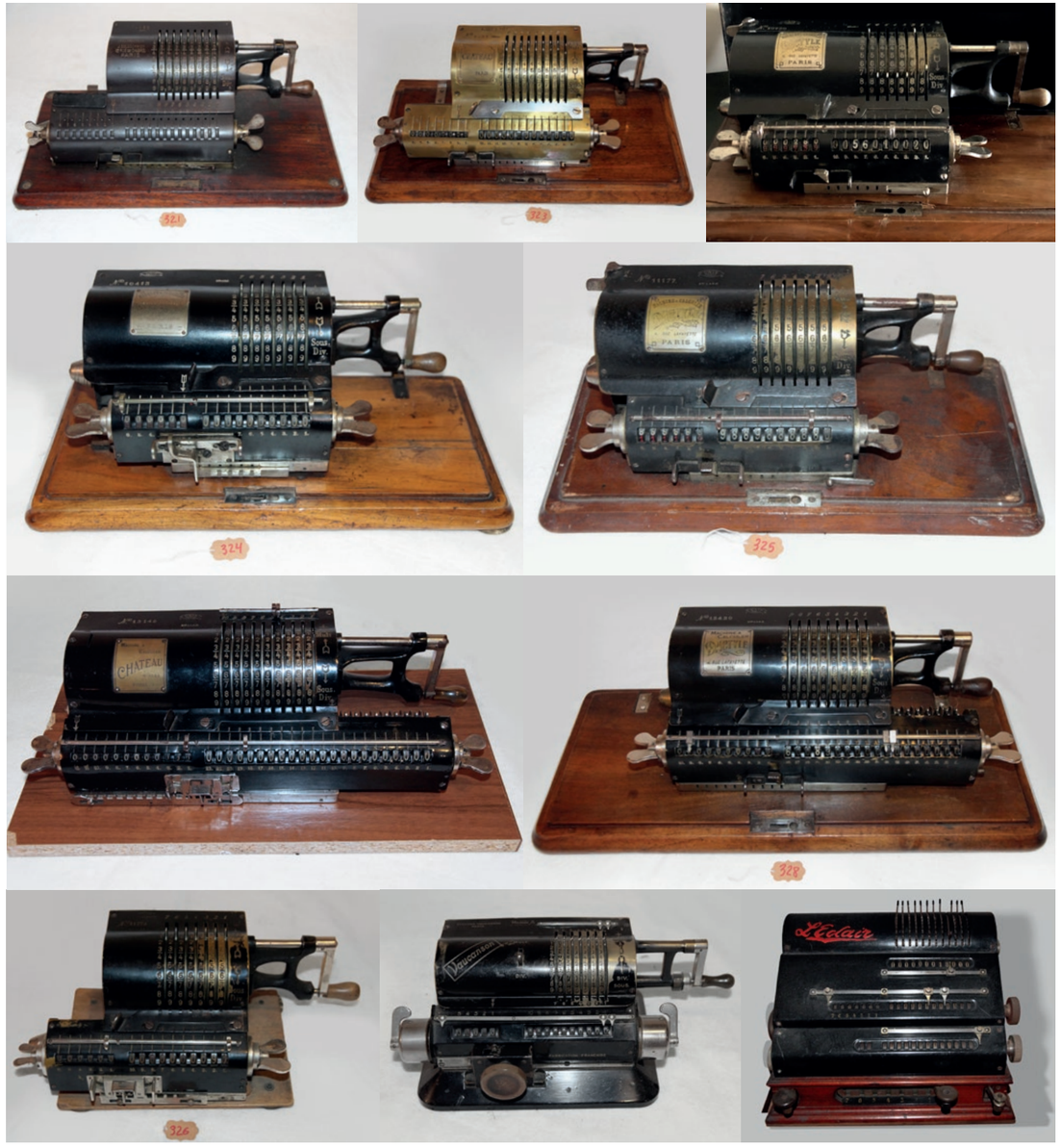


US

US had a small production of pinwheel machines. Marchant started production in 1911, later Arrow (1921) and Rapid Calculator (1923) were introduced. Marchant Model A is very rare, with 1911 patent only, Rapid Calculator serial 103 is also very rare, possibly the oldest surviving. Arrow Calculator production never took off, only a few survived.

France

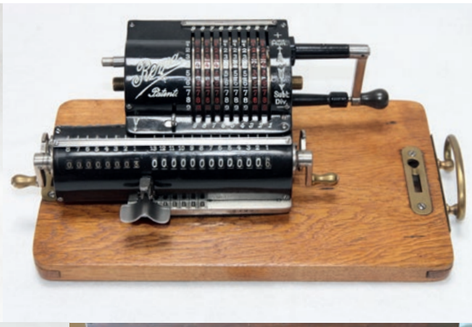
In France there were few manufacturers of Odhner type machines. Chateaux Brothers were manufacturing Odhner type machines under different brand names: Goldsmidt (very rare), Chateaux and Dactyle since 1905. 22-digit Chateaux is a historical machines: it is unique and it is the earliest known Odhner type machine with such capacity (2 digits more than contemporary computers). Small models are very rare, 18 digit models are also very rare. Muldivo was importing Chateaux Brothers machines to UK and sold them under the brand Muldivo. L'éclair is a huge and a beautiful machine. It is very rare and sought after. Vaucasson model A is the first model manufactured by Vaucasson. It is very rare.

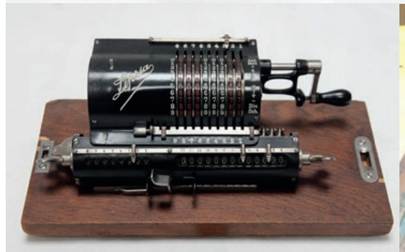


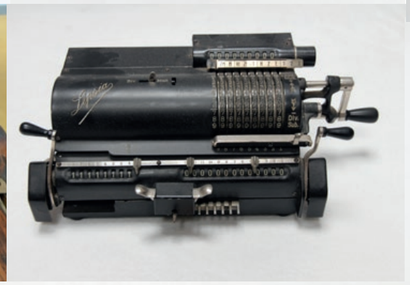
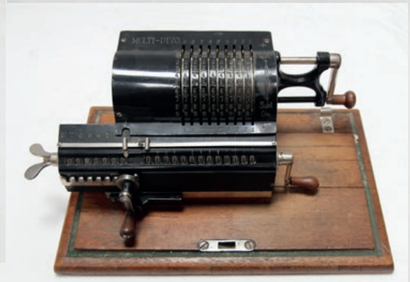
EXHIBITION ROOMS

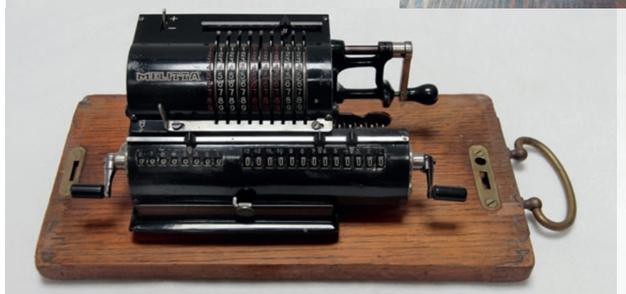
German Pinwheel Machines

The biggest and the most diversified production of Odhner type machines was in Germany. There were several manufacturers of these machines: Brunsviga, Triumphator, Thales, Walther, Melitta, Berolina, Orga, Hannovera, Monopol, Monos, Demos, Rema, Lipsia. There are several rare and very rare Odhner type machines in the collection. There are two Hamann-Manus calculating machines in this section, including very rare Hamman-Manus model A. These are not pinwheel machines, externally they look like it. Hamann was one of the most creative designers of calculating devices. In the collection there are several more devices designed by him (Mercedes Euklid, Berolina, Multi-Divo, Tricks).

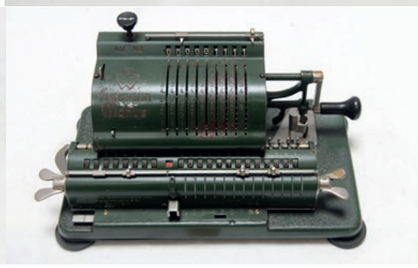









EXHIBITION ROOMS

Brunsviga Germany

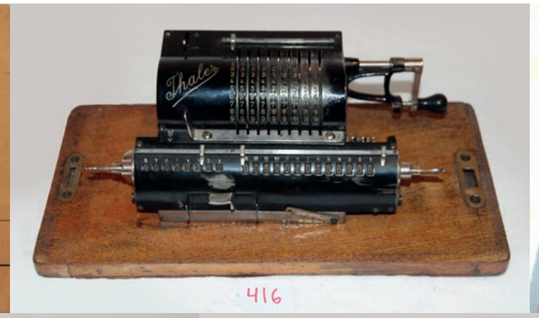
Brunsviga licensed Odhner machines (1892) and introduced pinwheel machines to Germany. It was one of the most successful manufacturers of the calculating machines. The collection includes a very rare short handle Brunsviga B (historical machine), short handle Brunsviga C, Brunsviga MG prototype that never went into production, very rare Nova I, precursor of the Nova line, and many very rare and important machines.

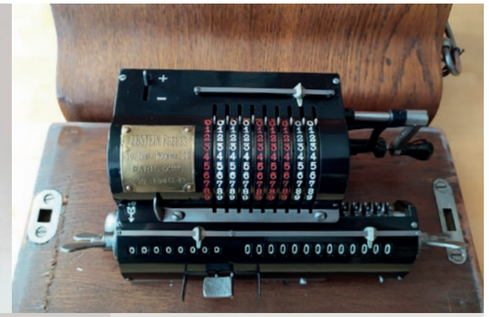
Triumphator

Triumphator (1905) introduced using a carry in the counter register. Initially Odhner type machines had a counter register with digits red and white, red to indicate a carry on the next position. With time all manufacturers of pinwheel machines were selling machines with counter register using carry. There are several very rare and early Triumphators below. Some later devices are unique and/or very rare.

Thales

Thales was another important manufacturer of calculating machines. There are a few early Thales machines and a very rare double machine – Thales Geo. Another very rare machine is a 20-digit Thales GE sold in UK under the name Muldivo.

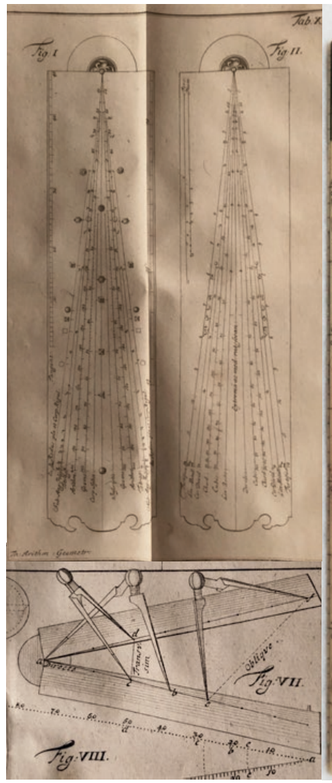


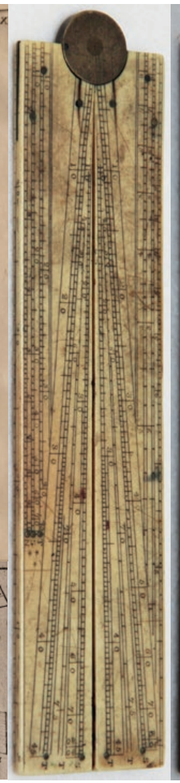


SECTORS

Wikipedia: *The sector, also known as a proportional compass or military compass, was a major calculating instrument in use from the end of the sixteenth century until the nineteenth century. It is an instrument consisting of two rulers of equal length joined by a hinge. A number of scales are inscribed upon the instrument which facilitate various mathematical calculations. It was used for solving problems in proportion, multiplication and division, geometry, and trigonometry, and for computing various mathematical functions, such as square roots and cube roots. Its several scales permitted easy and direct solutions of problems in gunnery, surveying and navigation. The sector derives its name from the fourth proposition of the sixth book of Euclid, where it is demonstrated that similar triangles have their like sides proportional. Some sectors also incorporated a quadrant, and sometimes a clamp at the end of one leg which allowed the device to be used as a gunner's quadrant. Sectors were devices used in navigation.*

Very rare: Bion's (early XVIII C) regular size and a small 11 cm sector, Canivet (mid XVIII C). Engraving from Leopold's Theatrum Aritmetico Geometrum (1762)





SLIDE RULES

Wikipedia: *The slide rule is a mechanical analog computer, which is used primarily for multiplication and division, and for functions such as exponents, roots, logarithms, and trigonometry. It is not typically designed for addition or subtraction, which is usually performed using other methods. Maximum accuracy for standard linear slide rules is about three decimal significant digits, while scientific notation is used to keep track of the order of magnitude of results.*

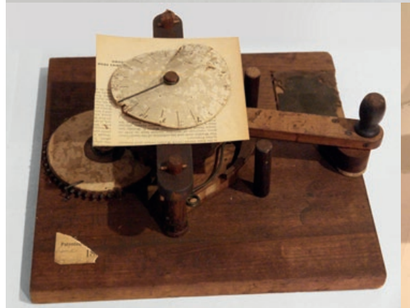
Historical slide rules: the first demonstration slide rule (Gravet et Lenoir (1850-1860)), the first American demonstration slide rule (K&E 4061(?) (1900?)). Very rare devices: Russian brass Gunter scale (XVIII or early XIX C), Sliding Gunter (~1800), Sibley's (1930) set of connected slide rules to create graphs allowing estimation of results of several calculations, Loga 15 meter rule with additional drums with handwritten scales, important XIX C circular slide rules such as Boucher, Calculigraphe HC (1878), Charpentier Calcumeter (1882), other rare or very rare rules such as Paisley, Lafay model 2, Richardson, Palmer's Pocket Scale, 2/83 N Faber-Castell slide rule regarded by many as a finest slide rule ever made. Engraving from Leopold's Theatrum Aritmetico Geometrum (1762).

WATCHES

HP-1 (1977), Juvenia (1945).

PATENT MODELS

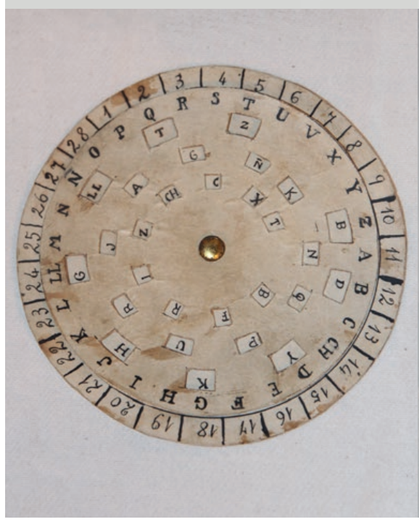
Patent models were required by the US Patent Office with each patent application up to 1880. Each patent model is therefore unique. A device looking like a clock is probably a patent model for a column adder for adding and subtracting. The inventor of this device is unknown. There are a few patent models below: Baldwin lumber measurer (1873), Bill's adder (1878), Enright Game Register (1863), Woodrow and Henderson Stamp Cancelling and Registering device (1882), Powell's Ballot box (with a counter of ballots) (1879), an unknown adding device and a fractions adding device (prototype?, patent model?). Baldwin lumber measurer, which automatically calculated 4 different types of lumber, gave Baldwin the idea of creating calculating machines.






CRYPTOGRAPHIC DEVICES

Collection of cryptographic devices is very small. Very rare and interesting are Le Sphinx (1930) and Transporteur a code secret (1912), both by Georges Lugagne.




EXHIBITION ROOMS

MISCELLANEOUS

This group of devices is put together because either device does not fit in any other room, or I was not sure where to put it. There are a lot of interesting devices, not necessarily calculating, e.g., Campylograph (1903) a unique device to draw patterns, 80 cm diameter and 8 kg computer disk platter with capacity of 1.5 MB (1960s), 1850s Maurel's alarm clocks (Maurel invented Arithmaurel calculating machine), XIX C figural puzzle, Jallais's Machine à Lire (1923) which Umberto Eco described as one of the most fascinating devices he saw. Other very rare calculating devices in this room are Kalkylator (1915) for special purpose computations, wage calculator by Defiance Machine Company (1906), device for some special (multiplication or factoring) calculations (1836), Matematicsche Brieftasche mit Ingenieur-Messknecht (1860), Bathrico Calculating Bank. Graphics. Engraving – "Machine Pour Tirer Les Lotteries" (Lottery Drawing Machine (Random Number Generator), 1709) from "Machines et Inventions Approuvees" Gallon, vol 2 (1735).

LEGEND:

- Machine Name
- Manufacturer and Year of Production
- Historical Significance
- Rarity
- Serial Number
- Precision
- Weight [lb]
- Dimensions (l × w × h) [cm]
- Catalog Number

CHAIN ADDERS

	DIAKOV – NOVE RUSSKIE SCHOTY
	Russia, 1878
	*****
	very rare
№	
	10 × 10
	2,5
	34 × 31 × 4
	WS-22

Gold Medal in Paris 1878. This device does not enforce carry, just shows carry indication. The first known device of this type. Possibly the only one known. Juri Diakov – Computer Timeline (computer-timeline.com).

	THE LANDIN COMPUTER.
	US, 1891
	*****
	very rare, possibly the only one
№	
	7 × 7
	19.75 × 3.25 × 3
	WS-1

Patent allowed, Minneapolis, Minn, First machine of this type. Probably the only one that survived (made?).
Peter Landin – Computer Timeline (computer-timeline.com).

	THE RAPID COMPUTER
	US, 1893
	****
	scarce / rare (?)
№	5379
	9 × 9
	1
	20 × 5 × 3
	WS-19

Patented. 1892,
Chicago Ill, Other patents pending, scarce, instructions rare.

	THE RAPID COMPUTER
	Benton Harbor, US, 1893
	****
	scarce / rare (?)
№	6303
	9 × 9
	1
	20 × 5 × 3
	WS-6

Manufactured in Benton Harbor,
Peter Landin – Computer Timeline (computer-timeline.com)
Rapid Computer / Comptator – Jaap's Mechanical Calculators Page (jaapsch.net).

	SABIELNY COMPTATOR
	Germany, 1909
	rare model
№	2938
	9 × 9
	20 × 4 × 2,5
	WS-601

Relatively early model.

	COMPTATOR
	Germany, 1909
	****
	scarce
№	1948
	9 × 9
	1
	20 × 7 × 4
	WS-13

Relatively early model.

	COMPTATOR
	Germany, 1909
	**
	13 digs scarce / rare (?)
№	11524
	13 × 13
	1,75
	20 × 9 × 4
	WS-14

Peter Landin – Computer Timeline (computer-timeline.com)
COMPTATOR ADDING MACHINE (beuth-hochschule.de)
Comptator-Anleitung (rechenwerkzeug.de).

	COMPTATOR
	Germany, 1909
	*
	very rare, British Currency
№	8020
	13 × 13
	1,75
	21 × 8 × 4
	WS-15

British Money calculations.

COMPTATOR
Germany, 1909
*
scarce / rare (?) 13 digs
20417
13 × 13
1,75
21 × 8 × 3
WS-16

COMPTATOR
Germany
*
common / scarce
13322
9 × 9
1,75
21 × 8 × 3
WS-17

COMPTATOR
Germany
*
common / scarce
21232
9 × 9
1,25
21 × 8 × 3
WS-18

SUN LOGO
Germany, 1910
*
scarce / rare
3887
9 × 9
3,25
21 × 8 × 5
WS-7

S&N or SuN Seidel & Naumann Adding Machine – YouTube.

S&N
Germany, 1910
very rare, British Currency
6381
9 × 9
3,25
21 × 8 × 5
WS-8

British currency version very rare model.

S&N
Germany,
rare 13 positions
14836
13z13
4
21 × 10 × 5
WS-9

13 digit S&N are difficult to find.

SABIELNY SUMMATOR
Germany, 1921
rare
1612
9 × 9
1
23 × 8 × 4
WS-5

SUROT INT. PAT
Germany, 1920
**
very rare
553
9 × 9
1,5
21 × 7 × 4
WS-2

ADDI-COSMOS
Germany, 1920
*
rare / very rare (?)
2091
9 × 9
1,5
21 × 7 × 4
WS-3

Same as Surot and B.U.G.

B.U.G CALCULATOR
Germany, 1920
rare
2694
9 × 9
1,5
21 × 7 × 4
WS-4

Same as Surot and Addi-Cosmos.

SCRIBOLA
Germany, 1922
*
very rare / rare (?)
2798
13 × 13
11 × 31 × 7.5
WS-602

13 × 13 is very rare, usually they can be found as 10 × 10 precision.

ADDO 1
Sweden, 1919
*
rare
19-929
9 × 9
1,5
22 × 8 × 4
WS-10

Swedish Typewriter Page – Addo räknemaskiner (telia.com).

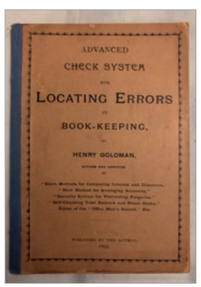
ADDO 1
Sweden, 1919
*
rare
19 B370
9 × 9
1,5
21 × 7 × 5
WS-11

ADDO MODEL 2
Sweden, 1920
rare / very rare (?)
2877
10 × 10
25 × 9 × 12.5
WS-603

Rechenmaschinen-Illustrated (rechenmaschinen-illustrated.com) Addo 2/4 differs from normal stylus operated calculators like Addo1 and Comptator, because tens transmission is not performed while you operate with the stylus. For tens transmission you have to pull the large crank like in usual printing adding machines.

ADDO 4
Sweden, 1920
rare / very rare (?)
2179
10 × 10
16,8
35 × 18 × 20
WS-12

Addo 4 is an Addo 2 with a printer Rechenmaschinen-Illustrated (rechenmaschinen-illustrated.com) Addo 2/4 differs from normal stylus operated calculators like Addo1 and Comptator, because tens transmission is not performed while you operate with the stylus. For tens transmission you have to pull the large crank like in usual printing adding machines.



GOLDMAN'S ARITHMACHINE
US, 1899
*****
very rare
1760
8 × 8
2
13 × 6 × 5
WS-28

Smallest fastest cheapest practical computing machine.
Henry Goldman – Computer Timeline (computer-timeline.com).


CONTOSTYLE
Germany, 1906
****
very rare, first manufactured
6001
6 × 6
1,75
15 × 6 × 6
WS-26

Henry Goldman moved to Germany and started production of Arithmachine under different as Contostyle.
Donated to Arithmeum.
This is the first machine manufactured as Contostyle. Serial 6001.
Small number of Contostyle devices were manufactured.
Arithstyle K. Geselischaft, Henry Goldman & Co Berlin B. Leipzigerstr. 112.


CONTOSTYLE
Germany, 1906-1908
*
very rare
9829
9 × 9
2,4
6 × 8 × 13
WS-757

Later model.


GOLDMAN'S ARITHSTYLE
US, 1910
*
rare
11604
9 × 9
2,5
15 × 8 × 6
WS-23

Goldman moved back to US and continued production of Arithmachine/Contostyle under the name Arithstyle Goldman's Arithstyle Arithmachine – Jaap's Mechanical Calculators Page (jaapsch.net).

ARGOS
Germany, 1913
*
very rare, rarer than Argos II
20040
9 × 9
2,25
14 × 8 × 4
WS-25

All Argos serial numbers seem to be 200XX. Small number of devices were manufactured. Argos – Rechnerlexikon.


ARGOS II
Germany, 1913
very rare
2176
9 × 9
1,75
14 × 8 × 4
WS-24


BEHR (GREIF?)
Germany, 1908
*
very rare
15 × 5 × 5
WS-515

Very rare device. I have seen it only once sold on eBay several years ago. This machine was sold as Greif on eBay. There is no name on the device or the box. It looks the same as Behr. The stylus has a Behr writing on it. Rechnerlexikon show an advertisement for Greif that looks the same as this machine.

STIMA CM-III
Switzerland, 1930
common
7910
9 × 9
4
15 × 19 × 20
WS-217

Stima adder – Jaap's Mechanical Calculators Page (jaapsch.net).


CHEAPE'S ADDING SUBTRACTING MACHINE
US, 1917
*
very rare
3235
7 × 7
4,25
20 × 24 × 20
WS-219

Spiral adding mechanism. Very different from other mechanisms. One moves pencil down, spiral turns and "feeds" the counter register.



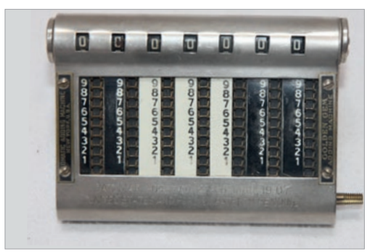
TRIUMPH ADDING MACHINE
Germany, 1910
*
very rare
1218
8 × 8
11
24 × 19 × 20
WS-218



GEM ADDING MACHINE
US, 1907
*
very rare
43174
7 × 7
1,25
14 × 14 × 14
WS-21

Us Patents Mar 1904 – March 27 1906, Patented in Foreign Countries, Manufactured by Automatic Adding Machine.


GEM ADDING MACHINE
US, 1904
*
very rare
40660
7 × 7
2
11 × 12 × 13
WS-26



GOLDEN GEM ADDING MACHINE
US
*
common
72256
7 × 7
1
8 × 12 × 3
WS-33

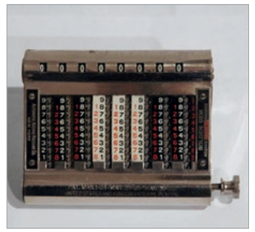
Pat Mar. 01 1904, Mar 27 1906, Mar 19 1907; United States and Foreign Patents Pending.

GEM ADDING MACHINE
US, 1907
*
common
410478
7 × 7
0,5
9 × 12 × 3
WS-34

My Personal Adding Machine for Desk and Pocket.

GEM ADDING MACHINE
US
*
scarce / rare
402074
5 × 5
0,5
8 × 10 × 3
WS-35

Your Personal Adding Machine for the home, nine columns and 5 column Gem adders are less common than other Gem adders.




GOLDEN GEM MODEL 16
US, 1907
rare
85676
8 × 8
13 × 10 × 2.5
WS-604

Relatively rare model, bigger than other models.

GOLDEN GEM 9 COLUMNS
US, 1904
rare
9 × 9
15 × 8
WS-605

9 columns Gem are rare.

GEM ADDING MACHINE
US
*
rare
№ 412099
9 × 9
WS-777

9 columns Gem are rare.
"Lost" somewhere "between"
us post office and us customs.

GEM, WITH A BASE
US, 1908+
rare / very rare
7 × 7
11 × 8 × 10
WS-606

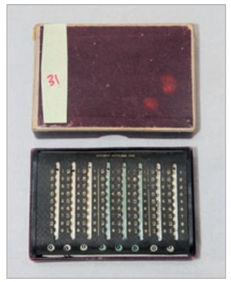
1908 – latest patent, there are also patents pending.

PICO ADDING MACHINE
US
rare
№ 11271
7 × 7
0,75
9 × 12 × 3
WS-32

Precision Instrument Company, Cliffside Park
NJ USA.

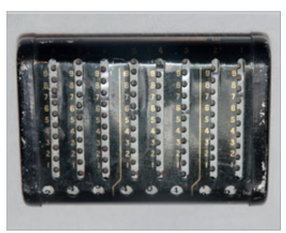
DUX.IV
Denmark, 1910
**
very rare
№ 2924
9 × 9
3,5
11 × 15 × 6
WS-20

FORUM SCHMIDT, KOBENHAVEN.
With additional totalizator.



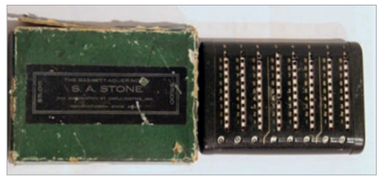
THE BASSETT ADDER, MODEL I
US, 1910
*
rare
№
8 × 8
0,25
11 × 8 × 2
WS-30

James Bassett – Computer Timeline
(computer-timeline.com)
Manufactured by J.H. Bassett & Co. Chicago
Ill. USA.



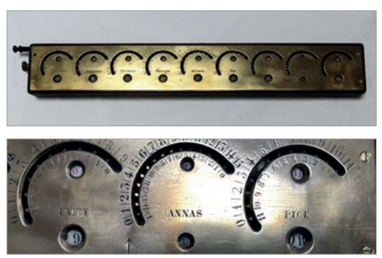
THE BASSETT ADDER, MODEL II
US, 1910-1938
scarce / rare
№
8 × 8
0,25
11 × 8 × 2
WS-29

Manufactured by J.H. Bassett & Co. Chicago
Ill. USA.



THE BASSETT, MODEL 2
US, 1908-1938
*
scarce / rare
№
8 × 8
WS-514

ROTARY ADDING MACHINES – PASCAL ADDERS



ROTH
France, 1842
*****
very rare,
№
9 × 9
2
41 × 6 × 3
WS-36

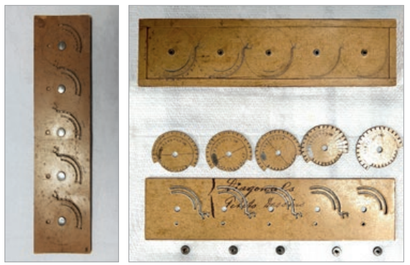
Wertheimber Patentee, Roth devices are
very rare. This one is 9 digits (very rare)
with Indian money denomination. The oldest
calculating machine in Indian money. Only
one known David Roth – Computer Timeline
(computer-timeline.com).

ROTH
France, Paris 1842
*****
very rare
№
2 × 2
0,5
11 × 6 × 2
WS-37

2 digit Roths were used for games. They are very rare.
Dr. Roth, Inven.

ROTH
France, 1842
*****
very rare
№
2 × 2
0,5
11 × 6 × 2
WS-38

Dr. Roth, Inven.



ROTH ADDER PROTOTYPE.
France
*****
very rare, unique
№
5 × 5
0,25
28 × 7 × 1
WS-42

Prototype, unique. Attributed to Roth Adder prototype. This device comes from Malassis collection.

GROESBECK'S CALCULATING MACHINE
US, 1870
*****
very rare
№
5 × 5
1
WS-39

The first machine of this type manufactured in US. Patented Mar 18 1870 John Groesbeck – Computer Timeline (computer-timeline.com)
Groesbeck's Calculating Machine | National Museum of American History (si.edu).

BALDWIN ARITHMOMETER
US, 1874
*****
very rare historical machine
№
580
6 × 6
13 × 12
WS-607

Reliance Machine Works Phila Frank Baldwin – Computer Timeline (computer-timeline.com).
Baldwin Arithmometer | National Museum of American History (si.edu).

CORDINGLEY'S COMPUTOMETER
UK, 1890-1910
*
very rare
№
1092
7 × 7
2
27 × 9 × 4
WS-128

W. Cordingley (computer-timeline.com).

COMPTEUR LAFOND
Suisse, 1899
*
very rare
№
4 × 4
0,25
7 × 5 × 1
WS-46

Georges Lafond – Computer Timeline (computer-timeline.com).
Brevet, no 19395, Importe de Suisse, Haas Neveux & Cie.

UNIVERSAL RECORDERS LTD. LONDON
UK, 1932
*
very rare
№
4 × 4
16,5
37 × 25 × 38
WS-129

This cash register is more like a big adding machine for British money. Light, adds up to 10 pounds. Cash register, 1932-1939.
Science Museum Group Collection
Prov. Patent No. 27239/32.

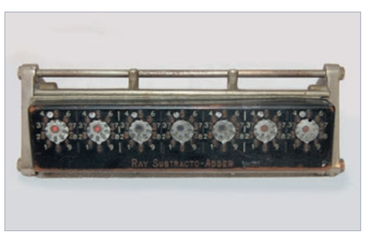
MIDGET ADDING MACHINE
US, 1910
*
very rare
№
9 × 9
0,25
11 × 4 × 3
WS-49

THE AMERICAN REGISTER CO.
US, 1898 (?) or 1923+ (?)
very rare
№
Up to $999.99
0,25
4 × 4 × 1
WS-87

First mentioned in Google in 1898 and then 1923. Quite inconvenient to use.

THE FIGURAYTOR
US, 1916
*
rare / very rare (?)
№ 816
7 × 7
1,5
23 × 6 × 3
WS-88

"Portable as a Pencil", by Ray Adding Machine Co. performed all 4 operations.



THE RAY COMPANY RAY SUBTRACTO ADDER
US, 1916
*
rare / very rare (?)
№
7 × 7
3,5
25 × 11 × 7
WS-89

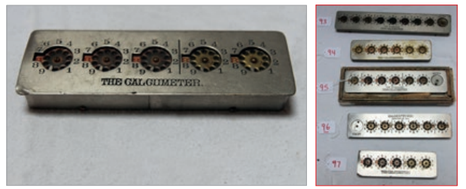
In 1923 name changed to FiguRaytor
1916 – 1920 Rechnerlexikon
1905 – rechenmaschinen-illustrated
"The FiguRayTor" Portable as a Pencil.

MICHEL BAUM
Germany, 1913
*
very rare
№ 1867
7 × 7
1,5
31 × 7 × 2
WS-40

Complete with instructions.

O.J. ADDER
UK, 1950
rare / very rare
№
up to £1,000
2,5
26 × 10 × 7
WS-115

British Currency.
Things that Count ~1952 O.J. Adder (metastudies.net).
O.J. Adder (rechenmaschinen-illustrated.com).



THE CALCUMETER
US, 1901
***
rare / very rare (?)
№ 26-88305
5 × 5
1
16 × 6 × 2
WS-97

Rare model with 5 dials.

THE CALCUMETER
US, 1901
patented dec 17 1901, scarce
№ 15213
6 × 6
1
19 × 5 × 2
WS-94

THE STANDARD DESK CALCUMETER
US, 1910 (?)
*
scarce (?)
№ 8667402
6 × 6
1,25
22 × 5 × 2
WS-95

Patented dec 17 1901, later model with reset.

THE STANDARD DESK CALCUMETER
US, 1910 (?)
*
scarce (?)
№ 3556345
6 × 6
1,25
23 × 6 × 2
WS-96

THE STANDARD DESK CALCUMETER
US, 1910 (?)
**
rare
№ 3956646
8 × 8
1,5
28 × 6 × 2
WS-93

8 digit model with reset are scarce/rare (?).

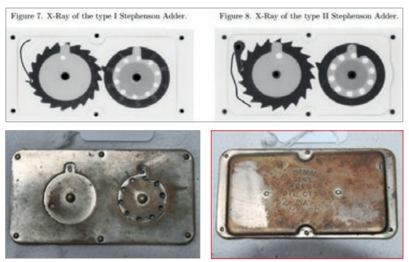
CONTO MODEL A
Switzerland, 1912
**
very rare
№ 622
8 × 8
2,5
31 × 5 × 4
WS-108

CONTO MODEL B
Switzerland, 1912
*
very rare
№ 6106
10 × 10
4,5
42 × 6 × 5
WS-109

CONTO MODEL C
Switzerland, 1922-1932
*
rare / very rare
№ 6524
10 × 10
5,5
41 × 9 × 5
WS-110

CL CONTO MODEL C
Switzerland, 1922-1932
*
rare
№ 2329
8 × 8
4,5
35 × 7 × 5
WS-111

Broken off clearing lever, needs to be repaired.



STEPHENSON TYPE I ADDER
US, 1873 (?)
***
rare
№
0,25
9 × 5
WS-71

GB Simmons Gen'l Agent, Oil City PA.

STEPHENSON TYPE II ADDER
US, 1873
*
scarce / rare
0,25
9 × 5
WS-72

AM Stephenson, Mer Jolliet Illinois JOS V13.2 (osgalleries.org).

ADDING MACHINE, FROM G.N MINDLING
US, 1925
rare
0,25
9 × 5
WS-73

Same as Stephenson and Yale. Mindling patented in 1925 the Stephenson's adder (1873).
Small Adders Part 3 – Rechnerlexikon.

THE YALE ADDER
US, (?)
rare
0,25
9 × 5
WS-70

Same as Stephenson Adder (1873) and Mindling.

MON AMI
France (?), 1910
very rare
0,25
9 × 5
WS-69

MEIN FREUND
Switzerland (?), 1910
very rare
WS-774

Mein Freund – Rechnerlexikon
Kienast & Co. Zurich 8.

BELOTOR
France, 1920s (?)
very rare
0,25
15 × 9
WS-74

Unknown, BTE S.G.D.G Brevete.

GYPSY HOSIERY ADDING MACHINE
US, ~1900
very rare
13 × 7
WS-771

Very rare, early 20 C advertising adding device.
Very similar to the design of Stephenson adder type 1. One "tooth" is longer. Replaced wheel with holes with wheel with teeth (to turn the wheel) and longer tooth (for carryover).
It is interesting that the device was an advertisement from in St. Louis, MO. The place where many calculating devices and machines were made.
Gypsy Hosiery is the best!

B & S IMPROVED CALCULATOR
BONHAM & SCHRAM
US, 1905
***
rare / very rare (?)
7 × 7
0,5
26 × 6 × 1
WS-112

The Lightning Calculator –
Bonham, Hook and Pangborm.
This is the first device of this type.
The other ones are very simmilar.

THE CALCULATOR CORP
US, 1908
*
common
7 × 7
1,5
30 × 9 × 5
WS-114

THE LIGHTNING CALCULATOR
US, 1921
common
7 × 7
1
31 × 6 × 1
WS-113

THE LIGHTNING CALCULATOR
US, 1921 (?)
**
common
7 × 7
1,75
33 × 9 × 4
WS-116

THE LIGHTNING ADDING MACHINE CO. INC.
US, 1950s
common
7 × 7
1
30 × 7 × 2
WS-92

ADDOMETER
US, 1928
scarce (?)
8 × 8
1
30 × 6 × 2
WS-90

British currency.

ADDOMETER
US, 1928
scarce (?)
8 × 8
1
30 × 6 × 2
WS-91

British currency.

PURSE ADDING MACHINE
US, 1930ies or 40-50ies
*
scarce
3 × 3 Up to $9,99
0,25
7 × 5 × 1
WS-82

Made in Providence RI
by Glamour Unlimited
same as shop-N-Add
Calculates up to $US 10. The total cost should not be more than 9.99.

SHOP-N-ADD BY GIFTCRAFT INC.
US, 1940-1950 (?)
scarce
3 × 3
0,25
7 × 5 × 1
WS-117

Made in Providence RI.
Same as Purse.

TELLADCORP
US, 1958
very rare, most likely one of a kind
3 × 4
46 × 22 × 5
WS-610

Very interesting device designed to help to calculate the cost of groceries. Probably one of a kind. Web search shows it was planned to be used in one of the supermarkets in California in 1958. Attached to shopping carriage.
Most likely the only one device to survive. Calculates up to $100, no single item can be more than $9.99.

STERLING DIAL-A-MATIC ADDING MACHINE
US, 1958
common
5 × 5
0,25
24 × 7 × 4
WS-121

www.boelter.rechnerlexikon.de/_Sterling/dial-a-matic.html

DIAL-A-MATIC AUTOMATIC ADDING MACHINE
US,
common
4 × 4
0,25
20 × 6 × 1
WS-122

'RITHMATIC EXPERT, THE ALL-PURPOSE POCKET ADDING MACHINE
US, 1972
scarce, as it was introduced so late that there were not many buyers
001S
6 × 6
0,25
17 × 7 × 1
WS-123

This might be the last mechanical calculator introduced to production – 1972!

KES-ADD POCKET ADDER
KESLING POCKET ADDER
US, 1948
common
4 × 4
0,5
13 × 5 × 2
WS-125

Kesling Pocket Adder | National Museum of American History (si.edu).

KEN + ADD
US, 1952
common
4 × 4
0,5
13 × 7 × 2
WS-126

Ken + Add Adding Machine – (si.edu).

ROTARY MANUAL CARRY

THE NUMEROMETER ADDING MACHINE
US, 1885
**
very rare, possibly unique
17.5 × 13 × 5
WS-608

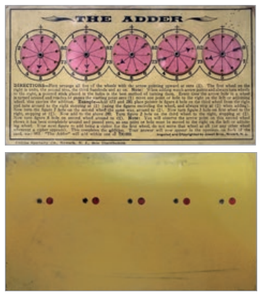
Google search shows very little. Only one device with a different name and same functionality was sold on live auctioneers.
I was able to find earlier (when I bought it) a note that it was entered (?) to the library in 1885. Cannot find it anymore. Live Auctioneers device has different graphic, otherwise it is the same. That device name is the Yaxley Numerator adding machine, dated 1890.
This is not a machine, carry is manually enforced.

SEBASTIAN ADDER
US, 1898
very rare
Up to 100
0,25
6 × 4 × 1
WS-51

Patented April 26 1898.
Same as the adder WS-52.
Small Adders – Rechnerlexikon.

SEBASTIAN ADDER
US, 1904
*
very rare
Up to 100
0,25
6 × 4 × 1
WS-52

Ad for Louisiana expo.
Patented April 26 1898.



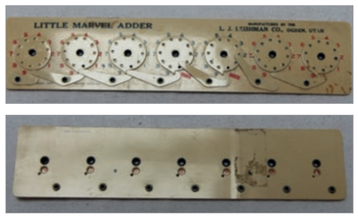
THE ADDER
US, Late XIX C (?) 1800s late
*
rare
5 × 5
0,25
19 × 10
WS-47

Invented and Copyrighted by Jowell Bros., Newark NJ.

BRITISH MONEY ADDER
UK, 1890ies (?)
*
rare / very rare
up to £25
0,25
19 × 10 × 1
WS-98

GRAPHIC CALCULATOR FOR ADDITION AND SUBTRACTION
US, 1935 (?) – 1940ies
scarce / rare (?)
6 × 6
0,25
22 × 7
WS-41

Hewig Company.



LITTLE MARVEL ADDER
US, 1917
*
rare
7 × 7
0,25
20 × 5
WS-99

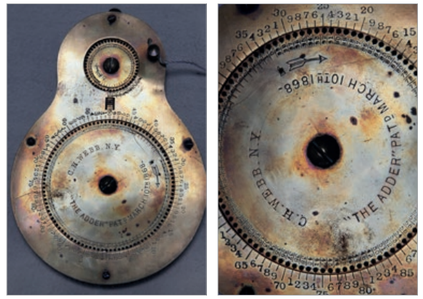
LE CALCUL INSTANTANE TOTALISATEUR TRONCET.
France, 1895
**
rare / very rare
2 × 2
1
25 × 19
WS-48

This is not a troncet type device, just made by Troncet. It is also listed with Troncets.

WEBB ADDERS

MATSON
France, 1949
*
very rare
9 × 9
6. × 5 × 18
WS-611

Very interesting device with a unique method of forcing carry. Moving the pencil in the direction of the arrow adds all carries.



WEBB ADDER
US, 1868
****
rare
A5625
3 × 4
0,75
12 × 18 × 2
WS-54

1868 Patent, CH Webb NY.


WEBB ADDER
US, 1868
****
rare
A-2051
3 × 4
0,75
13 × 18 × 2
WS-55

1868 Patent, CH Webb NY,
THE ADDER. Only Practical Adding Machine in the World.


THE ADDER
US, 1889
****
very rare
319
3 × 4
0,5
17 × 11 × 1
WS-57

Webb adder 1889 patent.
One of the first 1889 devices, the only one I know about without a "hole" in the middle, like older (1868 patent) Webb adders.


LIGHTNING CALCULATOR
US, 1889
**
scarce / rare
3 × 4
1
17 × 11 × 1
WS-58


THE WEBB ADDER
US, 1889
**
scarce / rare
3 × 4
1
17 × 11 × 1
WS-59


THE WEBB ADDER
US, 1889
**
scarce / rare
3343
3 × 4
1
17 × 11 × 1
WS-60

VICTOR (WEBB)
US, 1889
**
scarce / rare
3 × 4
0,75
17 × 12 × 1
WS-53


J.L. HERRINGS COMPUTING MACHINE
US, 1889
*
rare / very rare
30339
3 × 4
1,75
18 × 12 × 1
WS-62


J.L. HERRINGS COMPUTING MACHINE
US, 1889
*
rare / very rare
20021
3 × 4
1,75
18 × 12 × 1
WS-63

Derry, PA (Mestmoreland Co.) Pat Nov 5&12 1889.

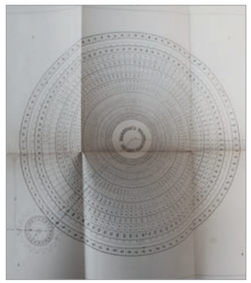

NESTLER & ROESTLER
Austria (?), 1889
very rare
№ 1060 (?)
3 × 4
1
17 × 12 × 11
WS-56

Nestler & Roesler. Wiena, 1060 could be a merchandise identifier, This is not a serial number.


NESTLER & ROESTLER
Austria (?), 1889
very rare
3 × 4
2
18 × 11 × 1
WS-61

Wiena.

CONCENTRIC ADDERS

HATFIELD
US, 1854
*****
very rare, first American commercially sold calculating machine
599
6 digit result
0,75
25 × 13 × 1
WS-43

Aaron Hafield – Computer Timeline (computer-timeline.com).


CYCLONE ADDING MACHINE
US, 1897
*
very rare
8 digit result
4,75
44 × 19 × 3
WS-44

Invented by Geo. L. Ault, Patent Applied For, patent 1897. Only one known.

HART'S MERCANTILE COMPUTING MACHINE
US, 1878
****
very rare
6 digit result
0,25
13 × 13 × 4
WS-45

William Hart – Computer Timeline (computer-timeline.com).
Jan 15 1878 Patent WM Hart, Kirksville MO.


GORDON'S ADDING MACHINE
US, 1878
***
very rare, few survived
up to 10,000
2
25 × 25 × 2
WS-85

George Phineas Gordon – Computer Timeline (computer-timeline.com).

BEAUCOURT
France, 1912
*
very rare
column adder, adds up to 999
1,25
13 × 9 × 2
WS-50

Hugues Beaucourt – Computer Timeline (computer-timeline.com).

DOUBLE ADDER
US, 1900s early, Possibly late XVIII
*
very rare, most likely one of a kind
Up to 99.99
64 × 32
WS-612

Device is big Provenance: Russo collection This a double adder, both adders are independent. In Russo's collection there was also single adder device.

VON FUNKE ADDER

Germany, Original patent 1920, According to Stephen Weiss this device was made after 1945

*

very rare

Column adder up to 399

8 × 8

WS-752

Very interesting and rare adding device working on a "geometric" carry over principle. Carry is gradually added in an intermediate wheel. Funke and IFACH SUMADORA are the only devices working on this principle.
A continuous tens carry is performed
www.mechrech.info/publikat/CarryGeomE.pdf
Scheibenaddierer Spezial – rechnen-ohne-strom – historische Rechenhilfen.

IFACH SUMADORA

(Spain), 1943

*

very rare

Column adder up to 419

0,5

12 × 12

WS-754

Very rare adding device working on a "geometric" carry over principle like von Funke.
www.mechrech.info/publikat/CarryGeomE.pdf
Scheibenaddierer Spezial – rechnen-ohne-strom – historische Rechenhilfen.

THE BRITISH CALCULATOR
BRICAL MODEL C

UK, 1906

*

very rare

C430

3 × 4

1,25

25 × 9 × 1

WS-100

This model is not a concentric adder.
Model C is rare, The British Calculator / BriCal – Jaap's Mechanical Calculators Page (jaapsch.net).
BriCal is designed to quickly calculate pre-decimal British currency. It's supposed to make calculations at least six times faster than mental addition, invented by Herbert Dickinson.

THE BRICAL MONEY CALCULATING MACHINE

UK,

very rare

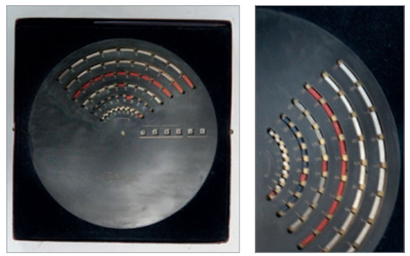
26320

up to £22,000

1,5

14 × 14 × 1

WS-101



BRICAL DECIMAL

UK, 1910 (?)

very rare

Diameter 19 Bo × 22 × 22

WS-613

While Brical devices can be found relative often, this one is very special. It is the only Brical that I have seen that is a fully decimal system, i.e. All rows have the same number of elements (9). Calculates up to 999,999. It is also bigger and heavier than typical "bigger" Bricals.

THE BRICAL

UK, 1905

**

scarce

up to £2,000

1,5

16 × 16 × 1

WS-102

The Brical for compound addition.
Box "The Brical" Weight Adding Machine.

THE BRICAL

UK, 1905

scarce / rare (?)

up to $5,099.99

1

16 × 16 × 1

WS-103

The Brical calculation in dollars and cents.

THE "THE BRICAL"

UK, 1910

**

scarce

up to £999

14 × 14 × 1

WS-104

The British Calculators ltd. The "The Brical" for compound addition,
Box "The Brical" Money Calculating Machine
One of the cursors not original Not sure how common the machine is. Patina was taken out by one of the previous owners.

BRICAL IN A LEATHER CASE
UK, 1910
rare
0,25
13.5 × 0.8
WS-755

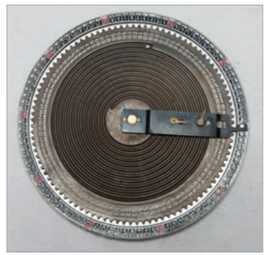
Same device as above – "for compound addition".
Original leather cases for Bricals for some reason are very rare. This is the only one I have ever seen. The device itself is scarce.

THE BRICAL, MONEY CALCULATING MACHINE
UK
*
£2050
0,25
13 cm
WS-769

GAIS CALCULS
France, (?)
very rare
4 × 4
0,25
15 × 15 × 1
WS-76

No reference on any search engine.

THE ADAL CALCULATOR
Germany, 1910
*
rare
Up to 1100
0,25
20 × 20 × 1
WS-120



OPTIMA
Germany, 1910-1916
*
rare
Up to 1100
0,25
20 × 20 × 1
WS-119

It is different from Adal, Indicator for high digits is mechanical.

ITEMIZER, A HANDY PURSE SIZE CALCULATOR
US, 1954 (?)
scarce
up to 100
0,5
10 × 10 × 4
WS-86

The Itemizer – Jaap's Mechanical Calculators Page (jaapsch.net).

ADD*A*MITE POCKET CALCULATOR
US, 1940-1950
common
Computes 01-$25
0,25
8 × 8 × 1
WS-77

Add-A-Mite (history-computer.com).

ADVERTISING ADDING DEVICE
Canada, 1960s (?)
rare / very rare (?)
11,5
11,5
WS-614

Ad for Panther Oil & Grease Mfg, Ontario, Canada.
Possibly one of the kind.

VERIFICATION

FEDERALNI SPRAVA VB
CENTRALNI REGISTR OBCANU
KONTROLER DELITELOSTI 11
MODULO 11 CALCULATOR.

Czechoslovakia, 1960s (?)

very rare and unusual

0,25

12 × 8

WS-78

Calculator used for verification of identity cards in Czechoslovakia. Identity cards had a numeral id with modulo 11 checksum. Person verifying the document would calculate the Id checksum using this device. If the checksum did not verify document…

PREWETT ADDOGRAF

US, 1923

rare

0,25

8 × 8 × 1

WS-66

This device was used for verification of adding, not for adding
Addograf – C. W. Prewett 1923 (retrocalculators.com).
Los Angeles, Pat Pending.

PREWETT ADDOGRAF

US, 1923

rare

0,25

8 × 8 × 1

WS-67

Prewett Addograf.
This device was used for verification of adding, not for adding.
Like the one above. Additional two holes for showing numbers.

PREWETT ADDOGRAF

US, 1916

very rare

0,25

8 × 6 × 1

WS-68

Prewett Addograf.
This device was used for verification of adding, not for adding.
1st Prewett model.

PENCILS AND PENS

ROLLER RULE

US (?), 1950

scarce

0,25

14.5 × 1.5

WS-172

Mechanical pencil with a brain.

MULTIPLYING TABLE PEN/PENCIL

UK (?), ~1920

scarce (?)

10

WS-544

Pen and pencil on ends. Graphics similar Darnley's pencil box.

MAGIC MULTIPLYING PENCIL

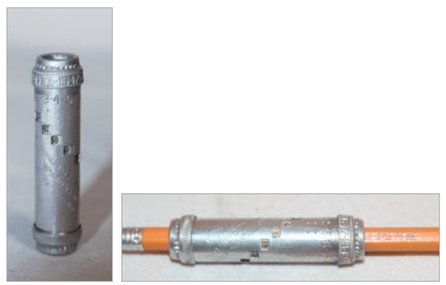
US, 1939

common

0,25

15 × 2

WS-195



CHICAGO RECORDING SCALE
WAUKEGAN

US, 1905-1910

rare

0,25

6 × 1.5 ×

WS-188

Pencil-Multiplier, a Multiplication Table | Smithsonian Institution (si.edu).

ADDING PENCIL CO.
US, Advertised 1925
rare / very rare
Counts up to 209
0,25
16 × 1 × 1
WS-75

Model A (?) Addierstifte – rechnen-ohne-strom – historische Rechenhilfen (rechnen-ohne-strom.de).

ADDING PENCIL CO.
US, 1927 (?)
rare / very rare
15 × 1
WS-764

Model C (?).

HOUK ADDING PENCIL CO
US, 1929 (?)
rare / very rare
5 × 5
15 × 1
WS-615

Model D.

MAKEBA KOMBINATOR
Germany, 1957
rare
18.5 × 5
WS-616

https://www.sliderulemuseum.com/Pencils htm slide rule/pencil: Made in DDR.

RUXTON MULTI-VIDER
US, 1928
scarce / rare
16
WS-617

https://www.sliderulemuseum.com/Pencils htm slide rule / pencil.

CALCUPEN
Japan, 1975
rare (?)
18.5 × 5 (box)
WS-618

DRUM PENCIL BOXES

CEMADENI – [SEMADJENI]
Russia, 1890ies (?)
very rare
0,25
19.5 × 4
WS-619

PENCIL HOLDER WITH MULTIPLYING TABLE
US, 1898
scarce
0,25
22.5 × 3.5 × 3.5
WS-192

PENCIL HOLDER WITH MULTIPLYING TABLE
US, 1898
*
scarce
22.5 × 3.5 × 3.5
WS-193

DARNLEY'S ROTATABLE LIGHTNING CALCULATOR
Pencil Case, Ruler & Measure.
UK, 1921
scarce
20 × 20
24 × 3
WS-765

SPACE SHIP PENCIL CASE WITH MULTIPLYING TABLE
Germany, 1950-1960s
very rare
23 cm
WS-784

FRACTION ADDERS

FRACTIONS ADDING MACHINE
No markings for manufacturer. XIX C prototype (?), handmade, patent model (?).
US, End of XIX C (?) 1800s end
*
very rare, one of a kind
17 × 17 × 2
WS-620

QUIXSUM FRACTIONAL ADDING MACHINE MODEL B
Made in Providence RI and Charlotte NC.
US, 1924
*
very rare
B1743
4 × 4
3,75
38 × 15 × 3
WS-105

QUIXSUM FRACTIONAL ADDING MACHINE MODEL C
Providence RI and Charlotte NC June 1924 Patent.
US, 1924
rare / very rare
C2813
4 × 4
6,5
42 × 16 × 4
WS-106

QUIXSUM FRACTIONAL ADDING MACHINE MODEL C
Providence RI and Charlotte NC June 1924 Patent.
US, 1924
rare / very rare
C2675
4 × 4
6,5
42 × 16 × 4
WS-107

THE FRACTIONATOR
Copyright Chas. E. Welles add and subtract fractions.
US, 1946
scarce (?)
0,25
14 × 14
WS-80

ELEMATO DIMENSION ADDER AND SUBTRACTOR

US, 1954-1962

very rare

0,25

20 × 20 × 1

WS-81

Keuffel&Esser
Adder subtractor for feet, inches and fractions Rechengeräte ähnlich zu Zahlenschiebern – rechnen-ohne-strom – historische Rechenhilfen (rechnen-ohne-strom.de).

FRACTION OF AN INCH ADDING MACHINE

US, 1953-1984

common

0,25

11 × 11 × 1

WS-127

The Fraction of an Inch Adding Machine / Fractron – Jaap's Mechanical Calculators Page (jaapsch.net).

SLONIMSKI ADDERS

ADDSUBTRACTOR

Australia, 1946

very rare

5487

1,5

25 × 10 × 2

WS-83

Bratz & Waldron PTY. LTD. Australia
British currency, Based on Slonimski adder patent.

BAIR-FULTON CALCULATOR

US, 1928

very rare (?)

6 × 6

0,25

24 × 7 × 1

WS-84

Arithmetician Calculator Model 6
Slonimski adder patent.

COMPUTER HELPERS: HEXADECIMAL AND OCTAL ARITHMETIC

IBM FIELD ENGINEERING DIVISION HEXADECIMAL ADDER

US, 1960s (1962?)

rare / very rare

229-3168

4 × 4

0,25

24 × 7 × 2

WS-124

Made by Sterling Plastics Company.
Designed by Carl J Lombardi.
US Patent No. 2,797,047; Canadian Patent 556,754; Brtish Patent 773,099.

OCTADAT ADDIATOR

Germany, 1968

**

6 × 6

0,25

16 × 4 × 1

WS-152

Adding in octal arithmetic. E.g. DEC was using octal arithmetic in their documentation and examples. It would have been easier to use a hexadecimal representation for their 8-bit octet.

HEXADAT

Germany, 1967

**

rare

8 × 8

0,25

24 × 7 × 1

WS-153

Adding and subtracting in hexadecimal arithmetic.

HEX ADDER

US, 1968

**

rare / very rare

6 × 6

0,25

24 × 4 × 1

WS-154

HEXCO Hex Mechanical Stylus Calculator (smecc.org).

HEXADAISY HEXADECIMAL CALCULATOR
US, 1977
rare / very rare
0,25
17 × 17 × 1
WS-118

HEXCO Hex Mechanical Stylus Calculator (smecc.org).

HOLIAC
US, 1963
**
One of a kind, probably owned by an inventor Parker Snapp
WS-622

Described in HOLIAC
A FAMILY OF STUDENT-CONSTRUCTED LOGIC TEACHING AIDS. Author – Parker W. Snapp (Snapp's article is contemporary reprint.).
Used to emulate computer operations.
Paper computer.

COLUMN ADDERS

SPALDING
US, 1884
****
very rare
414
Max 2,000
17.5 × 17.5
WS-623

Cyrus Spalding – Computer Timeline (computer-timeline.com).

THE ADDER, REGISTERED TRADEMARK
UK, 1902
**
rare / very rare (?)
6601
Column adder, 3 digit result
4
12 × 17 × 12
WS-205

Patent 24868-1902
Arthur Postans – Computer Timeline (computer-timeline.com).

KULI
Germany, 1909
*
very rare
370
3,75
22 × 14 × 9
WS-130

DIERA
Germany, 1906
*
very rare
3154
1,5
25 × 12 × 4
WS-131

CERTA
Germany, 1903 (1906?)
*
rare
0,75
14 × 9 × 3
WS-132

Made for Spanish market (?).

CERTA
Germany, 1903 (1906?)
*
rare
0,75
14 × 9 × 3
WS-133

Made for Spanish market (?).

ADIX
Germany, 1903
*
scarce / rare
0,5
14 × 9 × 3
WS-134

ADIX COMPANY
Germany, 1903
rare
0,5
14 × 9 × 3
WS-135

Model with clearing "frame".

ADIX KOMPANIE
Germany,
*
rare
35070
0,5
14 × 9 × 3
WS-136

ADERES
Germany, 1944-55
scarce
1
15 × 10 × 4
WS-137

SIMPLE ADDERS

FOWLERS ADDING MACHINE
US, 1863
***
rare / very rare (?)
0,5
22.5 × 11 × 1
WS-142

Patented July 14 1863.

FOWLERS ADDING MACHINE
US, 1863
***
rare / very rare (?)
22.5 × 11 × 1
WS-143

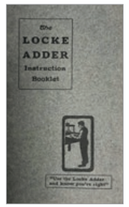
Same as above.

UNIVERSAL
US, 1890
**
very rare
8 × 8
11.5 × 23
WS-624

Very similar to Fowler from 1863. Somewhat improved, although one still needed to look for the results on the back.

THE LOCKE ADDER 1901
US, 1901 or before
*
very rare
0,5
27.5 × 10 × 1
WS-140

Patent applied for Early: wood and metal. "Use the Locke Adder and know you're right… fastest, simplest, handiest, most practical and durable, low-priced calculating machine."



THE LOCKE ADDER
US, 1901
**
very rare
WS-625

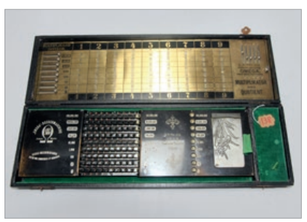
1901 patent. Just after patent was granted. Locke adder early model: wood and metal. "Makes adding a Pleasure, instead of an Exhausting Mental Stress".

THE LOCKE ADDER
US, 1901-1905
rare
0,25
27.5 × 10 × 1
WS-141

The Locke Adder 1901 patent. Patented Dec 24 1901, metal body. Adder with metal base is more common than the ones above.

UNIVERSAL ADDER, UNIVERSAL RECHNER
Germany, 1903
*
rare / very rare (?)
1,75
38.5 × 11.5 × 3
WS-139

Justin Bamberger borrowed the idea of this machine from Locke above.

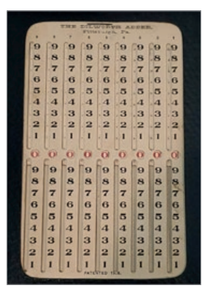


OMEGA RECHENMASCHINE
Germany, 1905 (?)
*
rare /very rare (?)
1,5
44.5 × 28 × 3
WS-138

Also made by J. Bamberger Combined adder/multiplying device.
Top – Napier device (multiplication), bottom – adding device.
The same machine listed under Napier.

OMEGA RECHENMASCHINE
Germany, 1905 (?)
dux
very rare, only one known
1,5
44.5 × 28 × 3
WS-749

The only known Napier device for British currency multiplication.
Omega British Currency decimal multiplication – Rechnerlexikon.
Top – Napier device (multiplication), bottom – adding device. Both adding and multiplication for British currency.
Made by Bamberger.
The same machine listed under Napier.



DILWORTH ADDER
US, 1906
*****
very rare, only one known
9 × 9
12.5 × 16.7
WS-758

The first device of this type manufactured in US. The only one known to survive.
No Troncet/Kummer type carry.

SEMPLIX
Italy, 1926
rare
9 × 9
0,25
10 × 7 × 1
WS-156

1st model. No Troncet/Kummer type facility to enforce carry, mark to manually add one in the next column (decimal position).

SASCOL EUROPEAN
Italy, 1957
rare
9 × 9
11 × 4.5 × 0.7
WS-637

The smallest calculator in the world, rare, No Troncet/Kummer type facility to enforce carry, mark to manually add one in the next column (decimal position).

ACCOUNTANT MACHINE BY APPLEBY

UK, 1856

very rare, one of a kind

2,5

20.5 × 37.5 × 2

WS-147

James Appleby – Computer Timeline (computer-timeline.com).

YOUNG DEVICE FOR CALCULATING INTEREST

US, 1851

****

very rare, maybe only one

0,25

45.5 × 5 × 1

WS-144

Samuel Young – Computer Timeline (computer-timeline.com) Mathematical Table, Young Rule For Calculating Interest | National Museum of American History (si.edu).

TIMETABLE DRING & FAGE

UK, 1900s Early

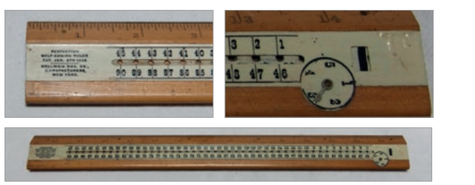
rare (?)

0,75

43.5 × 6.5 × 1

WS-145

Calculates number of weeks for rent calculation. Devices sold since 1850s. Address indicates early 1900ies. In Science museum there is one such device. They indicate ~1850.



PERFECTION SELF ADDING RULER

US, 1895

Patented Jan 8, 1895, rare / very rare

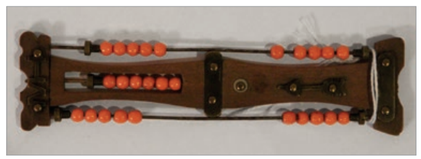
0,25

38 × 4 × .5

WS-146

Perfection Self-Adding Ruler | National Museum of American History (si.edu).

ABACUS



JAPANESE (?) POCKET (LADY'S (?)) ABACUS

Japan (?), (?)

very rare

15 × 4

WS-436

Beads seem to be made of coral. Note that middle row has one more bead (6+1), all other ones are 5+1. Valéry Monnier thinks this abacus might be a game counter.

VERY SMALL RUSSIAN BONE ABACUS (SCHOTY)

Russia, 1800s

*

rare / very rare (?)

11.5 × 9

WS-437

Made out of bone (ivory?), pocket size.

RUSSIAN SCHOTY

Russia, 1800s

*

scarce

25 × 18 × 4

WS-626

RUSSIAN SCHOTY (SMALL)

Russia, 1800s (?)

scarce / rare (?)

17 × 10 × 1

WS-627

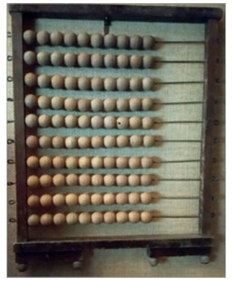
RUSSIAN ABACUS "SCHOTY"
Russia, 1800s-1900s
common
46 × 32 × 7
WS-628

RUSSIAN SCHOTY
Russia, 1900s
rare (?)
39.5 × 25 × 6
WS-629

Very elegant (Ebony?).

RUSSIAN ABACUS "SCHOTY"
Russia, 1900s
common
26 × 17 × 2
WS-630

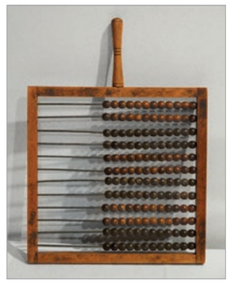
RUSSIAN, SMALL SCHOTY
Russia, 1900s (?)
common
13.5 × 11 × 2
WS-631



DEMONSTRATION ABACUS
Sweden, 1900s (?)
rare / very rare (?)
46 × 40 × 3
WS-632

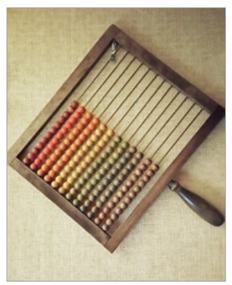
Bought in Sweden.

TEACHING/DEMONSTRATION ABACUS
Germany (?), XIX C
rare / very rare
75 × 68 × 26
WS-746



ABACUS (AMERICAN)
US, 1800s (?)
rare (?)
32 × (32 + 9)
WS-633

Please note there are 12 beads in each row.



AMERICAN SCHOOL (?) ABACUS
US, 1800s (?)
rare (?)
31 × (26 + 9) 9 handle
WS-634

Note: there are 12 beads in each row.

TRONCET / KUMMER ADDING DEVICES

ARITHMOGRAPHE TRONCET

France, 1889

****

rare

№

7 × 8

0,75

15.5 × 10.5 × .5

WS-148

Only few Kummers are known to exist, Troncet is the first commercialized.

ARITHMOGRAPHE TRONCET

France, 1889

****

rare

№

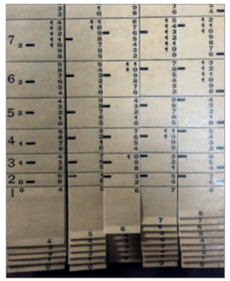
7 × 8

1,25

13.5 × 10 × .5

WS-149

Troncet pour les quatre operations; Le Calcul Instantane.



ARITHMOGRAPHE TRONCET WITH GENAILLE-LUCAS MULTIPLIER

France, 1889

****

very rare, possibly one of the kind

№

9 × 9

2,25

19 × 13.5 × .5

WS-150

More details in listing of the same device with multiplying devices.

ARITHMOGRAPHE TRONCET

France, 1907

****

very rare

№

8 × 8

0,25

26 × 16 × 13

WS-151

LE CALCUL INSTANTANE TOTALISATEUR TRONCET.

France, 1895

***

rare / very rare

№

2 × 2

1

25 × 19 × 1

WS-48

This is not a troncet type device, just invented and made by Troncet.

KOPERNIK

Poland

rare / very rare

№

9 × 9

0,5

16 × 9 × 1

WS-155

Manufacturer Szyldy, Toruń Poland.

ARITHMOS MARS

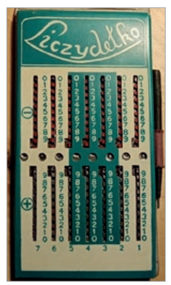
Poland

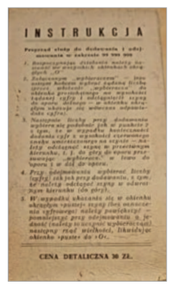
scarce

№

10,5 × 16 × 1

WS-636





LICZYDEŁKO

Poland, 1960ies (?)

very rare

№

8 × 8

11.5 × 5.7 × 0.2

WS-760

(Eng.: *Little calculating toy*)
Very rare polish addiator.
Possibly the only one.

ADDIERMASCHINE TRICK
Germany, 1912
rare
8 × 8
16 × 8 × 1
WS-157

Designed by Christel Hamann.

"КАРМАННЫЙ АРИФМОМЕТР"
KARMENNYI ARITHMOMETER
(Pocket Arithmometer)
Russian (Soviet?), 1929-1935
rare, very rare (?)
16 × 9 × 1.5
WS-638

Rare Russian version of (French) Rebo, manufactured in Leningrad.
Arithmometer production in Leningrad
Timo Leipälä SORUCOM-2014,
Kazan 15.10.2014.

REBO
France, 1930s
common
16 × 9 × 1.5
WS-639

("standard")

SERVAL SYSTEM
US, 1930s
scarce / rare (?)
28 × 18 × 2
WS-640

LE PETIT ARITHMETICIEN /
THE LITTLE ACCOUNTANT
Germany, 1800s late
***
very rare
0,5
31 × 23 × 3
WS-158

EUREKA
France, 1889
***
very rare
1
31 × 24 × 3
WS-159

With an original box.

LE GRAND DISQUE CHIFFRE LES QUATRE PREMIÈRES RÈGLES DE L'ARITHMÉTIQUE
France, 1860
***
very rare
38.5 diameter
WS-773

Le grand disque chiffré Musée National de l'Éducation.
Very rare device illustrating primary operations of adding, subtracting, multiplying, and dividing.

GALTON BOARD
Germany (?), Early 1900s
**
very rare
WS-779

The Galton board, also known as a quincunx or bean machine, is a device for statistical experiments named after English scientist Sir Francis Galton. It consists of an upright board with evenly spaced nails (or pegs) driven into its upper half, where the nails are arranged in staggered order, and a lower half divided into a number of evenly-spaced rectangular slots. The front of the device is covered with a glass cover to allow viewing of both nails and slots. In the middle of the upper edge, there is a funnel into which balls can be poured, where the diameter of the balls must be much smaller than the distance between the nails.
The funnel is located precisely above the central nail of the second row so that each ball, if perfectly centered, would fall vertically and directly onto the uppermost point of this nail's surface (Kozlov and Mitrofanova 2002).
Galton board – Wikipedia.

"CONSUL" EDUCATED MONKEY
US, 1918
*
rare if complete
WS-641

"Consul the Educated Monkey", or the inventions of William H. Robertson | National Museum of American History (si.edu).

"CONSUL"THE EDUCATED MONKEY
1916
*
0,25
WS-164

Multiplication 3 × 5
Legs are on 3 and 5.
Result (hands) point to 15.

LEO THE WONDER LION
US, 1950s (?)
rare (?)
0,25
14 × 21.5 × .25
WS-163

Leo the Wonder Lion.

DER KLEINE RECHENKÜNSTLER
Germany, 1945
rare
0,25
27 × 16.5 × .25
WS-160

Exchangeable "plates" for operations not original.

MICKEY MOUSE PROFESSOR KNOW-IT-ALL
US, 1970s (?)
scarce
0,25
25 × 17.5 × .25
WS-161

Incomplete set of operations.

RECNOMATIC, MY MATHS-MASTER BY AURORA
US, 1972
scarce
0,25
28 × 19 × .5
WS-162

Incomplete set of operations.

FINGERS
Germany, 1921 (1919?)
rare / very rare
6
42 × 13 × 24
WS-171

Lernhilfen – rechnen-ohne-strom – historische Rechenhilfen (rechnen-ohne-strom.de)
D.R.P. Lehrer Wlecke
Patent DE331979 05.03.1919
Rechnen mit den Fingern | HNF Blog.

SMITH AND DOLIER'S ARITHMETICAL SCALES
Liverpool England, 1880-1900
very rare and unusual
1,2
2.5 × 12 × 30
WS-748

In Science Museum in London there is another one. After doing research, it seems like this and Science Museum sets are incomplete. A complete set contains four sets: "simple addition", "simple division", "simple multiplication and "simple subtraction". None of Arithmetical Scales sold or auctioned had all sets. It is likely they were sold separately.

SAPS, TABLE DE MULTIPLICATION
France, 1890
very rare
23 × 20
WS-642

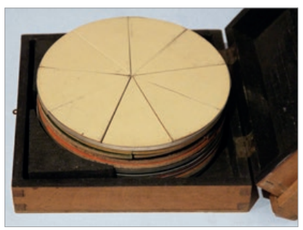
Learning tool for kids.
Same as in Malassis collection.
Very rare to find one in such a good state.

SONNENSCHEIN IMPROVED ARITHMOMETER
UK, Initially manufactured before 1879, this device made after 1884
*
very rare
100-1000
12.5 × 12.5 × 11
WS-775

No. 2. (100-1000).
Silver Medal in Paris Exhibition 1879,
Bronze Medal Health Exhibition London 1884.
One piece (10 × 10) missing, there should be 10 instead of 9 10 × 10 pieces.
Rendering visible square and cubic decimetres, litres and kilograms.

ARCHIMEDES, DEVICE TO TEACH FRACTIONS
Germany, 1930
very rare
21 × 21 × 6
WS-643

Archimedes, the Divisible Apple | National Museum of American History.



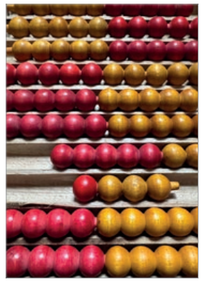
GERMAN FRACTIONS' TEACHING TOOL
Germany
rare
WS-644

On the box/enclosure not a legible stamp with Kleinsorge (?) Vollbrecht.

WALT DISNEY WORLD RULER
US, 1970ies (?)
scarce
0,25
46.5 × 8.5 × .25
WS-165

Adding and multiplications, two sided.

LET'S ADD 1 TO 5
US, 1920ies (?)
rare
0,25
15.5 × 20.5
WS-166



STEINHILBER ABACUS TOPOS "HOPFENLEICHT" D.R.P.
Germany, 1930s
rare / very rare
WS-742

Abacus like. Note: beads are not strung on the wires. See drawing on the box.

KUHN'S DRILL-TEST
US
rare / very rare (?)
0,5
16.5 × 16.5 × 1.5
WS-168

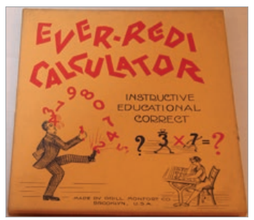
An Automatic Self-Verifying Game of Arithmetic.

KUHN'S DRILL-TEST
US
scarce / rare (?)
0,5
20 × 20 × 1.5
WS-167

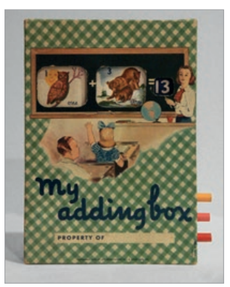
Kuhn's Drill-Test, An Automatic Self-Verifying Game of Arithmetic. Different "games" – adding, subtraction.

ADDO PRIMARY CALCULATOR
UK, 1968
scarce
0,25
14 × 14 × 2
WS-79

Addo Limited Education Division London, Viking House, 5-11 Worship Street.
Column adder, Calculates up to 249,
Designer Clark, Ashby James Leslie.



EVER-REDI CALCULATOR
US, 1920s (?)
rare
0,25
16.5 × 16.5 × 1.5
WS-169



MY ADDING BOX
US, 1949
scarce (?)
WS-645

Toy to teach adding.
How much is 1 + 3? See the clue on the box.

SEARS BACK TO SCHOOL ADDING MACHINE
US
common
2 × 3
16 × 12 × 1
WS-64

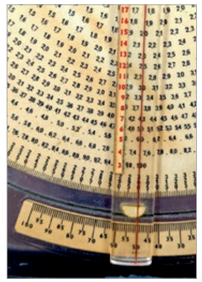
Will add up to 500, patent pending.

RITHMETIC KID
US
rare (?)
+/- to 55
14 × 12 × 1
WS-65

AUKI ADDING/SUBTRACTING DEVICE
Germany, before 1949
rare
Adding/subtracting 1 or 2 for numbers up to 20
17 × 3
WS-759

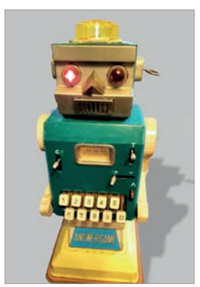
BADALAMENTI FACTORIZATION RULE
Italy, 1958
very rare and unusual
Factorization of numbers up to 3,199
16.1 × 15.4
WS-747

Allows to find prime factors of numbers.
The calculator won a gold medal at the XI international salon of inventions at Brussels in 1962.
Also listed with Ready reckoners.
Gaetano Badalamenti's factorization slide rule (nzeldes.com).



DIAL-A-GRADE
US, 1960ies
very rare, prototype, only one
12" × 11" × 3 30.5 × 28 × 7.5
WS-772

As dial arm is aligned to an inner number (there is a dot for correct number alignment), the outside number is the final value of the inside number multiplied by the red number it is lined up to on the dial arm. Bottom separate chart showing "100" at the left and "0" at the right is for the addition and subtraction functions. Moving the dial arm to a number to be either added from the total or subtracted from the total, allows the top outer chart number to then point to the new total.



ANSWER GAME MACHINE
Japan, 1962
very rare
Adds up to 999
35 × 16 × 16
WS-778

The battery operated robot was made by Ichida.
Column adder.

MULTIPLYING DEVICES

Napier Devices

NAPIER BONES / RODS
UK (?), 1700s early Early XVIII C, Late XVII C (?)
*****
very rare
8 × 8 × 1
WS-173

Very rare model/example.
Missing one piece.
Unusual set up of numbers on the top to indicate columns on each side of the rod. The 2nd row indicates actual number (column) multiplied. Valéry Monnier told me, according to Stephen Weiss, this type of set up found in early literature on Napier bones. A "standard" set of rods (see below) shows only the actual column. The one on the other side of the rod is always a 9 complement, i.e. for number 4 it is 5 (= 9-4).

NAPIER BONES / RODS
UK (?), 1700s early Early XVIII C
*****
very rare / rare (?)
8 × 6 × 1
WS-174

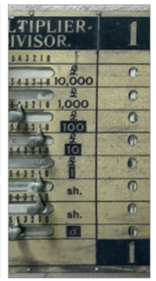
Napier's Bones – Computer Timeline (computer-timeline.com).
Roegel2015genaille.pdf (loria.fr) this article shows Napier bones in different numbering systems, e.g. hexadecimal.

ARITHMOGRAPH DUBOIS
France, 1866
***
very rare
46 × 23 × 6
WS-646

Napier Multiplying device. Few are owned by CNAM in Paris.

OMEGA RECHENMASCHINE
Germany, 1905 (?)
*
rare / very rare (?)
1,5
44.5 × 28 × 3
WS-138

Combined adder/multiplying device.
Top – Napier device (multiplication), bottom – adding device.
Made by Bamberger.
Note: This device is listed in another place with adding devices.



OMEGA RECHENMASCHINE
Germany, 1905 (?)
dux
very rare, possibly one of the kind
1,5
44.5 × 28 × 3
WS-749

The only known Napier device for British currency multiplication. Omega British Currency decimal multiplication – Rechner-lexikon.
Top – Napier device (multiplication), bottom – adding device. Both adding and multiplication for British currency.
Made by Bamberger Note: This device is listed in another place with adding devices.

ARITHMOGRAPHE TRONCET
France, 1907
****
very rare
8 × 8
0,25
26 × 16 × 13
WS-151

Built in Napier Multiplication device.

MASZYNKA "ILO"
Poland, 1920s (?)
very rare
23 × 15 × 3
WS-175

Napier device, Polish (design?)
Patent 1457/163 Only one to exist (?).

PRONTO RISOLUTORE PER LE MULTIPLICAZIONI E LE DIVISIONI
Italy, 1910 (?)
rare / very rare (?)
10 × 18 × 1
WS-176

NAPIER BONES/ RODS
Netherlands, 1970s (?)
scarce / rare (?)
0,25
12 × 8 × 3
WS-177

With instructions, "paper bones" made by Peter Roubos.

CALCOLATORE MC
Italy, 1900s early (?)
rare
8 digits
16 × 14
WS-647

Napier type device.

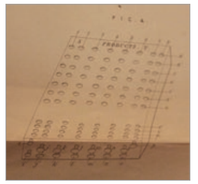
SCHOLAR'S EDITION NAPIER'S RODS
UK, 1966
scarce (?)
20.5 × 15
WS-648

Non Napier Multiplying Devices

ROTH MULTIPLICATEUR ET DIVISEUR À RÉGLETTES
France, Replica of 1844 original made by Valéry Monnier (2008)
only one remake
46 × 29 × 5
WS-649

This is a beautiful replica of this multiplying device made by Valéry Monnier.
Les machines du Dr Roth (ami19.org)
RothMulti.pdf (ami19.org) David Roth – Computer Timeline (computer-timeline.com).
RothMulti (mechrech.info)
Multiplicateur et diviseur à réglette dit "prompt multiplicateur et diviseur" in the CNAM collection.
CNAM original.

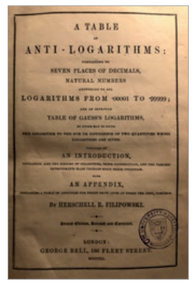
Slonimski Multipliers



SLONIMSKI'S BASED MULTIPLYING DEVICE
France, 1844-Replica (2009)
very rare, only two made
70 × 52 × 13
WS-650

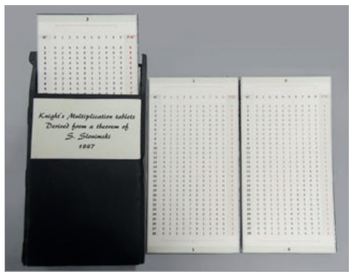
No need to mentally add carry (like in Napier Bones) and Roth above Chaim Zelig Slonimski – Computer Timeline (computer-timeline.com)
SloniMultE (loria.fr) SloniMultE (mechrech.info).
Recreation of Slonimski multiplying device by Valéry Monnier.
None of the Slonimski's devices survived.
Valéry made two of these devices.
Rechenmaschinen-Illustrated (rechenmaschinen-illustrated.com).

Slonimski Multipliers



HERSCHELL FILIPOWSKI'S CALCULATING MACHINE FOR MULTIPLICATION AND DIVISION
UK, 1860
****
very rare
14 × 12 × 8
WS-180

Based on Slonimski's patent: carryover state of all possible carryover outcomes.
Herschell Filipowski (computer-timeline).
Herschell Filipowski – Wikipedia JoffeFilipowski.pdf (mechrech.info).
Two devices are known to exist. Another is in the Science Museum in London.
Also Filipowski's book with tables of Anti-logarithms.



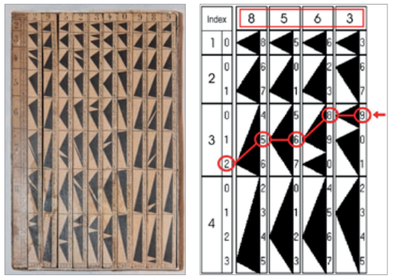
KNIGHTS TABLES
France, 1848-Replica (Knight's book) (this device 2010ies)
*
very rare, remake
№
1
22 × 13 × 7
WS-651

Made by Valéry Monnier, original Knights tables were published by Henry Knight in 1847. Tables were based on the Slonimski's theorem KnightTablets1847 (mechrech.info).

JAFFE BARS
Poland/Ukraine, 1881-Replica 2010 remake made by Valéry
***
very rare, remake
№
19 × 28 × 39
WS-652

Remake by Valéry Monnier JoffeFilipowski.pdf (mechrech.info) SloniMultE (mechrech.info) There are no known surviving Joffee bars.
Example for multiplying 274 by any number between 1 and 9. Number on the bottom next rod "number", on the top rod "number". E.g. 274 × 7 = 1918.
From jewishencyclopedia.com: "*Zebi Hirsch Jaffe: In 1877 Jaffe published in "Ha-Zefirah" (No. 24) his first mathematical article, and since that time he has contributed many mathematical and Talmudic articles to that periodical and to "Ha-Asif." In 1881 Jaffe went to Moscow, where he exhibited his calculating-machine, which won him honorary mention by the administration of the exhibition.*"
Ha-Zefira was a Hebrew science magazine created by Slonimski, for which Slonimski was initially a main contributor.

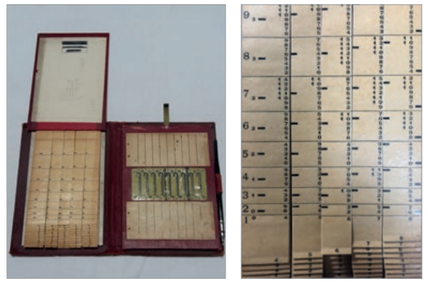
Genaille-Lucas Devices



LES REGLETTES MULTIPLICATRICES BY HENRI GENAILLE
France, 1885
****
very rare, cover might not be original
№
0,5
18 × 13 × 2
WS-178

Napier's Bones (computer-timeline.com)
roegel2015genaille.pdf (loria.fr).
Die Multiplizierstäbe von Genaille und Lucas (multiplication example of 8653 × 3 = 25689).

LES REGLETTES FINANCIERES INVENTES HENRI GENAILLE
France, 1885
**
very rare
№
0,5
18 × 13 × 2
WS-179



ARITHMOGRAPHE TRONCET
France, 1889
**
very rare, possibly one of the kind. This is an unknown, till now, variety of Genaille-Lucas multiplication device.
№
9 × 9
2,25
19 × 13.5 × .5
WS-150

Arithmograph Troncet with Multiplier
The interesting part is an attempt to use Genaille-Lucas adding methodology with the disadvantage of manually adding carry. As one had to add carry, ("1" to the left (if present) needs to be added to the next position. The process was very cumbersome, and it was easy to make mistake. In a sample to the right number 45678 is multiplied by any digit. Let's assume by 9. We create a number in reverse order: 2 (next) 0 (next) 1 (0+1) (next) 1 (0+1) (next) 1 (0+1) (next) 4 (3+1). Now we need to reverse order of 201114 -> 411,102
Also listed with Troncet/ Kummer type devices.

Multirex-Multor

MULTIREX-MULTOR (AUSTRIA)
Austria, Beginning of XX C.
Date unknown
very rare
№
508
12 × 8 × 1
WS-770

Multirex-Multor for multiplying multi-digit factors.
Multirex – Calculator Dictionary (rechnerlexikon.de).

BONE (IVORY?) RECKONER
UK, 1820s (?)
very rare
№
13 × 2.5
WS-736

Several scales: Side 1 (to the left): Multiplication table. Side 2 (further to the left): Scales on the other side: cXm/cXt/cXv (shifting 9,8,7... 3, 2, 1), P/S/P (conversion of pennies to shilling and pennies (and vice versa); S/P/P (conversion of pennies and shillings into pounds); C/Q/T CWT (Hundredweight) and Q (quarters) into T (tons).

TACHYLEMME
France, 1880s
**
rare
№
1
18 × 10 × 4
WS-181

Louis Chambon (computer-timeline.com)
Patented 1876 C.L. Chambon Inventeur.

TACHYLEMME

France, 1880s

rare

1

18 × 10 × 4

WS-182

C.L. Chambon Inventeur.

MCFARLANE'S CALCULATING CYLINDER

UK, 1835

rare

0,5

6 × 6 × 16

WS-183

Scales slightly damaged.
McFarlane calculating cylinder, Glasgow, 1835
si.edu.

MULTIPLICATION TRIANGLE

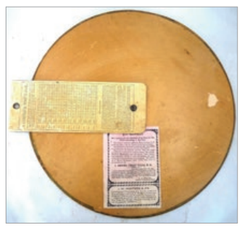
US (?), 1820s

very rare

Multiplication Table up to 25 × 25

24 × 24

WS-653



WORTHEN INTEREST CALCULATING DEVICE.

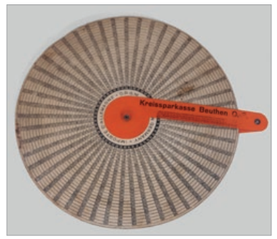
US, 1849

very rare

30 cm diameter

WS-767

Simple and compound Interest Table and Indicator, for any Amount from 1 cent to 1000 Dollars at six percent., from 1 Day to 7 Years.
Any other interest user needs to approximate based on 6 %.



KREISSPARKASSE BEUTHEN

Germany, 1930-ies or earlier (?)

scarce / rare

0,25

17 × 17 × 1

WS-185

O.S. Multiplication table.

FOXY GRANDPA'S MULTIPLIER

US, 1904

very rare.

0,25

12 × 12 × 1

WS-186

Multiplication table.

ARITHMETICAL TABLE

US, 1856

very rare

0,25

12 × 4 × 4

WS-187

VanDerver's Patent, Improved by J.B McCrall, Published by J.B. Morrill.

INSERT IN L'ENCICLOPEDIA DEI RAGAZZI, SPIEGA TUTTO

Italy, 1911 (?)

(?)

0,25

12 × 17.5 × .25

WS-189

1911 is the year of the first edition, not sure what edition was this device with and how many survived.

IL NUOVO PITAGOGIR TABELLINE

Italy, 1947

0,25

14.5 × 13 × .25

WS-190

Brevetto 427221.

MOKO LIGHTNING CALCULATOR

Germany, 1900

rare / very rare (?)

0,25

7 × 7 × 1

WS-191

IBM Archives: Moko Lightning Pocketwatch Calculator.

A L J U D.R.G.M

Germany, Before 1945

rare (?)

0,25

14 × 2 × 2

WS-221

A L J U D.R.G.M – the only identifier / there is no name of the device.

PITAGORA-900 TAVOLETTA-BREVETTATA

Italy, 1920s (?)

very rare

0,25

17 × 17 × 1

WS-200

Graphically very beautiful, colors and shape look like from1920s.

LA NATIONALE

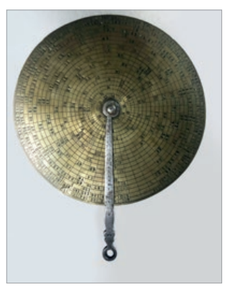
France, 1910-1920

very rare

18 × 14

WS-750

The machine is French, it has French national colors: white, blue and red and it is called "La Nationale". Results of the multiplication are the same regardless of the user's nationality :). Original way for finding multiplication results: the arrow related to the multiplicand points to the number between 2 and 9 (on the bottom). Big arrow points to the result on the outer circle.



FACTORIZATION DEVICE (?)

US (?), 1836

unique, very rare

17 cm diameter

WS-718

No special marking except 1836 (presumably production year).
The device is a table of factors of every 4th number between [200, 400] and the numbers [1, 20].
Also catalogued with miscellaneous devices.

BADALAMENTI FACTORIZATION RULE

Italy, 1958

very rare and unusual

Factorization of numbers up to 3,199

16.1 × 15.4

WS-747

Allows to find prime factors of numbers. Also listed with educational aids Gaetano Badalamenti's factorization slide rule (nzeldes.com).

ADDING MACHINES – PARALLEL WHEELS

G.W. CHAPIN

US, 1870

*****

very rare

7 × 7

4

20 × 16 × 14

WS-201

The first machine of this type manufactured. This is the only one known.
Gilbert Chapin – Computer Timeline (computer-timeline.com).

SIRIUS
Germany, 1912
very rare
34
7 × 7
7,25
26 × 18 × 17
WS-202

Only few are known.

SOMATRICE AUTOMATICA (FOSSA-MANCINI)
Italy, 1896
*****
First Italian machine commercially produced very rare
8 × 8
4,24
20 × 13 × 15
WS-203

A small number were produced by Japy (France). The first Italian machine manufactured. Many machines were later created on the same principle.
Carlo Fossa-Mancini – Computer Timeline (computer-timeline.com).

ADDAC, ACCURATE ADDER AND SUBTRACTOR
US, 1925
*****
scarce
8 × 8
6
20 × 14 × 14
WS-204

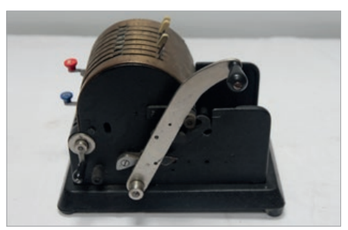
LIPSIADDI
Germany, 1914
rare / very rare
6 × 6
2,25
7 × 10 × 10
WS-206

Predecessor of Addi 7 and Addi 9.

ADDI 7
Germany, 1930
scarce (?) / common
22640
7 × 7
4,75
12 × 13 × 13
WS-207

ADDI 7 D.R.P
Germany, 1930
scarce
7238
7 × 7
4,75
13 × 14 × 14
WS-208

ADDI-9
Germany, 1930
rare / very rare
8100h102
9 × 9
6
17 × 13 × 15
WS-209



ADDI 7 WITH PRINTER
Germany, 1930
rare
9911
7 × 7
7,75
14 × 24 × 19
WS-220

Incomplete printing mechanism.

ADDI 7 WITH PRINTER
Germany, 1930
rare
9589
7 × 7
WS-654

RENEA
France (?), 1930-1940-ies (?)
prototype (?), unique, very rare
6 × 7
6,26
15 × 15 × 19
WS-210

Machine was never manufactured. Very similar to Addi 7, Addi 7 prototype (?).

RESULTA-BS"7"
Germany, 1936
common
7742M
7 × 7
3,15
10 × 15 × 11
WS-213

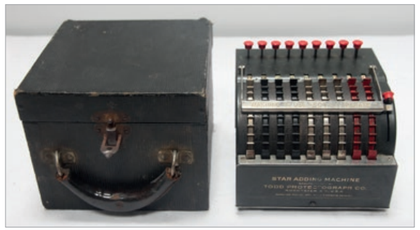
RESULTA 9
Germany, 1960
common
657
9 × 9
3,75
11 × 17 × 11
WS-211

SPEZIAL
Germany, 1922
scarce
7 × 7
3,75
12 × 15 × 13
WS-212

Regina Spezial – Rechnerlexikon.

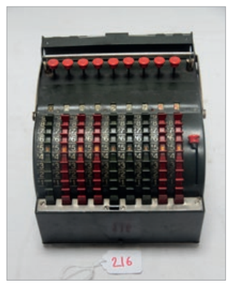
TODD VISIBLE ADDING MACHINE
US, 1926
rare with totalizator
39356
9 × 9
10
17 × 17 × 18
WS-214

With totalizator.



STAR ADDING MACHINE
US, 1921
common
20659
9 × 9
8,25
17 × 16 × 15
WS-215

Patented 1921.



STAR ADDING MACHINE
US, 1926
common
31731
9 × 9
8,75
17 × 16 × 15
WS-216

LITTLE GIANT
US, 1924
common
WS-655

ADD-O-MATIC
US, 1937
scarce
6 × 6
31 × 15.5 × 12
WS-656

Add-O-Matic Adding Machine – Rechner-lexikon.

ADDIMULT ZIFFREX
Germany, 1956
scarce / common (?)
4396
7 × 7 × 7
9,25
18 × 27 × 16
WS-259

MISCELLANOUS ADDERS

MONIQUE BIJOU
France, 1920 (?), earlier (?)
rare / very rare (?)
3 × 3 Last digit either empty or 0
10 × 5 × 1.5
WS-739

Paris. Adder/counter.

KEYBOARD ADDING MACHINES

Comptometers

THE FIRST COMPTOMETER MODEL.
US, 1887
*****
very rare
245
8 × 9
WS-657

The first commercial model.

COMPTOMETER
US, 1896
rare
3501
8 × 9
10,25
37 × 19 × 13
WS-251

Wooden model. Last patent year 1896.

COMPTOMETER
US, 1904
rare
17129
8 × 9
15,25
37 × 24 × 14
WS-252

Patent August 9, 1904.

COMPTOMETER
US, 1928
rare
1869
10 × 11 + 11
27
46 × 28 × 16
WS-258

Super Totalizator ST.

COMPTOMETER EDUCATOR
US, 1950s (?)
rare (?) / scarce
5 × 5
13 × 16
WS-658

Not a calculator, device for training only.
Comptometer Educator | National Museum of American History (si.edu).

Miscallenous Keyboard Adding Machines

MECHANICAL ACCOUNTANT DUPLEX (?)
US, 1900
rare
11567
5 × × 6
10,75
16 × 34 × 14
WS-264

Made in Providence RI Joseph Turck – Computer Timeline (computer-timeline.com).
Business equipment topics. V. 29-31 (1915). – Full View | HathiTrust Digital Library | HathiTrust Digital Library.

SIMPLEX MECHANICAL ACCOUNTANT
US
rare
8 × 8 × 9
10,75
22 × 33 × 15
WS-266

Made in Providence RI, 17 Warren str (picture from Google maps).

MECHANICAL ACCOUNTANT
US, 1903 (?)
rare
616
8 × 8 × 9
WS-756

Model B,
Ad from FACTORY 1-3 (Google)
The Machine has a new clearing "butterfly".
Clearing blocks and it is very tight.

BURROUGHS CALCULATOR
US, 1912
rare
206559
9 × 10
15
37 × 26 × 15
WS-255

"Comptometer" model, It was designed very much like Comptometer, Felt & Tarrant sued, and Burroughs stopped making this model. Less than 4,000 manufactured.

TORPEDO
Germany, 1933
common (?)
9 × 9
5,25
24 × 16 × 11
WS-260

DIRECT-II DIRECT-II
Germany, 1920 (1927?)
common / scarce (?)
10 × 10
22
33 × 40 × 16
WS-262

Rechnerlexikon

COMMONWEALTH
US, 1915
very rare
320
12
16 × 24 × 18
WS-658

Production started and ceased in 1915.
Provenance – Russo Collection.

BARRETT FIGURING MACHINE	A or A9
US, 1930 (?)	
scarce / rare (?)	
9 × 0 × 9	
7	
15 × 22 × 14	
WS-265	

MERCEDES A51	Printing adding machine.
Germany, 1938-1973	
common	
10 × 0 × 11	
31 × 25 × 19.6	
WS-659	

BDC CONTEX 10	
Denmark, 1957-1968	
common	
3 × 8 × 12	
6	
25 × 17 × 10	
WS-414	

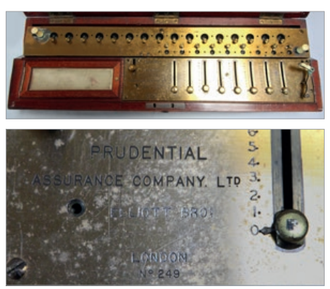
STEP DRUM MACHINES

Thomas de Colmar Arithmometers

ARITHMOMETRE THOMAS DE COLMAR	www.arithmometre.org One of the first Thomas machines. Earlier owned by Hottinguer Bank since 1850s Model T1852A.
France, 1852	
*****	
very rare	
164	
5 × 10	
8,75	
38 × 16 × 9	
WS-222	

ARITHMOMETRE THOMAS DE COLMAR	Model 1870 Boulle Box (enclosure).
France, 1870	
*****	
rare / very rare	
1300	
10 × 11 × 20	
22,25	
71 × 19 × 10	
WS-223	

British Arithmometers



ELLIOTT BROTHERS.	First British Arithmometer. Making the arithmometer count (ox.ac.uk). Elliott Brothers were manufacturers of scientific instruments in XIX and XX C in London.
UK, 1882	
****	
very rare	
249	
8 × 9 × 16	
59 × 19 × 11	
WS-527	

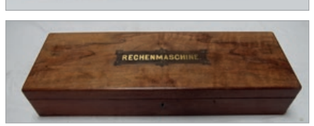
TATES PATENT ARITHMOMETER	Samuel Tate – Computer Timeline (computer-timeline.com).
UK, 1883	
rare	
8 × 9 × 16	
29	
63 × 21 × 19	
WS-227	

TATES IMPROVED ARITHMOMETER	1903 Patent Samuel Tate – Computer Timeline (computer-timeline.com).
UK, 1903	
rare	
9 × 9 × 16	
27	
57 × 20 × 16	
WS-226	

German Arithmometers – Burkhardt

BURKHARDT ARITHMOMETER	
Germany, 1878	
*****	
One of the earliest very rare	
72	
6 × 7 × 12	
14,5	
47 × 19 × 10	
WS-236	

Glashuette very early model: serial 72
Arthur Burkhardt – Computer Timeline
(computer-timeline.com).



RECHENMASCHINE BURKHARDT	
Germany, 1882 (?)	
***	
Early very rare	
342	
8 × 9 × 16	
19,5	
59 × 20 × 11	
WS-235	

BURKHARDT	
Germany, 1883 (?)	
***	
rare / very rare Early model	
461	
6 × 7 × 12	
16,5	
47 × 20 × 11	
WS-263	

Glashuette. Brochure for later model.

Other German Arithmometers

H. BUNZEL – DELTON	
Germany, 1898-1904	
Early model rare	
1230	
8 × 9 × 16	
21	
60 × 21 × 14	
WS-261	

Bunzel (2) – Rechnerlexikon two radio buttons. Condition: Works only for addition. One should not try to do different operation., the machine may block. It (barely) survived a sloppy repair in the past. Three left most sliders are missing.
Designed by Burkhardt.

PEERLESS BABY	
Germany, After 1904	
very rare	
5166 (Serial number on the box)	
9 × 9 × 12 × 8	
10,5	
33 × 17 × 10	
WS-230	

Early baby.

PEERLESS BABY	
Germany, After 1904	
rare	
9 × 9 × 12 × 8	
14,25	
31 × 16 × 11	
WS-231	

PEERLESS II	
Germany, 1908	
rare	
8 × 9 × 16	
22	
58 × 20 × 23	
WS-229	

Patented July 7, 1908.

SAXONIA	
Germany, 1901	
rare	
8439	
8 × 9 × 16	
21	
60 × 20 × 13	
WS-233	

Saxonia calculating machine
(history-computer.com).

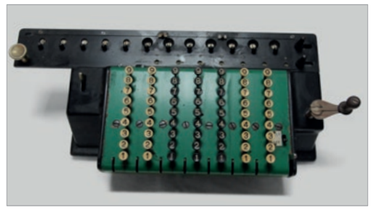
SAXONIA 5 (?)
Germany, 1914 (1919)-1925
rare (?)
10 × 10 × 13
28
48 × 27 × 13
WS-234

Different precision from rechenlexikon 10 × 10 × 13.
Logo design very similar to Singer Sawing Machines.

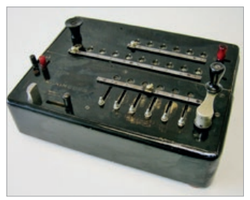
X×X, SEIDEL & NAUMANN DRESDEN
Germany, 1906
rare / very rare
9 × 8 × 13
26
50 × 20 × 11
WS-225

UNITAS
Germany, 1907 (?)
very rare
548, On registers 861/702
8 × 7 × 12 × 12
33
46 × 26 × 16
WS-228

TIM III
Germany, 1910-1929
scarce
8 × 9 × 16
26
55 × 17 × 20
WS-242



TIM II
Germany, 1909-1927
scarce
7 × 7 × 12
23,5
45 × 20 × 15
WS-257



ARCHIMEDES F JUNIOR
Germany, 1925-1940
very rare (?)
6 × 6 × 10
8,8
21 × 16 × 6
21 × 16 × 10 with handle
WS-753

Miniature arithmometer.

ARCHIMEDES
Germany, 1920-1940
scarce
3067
10 × 9 × 16
14,25
39 × 17 × 13
WS-256

Suisse Machines – Millionaire (Direct Multiplication Device) and Suisse Arithmometers

Ernst Martin "Calculating Machines": *The Millionaire machine is to be regarded as a proper multiplication machine in that it solves problems of multiplication directly on the basis of the multiplication table, whereas other types of calculating machines are only adding machines and, as such, carry out multiplication by a continued series of additions (exceptions are the machine by Ballée, of which only a very few were ever produced, the Moon-Hopkins machine, and the Kuhrt U.S. machine). (Subtractions and divisions may be regarded as additions and multiplications in a negative sense; therefore, we shall not make any special mention of them from this point on.) It is obvious that a multiplication machine that only employs the multiplier digit I corresponds to a pure adding machine.*

MILLIONAIRE WITH TOTALIZATOR
Switzerland, 1918
****
very rare
3010
8 × 8 × (16 + 16)
very heavy
65 × 45 × 18
WS-660

Non-electric. Direct multiplication machine.
Model VIII TD. Only 38 were manufactured.
Only two are known.
The Millionaire | Calculating machines
MADAS
Direct Multiplication Calculating Machines | Smithsonian Institution (si.edu)
John Wolff's Web Museum – Millionaire Register
Mystery Dating of the World-famous 'Millionaire' Calculating Machine Solved | blog@CACM | Communications of the ACM

MILLIONAIRE MODEL VIII
Switzerland, 1904
****
scarce
1481
8 × 8 × 16
WS-661

A direct multiplication device. 2116 manufactured Millionaire Calculating Machine with Stand | Smithsonian Institution (si.edu).

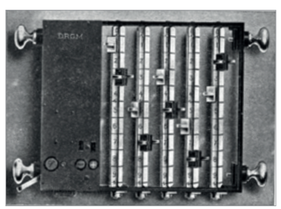
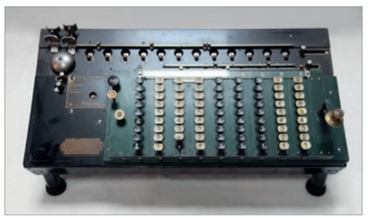


photo: rechnerlexikon.de/artikel/Egli_Material

H.W. EGLI KONSTANTENAPPARAT FÜR MILLIONÄR RECHENMASCHINE
Switzerland, 1914 (?)
very rare
6 digits
4,9
27 × 19 × 8
WS-777

Device to enter constant in Millionaire. The introduction of the full keyboard machine (1913) enabled the development of a constant apparatus (design protection 1914). Described by F. Bühlmann in his 1915 essay, made the work in surveying considerably easier.
It is the only device that I bought and was "lost in the mail". Hopefully it will be found.



MADAS VII T MALTA
Switzerland, 1924
Ptd' Dec 16 1913 etc. rare
11381
7 × 9 × 12
35
49 × 24 × 22
WS-253

Only 450 manufactured Electromechanical machines from H.W. Egli, Switzerland. (MADAS.ch).

MADAS XI MALE
Switzerland, 1915
very rare
7871
11 × 9 × 16
36
61 × 20 × 15
WS-254

Only 51 manufactured (Cross-reference | Calculating machines MADAS)
Ptd' Dec 16 1913 etc. Electromechanical machines from H.W. Egli, Switzerland. (MADAS.ch).

Curtas

CURTA I
Lichtenstein, 1949
*****
rare
6261
11 × 8 × 15
0,76
13 × 7 × 7
WS-238

Early model, pointy shifting pins.

photo: wikipedia.org/wiki/Kalkulator_„Curta"

CURTA I
Lichtenstein, 1953
scarce, because of relatively high cost. Otherwise, this device is easily available.
23615
WS-662

Blocked

CURTA I
Lichtenstein, 1961
scarce, because of relatively high cost. Otherwise, this device is easily available.
46534
8 × 6 × 11
0,75
13 × 7 × 7
WS-239

Curta – Wikipedia
The CURTA Calculator Page (vcalc.net)
Curta Startseite
Curt Herzstark – Computer Timeline (computer-timeline.com).

CURTA I
Lichtenstein, 1965
scarce / rare
60262
8 × 6 × 11
0,75
13 × 7 × 7
WS-241

Complete with original manuals and box.

CURTA II	
Lichtenstein, 1953	
****	
rare (early model). Otherwise Curta II is scarce.	
501496	
11 × 8 × 15	
1	
13 × 8 × 8	
WS-240	

Early Curta II model, serial 501496, Serial numbers stared with 500001.

CURTA II	
Lichtenstein, 1970	
scarce	
560601	
8 × 6 × 11	
1	
13 × 8 × 8	
WS-237	

There are quite a lot of Curtas out there. They are very popular and relatively expensive, so I put them in scarce category.

Brunsviga-10 Arithmometrs

BRUNSVIGA 10	
Germany, 1936	
common	
158673	
6 × 5 × 10	
8	
18 × 19 × 8	
WS-371	

Step drum, like Thomas, not pinwheel, 9,853 built up to 1943, Reese / Schneemann – Die Brunsviga 10 (ifhb.de).
Also listed with Brunsviga machines.

BRUNSVIGA 10	
Germany, 1936	
common	
157933	
6 × 5 × 10	
8	
22 × 11 × 20	
WS-372	

Step drum, like Thomas, not pinwheel.

Monroe Arithmometers

MONROE	
US, 1919-1921	
scarce / rare (?)	
27,078	
8 × 8 × 16	
29	
45 × 31 × 18	
WS-246	

G Baldwin and Monroe created a Monroe company. The machines used a split-stepped drum. INTRO: MONROE (beuth-hochschule.de) 10s-CARRY / SPLIT-STEPPED DRUM / MONROE TYPE (beuth-hochschule.de)

MONROE	
US, 1921	
common (?)	
8 × 8 × 16	
28	
43 × 40 × 20	
WS-245	

MONROE 024-16	
US, 1926	
common	
2501/8	
7 × 6 × 13	
7,5	
25 × 23 × 10	
WS-243	

Executive model Model L 1307 Monroe – a Collection of Mechanical Calculators (wordpress.com).
Same as L-160X except it is not equipped with spot-proof keyboard (whatever this means).

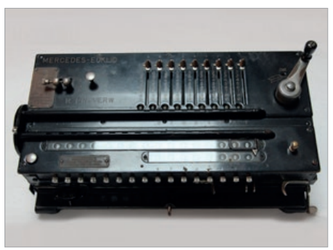
MONROE	
US, 1926	
common	
8 × 8 × 16	
6	
29 × 24 × 10	
WS-244	

Executive model Model L-160X Monroe – a Collection of Mechanical Calculators (wordpress.com).

MONROE
US, 1934
rare / very rare (?)
8 × 8 × 16
7,5
29 × 23 × 10
WS-232

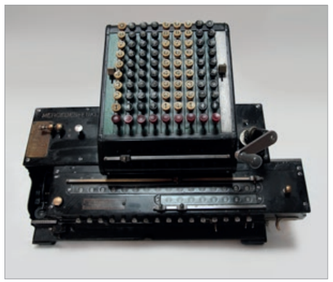
Executive with slides Monroe SS-160 rare with slides Monroe – a Collection of Mechanical Calculators (wordpress.com) Monroe SS – Rechnerlexikon Based on model L

Mercedes Toothrack Machines



MERCEDES-EUKLID IX
Germany, 1925-1932
***
rare
13500
8 × 9 × 16
31
38 × 23 × 21
WS-247

Automatic division, comma automatic (beuth-hochschule.de).



MERCEDES-EUKLID X
Germany, 1925-1932
rare
12553
8 × 9 × 16
42
42 × 27 × 29
WS-250

MERCEDES-EUKLID XV
Germany, 1927-1935
rare / very rare (?)
15883
8 × 9 × 16
29
40 × 21 × 21
WS-248

MERCEDES 16 (H)
Germany, 1927
rare / very rare (?)
01970
13 × 8 × 16
37.5 × 29 × 19.5
WS-665

Automatic division and automatic coma, 1st model with square keys.

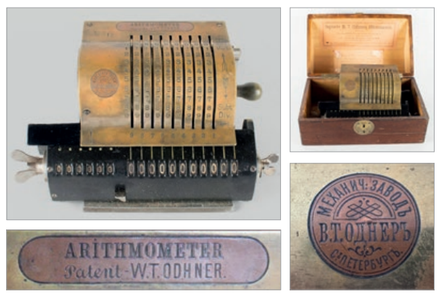
MERCEDES-EUKLID MODEL 29
Germany, 1936-1952
common
7 × 6 × 12
27,5
31 × 34 × 13
WS-249

PINWHEEL MACHINES

Russian Odhners

АРИФМОМЕТР
СИСТЕМЫ-В.Т ОДНЕР
Short handle model. Serial 21
Russia, 1890
*****
21
9 × 6 × 11
12,25
23 × 15 × 12
WS-267

The first known manufactured Odhner. Except prototypes in NMAH (Smithsonian Institution in DC) and Polytechnical Museum (Moscow), this is a "mother" (or maybe an older brother) of all these types of machines.
Odhner Arithmometer | Smithsonian Institution (si.edu).
Previously the oldest known was 50 in catalogue from 1910. 52 from Tekniske Museet in Stockholm was regarded as the oldest surviving one. Arithmometer letters above from tellia.com.
Odhner with serial 21 is the first known production machine of this type. It is historically very important machine. Original Odhner instructions are very rare. There are several very rare Odhners and rare early Soviet machines in the collection.



ARITHMOMETER PATENT W.T. Odhner
Russia, 1890
*****
very rare
313
9 × 6 × 11
23 × 14 × 12
WS-763

Odhner A. Short handle model. 9 × 6 × 11 is very rare.
From Timo Leipala:
Odhner 313 is depicted without any background information in Odhner booklets "Från Abacus till Odhner", 1958 "Vom Abakus zur Odhner", 1961 "From the Abacus to the Odhner", 1961 and maybe in some other Odhner publications, where the serial cannot be read. Evidently the calculator belonged to Odhner company.
Odhner taxonomy: Original Odhner – Rechnerlexikon. There is no agreed convention for naming different Odhner models. They were sold as a base model (A, B or C) with different features. Based solely on some sketchy advertising in the link above different machines are mapped. This mapping should be regarded as guidance, not an authoritative way to categorize Russian Odhner machines. On the right a page from Arithmometer Instructions "Arytmometry Odhnera" by G. Gerlach. Arithmometers are depicted by No 230-235, where each model corresponds to specific features.

АРИФМОМЕТР
СИСТЕМЫ-В.Т ОДНЕР

Russia, 1891

*****

very rare

№ 414

9 × 8 × 13

13,5

28 × 15 × 12

WS-268

Odhner A, Short handle model.
With instructions and a box.
Instructions and manual with examples of usage extremely rare. The instructions are the first instructions for the machine of this type.

АРИФМОМЕТР
СИСТЕМЫ-В.Т ОДНЕР

Russia, 1894 (?)

*****

very rare

№ 1341

9 × 8 × 13

14,5

29 × 14 × 12

WS-269

Short handle model engraving GERLACH WARSHAW above the logo. The machine was distributed by Gerlach in Warsaw Poland. Note numbers are not white painted on black. The arithmometer in Warsaw Museum of Technology (Muzeum Techniki) has arithmometer with serial 18XX and also numbers were not white on black.

АРИФМОМЕТР
СИСТЕМЫ-В.Т ОДНЕР

Russia, 1895

*****

very rare

№ 2302

9 × 8 × 15

15

33 × 16 × 12

WS-270

Odhner B (15 digit output), note a bit longer short handle. Above serial number ~2000-2500 short handle model had a bit longer short handles.
Somebody added a support for fingers for shifting the carriage and a clearing mechanism for entered numbers. This does not decrease the value.
Odhner Bs are rare and short handle are.

ODHNER'S ARITHMOMETER

Russia, 1898

***

scarce

№ 5422

9 × 8 × 13

16,5

33 × 15 × 12

WS-271

Note this machine has a long handle.
Long handles were introduced with serial no 4000 (?).

ODHNER'S ARITHMOMETER B

Russia, 1901 (?)

***

Models B are very rare (?)

№ 6166

9 × 8 × 15

15

33 × 16 × 12

WS-272

ODHNER'S ARITHMOMETER A

Russia, 1901 (?)

rare with cover

№ 6188

18,5

34 × 14 × 11

WS-411

ODHNER'S ARITHMOMETER A

Russia, 1901 (?)

scarce

№ 6582

9 × 8 × 13

16,5

35 × 15 × 12

WS-273

ORIGINAL-ODHNER

Russia, 1907

scarce

№ 12309

9 × 8 × 13

18

32 × 16 × 12

WS-275

One of the last machines without mechanism to clear sliders. Note the name change from Odhner's Arithmometer to Original Odhner.

ODHNER'S ARITHMOMETER MODEL A
Russia, 1912 (?)
scarce
15046
9 × 8 × 13
18,25
38 × 16 × 12
WS-274

The name in Cyrillic was not changed to "Original Odhner" but it is still "Odhner's Arithmometer".

ORIGINAL-ODHNER AG
Russia, 1912 (?)
scarce
15314
9 × 8 × 13
20
30 × 17 × 12
WS-276

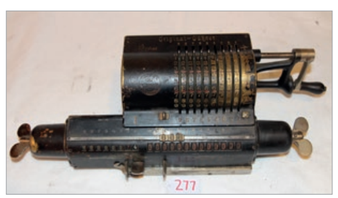
ODHNER'S ARITHMOMETER AG
Russia, 1914
scarce
17257
38 × 22 × 16
WS-666

AG is the same model as A, it has an additional bell indicating an overflow.

ODHNER'S ARITHMOMETER A
Russia, 1914
scarce
17320
19,25
38 × 22 × 18
WS-667

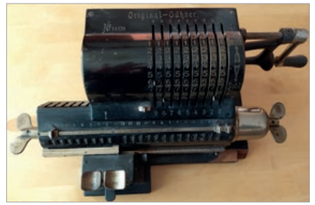
ORIGINAL-ODHNER
Russia, 1916 (?)
***
very rare
20170
9 × 8 × 13
19,25
43 × 17 × 13
WS-668

Odhner A (?) with double fast clear registers mechanism on both sides of the carriage. Very rare.

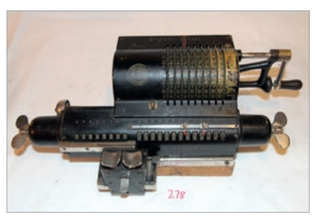


ORIGINAL-ODHNER ODHNER A
Russia, 1916 (?)
***
very rare
20587
9 × 8 × 13
22
43 × 17 × 13
WS-277

Odhner a (?) with double fast clear registers mechanism. Very rare. Note: the name on the stamp is Petrograd, not St. Petersburg. St. Petersburg changed the name to Petrograd in 1914. Majority Russia of the machines were still manufactured with the old name St. Petersburg.

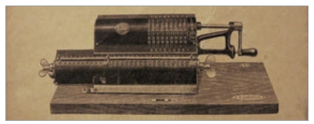


ORIGINAL-ODHNER (ATBC?)
Russia,
***
rare
14131
WS-669



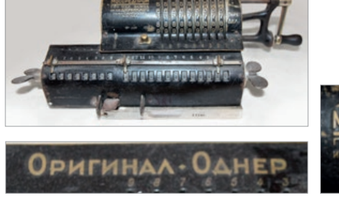
ORIGINAL-ODHNER AKVD (?)
Russia,
***
rare
16107
9 × 8 × 13
23,25
40 × 18 × 15
WS-278

Clearing input and, fast clear of both results and count registers. Mechanical carriage shift.



ORIGINAL-ODHNER ODHNER C
Russia,
***
very rare
12586
9 × 10 × 18
23,25
43 × 19 × 14
WS-279

18 digits output.
Clearing input and fast clear of results
(right side fast clearing). Carriage shift.

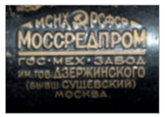


ORIGINAL-ODHNER CKVD
Russia,
***
very rare
16152
9 × 10 × 18
32
49 × 20 × 13
WS-280

Clearing input and fast clear of both results
and count registers. Carriage shift.

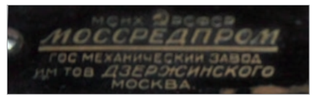
Soviet Odhners

ORIGINAL-ODHNER
Russia, 1925-1931
**
rare
33699
9 × 8 × 13
17
37 × 17 × 13
WS-282



ORIGINAL-ODHNER A
Russia, 1925-1931
**
rare
38146
9 × 8 × 13
17,25
36 × 16 × 12
WS-281

Soviet production. 1928 (?)



FELIX A2
Soviet Union, 1928
****
rare
1734
9 × 8 × 13
12,5
33 × 13 × 10
WS-284

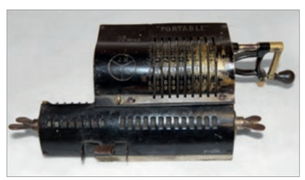
Very early, one of the first. Shift mechanism
slightly different from the following two Felix
machines.

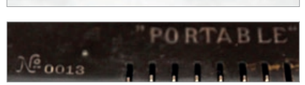
FELIX A2
Soviet Union, 1930
****
rare
53918
9 × 8 × 13
12,5
28 × 13 × 10
WS-283

FELIX A2
Soviet Union, 1930
rare
64165
9 × 8 × 13
29 × 14 × 11.5
WS-670

Plate does not have a Felix name but K
instead. It is from the period. Later plates
were not made of brass. Special order (?).

Other Soviet Odhner Type Devices





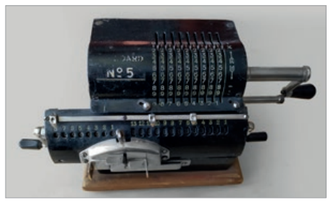
"PORTABLE"
Soviet Union, 1931
**
very rare
13
9 × 8 × 13
7,5
28 × 13 × 9
WS-285

Very low serial number: 13 simple carriage
shift. The first known. Soviet Union.

	"PORTABLE"
	Soviet Union, 1931
	**
	very rare
№	34
	9 × 8 × 13
	10,5
	30 × 13 × 10
	WS-286

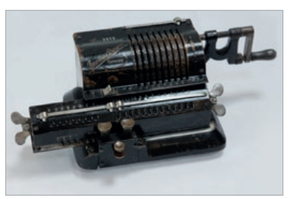
Very low serial number: 34 Advanced carriage shift.

	KIRJA
	Soviet Union, 1932-1933
	*
	very rare
№	1136
	9 × 8 × 13
	10,5
	31 × 13 × 11
	WS-287

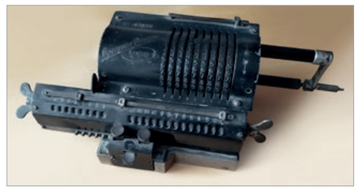


	STANDARD (?) NO 5
	Soviet Union, 1934 (?)
	**
	very rare
№	
	10 × 8 × 13
	32 × 13.5 × 13.5
	WS-671

Same as SoyuzOrgUchet and LenShtampTrest.



	ORIGINAL DINAMO
	Soviet Union, 1926-1930
	**
	very rare
№	2213
	9 × 8 × 13
	30 × 13 × 10
	WS-672

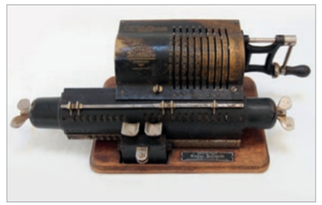


	ORIGINAL DINAMO
	Soviet Union,
	*
	rare
№	57875
	23 × 11 × 10,5
	WS-673

Swedish Odhners

	ARITHMOS TYPE 1
	Sweden, 1919-1922
	****
	rare
№	40076
	9 × 8 × 13
	18,5
	39 × 16 × 12
	WS-288

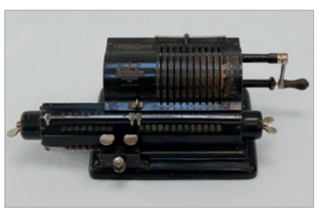
Very early. Serial numbers started with 40,001.



	ARITHMOS TYPE 3
	Sweden, 1919-1922
	****
	very rare (?)
№	40684 (?) Need to verify it and correct it
	9 × 8 × 13
	20,25
	43 × 17 × 13
	WS-289

	ARITHMOS TYPE 5
	Sweden, 1919-1922
	****
	rare
№	40684
	9 × 8 × 13
	19
	37 × 17 × 13
	WS-290

ARITHMOS TYPE 5
Sweden, 1919-1922
****
rare
40812
9 × 8 × 13
19
37 × 17 × 13
WS-674



ARITHMOS MODEL 6
Sweden, 1922 (?), 1923-1929
****
very rare, only one known.
60114
9 × 8 × 13
10
43 × 15 × 11
WS-291

There are several model 6. Only one machine with nameplate Arithmos is known. Possibly Odhner made a few machines with name Arithmos to introduce regular models.

ORIGINAL-ODHNER 9
Sweden, 1923
****
very rare Only few known
60385
5 × 5 × 9
8,25
25 × 13 × 10
WS-292

Another machine was sold as model 9 shortly after this model was introduced. Only few are known to exist.

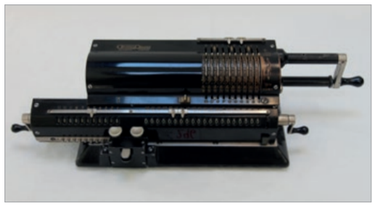
ORIGINAL-ODHNER 6
Sweden, 1923-1929
scarce
80521
10 × 8 × 13
11,75
35 × 15 × 12
WS-293

ORIGINAL-ODHNER MODEL 7 OR 8
Sweden, 1923-1927
common
82035
10 × 8 × 13
13
33 × 16 × 12
WS-294

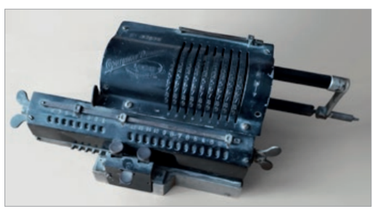
ORIGINAL-ODHNER MODEL 13
Sweden, 1924-1935
10 × 11 × 20
14,75
44 × 16 × 12
WS-295

AKTIEBOLAGET ORIGINAL-ODHNER MODEL 14
Sweden, 1925-1930 (1929)
88684
10 × 8 × 13
14
32 × 20 × 13
WS-297

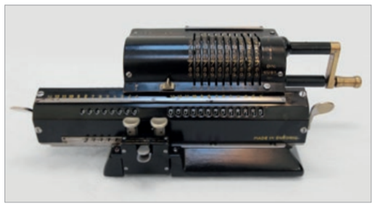
ORIGINAL-ODHNER MODEL 18
Sweden, 1925-1930 (1929)
scarce / rare (?)
90984
10 × 10 × 19
16,25
38 × 19 × 14
WS-302



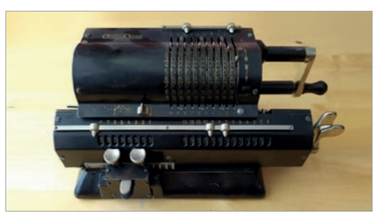
ORIGINAL-ODHNER MODEL 24
Sweden, 1940-1948 (1952?)
24-295628
10 × 11 × 20
15,75
43 × 14 × 12
WS-296



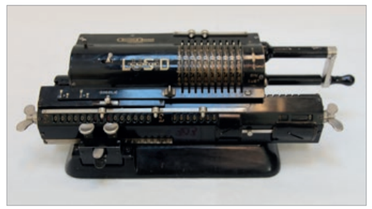
ORIGINAL ODHNER 27
Sweden, 1946
common
27-240310
10 × 8 × 13
34 × 14 × 11
WS-675



AKTIEBOLAGET ORIGINAL-ODHNER 30
Sweden, 1930-1947 1931
rare
109825
10 × 8 × 13
13
36 × 15 × 12
WS-298



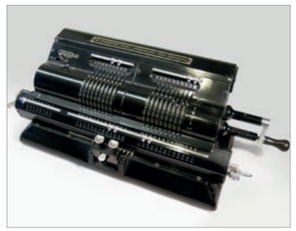
ORIGINAL ODHNER 31
Sweden, 1936
rare
31-125044
9 × 8 × 13
31 × 14 × 11
WS-676



ORIGINAL-ODHNER LUSID
Sweden, 1924 (?) – 1937 (?)
****
rare / very rare
14,75
38 × 16 × 12
WS-303

Four basic operations with British currency
Cris' site on antique mechanical four-species calculators (crisvandevel.de).

ORIGINAL-ODHNER LUSID
Sweden, 1927 or 1928
****
rare / very rare
78129
15,25
36 × 15 × 12
WS-304

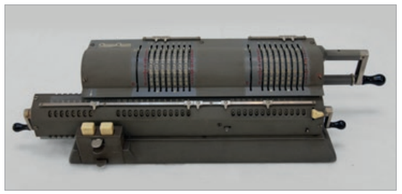


TANDEM ODHNER
Sweden, 1931
***
very rare
110619
41
52 × 25 × 20
WS-745

Very rare. Only two more known.
The Army Museum in Stockholm has one of these, serial no 110632. They state the calculators were used with the m/1930 7.5 cm antiaircraft gun. The Machine in Arithmeum has serial 110682. All known machines have very close serial numbers. This one has the smallest.
This machine does not have clearing of the input registers. They might have been removed if they did not work correctly or were not originally installed.
Original Odhner tandem machine – YouTube
Cris' site on antique mechanical four-species calculators (crisvandevel.de).

AKTIEBOLAGET ORIGINAL-ODHNER
Sweden, 1939-1947 1941
***
rare / very rare (?)
35-183935
8 + 8 × 8 × 13 + 13
18,75
41 × 14 × 1
WS-301

Model 35



ORIGINAL-ODHNER MODEL 135
Sweden, 1951 1953
***
First manufactured very rare
135-400001
8 + 8 × 8 × 13 + 13
20
46 × 15 × 11
WS-299

Serial number range 400001-400400,
Only 400 manufactured.
This is the first model 135 machine manufactured. It has serial number 400001.

ORIGINAL-ODHNER GOTEBORG SVERIGE
Sweden, 1951-1954, 1954
***
rare
135-400300
8 + 8 × 8 × 13 + 13
20,25
49 × 16 × 11
WS-300

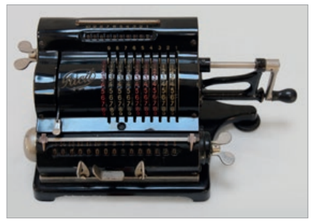
Model 135.

ORIGINAL-ODHNER MODEL 39
Sweden, 1939-1952, 1946
***
39-244804
10 × 8 × 13
13,75
35 × 16 × 13
WS-307

ORIGINAL ODHNER 239
Sweden, 1955 (?) – 1968
common
239-882661
10 × 8 × 13
13,75
37 × 20 × 13
WS-305

Bernadette design.

Swedish Facits



FACIT ORIGINAL
Sweden, 1918 (1918-1924)
****
very rare
77
9 × 10 × 15
31 × 17 × 15
WS-308

FACIT Rechenmaschinen (rechenautomat.de)
Serial 77. One of the first preserved.

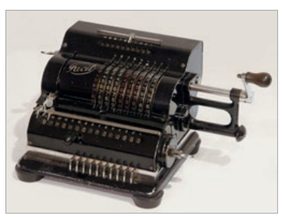
FACIT STANDARD
Sweden, 1924-1931 (1927)
scarce
5715
9 × 10 × 15
30 × 18 × 16
WS-311

FACIT 10
Sweden, 1928-1931 (1929)
scarce
11145
9 × 10 × 15
30 × 19 × 16
WS-309

FACIT 10
Sweden, 1928-1931 (1929)
scarce
11393
9 × 10 × 15
32 × 18 × 16
WS-310

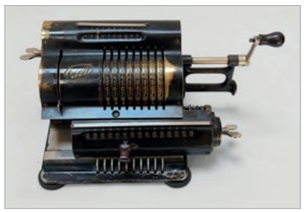
FACIT 10
Sweden, 1929 (1928-1931)
very rare (?)
10-10115
9 × 10 × 15
17,5
30 × 19 × 16
WS-312

This Facit 10 has a manual button to change the direction of the counter register (in addition to the automatic change). There are only a few machines known with this feature, i.e. a prototype or a very small series. According to the literature, this functionality was planned for the model T, but only realized in later models with the "NEG" button.



FACIT 10
Sweden, 1930-31
very rare (?)
10-12520
9 × 10 × 15
32 × 20 × 12
WS-677

This version of Facit 10 is rare. Note the push pin at the mounting of the handle. This machine and the one above have this pin.

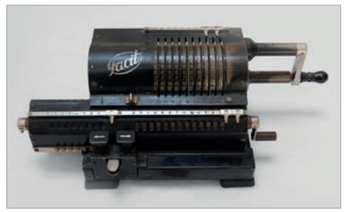


FACIT
Sweden, 1931 or 1932
rare
13185
9 × 10 × 15
14
32 × 18 × 15
WS-313

This model and the one above have a lever to move the carriage instead of knob on the left side. Not many were manufactured.

FACIT T
Sweden, 1933
****
scarce / rare (?)
16764
8 × 13 × 13
13,25
30 × 19 × 14
WS-314

First key operated Facit.



FACIT ERICSSON – MODEL S
Sweden, 1937 (1935-1954)
common
202869
10 × 8 × 13
11,5
34 × 14 × 12
WS-315

Made by Odhner. Sold as Odhner 7 in 1925-1935. As Facit in 1935-1954.

Polish Facit License

MESKO KR-19 S
Poland, 1959+ (?)
scarce
10 × 10 × 19
19,25
40 × 21 × 17
WS-415

Made in Poland Facit license.

Hungarian Odhner Type – Preciosa

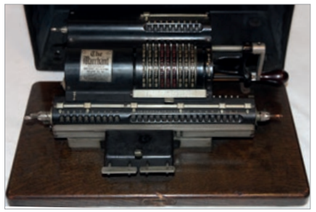
PRECIOS
Hungary, 1911
very rare
9 × 8 × 13
25 × 12 × 18
WS-679

Procento / Preciosa – Rechnerlexikon Hungarian calculator very early and rare model.

American Odhner Type Machines

THE MARCHANT MODEL A STANDARD
US (?), 1911
rare / very rare (?)
2058
9 × 8 × 13
20,25
35 × 17 × 12
WS-316

Marchant/Rapid Calculator/Arrow Marchant Model a Standard Calculating Machine | National Museum of American History (si.edu).
Smithsonian Institution has the same model with serial number 2056. The carriage shift mechanism is very simple. Smithsonian machine has patent dates from both 1911 and 1916 (like Standard and Pony model), that machine has only 1911.



THE MARCHANT PONY B
US, 1916
1125
9 × 10 × 18
17
36 × 20 × 15
WS-317

Latest patent 1916.

THE MARCHANT STANDARD A
US, 1917
scarce
848
9 × 10 × 8
27
40 × 21 × 13
WS-350

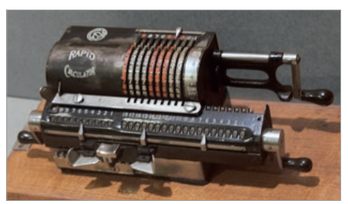
MARCHANT XLA
US, 1923
scarce (?)
XLA 4656
10
30.5 × 17 × 14.5
WS-680

RAPID CALCULATOR
US, 1918
very rare
103
9 × 8 × 13
29 × 12 × 10
WS-318

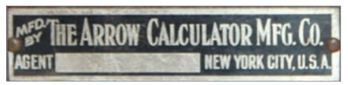
One of the first manufactured. Possibly the first known. Early carriage shift mechanism is different from all other Rapid Calculators I have seen.

RAPID CALCULATOR
US, 1919 (?)
scarce (?)
1224
9 × 8 × 13
11,5
30 × 14 × 11
WS-319

Typical carriage shift mechanism of Rapid Calculators.

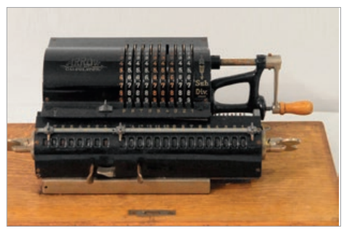


RAPID CALCULATOR
US, 1919 (?)
common / scarce (?)
1213
9 × 10 × 18
WS-681



ARROW CALCULATOR
US, 1921
very rare
1204
9 × 8 × 15
18,75
39 × 16 × 12
WS-320

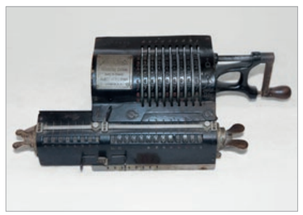
Arrow Calculator Mfg Co. NY City. Only few known.



ARROW CALCULATOR
US, 1921
very rare
1146
9 × 8 × 15
18,75
39 × 16 × 12
WS-682

Arrow Calculator Mfg Co. NY City. Only few known.

French Odhner Type Machines

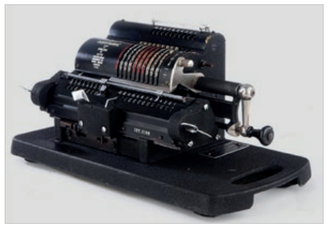


	MULDIVO
	France, 1905 (?)
	rare / very rare (?)
№	7873
	9 × 8 × 13
	17,25
	36 × 16 × 12
	WS-322

Made by Chateaux Brothers (?) in France.
Very early Muldivo.

	MULDIVO
	Germany, 1914
	***
	very rare
№	15745
	20 × 12 × 20
	25,25
	24 × 12 × 9
	WS-334

20 digit models are very rare. This machine was manufactured by Thales (Thales GE). There was one sold at Breker with serial number 15743.
Except Thales GEO, this was the most expensive Thales model.



	BRITANNIC MODEL 1BT.
	UK, 1940s (?)
	scarce / rare (?)
№	T 8610
	8 × 10 × 13
	17,5
	32 × 150 × ?
	WS-738

Currently in Orsay, FR.

	GOLDSMIDT
	France, 1906
	rare / very rare, very early Goldsmidt models are very rare
№	6523
	9 × 8 × 15
	20,5
	36 × 15 × 12
	WS-321

The same as Chateau and Dactyle. Small number of these machines was sold under Goldsmidt name. Initially, it did not have input clearing. Carriage shift similar to "early" Brunsvigas.

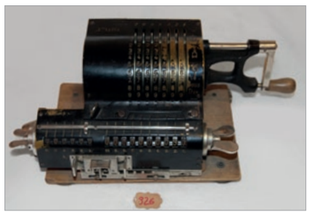
	CHATEAU
	France, 1919
№	9026
	9 × 8 × 13
	22,5
	36 × 15 × 12
	WS-323

Chateaux Brothers made also Goldsmidt and Dactyle

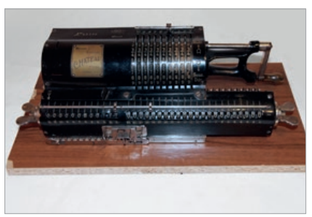
	DACTYLE
	France, 1922
	rare, "small model"
№	10413
	7 × 6 × 10
	22
	34 × 16 × 13
	WS-324

	DACTYLE
	France, 1923
	rare small model
№	10730
	7 × 6 × 10
	22
	33 × 16 × 12
	WS-684

	DACTYLE
	France, 1924
	rare small model
№	11327
	7 × 6 × 10
	15
	33 × 16 × 12
	WS-325



CHATEAU/DACTYLE
France, 1925
rare small model
11779
7 × 6 × 10
27
32 × 16 × 12
WS-326



CHATEAU, 22 DIGIT RESULT
France, 1928
****
very rare
13145
10 × 12 × 22
24,5
41 × 16 × 12
WS-327

Very rare. Possibly only one.
Dactyle-FRAN-Julien-Gu%E9rin-2019.pdf (rechnerlexikon.de).
La plus grosse machine type Odhner connue à ce jour est ce modèle Chateau (ici la n°13145 construite en 1928/1929) avec l'extraordinaire capacité de 10-12-22.
22-digit machine is very special. This is a first manufacturer that manufactured machine with so many digits.
Dactyle-FRAN-Julien-Gu%E9rin-2019.pdf (rechnerlexikon.de)
64 bit value is "only" 20 digits. Several other interesting and rare Chateaux, Dactyls and Goldsmidt.

MACHINE A CALCULER DACTYLE
France, 1927
rare
12420
9 × 10 × 18
450
36 × 16 × 13
WS-328

VAUCANSON MODELE A
France, 1929
146
7 × 5 × 10
14
30 × 16 × 12
WS-329

Rare, first model. Probably manufactured by Japy.

L'ÉCLAIR
France, 1912
1292
66,25
33 × 26 × 26
WS-330

Beautiful machine. Huge.

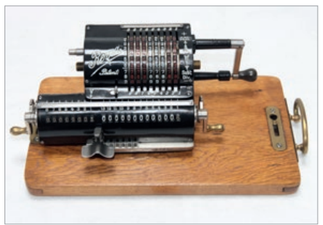
Czechoslovakia

MIRA MODEL 3
Czechoslovakia, 1926-1929
5399 (?)
9 × 8 × 13
10,25
29 × 13 × 10
WS-331

MIRA MODEL 3
Czechoslovakia, 1926-1929
9 × 8 × 13
10
29 × 15 × 9
WS-393

MIRA MODEL 2 / JUNIOR
Czechoslovakia, 1925-1926
33 × 26 × 26
4080
6 × 5 × 10
7,25
WS-332

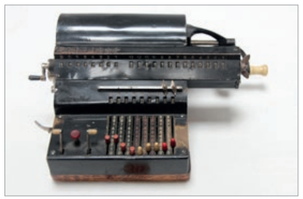
German



REMA MODEL I
Germany, 1919-1924
scarce
№ 5103
9 × 8 × 13
8
23 × 12 × 10
WS-333

MONOPOL DUPLEX
Germany, 1902-1914
very rare
№ 222
53
37 × 23 × 21
WS-678

Monopol Duplex (frühe Version)
(uni-bonn.de)
Wilhelm Küttner – Computer Timeline (computer-timeline.com)
According to Arithmeum website this machine is extremely rare.

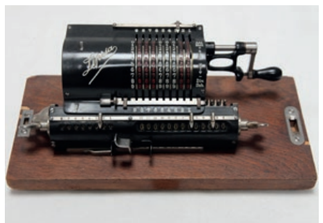


ORGA
Germany, 1921
rare
№ 317
9 × 8 × 13
13
30 × 21 × 12
WS-335

Not many manufactured, low serial number.

ORGA
Germany, 1922
rare
№ 564
WS-685

Complete with cover. In a very good shape.

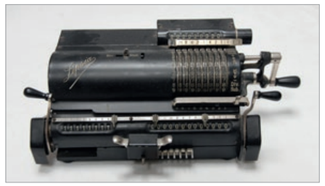


LIPSIA I
Germany, 1920
Early model rare
№ 1769
9 × 8 × 13
8,75
28 × 12 × 10
WS-337

1st variant.

LIPSIA I
Germany,
40 × 21 × 21
WS-686

2nd variant.



LIPSIA 8
Germany, 1935 (?)
rare
№ 12 6456
9 × 8 × 13
13,5
32 × 16 × 15
WS-336

Bild:Lipsia-8 1935-Werbung.jpg – Rechnerlexikon.

MELITTA
Germany, 1925
rare/scarce (?)
№ 2,703
9 × 8 × 13
10,25
25 × 13 × 10
WS-338

Identical to Walther 1.

WALTHER 1
Germany, 1925
rare
3598
10 × 8 × 13
9,5
29 × 13 × 12
WS-339

Same as ser 2,892 on Rechenmaschinen-illustrated.com

WALTHER OR MELITTA
Germany, 1925
rare/scarce
9 × 8 × 13
9,75
25 × 13 × 10
WS-341

No name on the top plate.

WALTHER 1
Germany, 1925
rare
2135
9 × 8 × 13
10,25
24 × 13 × 10
WS-342

Early Walther and Melitta machines were identical.

MONOS NR. B
Germany, 1923
rare
1700
9 × 8 × 13
10,5
30 × 14 × 10
WS-340

MULTI-DIVO
Germany, 1901+
very rare
10011
9 × 8 × 13
20,25
37 × 20 × 14
WS-343

Same as Berolina below.
Very few known. All numbers between machines designated for Swedish market had ser 10,000 and 10,100. This one is the first known. Designed by Christel Hamann, manufactured by Ernst Schuster.

BEROLINA
Germany, 1901+
rare / very rare
1055
9 × 8 × 13
20
32 × 20 × 13
WS-344

Designed by Christel Hamann, Ernst Schuster Berlin, S.W. 68.

HANNOVERA A
Germany, 1923
rare
2188
9 × 8 × 13
12,75
33 × 14 × 11
WS-345

HANNOVERA AK
Germany, 1925
rare
4577
9 × 8 × 13
WS-995

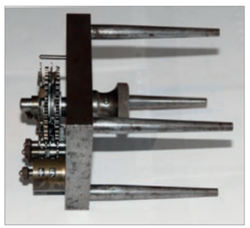
Hannovera AK has small digits in counter register.

HANNOVERA CK
Germany, 1926-1930
rare
9 × 8 × 13
15,75
29 × 26 × 14
WS-346

~3,000 manufactured

HANNOVERA B/BK
Germany, 1923
very rare
2041
20 × 12 × 20
44 × 18 × 13
WS-347

Hamann Manus (Not Odhner)



HAMANN MANUS MECHANISM DEMONSTRATION MODEL
Germany, after 1925
very rare
Hamann Manus
12 × 11 × 12
WS-564

Mechanism:
switching-latch-wheel / schalt-klinke (beuth-hochschule.de).
Other Hamann devices: Berolina, Tricks, Mercedes Euklid, Hamann Manus, Mercedes Gauss, Plus, differential engine.
Each of these devices was very different and innovative.
Hamann-Manus: different principle from pinwheel, externally looks like Odhner type.
Christel Hamann – Computer Timeline (computer-timeline.com).

HAMANN MANUS A
Germany, 1925-1926
rare
758-A
9 × 8 × 13
13,25
27 × 15 × 14
WS-349

~1000 made

HAMANN MANUS C
Germany, 1927
scarce / common (?)
2,722
9 × 8 × 13
12
28 × 16 × 15
WS-348

Mechanical calculator
(beuth-hochschule.de)

Suisse

DEMOS II
Switzerland, 1923
rare
9 × 8 × 14
6
30.5 × 17 × 14
WS-743

Cris' site on antique mechanical four-species calculators (crisvandevel.de)
Demos II embossed, Demos 3on decal.

Japan

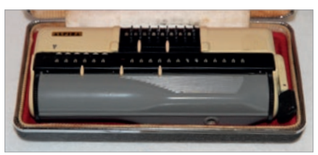
PILOT P1
Japan, 1961
rare
1000048
7 × 6 × 12
19 × 9 × 19
WS-663

One of the first production models (ser 1,000,048).
Looks like Brunsviga 10.
Brunsviga 10 it is a step drum machine;
Pilot is a pinwheel machine.

PILOT P3
Japan, 1967
scarce / rare (?)
3020560
8 × 7 × 12
23 × 20 × 11
WS-664

ALPINA UNIVERSAL CALCULATOR
Germany, 1961
rare
2
17 × 7 × 3
WS-412

Two models. Total 6,000 manufactured.

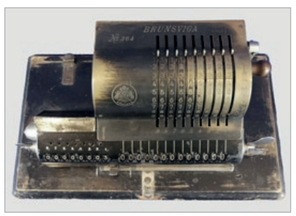


ALPINA UNIVERSAL CALCULATOR
Germany, 1969
rare
2
17 × 7 × 3
WS-413

Brunsviga

BRUNSVIGA CALENDAR
Germany, 1907, 1921 and 1924
scarce
4 diameter
WS-687

Advertising, 21 year calendar on the back.




BRUNSVIGA B
Germany, 1893
*****
very rare
364
7 × 9 × 13
18,3
WS-741

Very rare, first Brunsviga model, so called "short handle" Brunsviga. Only a few survived. One of the most sought German calculating machines.
Cris' site on antique mechanical four-species calculators (crisvandevel.de) – webpage lists 24 short-handle Brunsviga B machines.


BRUNSVIGA C
Germany, 1896
***
very rare
1453
7 × 8 × 10
18.3 (with cover)
33.8 × 20 × 15.4
WS-740

One of the most sought for Brunsviga. Very early Brunsviga C with a short handle and Schuster logo. Except the precision almost identical to short handle Brunsviga B. Schuster logos machines are very rare and looked for.

BRUNSVIGA B
Germany, 1895
rare, very early model
658
9 × 8 × 13
41 × 20 × 14
WS-688

Very early long handle model, patent information on the side overpainted.
Painted the way later Brunsvigas were painted.

BRUNSVIGA B
Germany, 1905
6328
9 × 8 × 13
18,25
38 × 16 × 12
WS-383

BRUNSVIGA B, MODEL "1905"
Germany, 1905
very rare
6846
9 × 8 × 13
21,5
38 × 17 × 14
WS-388

Wide body, with a mechanism to prevent overthrow, in most cases later removed. This one has original mechanism to prevent overflow. Very rare.

BRUNSVIGA B
Germany, 1908
common
№ 11364
9 × 8 × 13
19,75
36 × 16 × 13
WS-352

BRUNSVIGA B
Germany, 1909
common
№ 12431
9 × 8 × 13
19,25
38 × 15 × 12
WS-379

TRINKS-BRUNSVIGA B
Germany, 1915
common
№ 29955
9 × 8 × 13
23,25
35 × 19 × 13
WS-389

A mix of early carriage and later body?

TRINKS-BRUNSVIGA B
Germany, 1919
common
№ 35204
9 × 8 × 13
20,25
34 × 18 × 13
WS-361

BRUNSVIGA A
Germany, 1897
rare
№ 1725
9 × 10 × 18
21,5
41 × 14 × 11
WS-353

Very early model. 3,655 built. One of the first known.

BRUNSVIGA A12
Germany, 1910
rare
№ 14202
12 × 10 × 18
23,25
43 × 18 × 12
WS-354

There were two A12 models: 12 × 10 × 18 and 12 × 12 × 18. Both are rare.

BRUNSVIGA A
Germany, 1910
scarce
№ 14462
9 × 10 × 18
23,25
42 × 15 × 12
WS-384

BRUNSVIGA A
Germany, 1903
№ 24463
9 × 10 × 18
23,5
40 × 19 × 13
WS-355

One of the last made.

BRUNSVIGA-MIDGET MB OR M

Germany, 1910

rare

16282

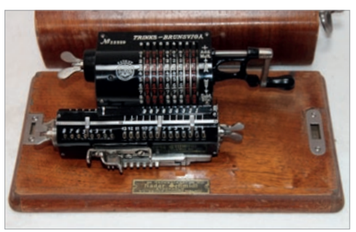
9 × 8 × 13

7

25 × 11 × 9

WS-356

Very early model small model with manual/ simplified shift 16,002 built (simplified and non-simplified carriage shift).



TRINKS-BRUNSVIGA MB

Germany, 1917

common

33229

9 × 8 × 13

7,75

27 × 12 × 10

WS-378

TRINKS-BRUNSVIGA M

Germany, 1921

common

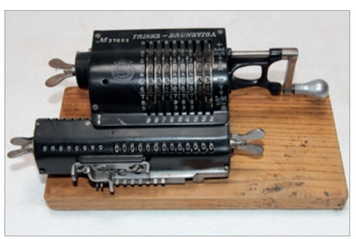
45740

9 × 8 × 13

7,5

24 × 12 × 10

WS-357



TRINKS-BRUNSVIGA M

Germany, 1920

common

37881

7,25

26 × 9 × 9

WS-358

BRUNSVIGA-MIDGET MA

Germany, 1912

very rare (?) / rare

20088

9 × 10 × 18

8

28 × 11 × 9

WS-359

Very early model with manual shift
3,342 built very early model, with simplified shift.

TRINKS-BRUNSVIGA MA

Germany, 1915

rare

29579

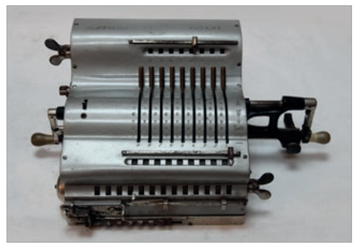
9 × 10 × 18

9

27 × 12 × 10

WS-360

3,342 built.



BRUNSVIGA MJ

Germany

rare

9 × 8 × 13

33

39 × 23 × 17

WS-391

743 manufactured Repainted by a past user.

TRINKS-BRUNSVIGA MJ

Germany, 1911

rare

40,565

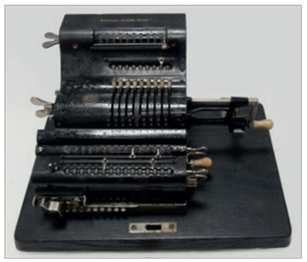
9 × 8 × 13

16,25

35 × 18 × 14

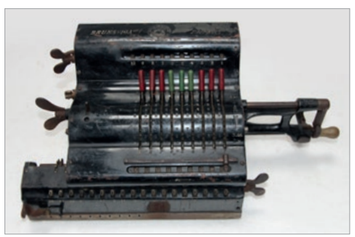
WS-362

743 built
Pat'd June 12, 1906, Feb 5, 1907, January 11, 1910, December 20, 1910.



BRUNSVIGA "SYSTEM TRINKS" MG PROTOTYPE 2ND
Germany, 1924
***
very rare only one
67000
9 × (10 + 9) × (15 + 15)
30
32 × 21 × 17
WS-363

Result register, detachable, clearance can be split after position 7; the other result register has a movable blind to show the complement digits.
Documented in Brunsviga museum catalogue. There were 6 different MG prototypes made. Only two, including this one, are known to survive. None of them went into production.



BRUNSVIGA JA (J18)
Germany, 1909
very rare
9 × 10 × 18
35
42 × 20 × 19
WS-364

Only 118 built Early model, manual simplified shift. Rusted, needs cleaning.

BRUNSVIGA N
Germany, 1911
very rare
18806
9 × 8 × 13
37,5
41 × 22 × 17
WS-365

Only 141 built. With back transfer.

BRUNSVIGA "SYSTEM TRINKS" MH
Germany,
scarce
9 × 8 × 13
13,75
26 × 16 × 13
WS-366

5,818 built, two counter registers.

BRUNSVIGA MIII
Germany, 1925-1927
scarce
101771
9 × 8 × 13
17,75
28 × 18 × 14
WS-367

~4,000 built.

BRUNSVIGA MIII
Germany, 1925-1927
scarce
112003
34 × 20,5 × 17
WS-689

BRUNSVIGA "SYSTEM TRINKS" MD
Germany, 1923
rare
63267
12 × 12 × 20
21,75
35 × 16 × 12
WS-370

2,317 built.

TRINKS-BRUNSVIGA
Germany
scarce Restored
12 × 12 × 20
19
42 × 25 × 11
WS-377

Top two digits (wheels) in results register were missing and they were added by Mr. Kabzinski who restored this machine.
2,317 manufactured.

BRUNSVIGA 10 STEP DRUM
Germany, 1936
common
158673
6 × 5 × 10
8
18 × 19 × 8
WS-371

Step drum, like Thomas, not pinwheel.
9,853 built up to 1943.
Reese / Schneemann – Die Brunsviga 10 (ifhb.de).

BRUNSVIGA 10
Germany, 1936
common
157933
6 × 5 × 10
8
22 × 11 × 20
WS-372

Step drum, like Thomas, not pinwheel.
Reese / Schneemann – Die Brunsviga 10 (ifhb.de).

Brunsviga Triplex

BRUNSVIGA "SYSTEM TRINKS" TRIPLEX
Germany, 1924
**
rare
62837
(8 + 12) × 12 × (8 + 12) + 12
32
34 × 23 × 16
WS-373

MDIIR 1187 produced, These was "triple" machines. They could work as a 20 digit machine or two machines with lower number of digits.
There were two types with 8 × 12 split and 10 × 10 split. 10 × 10 is very rare.

BRUNSVIGA "SYSTEM TRINKS" TRIPLEX
Germany
**
very rare
(10 + 10) × 10 × 20
20,5
40 × 27 × 17
WS-375

MDIIR 1187 produced.
These were "triple" machines. The machine could work as a 20 digit machine or two machines with lower number of digits.
There were two types with 8 × 12 split and 10 × 10 split. Only very small number of 10 × 10 split was manufactured.

BRUNSVIGA "SYSTEM TRINKS" TRIPLEX MDII
Germany, 1915
**
rare
30395
(8 + 12) × 12 × 20
22
36 × 14 × 11
WS-374

1.118 manufactured
These were "triple" machines. They could work as a 20 digit machine or two machines with lower number of digits.

BRUNSVIGA MDII TRIPLEX
Germany, 1914
*
rare
28346
(10 + 9) × 12 × 20

WS-690

These were "triple" machines. They could work as a 20 digit machine or two machines with lower number of digits.

BRUNSVIGA 13Z/2 DUPLEX
Germany, 1947
***
rare / very rare (?)
213592
(10 × 8 × 13) + (10 × 8 × 13) + 8z
22,5
44 × 22 × 16
WS-376

Up to 1947 – 676 + 168 built can work as a single machine, two machines, one adding and another subtracting or two machines both adding or subtracting at the same time.

BRUNSVIGA "SYSTEM TRINKS" M24
Germany, 1924

very rare
69625
9 × 8 × 13
10,5
27 × 21 × 15
WS-380

357 built.

BRUNSVIGA MII

Germany, 1926

scarce

89718

9 × 8 × 13

10

27 × 16 × 10

WS-381

3,701 built.

TRINKS-BRUNSVIGA MR

Germany,

rare/scarce (?)

9 × 8 × 13

12,25

31 × 13 × 10

WS-382

3,433 built.

TRINKS-BRUNSVIGA MR

Germany, 1921

scarce / rare (?)

46506

9 × 8 × 13

11,75

32 × 12 × 10

WS-368

Split carriage 3,433 built.

BRUNSVIGA NOVA I

Germany, 1926

very rare

6T2O419 (101,419)

7 × 6 × 10

19,8

28 × 27 × 18

WS-761

Only 375 made. Very rare.
Nova I was a predecessor of very successful design of Brunsviga machines.
From Herbert Schneemann collection.

NOVA-BRUNSVIGA III

Germany

very rare

10 × (10 × 10) × 15

30

36 × 25 × 20

WS-369

Only 325 built.
Very rare.

BRUNSVIGA NOVA 13ZK

Germany, 1931

common

137341

10 × 8 × 13

17,75

29 × 22 × 16

WS-387

19,347 built.

BRUNSVIGA 13ZK

Germany, 1931

common

176830

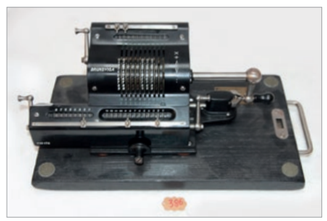
10 × 8 × 13

16,5

20 × 29 × 15

WS-385

19349 built till 1947.



BRUNSVIGA

Germany, 1928

common

115176

10 × 8 × 13

15

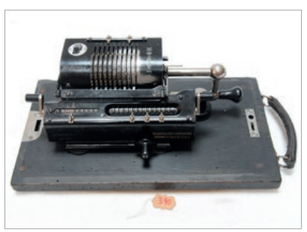
34 × 17 × 13

WS-386

13 32,525 built.

	BRUNSVIGA 13
	Germany, 1929
	common
№	121384
	10 × 8 × 13
	16
	31 × 16 × 13
	WS-392

32,525 built.



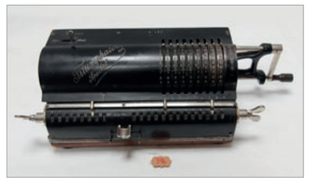
	BRUNSVIGA 13P
	Germany, 1937
	scarce
№	167125
	10 × 8 × 13
	13
	28 × 14 × 12
	WS-390

2,470 built, simplified (13P, P for "Parva" = little).

Triumphator

	TRIUMPHATOR MODEL B (B)
	Germany, 1905-1906
	*****
	very rare (?)
№	304
	9 × 8 × 13
	24,5
	40 × 16 × 15
	WS-394

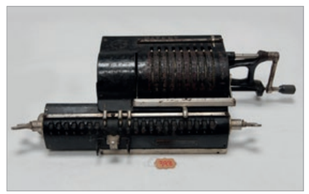
	TRIUMPHATOR MODEL B (A)
	Germany, 1906
	*****
	very rare (?)
№	549
	9 × 8 × 13
	29,25
	45 × 17 × 15
	WS-395



	TRIUMPHATOR III/IV (SPECIAL)
	Germany, 1908
	very rare (?)
№	1780
	9 × 8 × 13
	28,5
	44 × 16 × 14
	WS-396

	TRIUMPHATOR-WERK M.B.H MODEL I
	Germany, 1913
	rare / very rare
№	4888
	9 × 8 × 13
	33,25
	46 × 18 × 15
	WS-397

Machine does not have a clearing of the input register on the top middle-left.

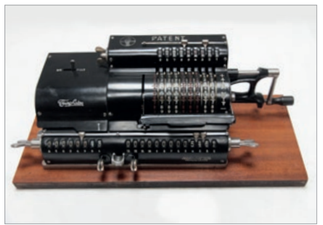


	TRIUMPHATOR MODEL VII
	Germany, 1914
	very rare
№	7788
	9 × 8 × 13
	20,75
	44 × 15 × 12
	WS-398

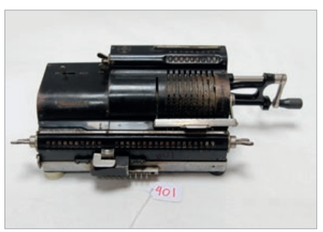
Not in a good visual state, needs restauration.

	TRIUMPHATOR MODEL II OR II A
	Germany, 1909-1920
	rare
№	
	9 × 10 × 18
	38,5
	50 × 17 × 15
	WS-399

Beautiful machine, needs restauration.

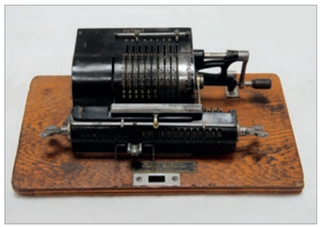


TRIUMPHATOR MODEL 1
Germany, 1909-1920
scarce
9 × 8 × 13
35
47 × 20 × 11
WS-400

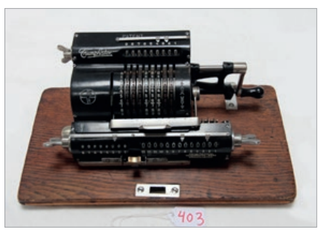


TRIUMPHATOR D LIKE
Germany, 1920-1925 (?)
very rare, one of a kind
9 × 10 × 18
15,5
40 × 15 × 10
WS-401

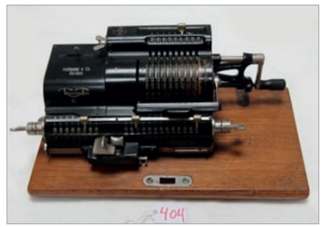
Possibly only one existing. Either a prototype or a special order, as 18 digit results / output register was not in production.



TRIUMPHATOR MODEL K
Germany, 1914-1915
9 × 8 × 13
11,25
28 × 14 × 10
WS-402



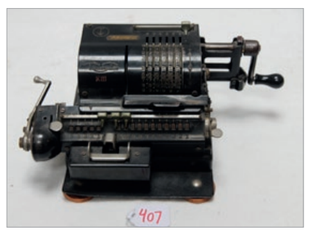
TRIUMPHATOR MODEL H EARLY
Germany,
9 × 8 × 13
12,5
27 × 14 × 12
WS-403



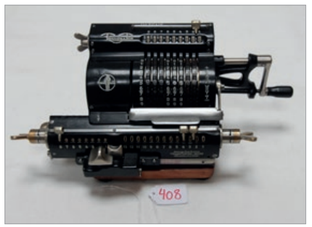
TRIUMPHATOR MODEL C
Germany
common
9 × 8 × 13
12,5
34 × 15 × 9
WS-404

TRIUMPHATOR K2 (SPAAR MODEL)
Germany
*
rare / very rare
5 × 4 × 9
8,25
27 × 14 × 12
WS-405

TRIUMPHATOR KIII
Germany,
rare
6 × 5 × 11
9,25
28 × 12 × 12
WS-406



TRIUMPHATOR KIII
Germany
6 × 5 × 11
9,25
30 × 17 × 12
WS-407



TRIUMPHATOR MODEL H
Germany, 1925
43219
9 × 8 × 13
12
32 × 14 × 14
WS-408

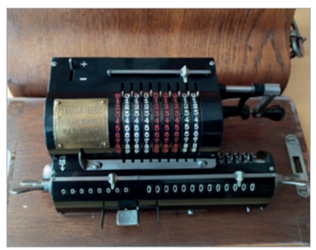
TRIUMPHATOR H
Germany, 1928
55939
9 × 8 × 13
13
31 × 16 × 12
WS-409

TRIUMPHATOR HZN
Germany, 1940
104936
6 × 6 × 11
13,25
32 × 17 × 13
WS-410

THALES A (1.)
Germany, 1911
rare / very rare
53
9 × 8 × 13
26 × 11 × 8.5
WS-416

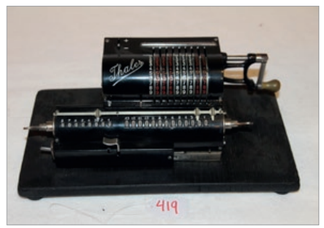
Very early model, serial 53.

THALES A (1.)
Germany, ~1914
9 × 8 × 13
8
26 × 11 × 9
WS-418



EBSTEIN FRERES
Germany, 1913
rare
5571
9 × 8 × 13
9,25
32 × 15.5 × 14.5
WS-683

Made by Thales Early Thales a (1.?) machine Ebstein Freres were resellers of different manufacturers' machines in France.



THALES A (1.?)
Germany, ~1914
*
11000
9 × 8 × 13
9
27 × 11 × 19
WS-419

THALES B (1.)
Germany, 1913
*
rare
3183
9 × 8 × 13
9,5
29 × 10 × 9
WS-417

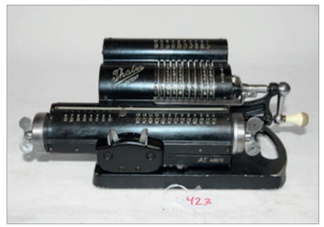
Rare early model.

THALES M (2.)
Germany, 1926
№ 24143
6 × 5 × 10
7,25
23 × 12 × 12
WS-420

THALES M (2.)
Germany, ~1936 (?)
№ 29,783
6 × 5 × 10
7,5
20 × 12 × 12
WS-421

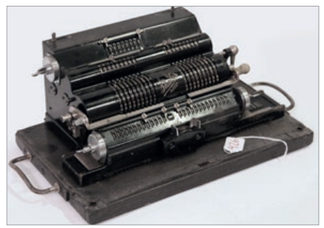
THALES ME
Germany, ~1936 (?)
№ 33179
6 × 5 × 10
8,5
23 × 12 × 14
WS-424

THALES MEZ (2.)
Germany, 1938
№ 49419
6 × 5 × 10
8,5
23 × 14 × 13
WS-422



THALES AE
Germany, 1938 (?)
№ 48673
10 × 8 × 13
12,5
33 × 15 × 15
WS-423

THALES B
Germany, 1930s-1940s
№
10 × 8 × 13
11,5
25 × 13 × 13
WS-425



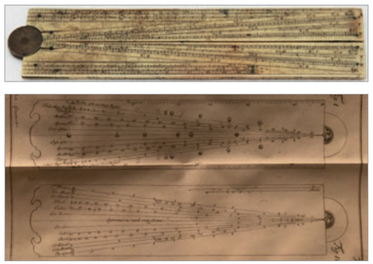
THALES GEO
Germany, 1930
**
rare / very rare
№
2(9 × 10 × 14)
35
26 × 18 × 15
WS-426

Double machine.

MULDIVO/THALES GE
Germany, 1914
very rare
№ 15745
20 × 12 × 20
25,25
24 × 12 × 9
WS-334

20 digit models are very rare. This machine was manufactured by Thales. This is a Thales GE. There was one sold at Breker (not in good shape) with serial number 15743. Except Thales GEO, this was the most expensive Thales model. The same machine is listed in Muldivo entry.

SECTORS



BONE SECTOR, NO MAKER'S NAME
UK, 1800s XIX C
16 × 3.5 × 0.3
WS-428

English style sector, very similar or same as English-Style Sector | National Museum of American History (si.edu).

CANIVET PARIS SECTOR
France, 1751-1774
17.5 × 3 × 0.3
WS-429

French sector by Canivet | Science Museum Group Collection.
French style sector. French sectors are less complicated than English sectors. They are also used for calculations involving proportions of length, area, and volume. The lines radiate from the center of the hinge.

BION A PARIS PIED DE ROY
France, 1700s Early XVII C
very rare
17.5 × 2.2 × .3
WS-430

Pied de Roy (note: spelling of Roi – king – as Roy). Lignes, Pouces scales.

BION SECTOR
France, Early 1700s Early XVIII C
very rare
11 × 2.5 × 0.2 cm
WS-436

Small, 11 cm. Similar to French-Style Sector Signed by Nicolas Bion | National Museum of American History. Smaller, same scales.

FRENCH STYLE SECTOR, NO MAKER NAME
France, XVIII C
17.5 × 3.2 × 0.5
WS-431

Like Canivet WS-436.

SLIDE RULES AND GUNTER RULERS

BRASS RUSSIAN GUNTER SCALE
Russia (?), 1700s (?), XVIII C (?) XIX C (?)
very rare
55.8 × 4 × 0.4
WS-691

Could not identify this device further. This Gunter rule is early and rare. Brass Gunter rules are very rare. I checked with several known collectors. None of them heard of Russian Gunter rule.

PALMER'S POCKET SCALE
US, 1845 And 1844 (key…)
rare
9.5 × 15
WS-692

"Palmer's Pocket Scale" and "Key to Palmer's Pocket Scale".

FABER-CASTELL ADVERTISING
Germany, 1960s
rare (?)
64 × 13
WS-693

The "slide" in the middle is not a slide. It does not move.

GUNTER RULE

UK (?), 1700s-1800s 18 or 19 C

scarce (?)

61 × 4

WS-694

No markings of maker (please note another device has the same 428 identifier).

SLIDING GUNTER

UK, ~1800

very rare

63 × 6

WS-433

Navigation slide rule, c.1800. | Science Museum Group Collection Similar device in Tessaract catalogue Winter 2021/2022: *English, c. 1800. This uncommon slide rule is made of boxwood, brassbound, with a 26-1/4" (67 cm) long central slider. Rule and slider are divided on both sides with logarithmic and trigonometric scales, including Chords… In 1807 Mackay wrote, in The Complete Navigator, "But the most convenient form of this instrument [the "common Gunter's scale"] both for accuracy and dispatch is that known by the name of the SLIDING GUNTER, in which the use of a compass is superseded."*

GRAVET ET LENOIR

France, 1850-1860 (?)

*****

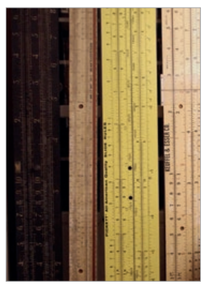
very rare, most likely only one known.

15 KG (?)

220 × 22 × 5.5

WS-695

This is the first known demonstration/ teaching slide rule.
It is made from ebony (?), with inlaid scales made from brass.



5 DEMONSTRATION SLIDE RULES

France, G&L 1850s-60
US, K&E and Picket -1900

*****

scarce (?) / rare

WS-696

G&L very rare, most likely the only one. The first demonstration side rule that survived (made).
K&E 4061(?) very rare, the first US demonstration slide rule.
Pickets and another K&E 100
Two unique slide rules (on the left) are historically important: Gravet & Lenoir (G&L) from 1850-1860 – the first demonstration slide rule ever made and K&E 4061(?) – the first US demonstration slide rule.
G&L is probably the only one that survived.
K&E is very rare.
The other 3 rules are two Pickets and K&E.
In Order: G&L – dual duplex – ?, K&E – 4061 – ?, "Big" Pickett – ?, "Little" Picket – ?, K&E – model 100.

DRING & FAGE LTD CUSTOMS & EXCISE

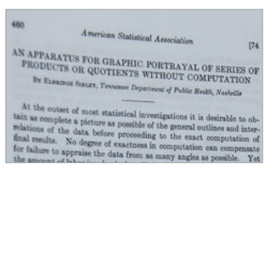
UK, 1940-1960 (?)

scarce (?)

DF 127 F4

114 × 10 × 5

WS-697



THE SET OF "CONNECTED" SLIDE RULES

US, 1930 or earlier

**

very unusual and rare type of slide rule; most likely only one

60 × 50

WS-698

The first device created by Elbridge Sibley to create a graph that would allow an estimation of the results of several calculations (and only one or one of a few) that would allow to show the results of several calculations directly in graphical form.
This slide rule most likely belonged to the inventor – Writing Sibley on the side.
In Dec 1930 Sibley published an article for American Statistical Association about his slide rule. Sibley article is a contemporary reprint.

FOUR SIDED SLIDE RULE

UK, 1800s early, early XIX C

rare (?)

30.5 × 2 × 3

WS-994

Gutterridge Downing & Son.

JOSH LONG, IVORY ALCOHOL PROOF SLIDE RULE

UK, 1821-1846

rare (?)

22.5 × 3 × 0.3

WS-432

20 Little Tower St. London. Same as Science Museum B1750 Slide Rule.
In 1880 Josh Long moved out from UK. Little Tower Street.

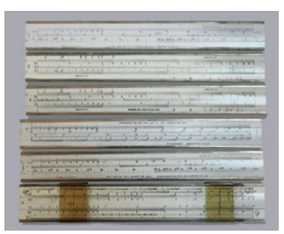
SLIDE RULE FOR LB/WEEK HANDMADE

US, 1800s (?) XIX C (?)

Only one

31 × 9 × 2

WS-699



RICHARDSON'S SLIDE RULES

US, 1912

rare

27.5 × 4

WS-700

Unusual slide rule with 6 different inserts designed to address different types of calculations.

2/83 N FABER-CASTELL SLIDE RULE

Germany, 1974

**

scarce (?)

37 × 6

WS-701

Stoll, Cliff, "When Slide Rules Ruled" *Scientific American*, May 2006, pp. 80-87
"FABER-CASTELL 2/83N slide rule is considered by some to be the finest and most beautiful slide rule ever made".

LOGA

Switzerland

**

very rare, possibly only one with additional drums

73 × 22.5 × 21

WS-702

15 M slide rule On each side a smaller drum with handwritten scales.

NESTLER (?)

Germany, 1930s

rare

30.5 × 8 × 8

WS-703

Cylindrical Slide rule (equivalent to 1.6 m?).

ERNST BILLETER DISQUE A CALCULER BLITZRECHNER A 2

Switzerland, 1905-10

scarce (?)

26 diameter

WS-704

PAISLEY CALCULATOR

US, 1940

rare (?)

25 × 6.5 × 4.5

WS-705

Cylindrical slide rule.
Paisley Calculator Model a Cylindrical Slide Rule | National Museum of American History (si.edu).

LAFAY MODEL 2

France, 1930 (?)

rare

Equiv. 2.5 m slide rule

20 × 5 × 4

WS-706

Jean-Antoine Lafay and his mathematical inventions (nzeldes.com).
Lafay (geo-anse.com).
Equivalent of 2.5 meter slide rule.

CHARPENTIER CALCUMETRE
France, 1882 (?)
rare (?)
6 cm
WS-438

CALCULIGRAPHE H C HENRI CHATELAIN
France, 1878
rare (?)
WS-439

BOUCHER'S CALCULATOR
UK, Early XX C
rare (?)
52mm × 14.5
WS-440

Made in England by W.F. Stanley
Circular Manneheim.

RUSSIAN SLIDE RULE LK 1
Soviet Union, 1967
common
Diameter 6
WS-707

4 different ones. Nothing special, except this one was an edition for the 50ieth anniversary of the Russian Revolution.

PRESTOLOG "PROFITMETER AND DISCOUNT CALCULATOR"
US, 1935
common / scarce (?)
13
WS-708

"THIS INSTRUMENT COMPUTES ACCURATELY PER CENT OF PROFIT ON SELLING PRICE"
an advertising device.

OTIS KINGS
UK, 1921-1972
scarce
WS-483

Cylindrical pocket calculators.
Several different sliderules of different sizes, not very old, are not documented.

WATCHES

HP-1 CALCULATOR
US, 1977
*****
vary rare
1001 a 34301
WS-709

The most sought of calculator watch.
Watch probably not working.

JUVENIA ARITHMO
Switzerland, 1945
rare / very rare
WS-710

Watch/Slide rule

OIL CONTAINER FOR BURROUGH ADDING MACHINE
US
WS-711

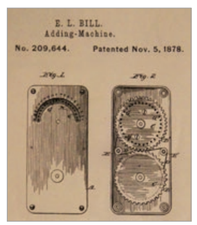
COMPTOMETER OILING BOTTLE
US
WS-712

PATENT MODELS



PATENT MODEL OF BALDWIN'S LUMBER MEASURER
US, 1873
*****
very rare. Only one.
11 × 3.5
WS-713

US patent 138,210.
A machine which automatically measured and recorded four different kinds of lumber at the same time. Baldwin was one of the fathers of calculating industry in US. This invention made him think about making Arithmometer and pinwheel calculating machine. He also invented before Odhner pinwheel machine like the Odhner type machine.
Provenance: Russo collection.

PATENT MODEL BILL'S ADDING MACHINE
US, 1878
very rare. only one.
10 × 5 × 3
WS-714

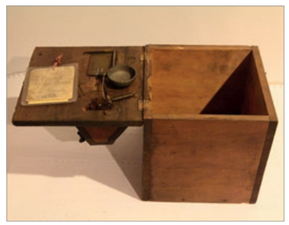
Patent no 209,644 Nov 5, 1878
Edward L. Bill Wheeling, West Virginia.
Provenance: Russo collection.

PATENT MODEL FOR ENRIGHT GAME REGISTER
US, 1867
very rare, there is only one
28 × 28 × 4
WS-715

Publication no US64085A.

PATENT MODEL WOODROW AND HENDERSON
US, 1882
rare, only one
31 × 30 × 14
WS-716

Patent model for a stamp cancelling and registering device by Woodrow and Henderson. US patent 267,301.
Each time stamp is cancelled a number is increased and stamped.



PATENT MODEL FOR BALLOT BOX ENUMERATING BALLOTS
US, 1879
very rare, only one Patent model
WS-717

US patent 213,133
J. Powell Ballot Boxes.

UNKNOWN MID 19TH CENTURY
US, 1850s (?)
**
very rare.
5,5
29 × 10 × 30
WS-184

Some type of adding device.
One of a kind. Unreadable writing with the name of the inventor. This was probably a patent model.

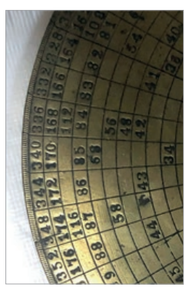

FRACTIONS ADDING MACHINE
US, end of XIX C (?), 1800s end
very rare, one of a kind
17 × 17 × 2
WS-620

No markings for manufacturer.
XIX C prototype (?), handmade, patent model (?).
Listed also with fractions adding devices.


WAGE CALCULATOR
US, 1899 – 1907 (?)
rare
18 × 19 × 3
WS-766

Defiance Machine Company, Rochester NY.
Device for calculating wages for ½ hour/day/week, based on 8, 9 and 10 hours per day work.

MISCALLANEOUS

NO SPECIAL MARKING EXCEPT 1836
US (?), 1836 (?)
unique, very rare
17 cm diameter
WS-718

1836 – presumably production year.
The device is a table of factors of every 4th number between [200, 400] and the numbers [1, 20].

GAME (BEZIQUE?) COUNTER/ ADDER
France
common
0,25
8 × 4 × 1
WS-194

Sonstige Rechner + Rechenhilfen – rechnen-ohne-strom – historische Rechenhilfen (rechnen-ohne-strom.de).


MATEMATICSCHE BRIEFTASCHE MIT INGENIEUR-MESSKNECHT
Germany, 1860
***
very rare
12 × 20 × 2
WS-719

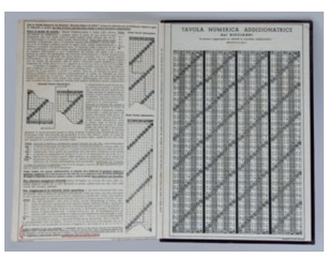


TAVOLA NUMERICA ADDIZIONATRICE DEL RICCIARDI
Italy, 1939
scarce / common (?)
WS-720

According to Spezielle Rechenhilfen – rechnen-ohne-strom – historische Rechenhilfen (rechnen-ohne-strom.de) a great help if you have problems with adding in your head.


MAUREL ALARM CLOCK
France, 1850s
very rare
2
11 × 10 × 24
WS-306

Made by Maurel, creator of Arithmaurel.


MAUREL ALARM CLOCK
France, 1850s
very rare
18 × 4 × 11
WS-737

Creator of Arithmaurel. Arithmaurel is a very important and historical machine.

XIX C (?) PUZZLE
US (?), 1800s (?) XIX C
very rare
WS-721

CAMPYLOGRAPH
US, 1903
****
very rare, unique, possibly the only one to exist
17 × 11 × 36
WS-723

By F. N. Massa. Device to make various geometrical figures. Scientific American article about this device.

CALCULATOR PUZZLES
UK, 1800s late (?) XIX C (?)
rare (?)
11.5 × 11.5
WS-724

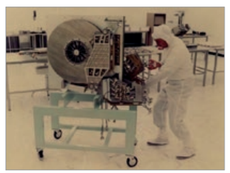
CALCUMEATER
US, 1960s (?)
32 diameter
WS-725

Just the funny name, could not resist buying it. Used to calculate amount of meat.

BANTHRICO CALCULATING BANK SAVINGS BANK
US
rare
WS-762

KALKYLATOR, SWEDISH
Sweden, 1915
rare / very rare (?)
WS-726

Prof. Nils Hansonns design. This device was used to calculate how much feed to give to cows.



COMPUTER DISK PLATTER
US, 1960
rare
18,7
Diameter 78.5
WS-751

Rare disk platter from 1960ies. Capacity "only" 1.5 MB. Made by Data Products Corporation. Diameter 78 cm (31 ") and 18.7 lb. Full disk was 16 of these platters for a total capacity of 24 MB 2nd picture from Internet.

CZECHOSLOVAKIAN DEVICE TO MAKE HOLES IN COMPUTER PAPER TAPE
Czechoslovakia, 1970s
scarce
6.5 × 3.5 × 2
WS-727

To correct a computer program or data on paper tape.

HELLE

France

rare

5 diameter

WS-728

Functionality (?), counts in French franks.
B-TE (patented) S.G.D.G.

SELF-ADDING E-Z AVERAGE FINDER

US

common (?)

1964

15.5 × 25.5

WS-729

Device to find an average of several grades (up to 12 numbers/grades can be averaged).

MORGENTHALER GAME COUNTER

Germany or France

common

30 × 23

WS-730

JALLAIS'S "MACHINE À LIRE"

France, 1923

*****

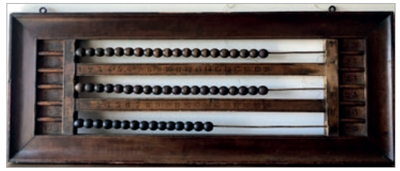
very rare

11

32 × 26 × 32

WS-731

Device for teaching to read. Umberto Eco called this machine the most fascinating he ever saw.



BILLIARD GAME COUNTER

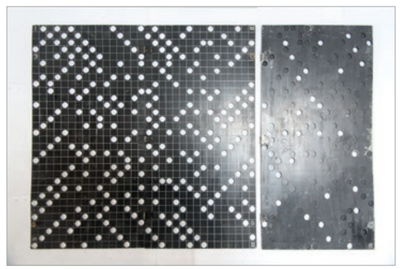
UK (?), 1900s

scarce (?)

106 × 41 × 4

WS-744

(Porto)



TABLETS TO CONTROL "SOMETHING"

France (?), 1950s (?)

very rare (?)

32 × 16

WS-732

I initially thought, these tablets were possibly used in cryptography. According to Ralph Simpson (ralph@cipherhistory.com) these are not encryption/decryption sheets. Could not find any information about these tablets.

CRYPTOGRAPHIC DEVICES

LE SPHINX

France, 1930

*****

rare / very rare (?)

B 625

1

17 × 9 × 3

WS-196

Pocket cryptographic device.
Le Sphinx (cryptomuseum.com).
Societe des Codes Telegraphiques, Georges Lugagne.

LE TRANSPOSITEUR À PERMUTATION SECRÈS GEORGES LUGAGNE

France, 1912

*****

very rare

974

1

20 × 10 × 2

WS-197

Transpositeur (cryptomuseum.com).

CIPHERING DEVICE
France (?)
Hand made, unique
0,25
11 × 11 × 1
WS-198

Hand made, France.

THE DICK TRACY SECRET CODE MAKER
US, 1961
rare
0,25
16 × 4 × 2
WS-199

Promotional item distributed by the Chicago Tribune.

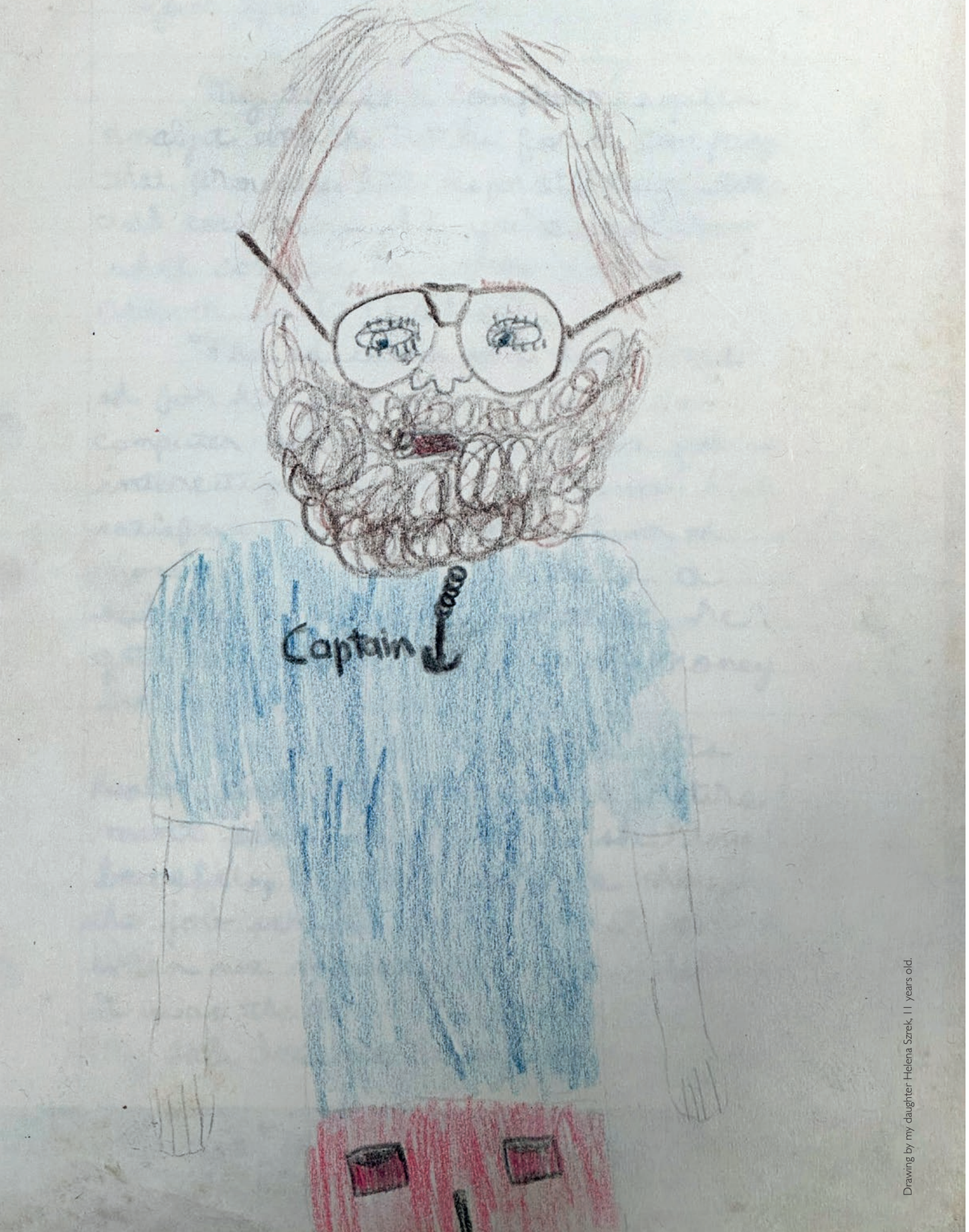
ELWRO – POLISH EARLY ELECTRONIC CALCULATORS

ELWRO 105-LN
Poland, 1974
rare/scarce (?)
24784
20 × 14 × 5
WS-733

Elwro 105LN – Wikipedia, wolna encyklopedia CALCUSEUM ELWRO: 105-LN.

ELWRO 105-LNA
Poland, 1974
rare/scarce (?)
WS-734

ELRWO EW-116
Poland, 1977
common / scarce (?)
25649
20 × 14 × 5
WS-735



Drawing by my daughter Helena Szrek, 11 years old.

CELEBRATING WALTER SZREK: *A LIFE FULL OF COLLECTIONS, CONNECTIONS, AND CURIOSITY*

Born in 1951 in post-World War II Poland, Walter Szrek – named Wlodzimierz and called Wlodek at home – was the son of Jewish parents, Emil Szrek and Maria Walach. Both his parents were Holocaust survivors, determined to build a brighter future for their children, and they did just that. They created a close-knit family with their sons, Wlodek and Lolek, and friends who had survived the war and lost their relatives. For Wlodek, their hard work and family focus were the core values that shaped his existence and carried into his family life with his wife Irena and their three daughters Helena, Asia, and Monika.

Walter's journey through life was a vibrant mosaic of personal achievements, strong friendships, close family bonds and love of travel and exploration. A brilliant thinker and software engineer, thanks to his education at Politechnika Warszawska (Warsaw University of Technology), he set off for the USA in 1979 with his wife Irena, and their young daughters Helena and Asia. Once in the US, Wlodek, now called Walter, became a principal system architect and developer in the lottery business startup that quickly rose to the top of the industry in the '80s and '90s. His groundbreaking contributions became many of the de-facto standards still used in the lottery world today. After 24 years at GTECH, he and Irena founded Szrek2Solutions, revolutionizing the lottery industry with their Trusted Draw random number generation solution.

Wlodek was an avid collector with a flair for the eclectic, starting from Polish posters to beer-bottle openers, white advertising figures (like Michelin men), and finally, calculating machines. His fascination with mechanical calculators turned into an internationally recognized collection of over seven hundred devices, artifacts, and publications. Wlodek co-created a major reference website, Rechenmaschinen-Illustrated (https://www.rechenmaschinen-illustrated.com/), and a personal site dedicated to his calculator collection (https://calculators.szrek.com/).

Often on Sunday mornings, Walter was up early and heading to a flea market or antique store, "on the hunt." He enjoyed the pursuit at least as much as the catch. In 1999, Walter and Irena moved for a few years back to Poland, with their youngest daughter Monika, to be close to their elderly parents. At Warsaw's antique flea market, "Kolo," Wlodek's fascination with artifacts, WW2 memorabilia, Jewish cartoons, and calculating devices grew. In 2000 when he bought a Russian (Original) Odhner "A" from 1907, he officially caught a new collecting bug. Over time, he found more of these machines at Kolo and other antique fairs. He was fascinated by the devices' inventors, their ingenuity and the history surrounding them. And so, his collection grew. He formed a relationship with Tadeusz Kabzinski, an old-school craftsman in Warsaw's Praga, who would repair the machines he found, restoring them to working order. Mr. Kabzinski's affection for the devices was contagious, while restoring the machines he shared his fascination with them with Walter.

Over the years, the collection kept growing. There was an unspoken agreement between him and Irena that they would not discuss the purchasing details, and Walter would discretely find a space for them in their home. Over time, the shelves became a multi-layered labyrinth of machines, as books were evicted, and more devices moved in. Imagine a compilation of mechanical calculating devices that started small, like a modest toybox. Over time, it grew and evolved, sprouting new adders and multipliers, pinwheel machines, like a little boy's hunt finding more toys. This treasure trove didn't just sit around gathering dust; it has been an ever-expanding showcase of creativity and problem-solving. You would experience an abacus showing off its beads, a slide rule flexing its logarithms, a calculating machine shining its logo, introducing yet another carry method. Each device has brought its own gift, demonstrating a unique way to tackle mathematical challenges as if the collection itself were alive and eager to teach.

In 2010, Wlodek was working in Vienna, Austria when the volcano in Iceland voided the skies of aircraft across Europe. Unable to return home to Rhode Island, USA, he headed to Poland by train, stopping off in Krakow. He visited Collegium Maius Museum, located in Kraków's Old Town in the Jagiellonian University's oldest building, dating back to the 14th century, housing ancient scientific instruments. Walter was interested in seeing their collection and met the Museum's curator, Ewa Wyka, forming a friendship that lasted for many years. Wlodek shared with Ewa a common enthusiasm for the artifacts and discovery of their provenance, and he returned to Krakow with Irena several times to visit.

By 2018, Walter decided it was time to create a catalog of the collection. Over two weeks, each of 600 machines was documented, photographed, measured, and weighed, and returned to the shelf with a catalog number. This was a laborious task taken on by Asia and her husband Hal. The catalog grew, with thousands of hours spent adding details as Walter continued to learn more about the machines and their history. As the treasure trove grew, new entries were added, … and so on.

When Walter learned of his cancer, his zest for collecting didn't wane. He would forget about his health problems when he was researching and sharing information about the machines with other collectors and friends, or on the prowl for new ones. His catalog has transformed from a Word document into a professional printed catalog. In his final months, Walter decided to donate the collection to the Collegium Maius, who were enthusiastic in receiving the collection to carry it on, safeguard and exhibit it in the Museum and University's Math Department where it could also serve for teaching purposes. Walter was grateful that they valued the opportunity to take on the curation of the collection and happy to know it would continue to educate and inspire all those who would see it in the years to come.

In his last weeks, Walter didn't have much energy, yet he found the strength to share his knowledge and fascination of the collection with family and friends, spending hours on video calls from his bed. What a gift he offered to the world, of creative exploration, mathematical genius, love, and service.

Rechenmaschinen-Illustrated (rechenmaschinen-illustrated.com)	Based on Ernst Martin's "The Calculating Machines (Die Rechenmaschinen)" book – great website created by Herbert Schneemann (1941-2014) with my help. Creating Rechenmaschinen-Illustrated.com was the greatest calculating "thing" for me. The website motivated Herbert and me to learn more and better it. It also allowed to share the world of calculating devices and machines with others.
www.arithmometre.org	Valéry Monnier's website about arithmometers. My favorite calculating place.
Arithmetical machines and instruments, 19th century (ami19.org)	My other favorite calculating place. Valéry's website on devices from XIX C. Includes Malassis collection. La collection Malassis (ami19.org) The best collection of calculating devices gathered by a private collector.
Schneemann's Webpage (schneemann.de)	Herbert's website of his calculating devices.
Computer Timeline – Yet another site for bright people, crafted by Georgi Dalakov (computer-timeline.com) Sitemap – Computer Timeline (computer-timeline.com)	Georgi's Dalakov history of computing devices. Very rich, well researched, informative. His other website History Computer – The History of Computing (history-computer.com) History-computer.com is now sold. Only old direct links are working (not sure for how long). Computer Timeline is a great site. To navigate directly to specific inventors, use sitemap.
Hauptseite – Rechnerlexikon (rechnerlexikon.de/wiki.php)	Wiki of the calculating devices.
Calculating Machines | National Museum of American History (si.edu) Calculating Machines | Smithsonian Institution (si.edu) Adders | Smithsonian Institution (si.edu)	Smithsonian Institution, fantastic collection. They show their collection on the Web with very good pictures' quality and interesting description of devices.
Calculating instruments, napier's bones – antiques calculating instruments (calculatinginstruments.com)	Very rich and a beautiful collection of Antonio Perez.
Beitraege Geschichte mechanisches Rechnen (mechrech.info)	Publications and other "things" by Stephen Weiss. Besides very interesting and important articles, one will find computer animations of very interesting mechanical devices.
www.boelter.rechnerlexikon.de	Learn there about restauration. Detlev helped many people with their machines.
Historische Rechenmaschinen und Schreibmaschinen (ifhb.de)	IFHB website. They compiled a very comprehensive catalogue of calculating devices. One can also download a Brunsviga collection catalogue. Brunsviga had a fantastic collection. Majority of their collection is now in the Landes Museum in Brunsweig (Braunschweigisches Landesmuseum).
Rechnen einst (uni-bonn.de)	Arithmeum – The only museum totally devoted to collecting these devices, promoting education and actively trying to enhance their collection. They show very limited, although very interesting, highlights of their collection on the web.
Sammlung und Galerie historischer Rechenhilfen, Rechengeräte, Addiermaschinen und RecJust a beautiful collection, henmaschinen – rechnen-ohne-strom – historische Rechenhilfen (rechnen-ohne-strom.de)	A beautiful collection of different calculating devices.
Polish Contributions to Computing (fgcu.edu) polishcomputing.org	Two websites about Polish inventors of calculating devices by Janusz Zalewski.
Introduction Calculators (beuth-hochschule.de)	Great to learn how these machines work.
John Wolff's Web Museum – Calculator Technical Section (johnwolff.id.au/calculators/Tech/TechIndex.htm)	Mechanism description, manuals, rebuild instructions.
Mechanical Calculators, Mechanische Rechenmaschinen, Mechanische rekenmachines (w-hasselo.nl)	Explanation how these devices work.
Cris' site on antique mechanical four-species calculators (crisvandevel.de)	Beautiful collection of calculators, especially Odhner type. The most interesting: fascinating detailed explanation of restauration of different machines. Cris' site on antique mechanical four-species calculators (crisvandevel.de) page shows how to pack calculators for shipping.
Things that Count – A collection of things that count (meta-studies.net)	Very informative description of the computing throughout history illustrated by the devices collected by Calculant (Jim Falk).
Addiator Catalogue – MechaniCalculator (mechanicalculator.com/addiator-catalogue/)	Very comprehensive documentation on addiators compiled by Kees Nagtegaal.
Klassifizierung mechanischer Rechenmaschinen – Rechnerlexikon (rechnerlexikon.de/artikel/Klassifizierung_mechanischer_Rechenmaschinen)	Very interesting classification for the calculating machines by Peter Haertel.
www.calculators.szrek.com	My original website with my calculating devices, last time updated in June 2004.
Museums	Arithmeum (Bonn), Deutsches Museum (Munich), CNAM (Paris), Science Museum (London), NMAH (Smithsonian Institution Washington DC), Polytechnical Museum (Moscow), Tekniska Museet (Stockholm), Braunschweigisches Landesmuseum (Braunschweig), Muzeum of Jagiellonian University (Cracow).
Personal correspondence with Valéry Monnier, Herbert Schneemann, Timo Leipälä, various articles by Martin Reese, and many other authors.	Valéry is an expert on Arithmometers, abacuses, counters, adders etc. Herbert did a very solid and interesting research about all devices he put in rechenmaschinen-illustrated.com, Timo is a renowned researcher and expert on pinwheel machines (Odhner and others), Russian and Swedish devices and many other calculating things. Martin Reese wrote book and many interesting articles on calculating devices. He is an editor of Historishe Buerowelt, IFHB magazine.

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The Walter Szrek Collection: *A Human Adventure*

A Collection is not a collection of heterogeneous objects, it is the fruit of a long quest, it is an Art. If it can be born from our natural curiosity, it is patiently built and accompanies us throughout our lives.

Collecting is always about rediscovering a little bit of your childhood. In this treasure hunt, there is the excitement of the found object, and the almost immediate need to discover another. Yet it's with our "adult hat" that we operate! Knowledge is the mother of all discovery, along with luck, intuition, and perseverance. It was in this spirit that I met Walter, and that may be the greatest treasure of all! We are collecting to bring light to a part of our history and to preserve it as much as possible for future generations.

A collection must be seen in its holistic dimension: the object is inseparable from its history, and from this rediscovery its beauty is born. We both have a great thirst for knowledge, and the search for "truth" is a powerful driver. We are sometimes criticized for being materialistic and for getting too attached to objects. But this is not the case, because our ultimate quest, more than to possess, is to restore the lost humanity to these inert objects, and as such guarantee them eternity.

In this philosophical reflection, the questioning of our own eternity arises. Time passes, and lives disappear. We leave behind our energy of love, and everything it has touched becomes eternal.

The collector is a pilgrim in the abyss.

Valéry Monnier