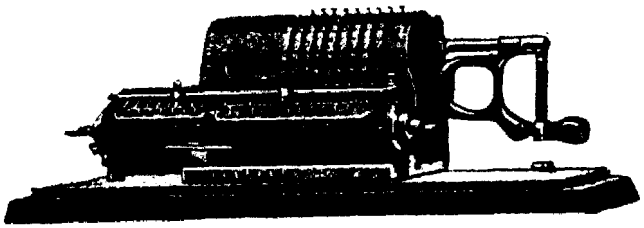


Figure 310

so that they do not need to be cleared by a separate operation. For multiplication and division, however, the lever is set to M so that the entered values may be maintained for the duration of these calculations. Depression of key **0,** which is also to the right of the keyboard, clears values entered in the keyboard. Any amount entered may also be cleared, in individual columns, by operation of lever **4.** The machine is also provided with the customary decimal point slides, with insertable decimal point plugs for grouping the keys, and with setting knobs located above the windows of the result mechanism—which can serve, as is well known, for setting up the dividend or for correcting (rounding off) the results. The sloping position of the keyboard and the large digits of the counting mechanisms permit very convenient reading of the results. The distance between the digits is only 18 mm.

Dimensions: 37 × **30 x** 8½ cm. Weight: **13.7** kg net without baseboard **or** cover.

Muldovo (1924)

The Muldovo is a miniature pinwheel machine of French origin. The name of the manufacturer is unknown to us. Weight: 3.5 kg dimensions: **30** × 15 cm.

Gauss (1924)

The Gauss calculating machine factory was founded in Braunschweig in 1923 **by E.** Hengstmann, H. Scharff, and R. Ulbrich.

It is a pinwheel machine with fourteen places in the result mechanism, ten in the setup mechanism, and nine in the revolution counter. Zero position of the setting levers is brought about by pressing the zero position key on the

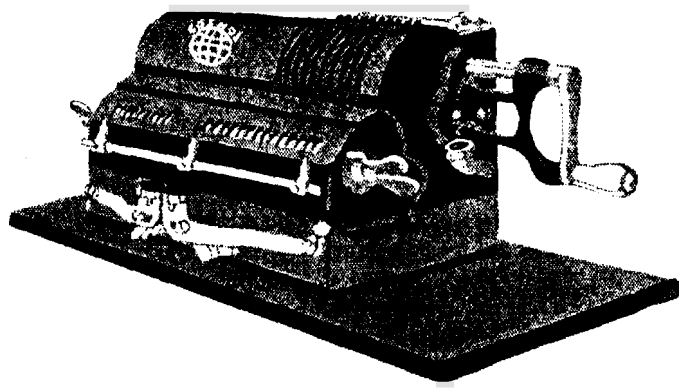


Figure 311

right side of the machine. The carriage is also shifted by means of keys. Only a few dozen machines were ever produced when, in October 1924, the production rights were transferred over to Hengstmann and Company. a factory for calculating machines situated at Mauernstrasse **4**l. Braunschweig. The machine is now called Cosmos. There is said to be a model under construction that has tens-carry in the revolution counter.

The Mercedes-Elektra Calculating Typewriter (1924)

This is a version of the well-known, electrically driven Mercedes typewriter, the Mercedes-Elektra. The calculating Mercedes-Elektra is provided with mechanisms for adding and subtracting digits. The numbers may be arranged under one another **or** next to one another in as many rows as are required; hence the machine is equipped for vertical as well as horizontal operations. The easily detached calculating mechanism, mounted at the front of the carriage, is used **for** the addition and subtraction of digits arranged underneath one another. The cross totaling mechanism, on the right side at the front, is used for horizontal addition and subtraction and also serves as the control calculating mechanism. The machine is provided with a decimal place tabulator, in front of which are ten keys for digits that can be used both for typing and calculating. **For** those numbers that need only to be typed, there are keys for that purpose in the fourth row of the actual typewriter keyboard. The use of these prevents numbers belonging to number statements, dates, and the like from entering the calculating mechanism.

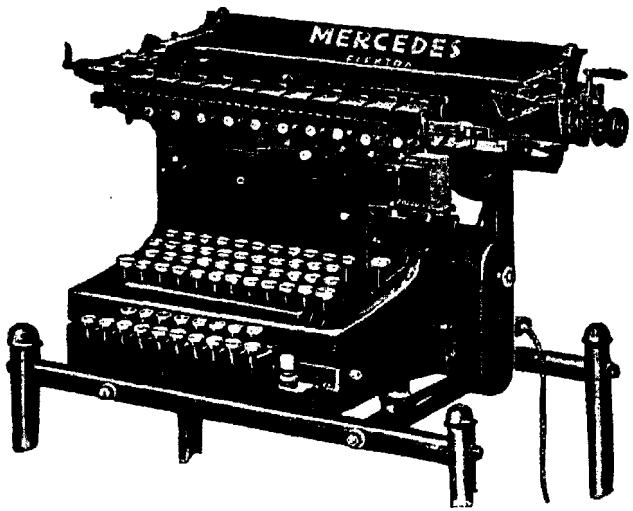


Figure 312

The machine is supplied with carriages of 30, 37, 47, and 60 cm in length. The calculating mechanism is available with four- to sixteen-place capacity. These are arranged as follows: with two **or** three places to the right of the decimal point. with or without decimal point; thereafter three figures are always combined in one group. The calculating Mercedes-Elektra is the only one of its kind that functions on electric drive. It is available in various models. The electric drive guarantees definite reliability and efficiency in calculations.

Manufacturer: Mercedes-Bureaumaschinenwerke, Berliner Strasse 153, Berlin-Charlottenburg 2.

Omiag (1924)

This is a production of the Optischen Maschinenbau-Industrie A. G. in Braunschweig-Gliesmarode. It is a pinwheel machine of the usual design (see the introduction), with nine places in the setup mechanism, thirteen places in the result mechanism, and eight in the revolution counter.

The machine has large setting levers that are easy to handle.. Below the levers are the setting control windows. The setting device can be returned to the zero position by means of a small lever attached to its left. The knob to

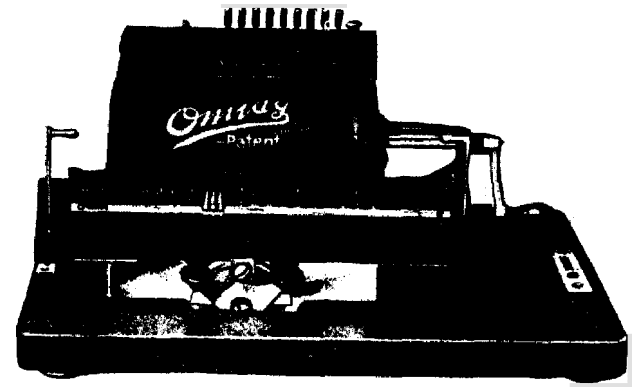


Figure 313

the right of the setting levers is used to turn off the setup mechanism after each setting has been carried out. The machine has no intermediate gears. The crank attaches directly to the axle of the main drum. The setup mechanism operates directly on the result mechanism. Zeroing of both calculating mechanisms is brought about by pressing down two levers. Two keys move the carriage sideways. Dimensions: 25 x 12 cm. Weight: 7 kg. Production has had to cease for the moment.

Mira (1924)

Manufacturer: Mira-Rechenmaschinen-Fabrik, Reichenberg, Bohmen. This is a pinwheel machine of the usual design (see the introduction). There are nine places in the setup mechanism, thirteen in the result mechanism, and eight in the revolution counter. Both calculating mechanisms and the setting levers are brought to their zero position by turning the small knobs. There are decimal point slides on both calculating mechanisms and on the setup mechanism. The carriage shift, to the left and right, is performed automatically when keys are pressed.

The mechanism is well supported, so that the machine has an extremely easy and smooth motion. Servicing this device is very simple since, by loosening only two screws, the setup mechanism can be pulled out without having

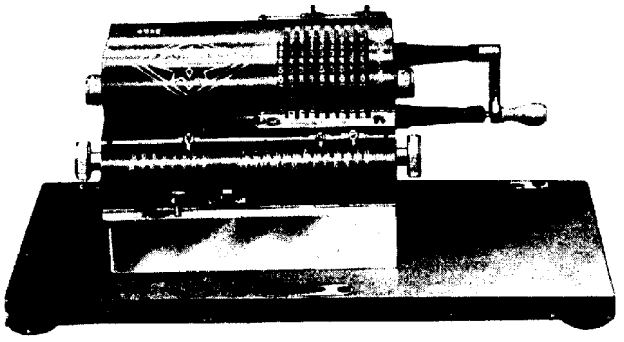


Figure314

to dismantle the entire machine. Standard machines are produced, some with tens-carry in the quotient, and with injector."

Dimensions: 17 × 12 × 12 cm. Weight: 6.5 kg.

Tasma (1924)

The Tasma is the smallest visible printing, full-keyboard adding machine. It measures only 28 × 14 × 20 cm, has ten places in the setup mechanism, and eleven places in the result mechanism. Although this machine has been kept very small, the following description will show that it can perform the same functions as a number of large, full-keyboard adding machines.

The complete key field has been reduced to 5 × 5 cm. One key cancels another in the same column. There is also a row of cancelation keys underneath the various columns of keys. As figure 315 shows, the keyboard is designed like a chessboard. The figures are entered by means of a light and easy to handle stylus. The depth of the keys is only about 3 mm, and the distance from one key to another is 5 mm. The total printing lever is on the left side of the machine, while the subtotals lever, the keyboard cancelation lever, and the repeat lever are on the right. The calculating mechanism lies underneath the keyboard. The machine prints on rolls of paper, and, as already mentioned, the printing is fully visible. Totals and subtotals are specially indicated on paper; they can be printed without a dummy operation. The machine uses a single-colored, 11-mm ribbon with automatic reversal.

80. The editors admit they have no idea what an "injector" is in the context of calculating

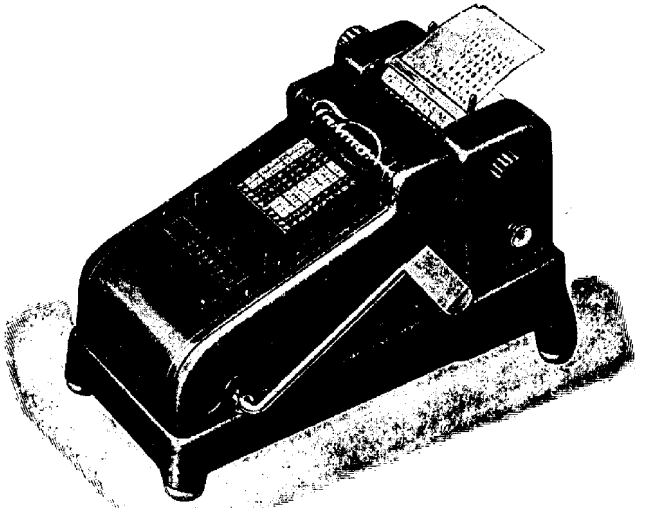


Figure 315

Paper feeding is also automatic. The printing mechanism is equipped with special digit rods. These are fixed in a solid fashion that ensures an accurate spacing of the printed numbers.

The addition lever is also quite new in its motion. It does not function as a pull lever but as a push lever. Immediately after setting a number, the hand can operate more easily by pushing rather than by pulling. The addition lever springs back to its rest position automatically.

Price: 600.00 R. marks

Manufacturer: Thaleswerk G.m.b.H., Rastatt (see the Thales (1911)).

Summograph (1924)

There are pinwheel machines with keyboard setting (Marchant, Rema) already in existence; furthermore, a printing pinwheel machine with lever setting (Trinks Arithmotype) is also available. The Summograph, illustrated in figure 316, is a pinwheel machine equipped with a keyboard that prints simultaneously; hence it is the latest in this field.

The designer of the machine is Hans Behrens of Leipzig, Planitzstr. 22.

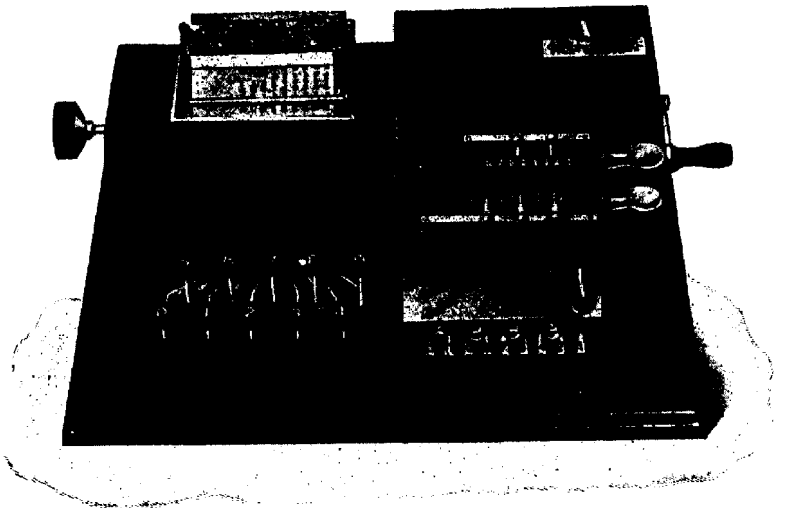


Figure 316

The machine is being produced by the A.G. fur feinmechanische lndustrie in Leipzig, Heerstr. 4.[81]

The machine has thirteen decimal places in the setting and result mechanisms, and eight decimal places in the revolution counter. It operates exactly like all the other Odhner machines; however, the setting is not performed by levers but by ten setting keys located on the left side. The crank of the Summograph is always turned in the same direction—reversing from addition to subtraction takes place by shifting a lever. Numbers may be automatically aligned below one another by means of the decimal tabulator, located to the right and below the result mechanism. This machine not only adds, subtracts, multiplies, and divides, but it also prints the problem as well as the result so that the operation may be accurately checked. The paper, which has a width of 8 cm, may, if necessary, be retained as a record. The result may be retransferred as often as desired. Totals and subtotals are automatically printed in red. The printing is immediately visible. The weight of the machine is 9 kg, its dimensions are 15 x 30 × 20 cm.

81 . A correction pasted in the back of the book indicates "The designer of the machine is Obering. Fritz Maschiezeck."

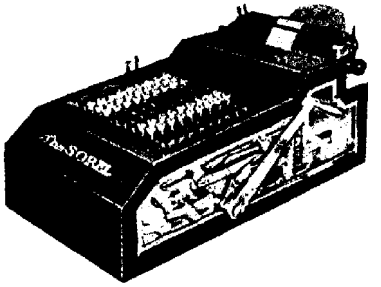


Figure 317

Gobel (1925?)

This full-keyboard adding machine is not yet on the market. It has nine places but has a special multiplication device that allows each multiplication to be done with only one pull of the lever per decimal place. The results are printed in red, provided that the total or subtotal key has been pressed beforehand. Manufacturer: Gobel Multiplying Bookkeeping Machine Company, Philadelphia.

Odhner Universal Calculator (1925)

The designer of this machine is, as far as we know, Valentine Odhner, the nephew of the famous inventor. The machine is a pinwheel machine with key setup. Further details are not available since the machine has not yet appeared. Manufacturer: Odhner Universal Calculator, A. B., Stockholm.

Amigo (1925)

In both size and shape, this machine closely resembles the Scribola, illustrated in figure 286 (32 x 9 × 7 cm, 2½ kg), but instead of a chain drive it has ten adding keys. It prints both individual items and totals on 58-mm wide paper. There is a lever, attached on the right, that is used to add and print the items that have been entered. The totals are printed when the left lever is moved—it is not necessary to enter them again. It has a single-color ribbon. Capacity: eleven-place setup mechanism, twelve-place result mechanism.

The price of the machine is 400 marks. Manufacturer: Amigo Addiermaschinen Gesellschaft, 11 Miiller Strasse, Stuttgart-Gaisburg.

Melitta (1925)

This is a miniature pinwheel machine with continuous tens-carry in the revolution counter. The shift from addition to subtraction occurs automatically when the crank is turned in the opposite direction. Manufacturer: Mercedes Bureaumaschinenwerke, Charlottenburg 2, I53 Berliner Strasse.

Hamann-Manus (1925)

The designer of this machine is Chr. Hamann, Berlin. Figure 318 shows the first model, which was driven manually. In both the interests of expediency, and to comply with what has proven popular with the machine operators. the designer has provided the machine with the same exterior design as that of the Odhner machines and also copied its dimensions. The interior design of the machine, however. is completely new and original and has nothing in common with the mechanical principles of the Odhner models. Its most important working part is not the pinwheel itself but a geared wheel with a thirty-six-part inner and outer gearing (see figure 319). The fully automatic silent movement prevents the possibility of otherthrow.

The Hamann-Manus has a capacity of 8 x 9 x 18 places. It has a linear setting control and longer and more manageable setting levers than the most important of the Odhner machines. During addition and subtraction the levers automatically reset themselves on zero after the crank has been turned. For

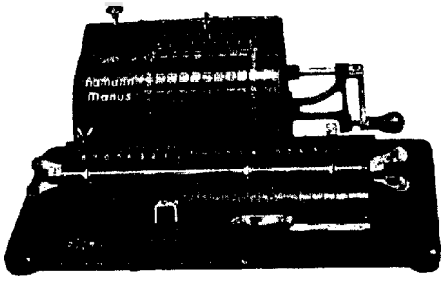


Figure 318

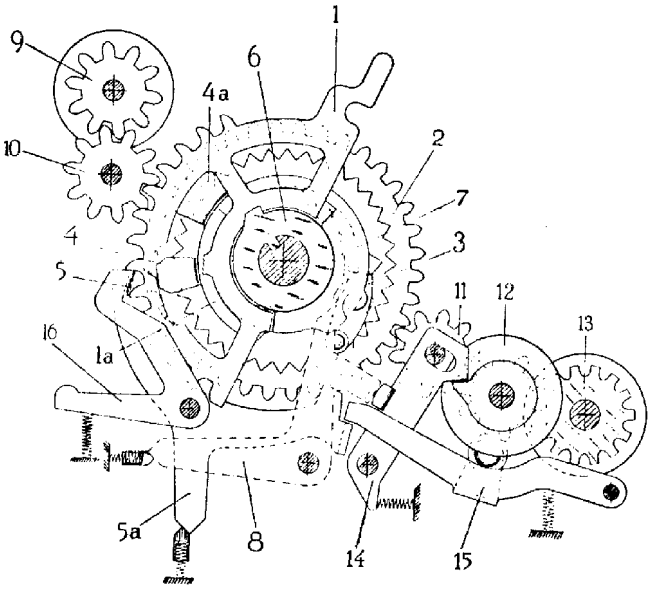


Figure 319

multiplication and division, there is a conveniently situated knob that must be pressed to cancel this automatic zeroing of the setup levers. Total reset of both calculating mechanisms is done by a 180-degree half turn of the right wing screw. In addition, the revolution counter can be zeroed in the same way by the left wing screw. The crank of the machine, which is designed the same as in the Odhner models, can only be turned in one direction. There is a conveniently placed lever that is used to change from addition to subtraction, from multiplication to division, and vice versa. Like the subtraction lever. the lever for carriage movement is also immediately below, or rather next to, the keyboard so that only the right hand is needed to shift the carriage in multiplication. Setting up the dividend in the result calculating mechanism is done directly by means of special devices and not by way of the setup mechanism—the subtraction of 1, which is usually done in setting up a dividend, does not take place. It should be stressed that the Hamann-Manus is the first and only small, manual calculating machine with completely automatic division. This sets it apart from all similar calculating machines.

The designer did not include continual tens-carry in the revolution counter since it is not necessary for automatic division. It can also be dispensed with

in multiplication through the fortunate design of the carriage movement lever, which makes any use of the left hand superfluous. The second model of the machine is a so-called semiautomatic machine with electric drive. Here continuous tens-carry in the revolution counter is also unimportant because of the speed of the automatic calculation. This model, which, apart from the electric drive, is exactly the same design as the hand model, was shown to a small circle of interested people and experts. It aroused great interest and earned considerable recognition. Further models are supposed to be following. All of them are very compact machines, light in weight and small in size—they can be easily carried from one workplace to another and require neither a special table nor their own support frame.

The life span of these machines is the longest possible, since all working parts are manufactured out of first-class material in the most scrupulous and expedient of methods developed by modern mass production. The machine is also designed to allow the least possible wear and tear of material. For example, at each setup, the large, interior, geared working disks rotate only 90 degrees for every turn of the crank. The machine is manufactured by the Deutsche Telephonwerke und Kabelindustrie Aktiengesellschaft, Berlin SO. 33, 6/9 Zeughof Strasse.

Groesbeck

This is a small adding machine along the lines of Dr. Roth's machines (figure 30). It has six places in both adding and subtracting viewing windows. During the seventies, the machine was manufactured by Ziegler and McCudry and distributed in Philadelphia. However, it was never widely sold and production has long since ceased.

Frister and Rossmann

This is a nine-key adding machine contained in a wooden box. The machine itself was never of any great significance and production has long since stopped.

Mercedes

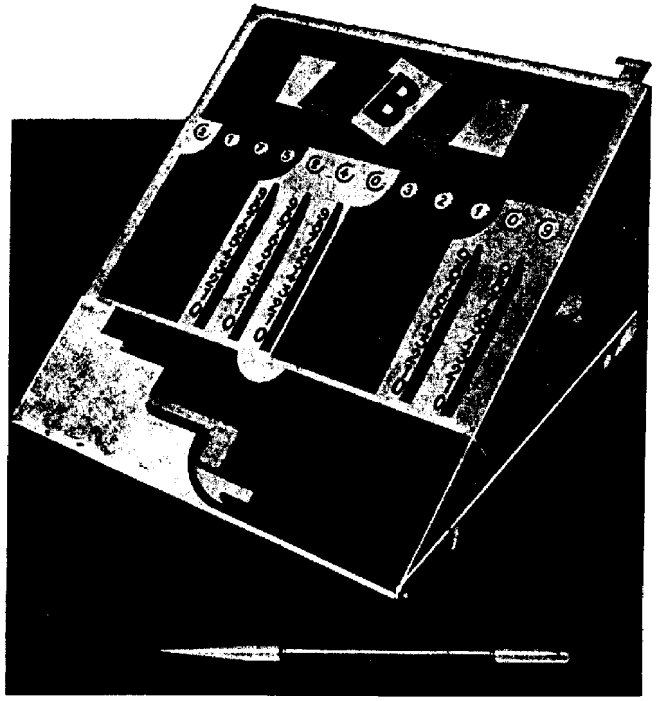
This is a nine-key adding machine that also has eight tabulating keys. Again, this machine was never widely distributed and has not been manufactured for

a number of years. Manufacturer: Mercedes Bureaumaschinenwerke, Charlottenburg, 153 Berliner Strasse.

Mercur

Manufactured by L. M. Ericson & Co.. Stockholm. Pinwheel machine with slide setting. The slides sit on the screw shaft. The carriage is above. The machine has sixteen places in the result mechanism and nine places in the revolution counter. It is no longer made,

Index



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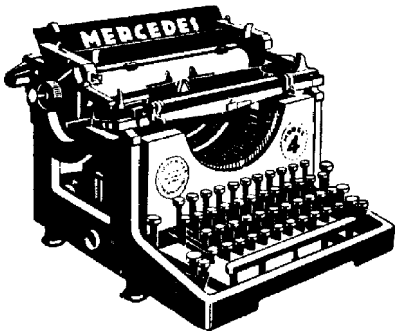

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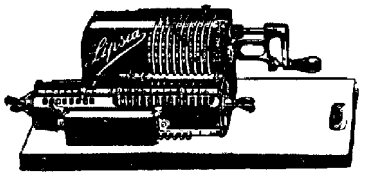

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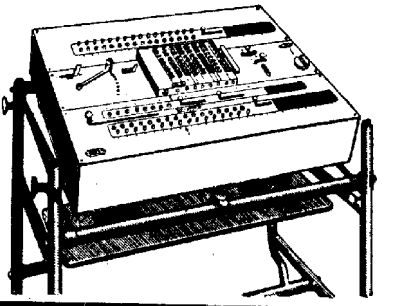

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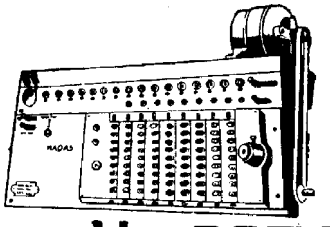

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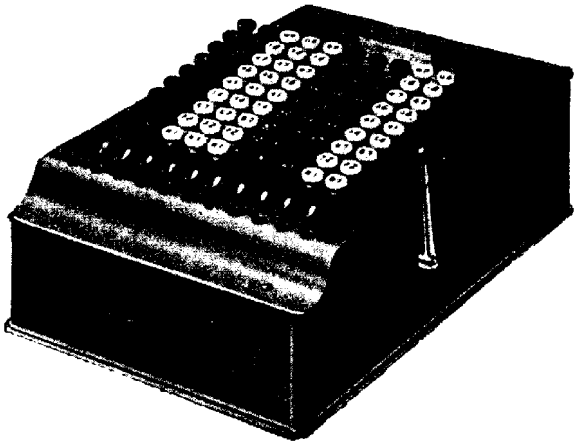

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