

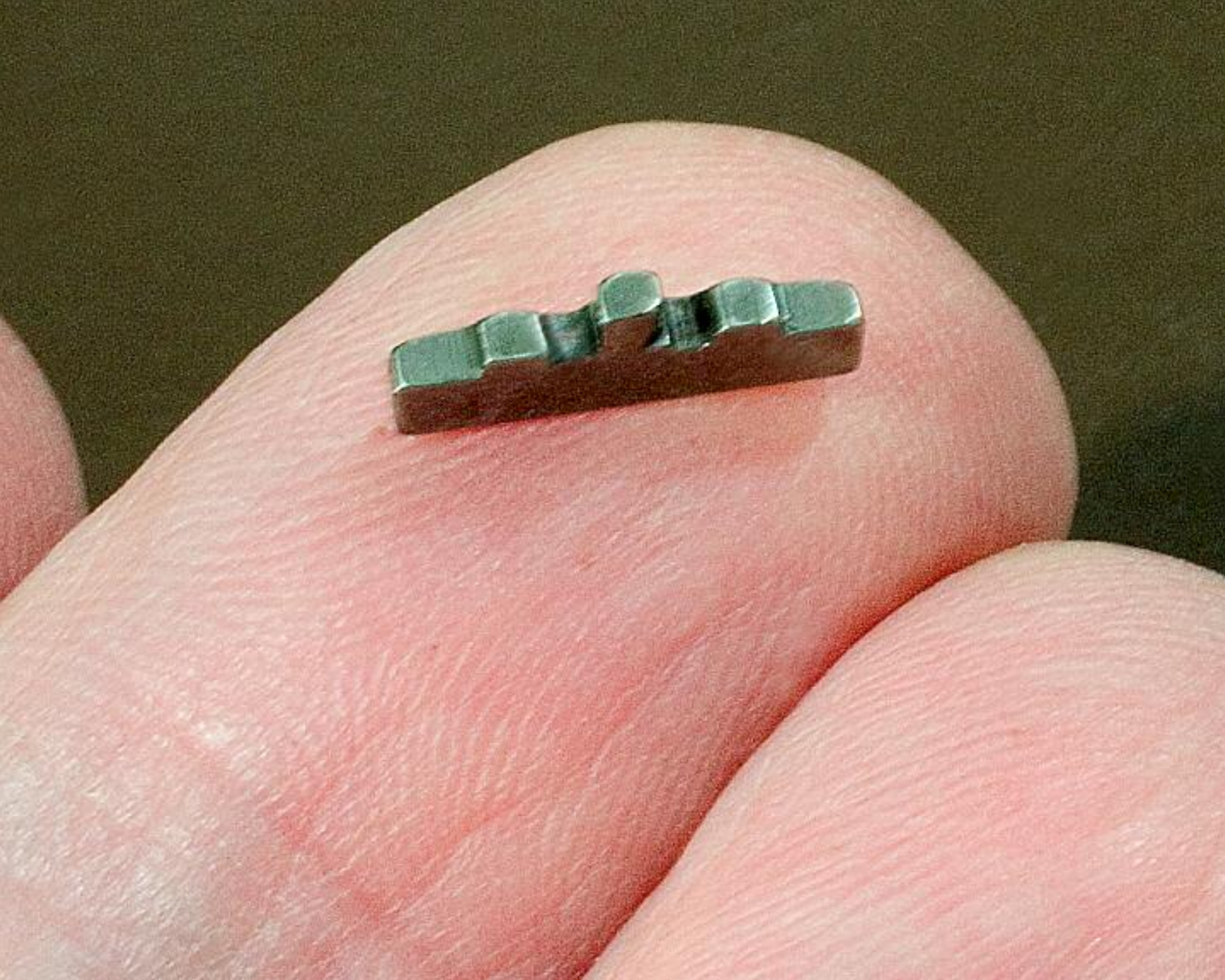
FACIT

Världen
under kåpan



ÅTVIDABERGS
TEKNIKHISTORISKA
SÄLLSKAP





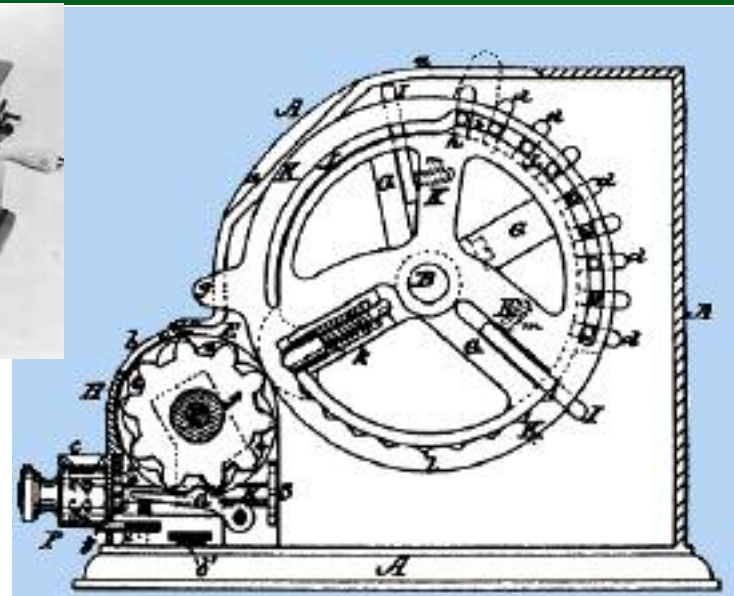
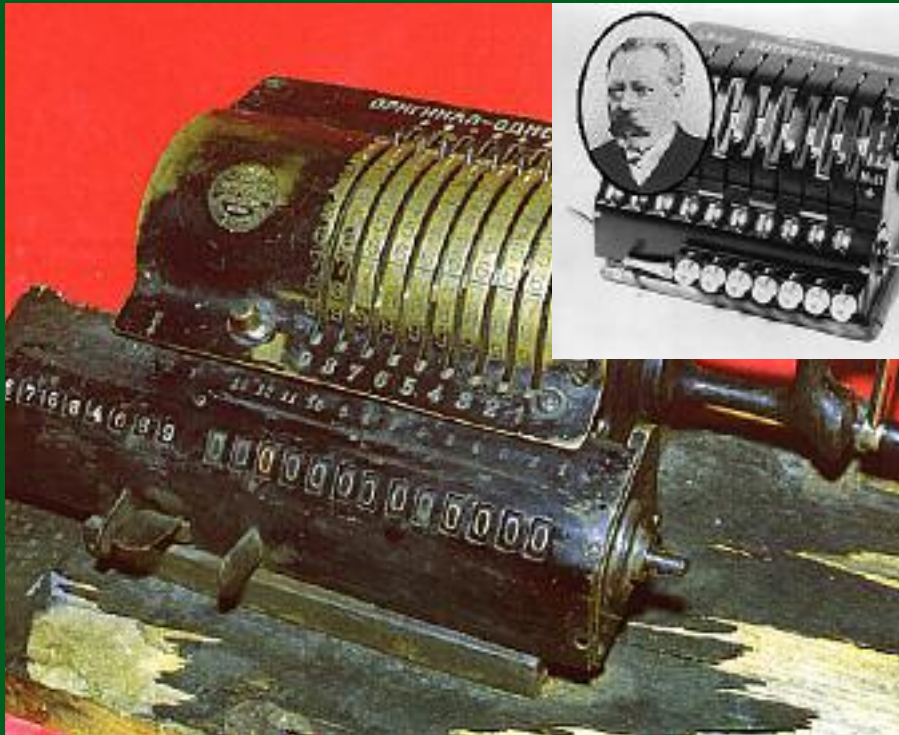


The Analytical Engine

La machine d'arithmétique

Blaise Pascal's Calculating Machine (1645)

Blaise Pascal
(1623–1662)



Wilgodt Theophil Odhner (1845–1905)

Most of the movable parts of the machine are inclosed and protected by a case, **A**, which has an inclined rounded side to facilitate reading the numbers on the different wheels as they appear through the upper middle row **b**, or lower, **c**, of apertures. The shaft **B** has its bearings in the ends of case **A**, and is rotated and to it are fixedly attached a series of wheels, **D**, one-third of the periphery of each of which is constructed with radial recesses or sockets, to receive nine (9) teeth, **d**, one or more of which may be caused to project with the teeth of the smaller toothed wheels **e**, that are rigidly connected with the recording-wheel **E**, plus shaft **F**, which traverses the box or slide **H**, made separate from the body of the case **A**.

The wheels **D** may be termed the "counting-wheels," and always partake of the rotation of the shaft **B**. The first one of the teeth **d** of such a wheel be caused to project or stand out from its periphery, and the shaft **F** once, said tooth will engage one of the ten teeth of the opposite wheel **e**, mounted loose on a shaft, **F**, wheel **e** through the space occupied by its tooth. Each recording-wheel is composed of three parts, which taken together: one, **e**, a toothed wheel, with which the teeth of the counting-wheels **D** engage; another, the toothed scalloped-edged locking-disk **f**, which is slightly separated from the part **e**; and the third part, **E**, the recording-wheel proper, whose broad periphery has the cipher (0) and the nine digits arranged in regular numerical order, being placed between the 1 and 9, the same as on the counting-wheels **D**. The composite or three-part recording-wheel **E e f** is held fixed in any adjustment by an automatic friction device consisting of a spring which presses against the periphery of the disk **f**, as shown in Fig. 2. The form of this holding or locking device may be varied, and another form is shown in Fig. 10. The stress of the spring will overcome the inertia of the recording-wheel, but is not sufficient to prevent the easy operation of it by the counting-wheels **D**.

The effect of turning the recording-wheel **E** the distance of one tooth is to cause the number 1 to appear in the opposite lower aperture, **c**. If, now, instead of one tooth, two (or more) of the teeth **d** of a counting-wheel be caused to project from its periphery, the recording-wheel **E** will be moved correspondingly - that is to say, the distance of two or more teeth - and the corresponding number 2 (or a higher number) will appear in the aperture **c**.

It will thus be apparent that the mechanical function of the several counting-wheels **D** is to rotate the recording-wheels **E**, which are placed with their peripheries opposite, and that the wheels **E** will be rotated through a peripheral distance corresponding to the number of teeth **d** that may project from the counting-wheels **D**. The counting and recording wheels on the right are for units, the next for tens, the third hundreds, the fourth thousands, and so on. Between each two of the counting-wheels **D** is a pivoted movable tooth, **I**, for effecting the "carrying ten," as will be hereinafter described.

The means for moving the nine teeth **d** of the several counting-wheels **D**, and thus causing them to project or recede, as may be required, consist of setting-wheels **K**, one of which is placed close alongside each counting-wheel **D**, but is not, like the latter, fast on the shaft **B**. There are a series of pairs of counting and setting wheels **D** and **K**. Each setting-wheel **K** has the cipher (0) and the nine digits inscribed on its periphery, the linear distance occupied by each digit being one-third of the circumference of the wheel. Each setting-wheel **K** has also a lug or thumb-piece, **g**, by

Most of the movable parts of the machine are rounded side to facilitate reading the numbers middle row *b*, or lower, *c*, of apertures. The shaft *A* and to it are fixedly attached a series of wheels radial recesses or sockets, to receive nine (9) with the teeth of the smaller toothed wheels *e*, shaft *F*, which traverses the box or slide *H*, ma

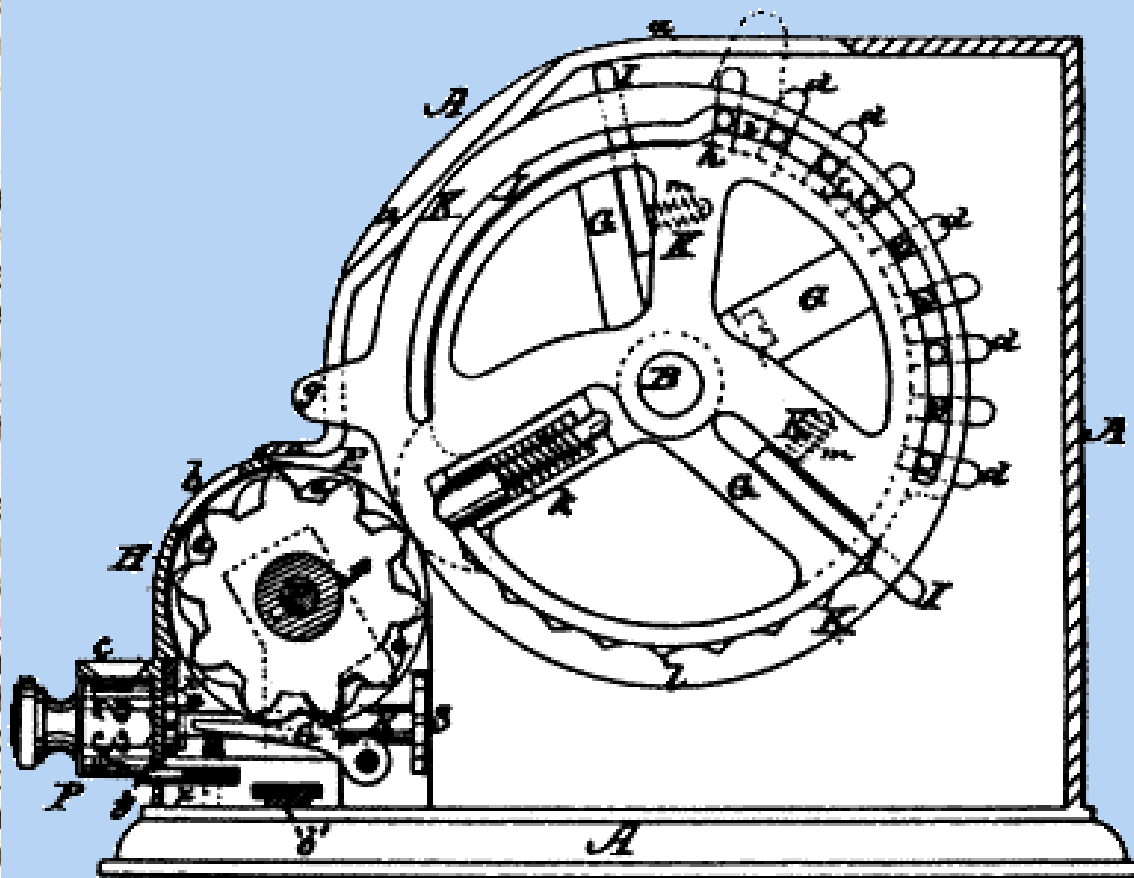
The wheels *D* may be termed the "counting-first one of the teeth *d* of such a wheel be caused once, said tooth will engage one of the ten teeth wheel *e* through the space occupied by its tooth together: one, *e*, a toothed wheel, with which the scalloped-edged locking-disk *f*, which is slightly proper, whose broad periphery has the cipher being placed between the 1 and 9, the same as recording-wheel *E* *e* *f* is held fixed in any adjustment which presses against the periphery of the disk be varied, and another form is shown in Fig. 1 recording-wheel, but is not sufficient to prevent

The effect of turning the recording-wheel *E* the opposite lower aperture, *c*. If, now, instead of *c* caused to project from its periphery, the recording of two or more teeth - and the corresponding number

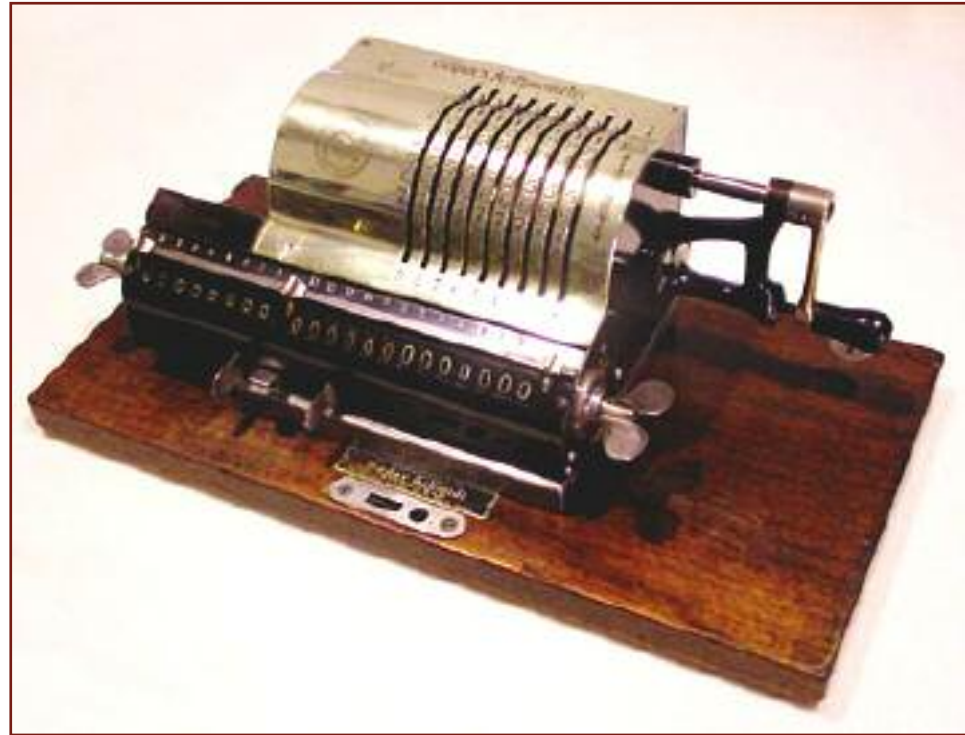
It will thus be apparent that the mechanical first recording-wheels *E*, which are placed with their peripheries opposite, and that the wheels *E* will be rotated a peripheral distance corresponding to the number of teeth *d* that may project from the counting-wheels *D*. The first counting and recording wheels on the right are for units, the next for tens, the third hundreds, the fourth thousands, and so on. Between each two of the counting-wheels *D* is a pivoted movable tooth, *I*, for effecting the operation of "carrying ten," as will be hereinafter described.

The means for moving the rim teeth *d* of the several counting-wheels *D*, and thus causing them to project or to recede, as may be required, consist of setting-wheels *K*, one of which is placed close alongside each counting-wheel *D*, but is not, like the latter, fast on the shaft *B*. There are a series of pairs of counting and setting wheels. Each setting-wheel *K* has the cipher (0) and the nine digits inscribed on its periphery, the linear distance occupied being one-third of the circumference of the wheel. Each setting-wheel *K* has also a lug or thumb-piece, *g*, by which it is turned on the shaft *B* and set at the required place. The rim of the several setting-wheels *K* has a transverse slot, *L*, which extends about two-thirds around the wheel. This slot is composed of two parts or slots of equal length, which are concentric with the axis *B*, but describe arcs having radii of different length. Hence, at the point where the two parts of the slot join there is an angular projection, constituting a cam, *h*.

The several teeth *d* of the counting-wheels *D* have lateral nibs *i*, Fig. 4, which enter the slot *L*, and hence, when a setting-wheel *K* is adjusted peripherally, that counting-wheel *D* which is paired with it being meanwhile held fixed

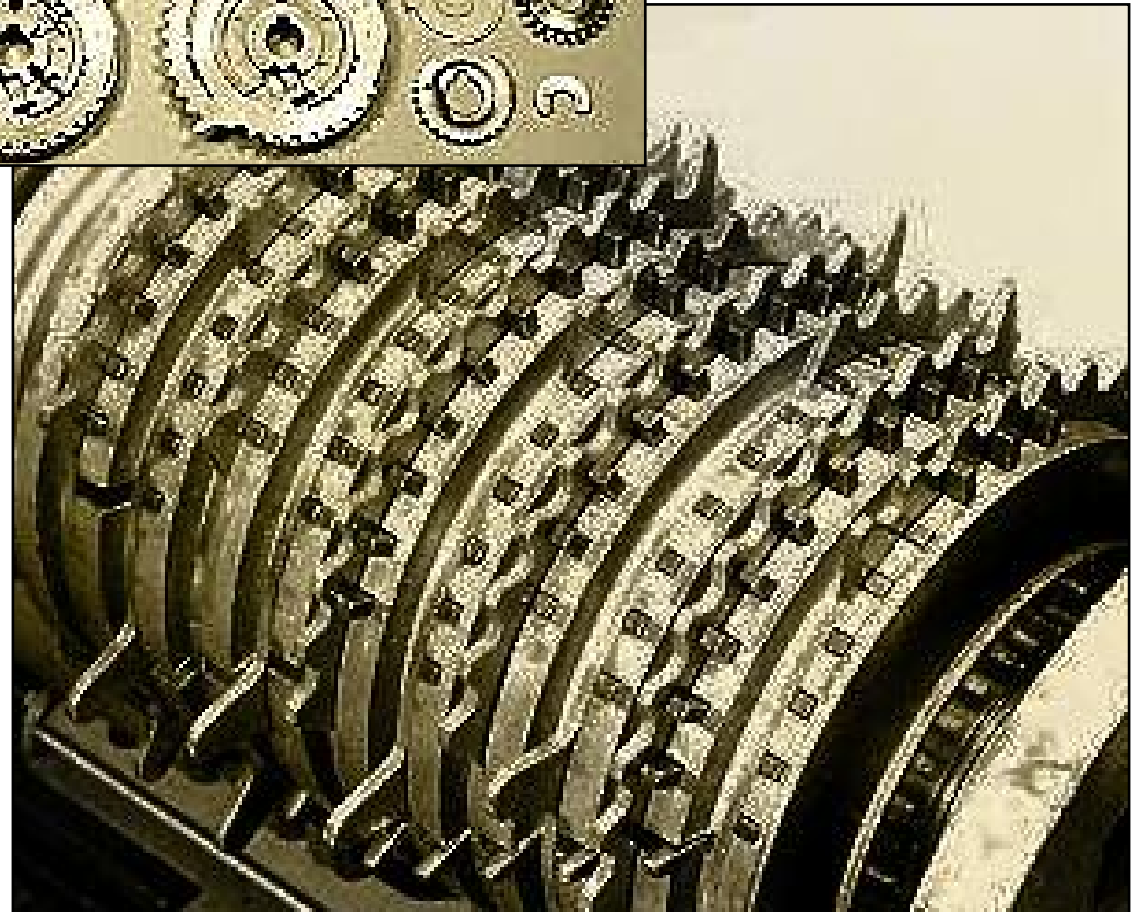
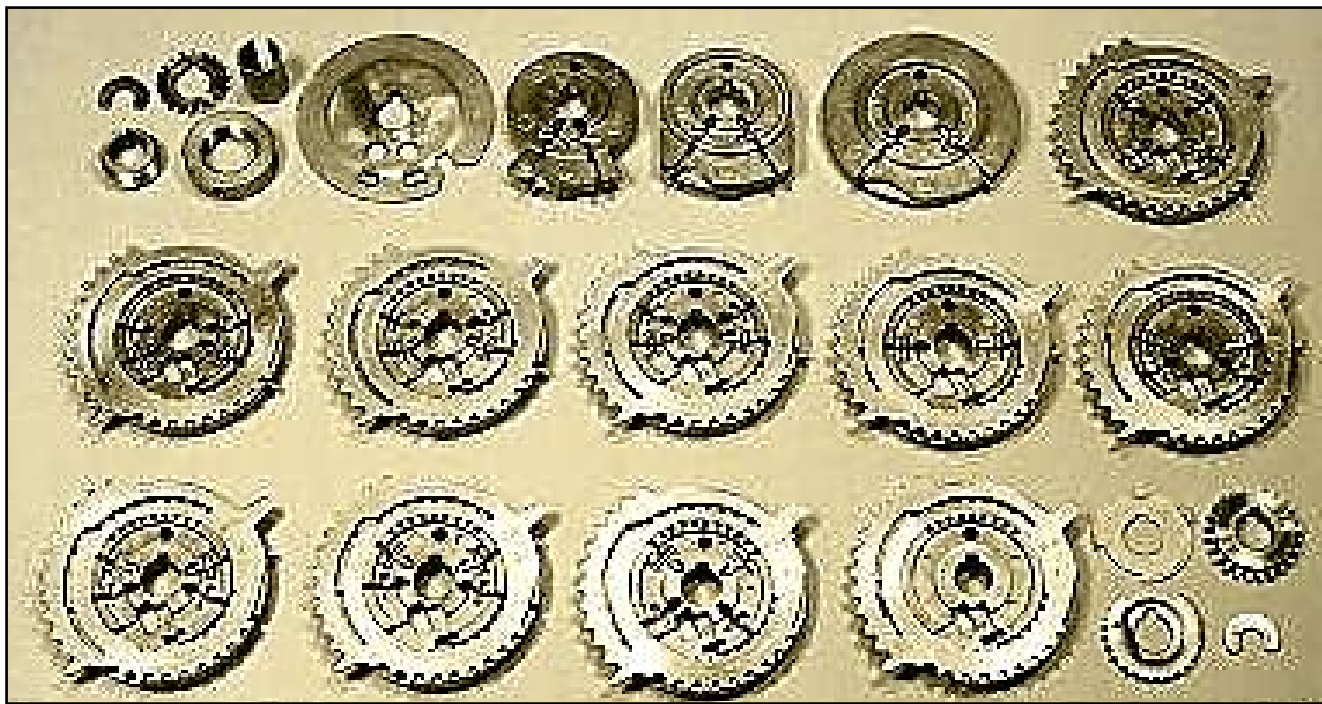


U.S. PAT. OFFICE
 29 okt. 1878



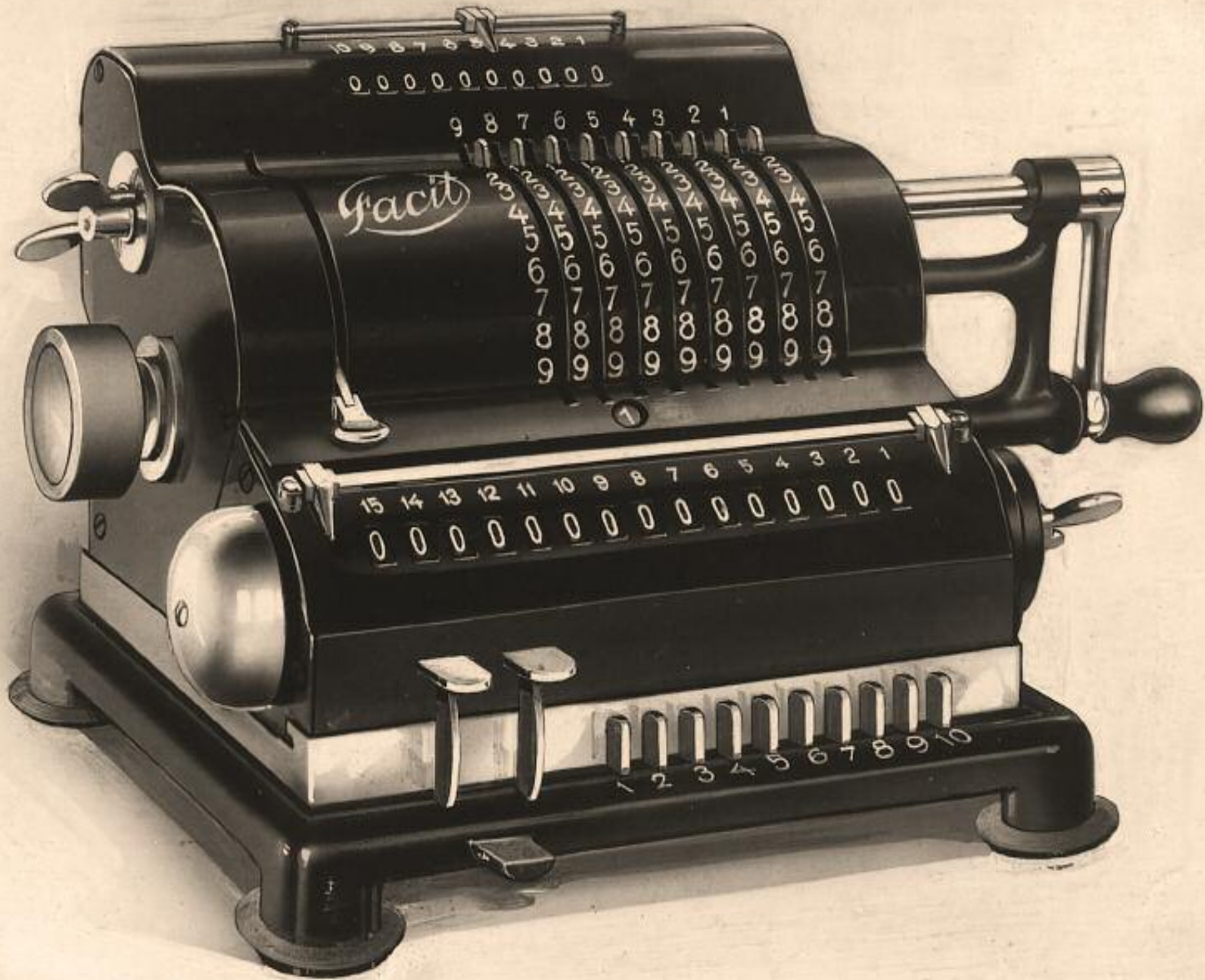
Odhner Arithmator

S:t Petersburg



SPAK- MASKIN

Rotor och rotordelar

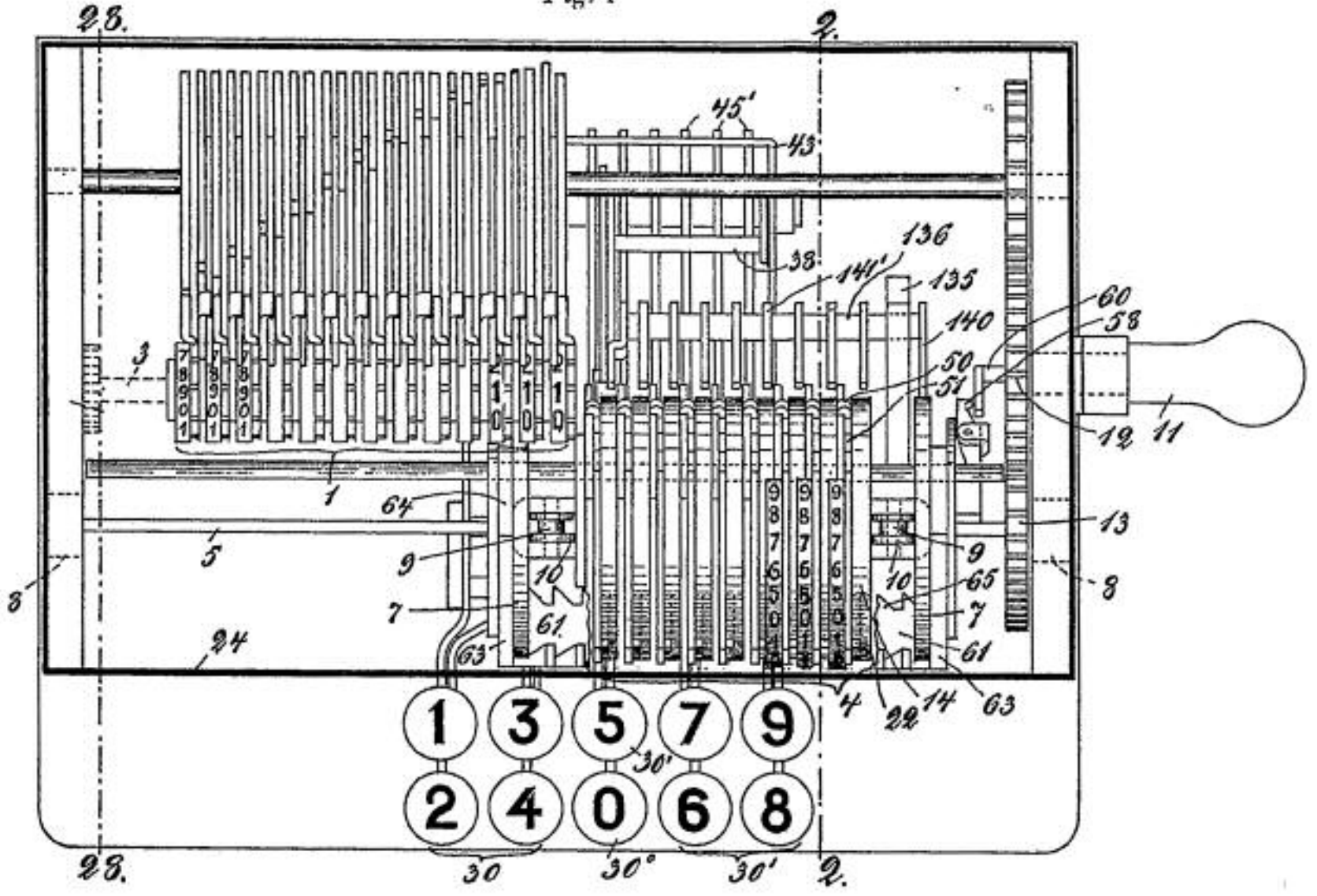


Ritning från patent-
ansökan 1922
KARL RUDIN

Zu d

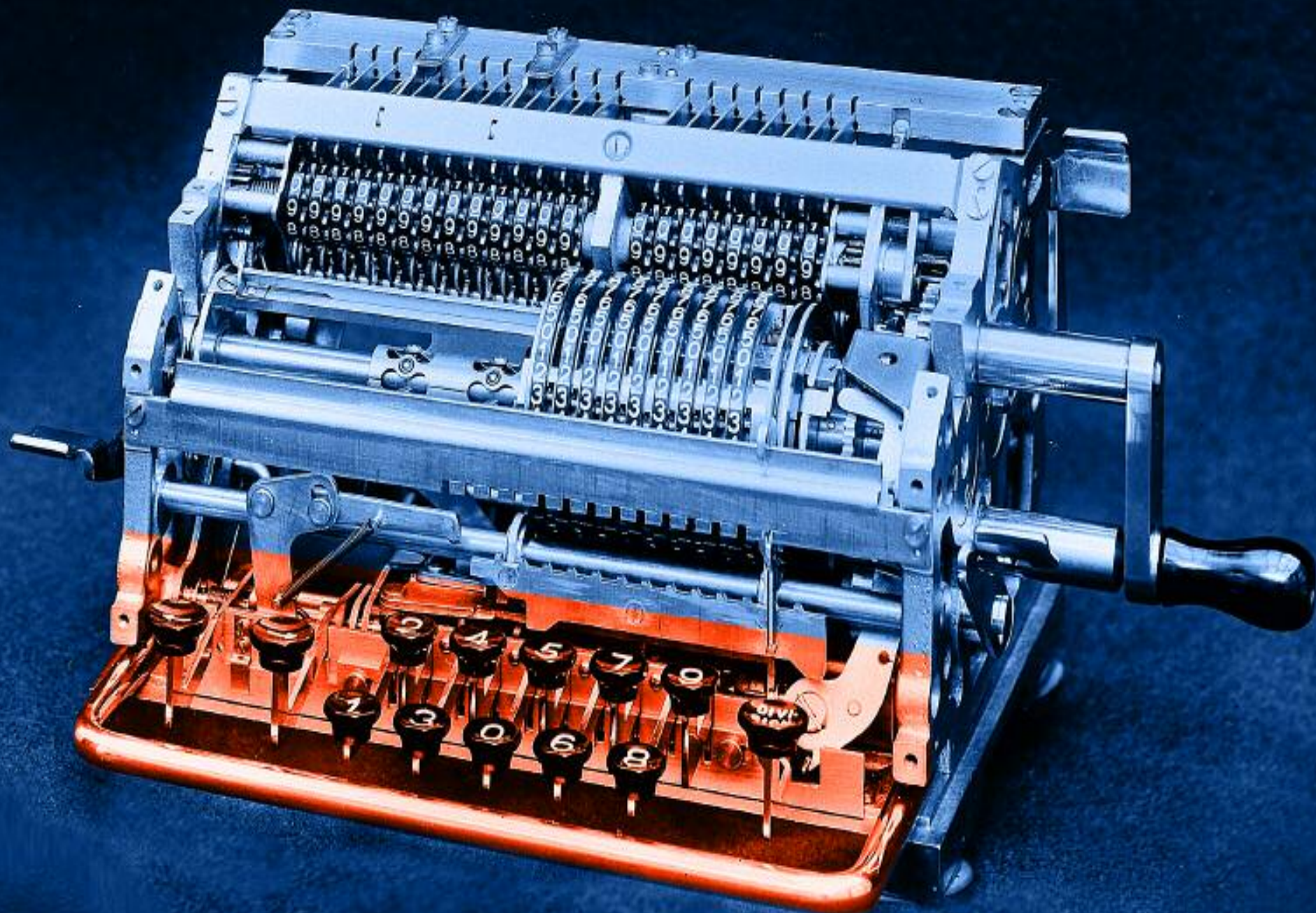
Zu der Patentschrift 535 576
Kl. 42m Gr. 10

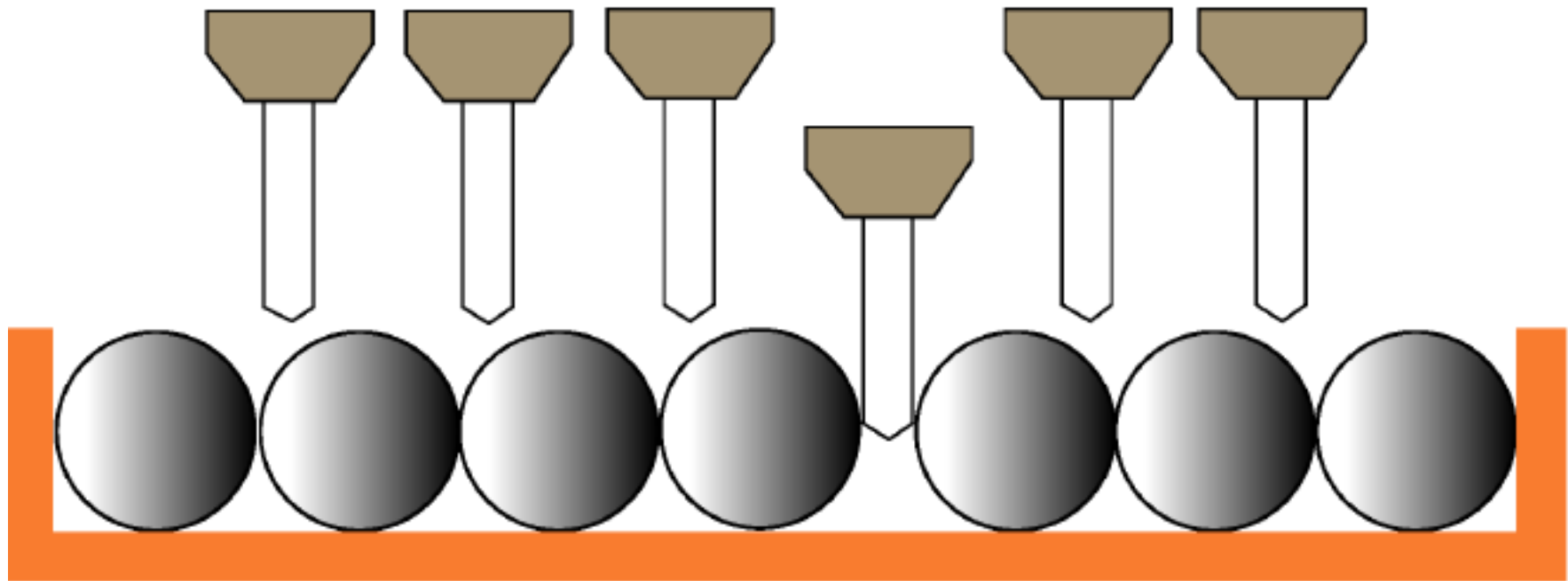
Fig. 1

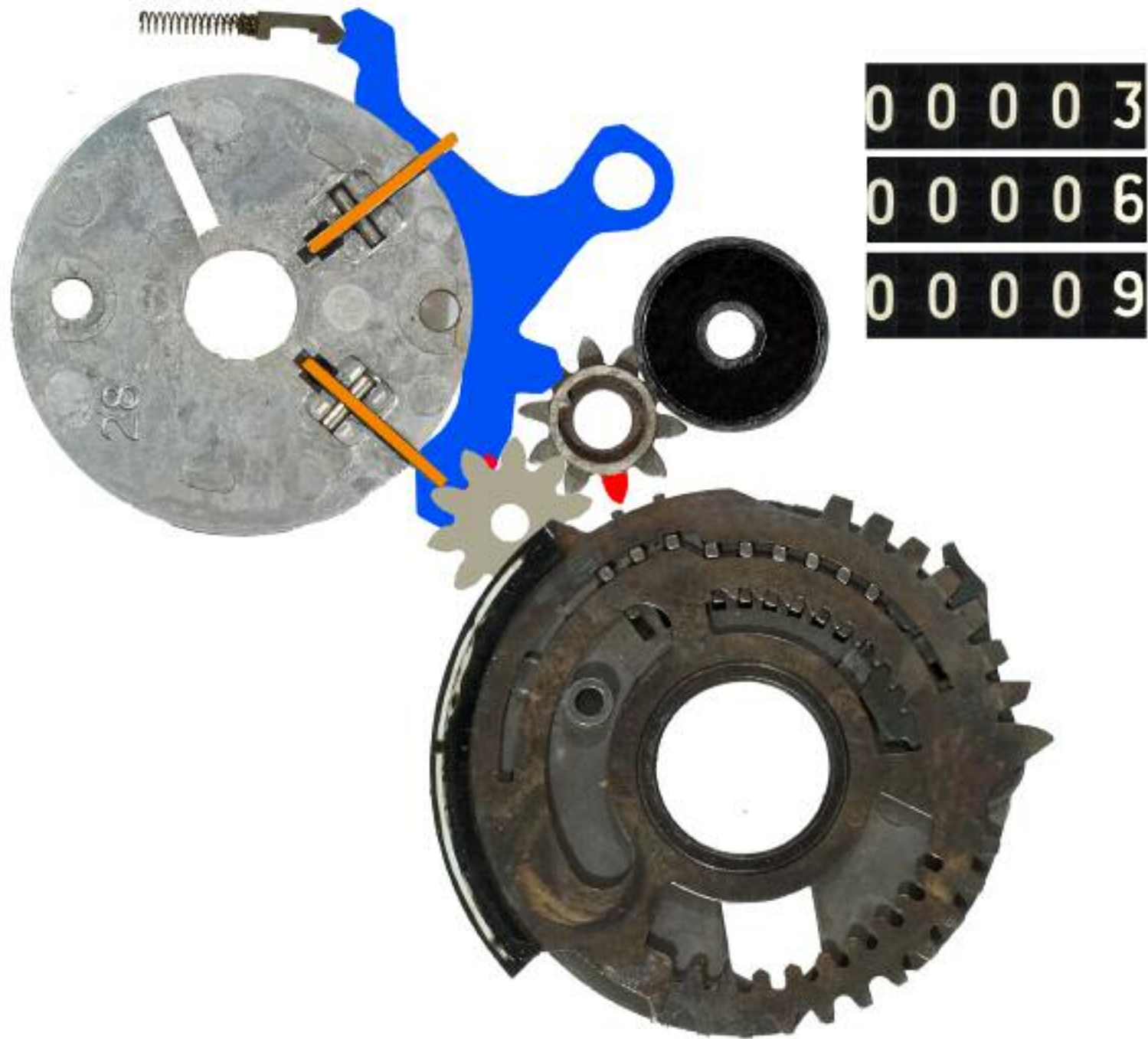


FACITTILLVERKNING
hos AXEL WIBEL AB
Stockholm 1920









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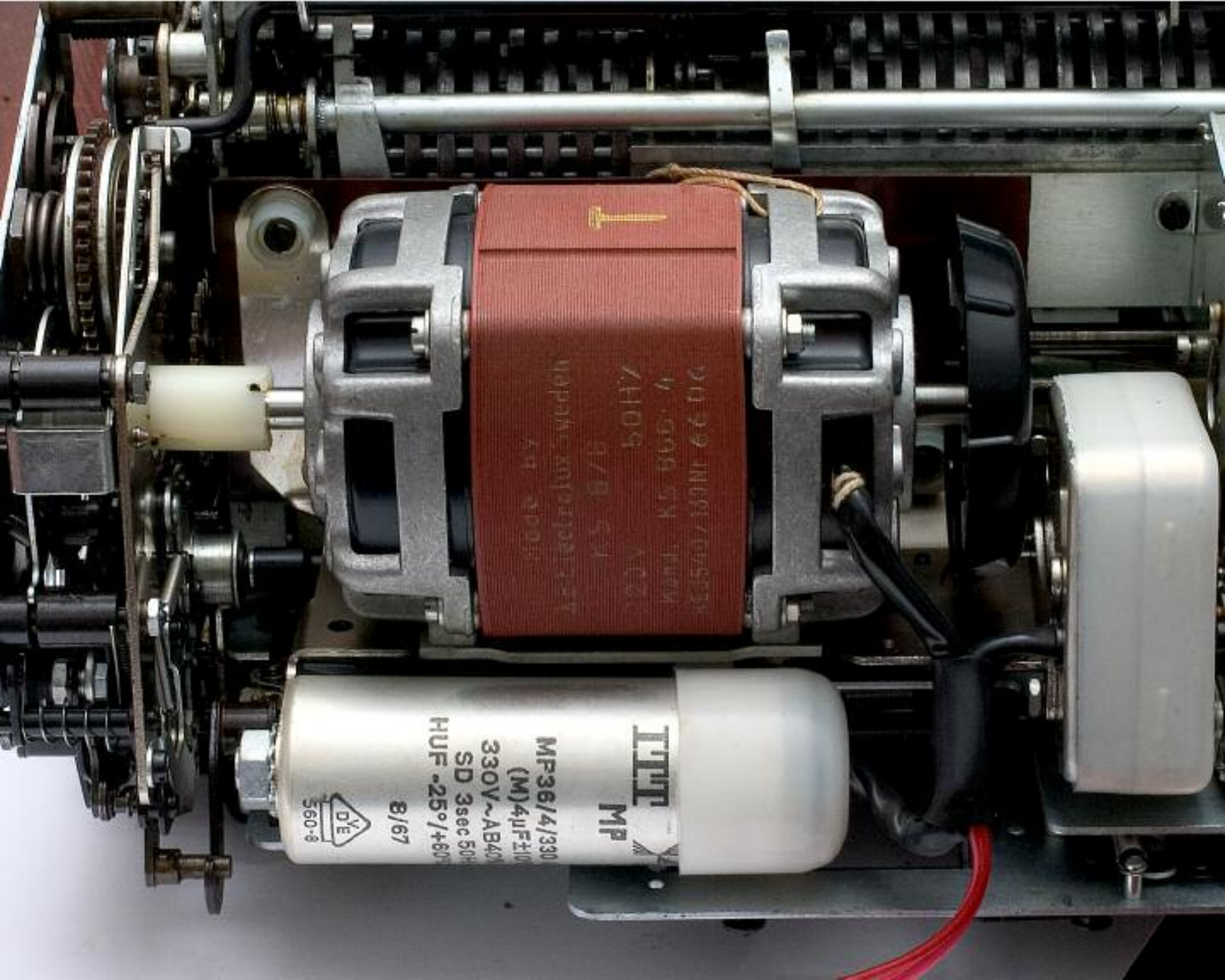
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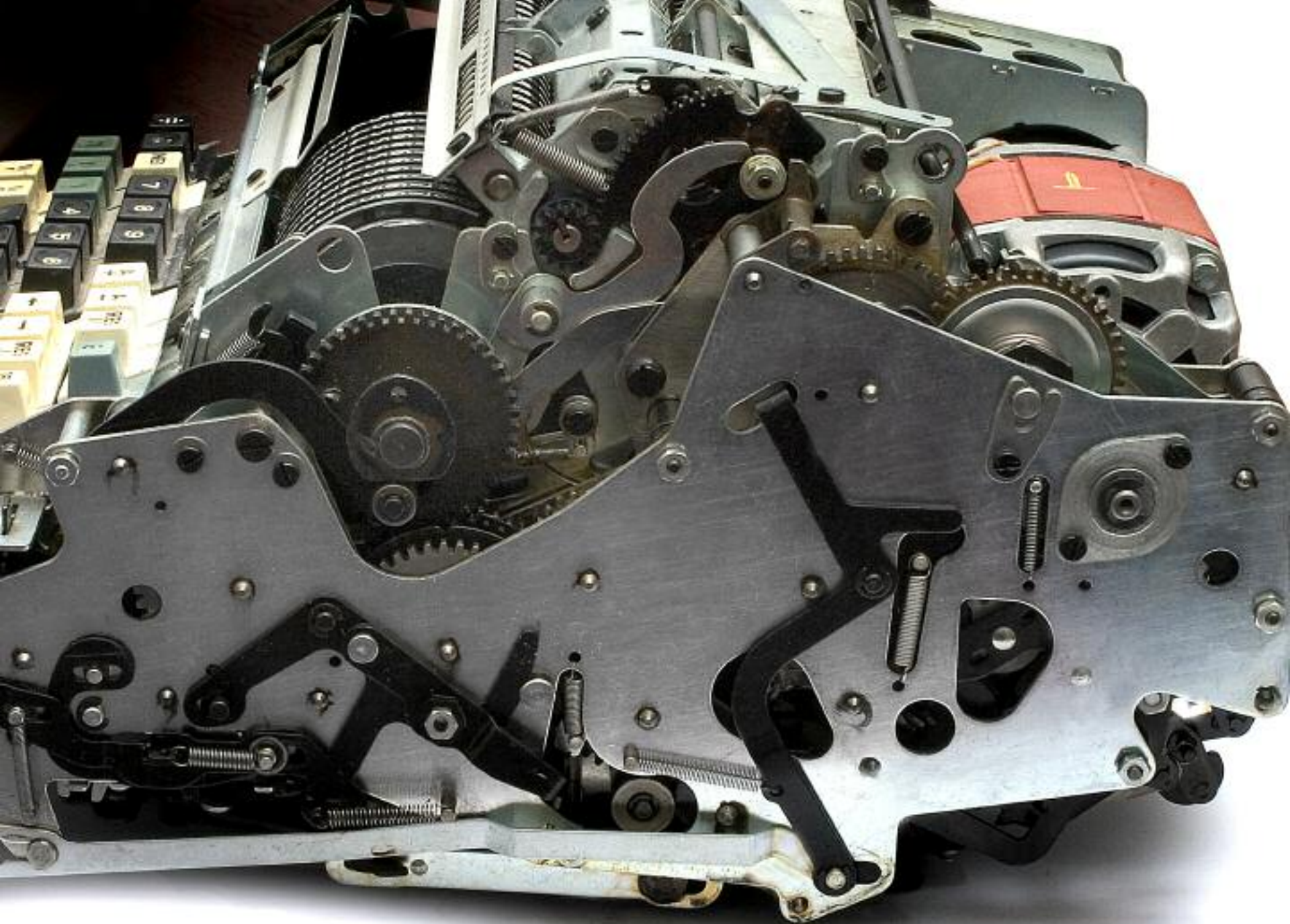


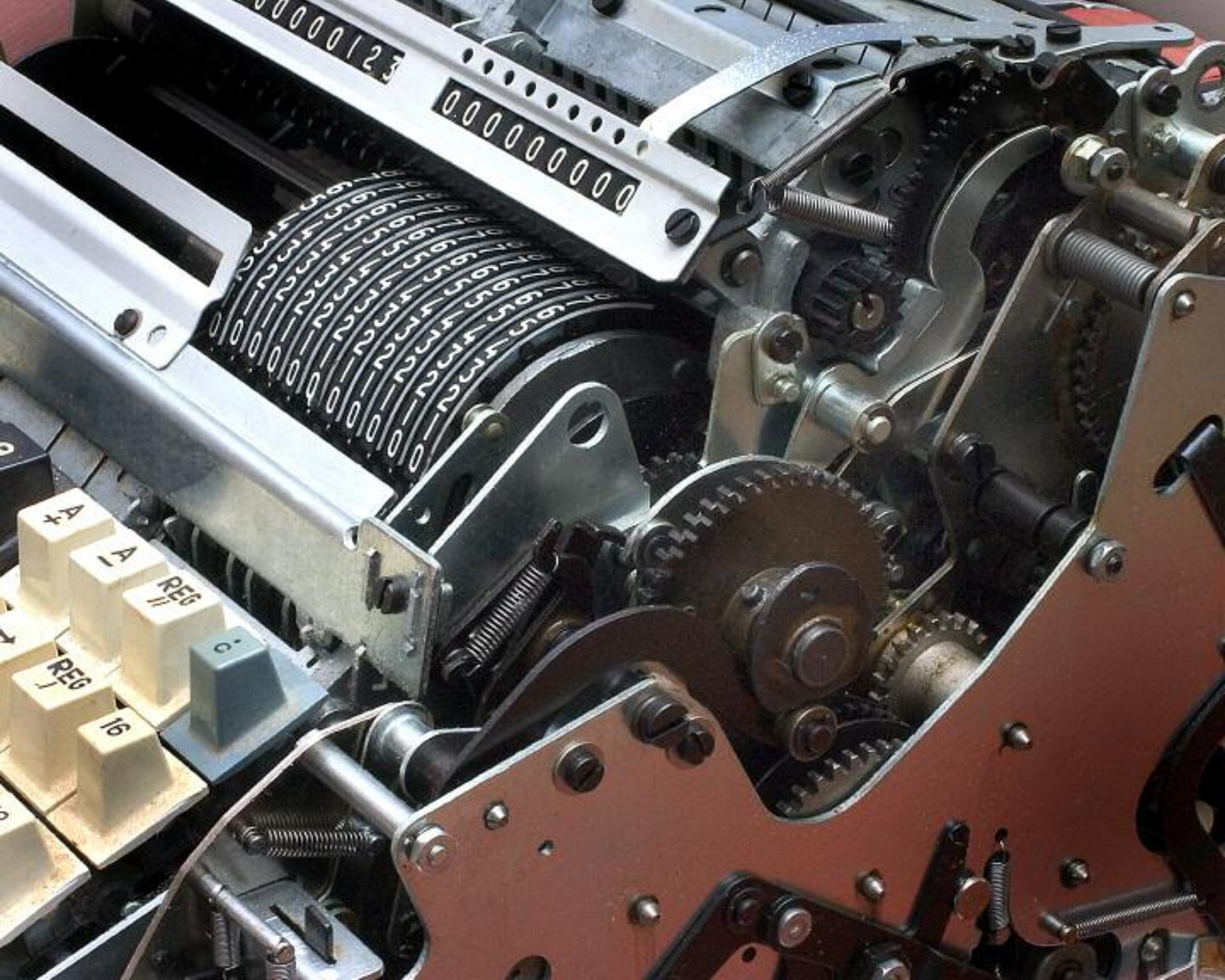


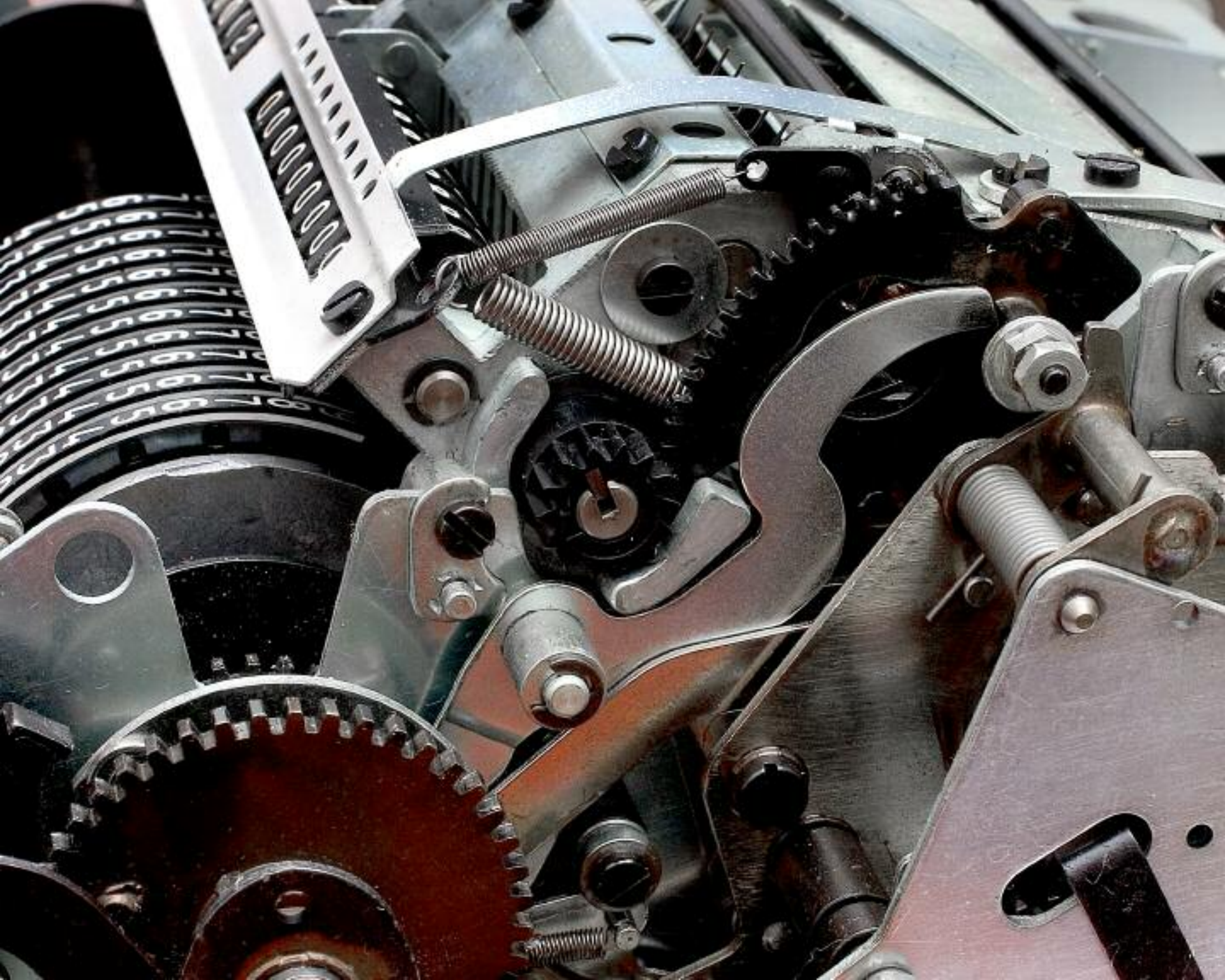
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4 599 54 1000
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Исполнение: 400V/50Гц
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HUF -25°/+60°
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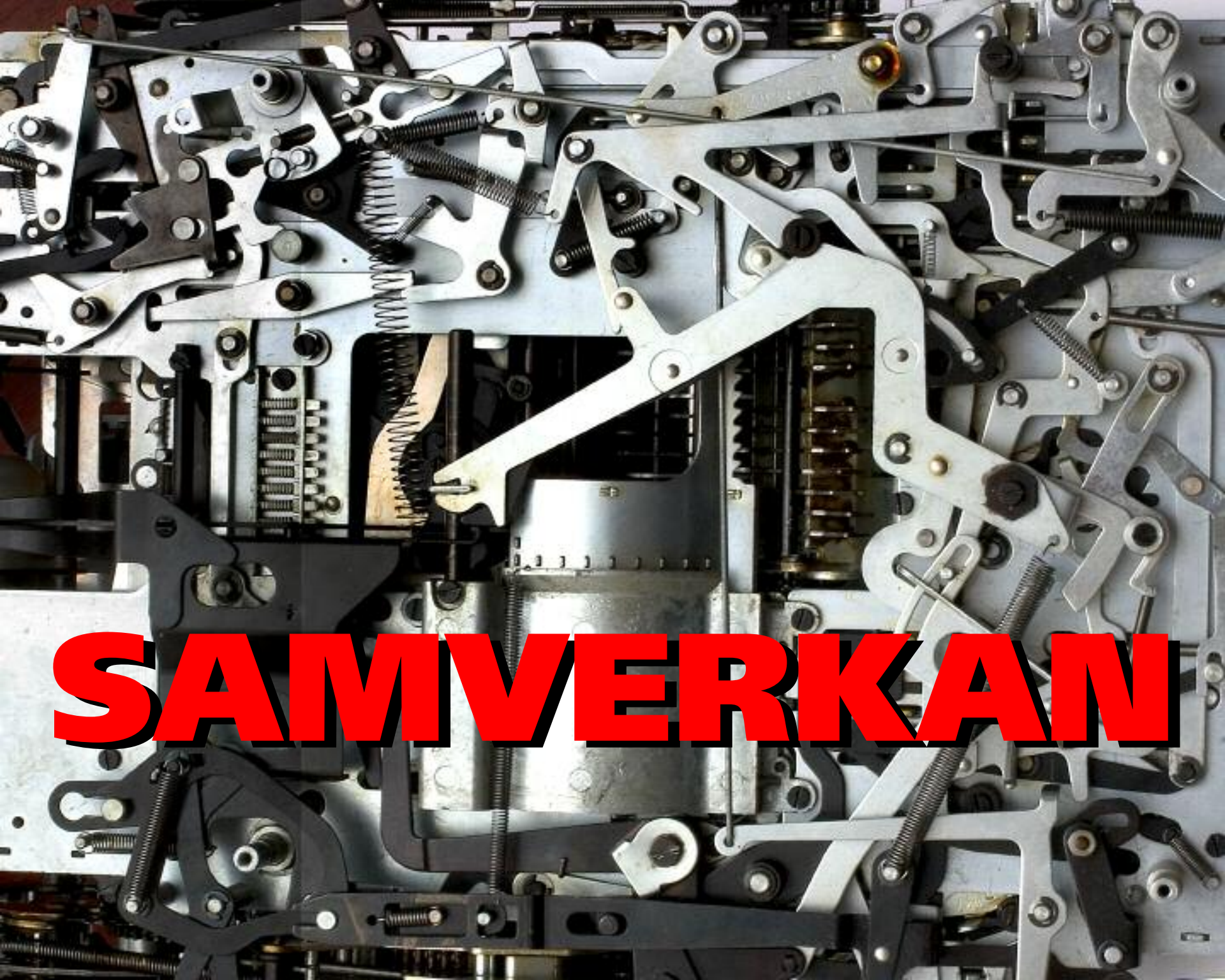


A detailed view of the internal mechanical components of a Facit calculator, showing various gears, levers, and the numeric display wheels with numbers 0-9.

**Facitmodellerna
CA2-16, CA2-16
SX, 1004, 1006
och 1007 inne-
håller 3'640 olika
delar per maskin**



SMILLE



SAMVERKAN

FACIT



13'000 anställda hanterade
1'034'008'874 räknestift i
20'032'036 räknemaskiner
tillverkade i Åtvidaberg.



Tekniken(s) under?





ÅTVIDABERGS
TEKNIKHISTORISKA
SÄLLSKAP

Välkommen som medlem!

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