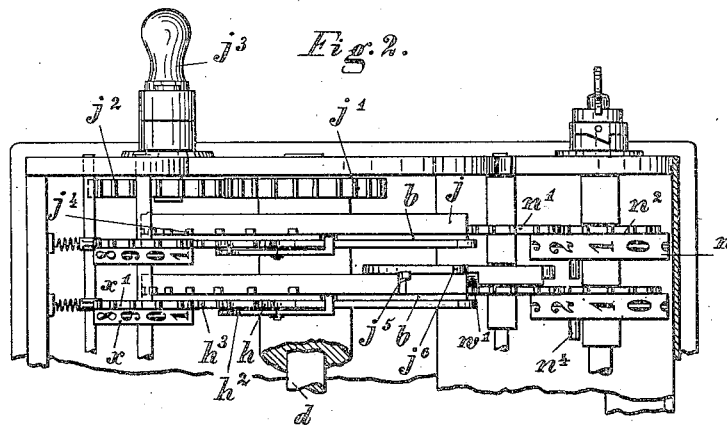


953,242.



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UNITED STATES PATENT OFFICE.

FRANZ TRINKS, OF BRUNSWICK, GERMANY.

CALCULATING-MACHINE.

953,242.

Specification of Letters Patent.

Patented Mar. 29, 1910.

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To all whom it may concern:

Be it known that I, FRANZ TRINKS, engineer, subject of the Emperor of Germany, residing at Brunswick, Duchy of Brunswick, Empire of Germany, have invented certain new and useful Improvements in Calculating-Machines, of which the following is a specification.

My invention relates to improvements in calculating machines of the class illustrated in the U. S. Patent Nr. 650,066 granted to William Küttner and in the U. S. Patent Nr. 823,375, granted to me June 12, 1906. In the said machines the adjustment of the values is effected on toothed wheels having varying numbers of their teeth adjusted in operative positions by means of cam disks connected with each of said toothed wheels. The cam disks are turned by means of small handles which project from the peripheries of the disks through slots provided in the machine casing. In machines of this class levers have been provided on the adjusting mechanism by means of which the cam disks are rotated so as to force the proper number of radial teeth of the adjusting wheels into or out of operative position, as described in the U. S. Patent Nr. 843,506, granted to me February 5, 1907. As described in this patent, the levers engage pin projections provided on the cam disk whereby the latter are carried along.

Now, more particularly, my invention relates to improvements in machines of the last named type, and its object is to provide a printing mechanism, whereby the value adjusted on the toothed wheels is printed by rotating the crank of the machine.

For the purpose of illustrating the invention, I have shown an example of the same in the accompanying drawing, in which the same letters of reference have been used in all the views to indicate corresponding parts.

In said drawing,—Figure 1, is a vertical cross-section of a machine embodying the invention, and Fig. 2, is a partial plan of Fig. 1 with the upper casing wall removed for the purpose of showing the mechanism of the machine.

On a longitudinal shaft d mounted in the lateral uprights of the casing of the machine a plurality of adjusting wheels j (Fig. 2) are located adapted to be rotated from the main crank j^3 by means of gear wheels j^1 , j^2 . The adjusting wheels j are fixed to a sleeve d^1 mounted to rotate on the shaft d ,

as shown in Fig. 2, and the gear j^2 is secured to the shaft c of main crank j^3 , while the gear j^1 is fixed to the sleeve d^1 . Each of the disks j has nine radially movable ratchet teeth j^4 adapted to be brought into or out of operative position by means of concentrically arranged cam disks b adapted to be rotated by means of levers h carried by disks h^x arranged on the shaft adjacent to the cam disks, which levers extend through slots h^1 of the cover y of the casing and engage, through a pivotal elbow lever h^2 the cam disks b , so as to carry the same along when rotated. The wheels or disks j are circular in form and correspond in diameter with the cam disks b by which they are concealed in Fig. 1, but the arrangement of this mechanism appears clearly from Fig. 2. The wheels j when rotated transmit their movement to the counting wheels n of the main counting mechanism by means of spur gears n^1 , n^2 , which mechanism is mounted on a carriage n^3 adapted to be shifted parallel with the shaft d , so that the teeth j^4 of the adjusting wheels j , if desired, may act directly on the spur gears n^1 of higher value places. The counting mechanism is also provided with carrying mechanism, consisting, in the present example, of a pivoted hammer-shaped lever w operated by a pin n^4 of the counting wheel n , whereby, by a beveled face w^1 of the lever w , a pivoted tooth j^5 of the adjusting wheel j is brought into engagement with the gear wheel n^1 . Two pivotal teeth j^5 and two beveled faces w^1 are provided to accommodate a right and left hand rotation of the machine crank j^3 .

The disks h^x of the levers h have teeth h^3 arranged about part of their circumferences, which teeth are in engagement with spur gears x^1 disposed in the upper part of the machine and providing a counting mechanism x for indicating the adjustment of the levers h and thereby that of the adjusting wheels j . The figures of the counting wheels are visible through sight openings x^2 provided in the curved cover y of the casing of the machine. By means of beveled faces j^5 provided on the adjusting wheels j the carrying levers w are brought back into their positions of rest.

Now, in order to record the values adjusted on the adjusting wheels for each operation of the machine, I provide a printing mechanism, which in the example illustrated

consists of the following elements: At the side of the adjusting mechanism described, on a common axis parallel with the axis d , I provide a type wheel or sector for each of the adjusting wheels, which type wheels or sectors are operated by the levers arranged to rotate the cam disks controlling the adjustment of the movable teeth of the adjusting wheels in their operative positions. The type wheels form part of a printing mechanism adapted to print values determined by the adjustment of the adjusting wheels when the crank is rotated. In the present example, the type carrier for each of the adjusting wheels consists of a sector t mounted on a shaft e parallel to the axis d of the adjusting wheels, and having teeth t^1 meshing with teeth a of the lever-disk h^x located sidewise of the cam disk b whereby, when rotating the lever h in the direction of the arrow, the type carrier is moved a number of types equal to the number of the teeth of the adjusting wheel j thrown into operative position. Opposite the type carrier, I provide a printing platen q adapted to press a web of paper i supplied from a drum f against the type carrier t and thereby to effect printing. The platen is shown as being actuated from the sleeve d^1 of the setting mechanism, and for this purpose a disk g (Fig. 2) is mounted upon the sleeve d^1 at the outside of the casing, said disk carrying a crank-pin g^1 which is connected by means of a connecting rod o with the crank-pin p^2 of a disk p^1 located at the outside of the casing and fixed on a shaft p^3 . In Fig. 2 the disk p^1 is covered by the disk g and the connecting rod o is omitted for the sake of clearness. When the disk g is rotated with its sleeve d^1 , the rod o , which has a rocking and longitudinally sliding movement on a stationary pivot m , turns the disk p^1 and thereby rotates the shaft p^3 . Upon this latter shaft is mounted a cam p (see Fig. 1) from which the printing platen q is operated. The paper feed mechanism s is also shown as being actuated from the cam p . A ratchet wheel v is fixed upon the shaft s^1 of one of the feed rollers s and a pawl v^1 is connected with the cam p by means of a crank-pin v^2 , as shown in Fig. 1. The parts of this mechanism are so arranged that the paper web i is at rest during the printing operation, as will readily appear from the drawing.

In the mechanism described, the lever h remains at rest while the crank is being rotated. Therefore also the type carrier t is at rest during the said rotation, until it is returned to its normal position by the lever h at the end of the rotation of the crank. Means for throwing the type carrier in or out of operation, or locking means for controlling the same before or during the oper-

ation of the crank, or special means to move the same back into its normal position, such as springs or weights used in other devices of a similar character, are not required.

I claim:

1. In a calculating machine, the combination of a crank operated registering mechanism embodying a rotatable adjusting disk having individually movable teeth, means to adjust said teeth in operative position, and recording mechanism set directly by said means and comprising shiftable printing type normally immovable by the rotation of the machine crank.

2. In a calculating machine, the combination of registering mechanism, a lever to set the same having a toothed segment, printing mechanism embodying a toothed type-carrying segment meshing with said first named segment, and an automatically operated platen.

3. In a calculating machine, the combination of registering mechanism, a setting lever, a type carrier operated automatically by said lever, and a platen operated automatically by the registering mechanism.

4. In a calculating machine, the combination of registering mechanism, a setting lever, a type carrier operated automatically by said lever, a platen operated automatically by the registering mechanism, and a paper feeding device also operated by said registering mechanism.

5. In a calculating machine, the combination of registering mechanism embodying a rotary sleeve, a setting device, a type carrier operated by the setting device, a platen, a platen-operating shaft, and an operative connection between said sleeve and said platen shaft by which the latter is actuated.

6. In a calculating machine, the combination of registering mechanism embodying a rotatable disk having a plurality of movable teeth, a cam to adjust a definite number of said teeth in operative position, a separate lever to operate said cam, and printing mechanism automatically operated by direct engagement with said lever.

7. In a calculating machine, the combination of adjusting mechanism embodying a rotatable adjusting disk having individually and radially movable teeth, a rotatable cam disk to adjust said teeth in operative position, means to rotate said cam disk for adjusting said teeth radially, and printing mechanism actuated by said means.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FRANZ TRINKS.

Witnesses:

WILHELM LEHRKE,
RICHARD KULBS.