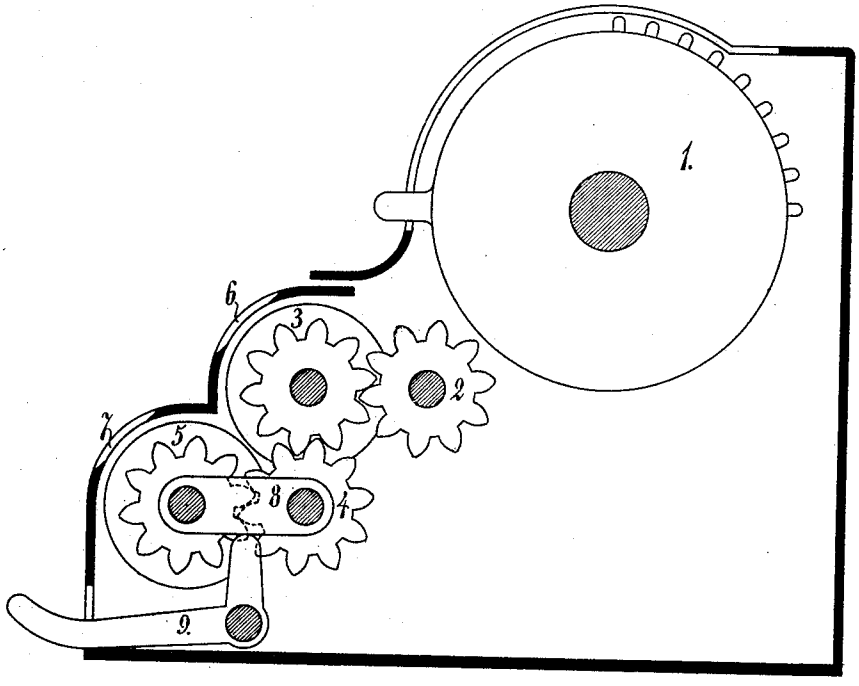
No. 705,838. Patented July 29, 1902.

C. HAMANN.

CALCULATING MACHINE.

(Application filed Mar. 28, 1902.)

(No Model.)



WITNESSES:

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CHRISTEL HAMANN, OF FRIEDENAU-BERLIN, GERMANY, ASSIGNOR TO ERNST SCHUSTER, OF BERLIN, GERMANY.

CALCULATING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 705,838, dated July 29, 1902.

Application filed March 28, 1902. Serial No. 100,433. (No model.)

To all whom it may concern:

Be it known that I, CHRISTEL HAMANN, engineer, a citizen of the Kingdom of Prussia, and a resident of Friedenau-Berlin, Germany, (whose post-office address is Hedwigstrasse 17,) have invented certain new and useful Improvements in Calculating-Machines, of which the following is a specification.

The calculating-machines now in general use permit the addition of the products of different multiplications, without, however, giving the results of the single multiplications which are to be added. In many cases it is of importance to know these single products as well as their sum.

The present invention relates to an improvement in calculating-machines of known construction by means of which not only the sum of the results of the single multiplications, but also their single products, may be obtained, and for that purpose the calculating-machines must be provided with another registering device, which is to be arranged in such a way that only one registering mechanism is actuated on by means of the setting mechanism and that during the manipulation of forming a product both registering devices are completely independent from each other, the connection being only established in the moment when the product formed in the one of the registering mechanisms is to be transmitted to the other one for the purpose of forming the sum of two products.

As will be seen from the accompanying drawing, in which is shown a sectional view through the machine, the transmission to the second registering device is not effected from the setting-disk, but in the following way.

In the drawing, 1 is the calculating or setting disk, 3 one of the registering devices, 5 the other one. The number to which the setting-disk is set is transmitted by the turning of the same by means of intermediate gear 2 to the registering device 3, the drums of which show after the manipulation has been performed the result of same beneath the windows 6. In setting back these registering-drums to zero they execute corresponding rotations to their initial or zero positions. If the ten-toothed registering-drum 3 shows, for example, one of the numbers "9 8 7," it is turned back in setting the mechanism to zero correspondingly through nine eight seven intervals until it reaches its zero position. This setting back to zero may be done by any mechanism known for that purpose and is now utilized for the summing up of the single products obtained by different subsequent manipulations of the mechanism. For that purpose a second registering mechanism 5 is arranged parallel to the former one 3, the numerals of the same being visible through the windows 7 in the casing of the machine. These registering-drums bear a cam-wheel having ten teeth, said cam-wheel gearing with an intermediate toothed wheel 4, which may either gear also with the toothed wheel 3 or be out of gear with the same. If said intermediate wheel 4 gears with 3 in beginning the setting back to zero of 3, it is evident that the registering-drums 5 will be rotated in the same sense through an angle equal to that through which the drums 3 are rotated.

If the result of a subsequent calculating operation is visible in the windows 6 and said result is to be added to that visible in the second registering work, setting at the same time the registering-drums 3 back to zero, the wheels 4 are brought to gear with 3 before beginning the setting to zero. It is readily understood that means must be provided in the second registering mechanism for transmitting the teens; but this device may be of any known construction.

As already mentioned, ordinarily the toothed wheels 4 are not in gear with the registering work 3, and the result of any calculation is only transmitted to the latter. If the same is to be transmitted to the second registering work and added to the result visible in the windows 7, 3 and 4 are to be thrown into gear. Means of any convenient description may be used for that purpose. In the case shown in the drawing it is done in the following way: The shaft on which the intermediate toothed wheels 4 rotate has its bearings in the ends of two levers 8, the pivot of which is formed by the shaft of the toothed wheels 5, a handle imitating the form of a bent lever 9 serving for raising and lowering the lever 8. In pressing down the free end

of said lever 9 the lever 8 is raised, and the intermediate toothed wheels 4 are brought to gear with the toothed wheels 3. If now the registering-drums rigidly connected with the latter are set back to zero, the wheels 5, with their registering-drums, are rotated through an equal space, and the result which was visible in the windows 6 now appears in the windows 7.

The throwing into gear by the depression of lever 9 and the setting back to zero of the upper registering-works is repeated as many times as different items are to be added. The throwing into and out of gear of the two registering-works may also be automatically done in any convenient way.

What I claim is—

In a calculating-machine, the combination with the registering-drum having a gear connected therewith and a second gear meshing with said first-named gear for driving the drum, of a second registering-drum having a gear connected therewith, a link pivoted at the axis of said second drum, an idler-gear journaled in the free end of said link and meshing with said last-named gear, and a bell-crank lever having one arm adapted to bear on the under side of said link and its other arm adapted to serve as an operating-handle, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CHRISTEL HAMANN.

Witnesses:

WOLDEMAR HAUPT,

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