

No. 881,868.

PATENTED MAR. 10, 1908.

W. P. QUENTELL.  
CALCULATING MACHINE.  
APPLICATION FILED MAY 18, 1907.

Fig. 1.

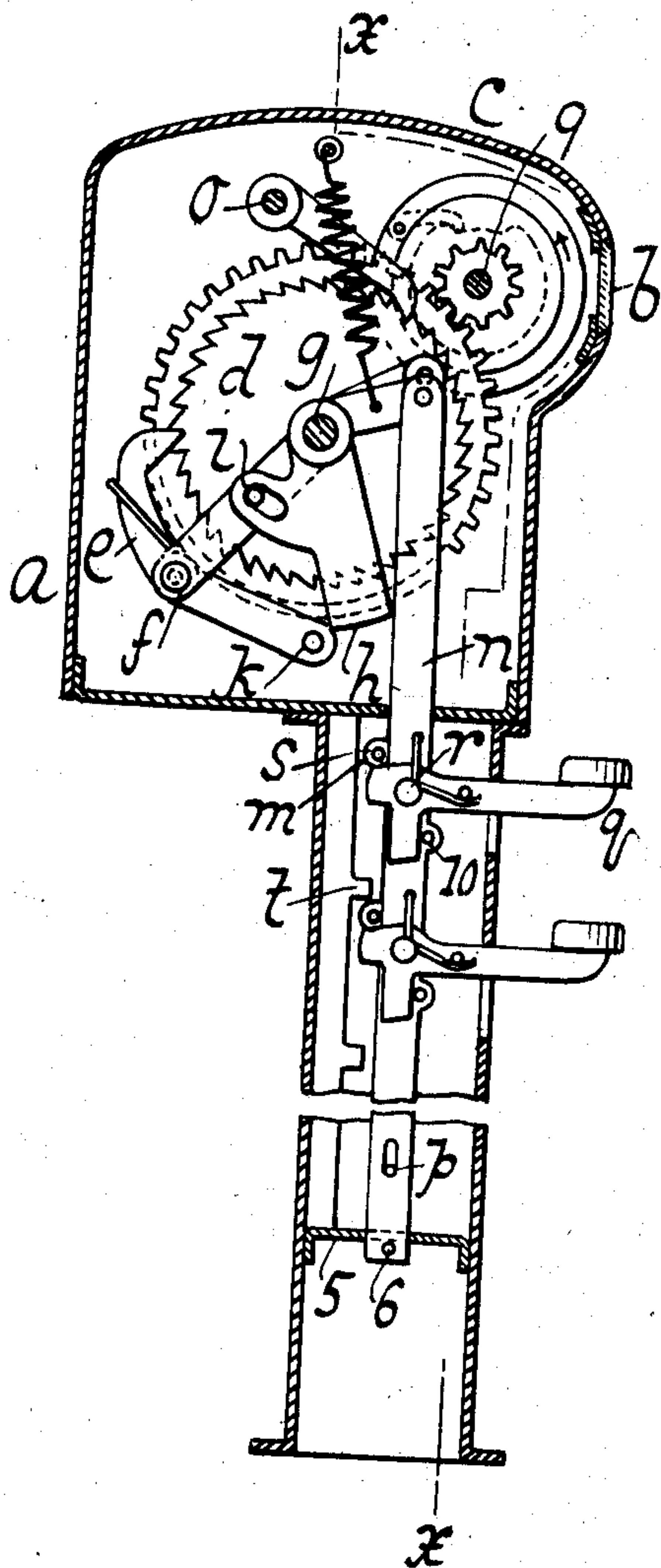
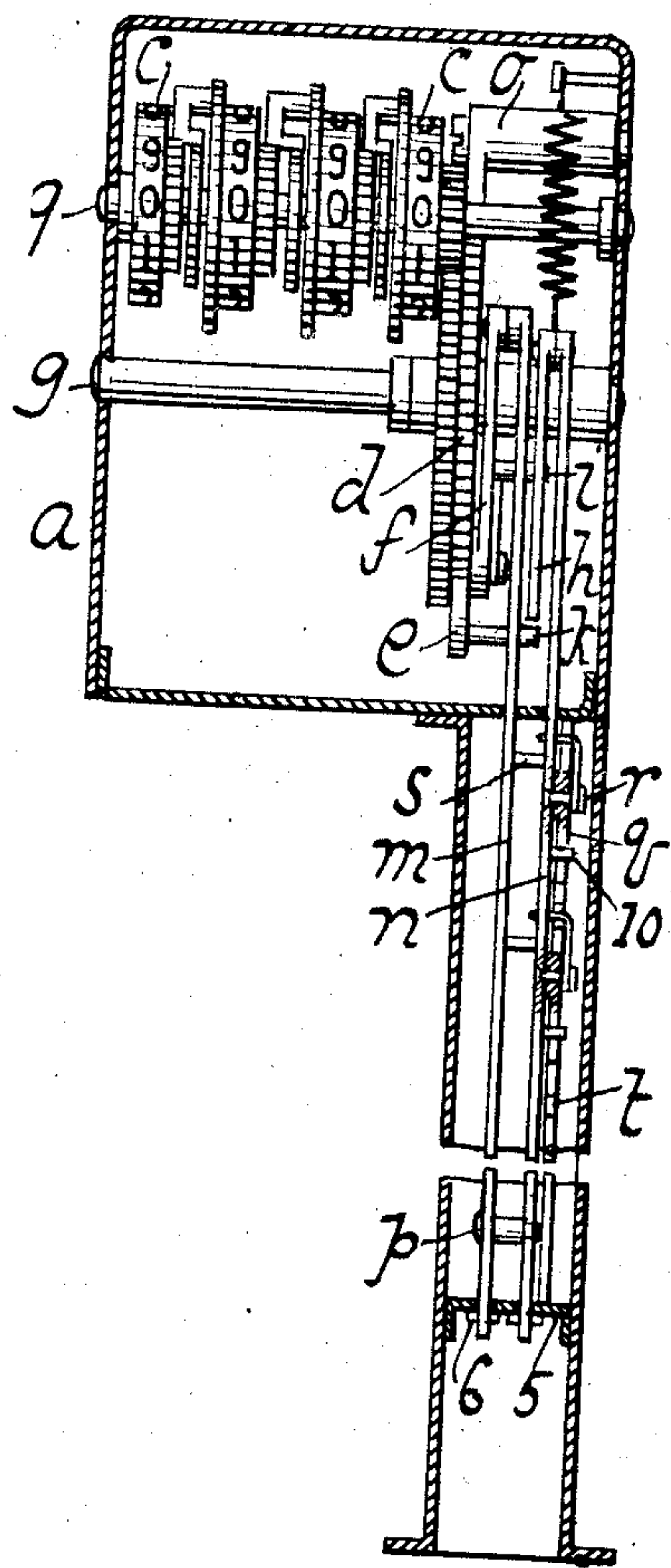


Fig. 2.



WITNESSES:

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# UNITED STATES PATENT OFFICE

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## CALCULATING-MACHINE.

No. 881,868.

Specification of Letters Patent.

Patented March 10, 1908.

Application filed May 18, 1907. Serial No. 374,482.

To all whom it may concern:

Be it known that I, WILLIAM P. QUENTELL, a citizen of the United States, residing at Stamford, in the county of Fairfield and State of Connecticut, have invented new and useful Improvements in Calculating-Machines, of which the following is a specification.

This invention relates to a device which can be made simple and cheap and at the same time be accurate and reliable.

This invention is set forth in the following specification and claims and illustrated in the annexed drawing, in which:—

Figure 1 is a sectional side elevation of a device embodying this invention. Fig. 2 is a section along  $x-x$  Fig. 1.

In this drawing is shown a casing  $a$  with windows  $b$  for showing the designations on numbered wheels or disks  $c$ . A series of such disks are preferably arranged for units, tens and so on. The unit disk is actuated by gear connection driven by a ratchet  $d$  and pawl  $e$ . This gear connection is the usual one employed in calculating machines and comprises a gear on shaft  $g$  engaging a pinion on the shaft 9 hereinafter again referred to and on which shaft 9 are carried the number wheels  $c$ . This shaft  $g$  has secured thereto and is driven by the said ratchet  $d$  actuated by the pawl  $e$ .

The pawl is shown on carrier  $f$  swinging on the shaft  $g$  of the ratchet. On said shaft also swings a lock  $h$  in form of an arc or other suitable shape. A pin  $i$  of pin and slot connection allows the lock a certain movement independent of the pawl carrier. When the lock is in contact with the tail part or pin  $k$  of the pawl the latter is locked to the ratchet and such ratchet cannot skip or make a step independent of the pawl.

An actuator or driving bar  $m$  is shown for the pawl and the pawl lock is actuated by a lock bar  $n$ . The lock being made to engage the pawl and the latter then driving the ratchet both are made to swing forward together and the ratchet cannot move ahead of the pawl so that inaccuracy is provided against. On the return the lock first releases the pawl and then the latter returns or ratchets back over the ratchet teeth. Two bars  $m$  and  $n$  are used, because if only one bar, for instance  $n$ , is used, the momen-

tum of the ratchet when the bar is suddenly stopped carries the ratchet beyond the proper stopping point. The momentum of the ratchet  $d$  would carry the pawl  $e$  and its carrier  $f$  the length of the slot of the connection at  $i$ , and consequently the pin  $k$  would no longer be under the disk  $h$  and the pawl would be no longer locked to its ratchet, and the ratchet  $d$  would be free to pass by its momentum or to keep on moving. A lock pawl  $o$  prevents backward motion of the ratchet. The bars  $m$   $n$  have a loose connection as seen by a pin  $p$  of a pin and slot connection. The lock bar can thus move a certain distance in advance of the driving bar  $m$  so that such lock bar will first set the lock into position and then the bar  $n$  striking the pin  $p$  will cause the bar  $m$  to move with bar  $n$  so that both bars move together and the numbering or calculating mechanism is actuated. It is necessary especially in quick working to lock the pawl  $e$  to the ratchet  $d$  so that the mechanism will not be carried by momentum beyond a required point. Hence the lock bar moves in advance of the driver to first lock the pawl to the ratchet, after which the pawl is made to move the calculating mechanism.

Tumblers are shown at  $q$ . These tumblers can be in form of keys or actuated by keys suitably arranged. As a tumbler is swung on its pivot  $r$  it is moved to a stud or detent projecting from bar  $m$  thus bringing its tail in line with a stop  $t$ . Then as the tumbler is further depressed it moves first the lock bar and then both bars  $m$  and  $n$  until arrested by a stop  $t$ . The stops  $t$  are placed at varying distances to arrest the mechanism after a greater or less number has been noted.

The number wheels are supported by a shaft 9.

The lower or free ends of bars  $m$  and  $n$  can be suitably steadied or guided. A comb or cross bar entering slots in the bars or other means can be employed. The upward or return movement of the bars can be suitably limited as by a stop pin 6 arrested by contact with the comb or any suitably fixed part of the machine or frame.

In the construction shown in Fig. 1 the tumblers serve also as keys being provided with suitable finger buttons. The stops limit the swing of the tumblers in one direc-



tion and stops 10 limit the swing in the other direction.

I do not herein claim anything set forth in my U. S. Patent application Ser. No. 370,492, filed April 26, 1907.

What I claim is:—

1. In a calculating machine, a pawl, a carrier therefor, a pawl lock, a bar connected to the lock, and a bar connected to the carrier, said bars being connected so that movement from one bar will be communicated to the other.

2. In a calculating machine, a pawl, a carrier therefor, a pawl lock, a bar connected to the lock, and a bar connected to the carrier, said bars being connected so that movement from one bar will be communicated to the other, and tumblers pivoted to one of the bars.

3. In a calculating machine, a pawl, a carrier therefor, a pawl lock, a bar connected to the lock, and a bar connected to the carrier, said bars being connected so that movement from one bar will be communicated to the other, tumblers pivoted to one of the bars, and keys for actuating the tumblers.

4. In a calculating machine, a pawl, a carrier therefor, a pawl lock, a bar connected to the lock, and a bar connected to the carrier, said bars being connected so that movement from one bar will be communicated to the other, tumblers pivoted to one of the bars, and a detent for arresting the tumblers when moving a bar.

5. In a calculating machine, a pawl, a carrier therefor, a pawl lock, a bar connected to the lock, and a bar connected to the carrier, said bars being connected so that movement from one bar will be communicated to the other, tumblers pivoted to one of the bars, and a detent for arresting the tumblers when moving a bar, one of said bars having means for limiting the movement of the tumblers on their pivots.

6. In a calculating machine an actuating pawl, a lock for the pawl, an operating bar for the lock and an operating bar for the pawl,

and a connection between the bars to allow the pawl to be locked before being actuated.

7. In a calculating machine an actuating pawl; a lock for the pawl, an operating bar for the lock and an operating bar for the pawl, a pin and slot connection for the bars and a tumbler for actuating the bars.

8. In a calculating machine, an actuating pawl and a lock therefor, sliding bars for respectively actuating the pawl and lock, tumblers on the lock actuating bar, and stops on the pawl actuating bar and made to coact with the tumblers to arrest the bars at varying distances.

9. A numbered wheel, sliding bars, intermediate actuating mechanism between the sliding bars and numbered wheel, tumblers mounted on one of the bars, and stops for the tumblers to limit the motion of the wheel.

10. A numbered wheel, sliding bars, intermediate actuating mechanism between the sliding bars and numbered wheel, tumblers mounted on one of the bars, and stops for the tumblers to limit the motion of the wheel and keys for the tumblers.

11. In a calculating machine, a pawl, a carrier therefor, a ratchet, a pawl lock which holds the pawl locked to its ratchet during the entire actuation of the ratchet by the pawl, a bar connected to the lock, a bar connected to the pawl, means for moving the bars, and means for stopping the bars.

12. In a calculating machine, a pawl, a carrier therefor, a ratchet, a pawl means for holding the pawl locked to its ratchet during the entire actuation of the ratchet, a bar connected to the lock, a bar connected to the pawl, and means for moving and for stopping the bars.

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

WILLIAM P. QUENTELL.

Witnesses:

CHRISTIAN ALMSTEAD,  
EDWARD WIESNER.