

No. 669,453.

F. H. BICKFORD.  
CASH REGISTER.

Patented Mar. 5, 1901.

(Application filed July 21, 1899.)

(No Model.)

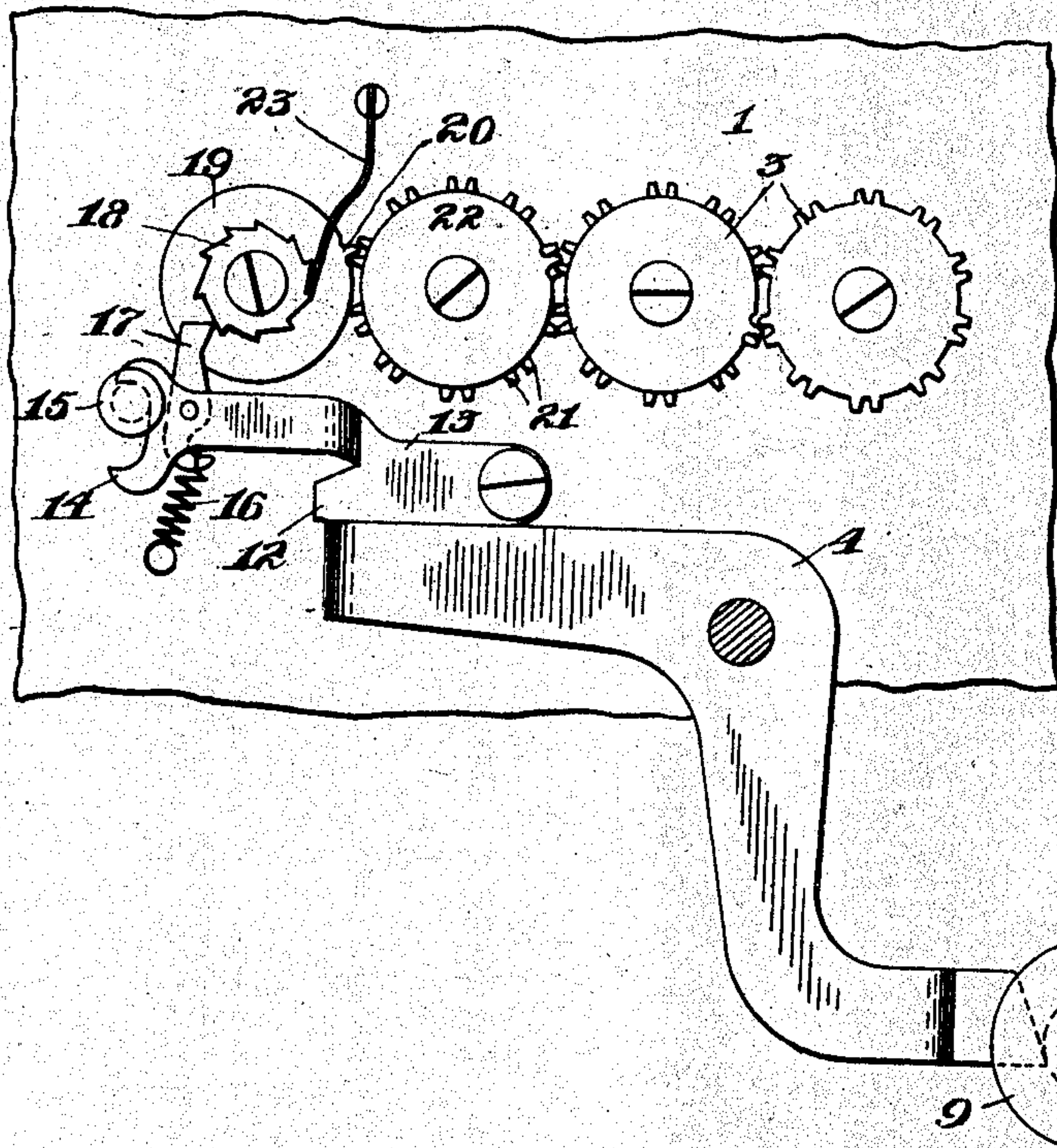


FIG. 1.

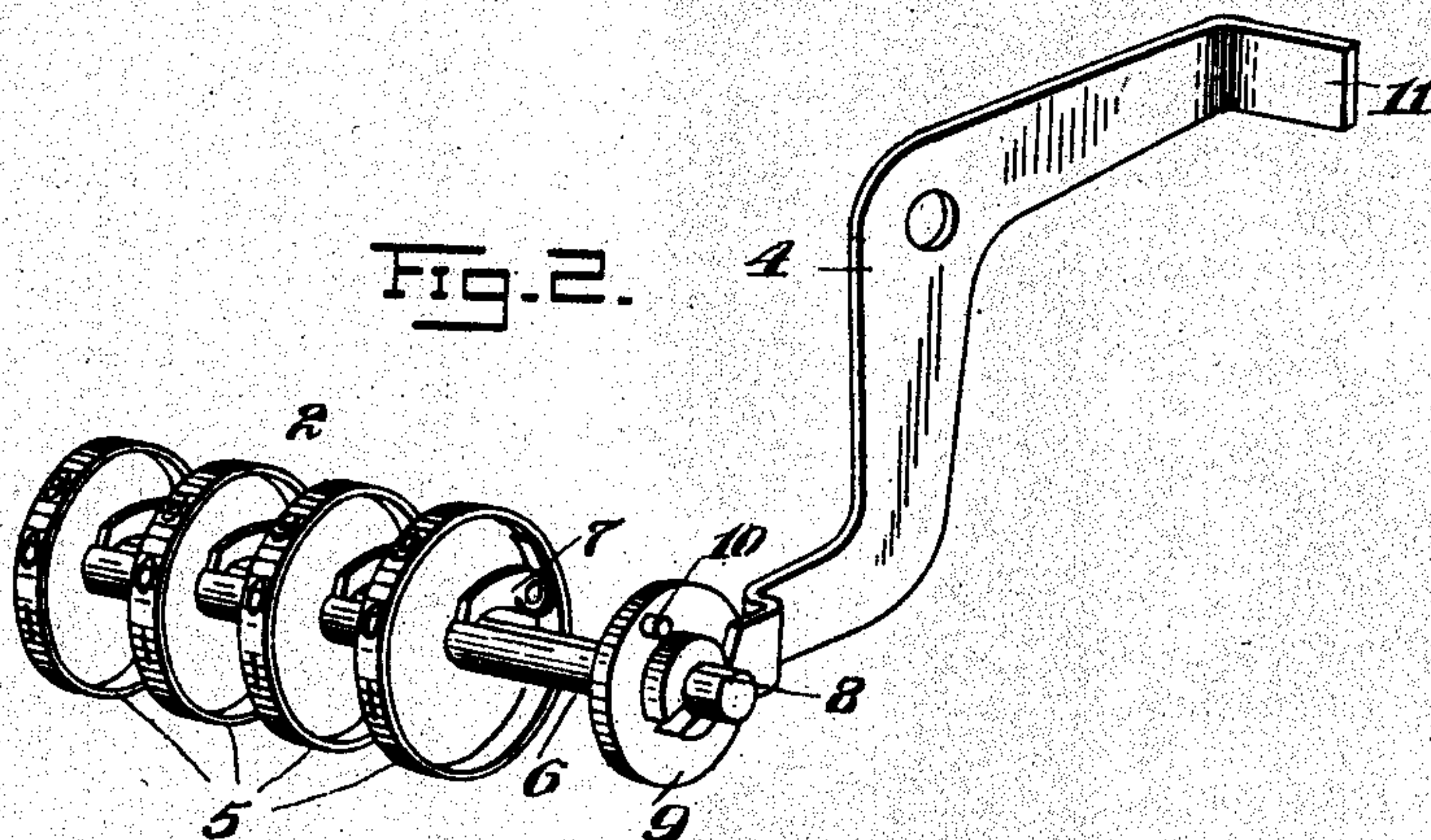


FIG. 2.

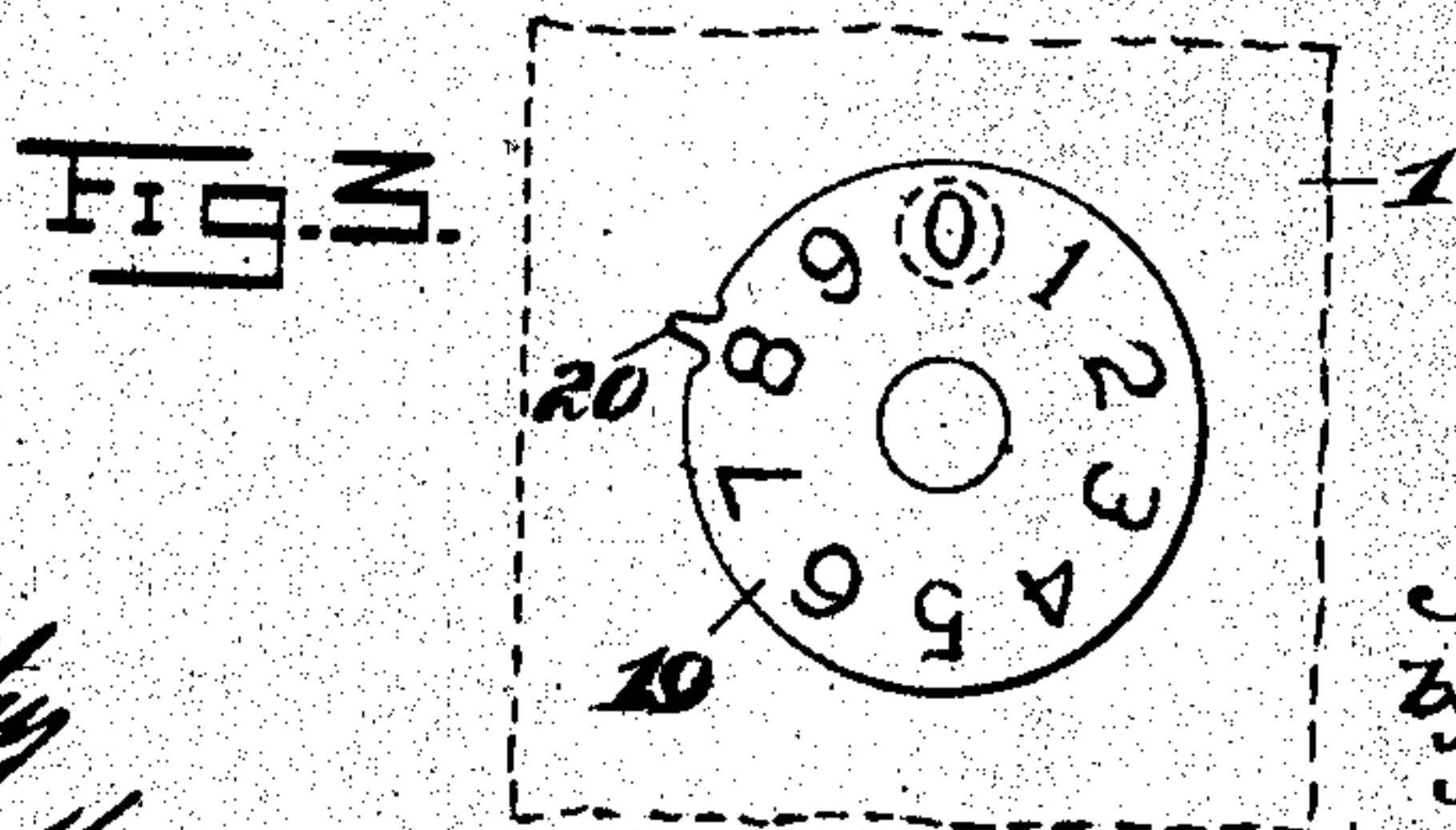


FIG. 3.

Witnesses

*M. McCarthy*  
*William Hugg*

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by *Alon Macauley*  
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# UNITED STATES PATENT OFFICE.

FRANK H. BICKFORD, OF DAYTON, OHIO, ASSIGNOR TO THE NATIONAL CASH REGISTER COMPANY, OF JERSEY CITY, NEW JERSEY.

## CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 669,453, dated March 5, 1901.

Application filed July 21, 1899. Serial No. 724,641. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK H. BICKFORD, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Cash-Registers, of which I declare the following to be a full, clear, and exact description.

This invention relates to improvements in counters for cash-registers, and has more particular relation to auxiliary counters for the same for keeping a record of the number of times the turn-to-zero devices of a main counter have been operated.

The primary object of the invention is the application of an improved form of auxiliary counter to the turn-to-zero devices of the main counter of a cash-register.

In the accompanying drawings, forming part of this specification, Figure 1 represents a side elevation of the devices embodying my invention. Fig. 2 represents an enlarged detail perspective view of the main counter, its turn-to-zero shaft, and the auxiliary-counter operating lever; and Fig. 3 represents a detail side elevation of one of the auxiliary-counter wheels, a portion of the cabinet, with the sight-aperture therein, being shown in dotted lines.

In the said drawings, 1 represents the frame of the machine; 2, the main counter; 3, the auxiliary counter, and 4 the main operating-lever. The main counter 2 comprises a series of counter-wheels 5, loosely mounted upon a shaft 6 and provided, respectively, with spring-pressed pawls 7, which are arranged to be engaged by one of the walls of a groove 8, formed in the shaft 6 when said shaft is rotated to turn the wheels to zero. The counter may be of any desired construction employing devices for turning the counter-wheels to zero, and the same forms no part of my present invention. A disk 9 is fast to the aforesaid shaft 6, near one end of the same, and is provided with a pin or stud 10, which when the disk is rotated engages the beveled end of the bell-crank lever 4 and forces the same to the rear, so as to rock said lever on its pivot. This rocking movement of the lever causes its upper angular end 11 to engage and lift a nose 12, formed on a pivoted lever 13, which is suitably mounted on the frame 1. This lever

is provided at its free end with two spaced fingers 14, which are arranged to contact with a stud 15, mounted on the frame, and thus limit the movement of the lever. Said lever is normally drawn down at its free end by a coil-spring 16, connected to the main frame and to a pivoted operating-pawl 17, mounted on said lever. The action of the spring also tends to hold said pawl to engagement with a ratchet-wheel 18, fast to a disk 19, which is journaled on a stud mounted on the main frame. The disk 19 is formed on one side with numerals arranged in proper succession from "0" to "9" and is arranged to be moved the distance of one numeral upon each operation of the pawl 17, so as to bring the numerals successively into view through a suitable aperture formed in the cabinet of the machine.

When the disk 19 has made one complete revolution, a finger 20, mounted thereon, engages teeth 21, carried by the tens-disk 22, and thus advances the same the distance of one numeral in a manner well known in the art and needing no further explanation here.

When the pin 10 disengages from the end of the lever 4, the latter is drawn back to its normal position by the lever 13, which in turn is drawn down by the coil-spring 16. In order to prevent any backward rotation of the ratchet-wheel 18, I mount a retaining-spring 23 on the main frame in such position that it will engage the same at all times.

It will be observed from the above that every time the shaft 6 is rotated to turn the counter-wheels to zero the operation is registered upon the auxiliary counter, and a glance at the same will show just how many times the counter has been so operated.

A suitable casing is placed about the auxiliary counter to protect the same from any tampering or external and fraudulent operation.

My improvement is not necessarily limited in its application to cash-registers, as the same may be applied with equal facility to any counting device which is arranged to have its respective parts turned back to zero at will.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—



1. The combination with a main counter, of devices for positively turning the same back to the zero position, an auxiliary counter, a pivoted spring-drawn lever carrying a pawl arranged to actuate the auxiliary counter, and means connecting said lever to the turn-to-zero devices so that it will be operated by the act of turning to zero.

2. The combination with a main counter having a turn-to-zero shaft, of a disk mounted on said shaft and carrying a projection, a pivoted lever having a bevel and adapted to be engaged by said projection and an auxiliary counter adapted to be operated by said lever.

3. The combination with a main counter, of an auxiliary counter, a pivoted lever carrying a pawl for operating said auxiliary counter, a single spring for performing the double operation of drawing the lever down and holding the pawl into engagement with the counter, turn-to-zero devices for the main counter, and means for connecting said devices and the pivoted lever.

4. The combination with a counter having a turn-to-zero shaft, of a disk carrying a pin mounted on said shaft, a pivoted lever arranged to be operated by said pin, an auxil-

iary counter, and a lever arranged to be operated by the first-mentioned lever and carrying a pawl adapted to operate the auxiliary counter.

5. The combination with a main counter, of turn-to-zero devices for the same, an auxiliary counter, a pivoted lever having spaced projections for limiting its movements, a stationary pin cooperating with said projections, a pawl mounted on said lever for operating the auxiliary counter, and means connecting said lever and the turn-to-zero devices.

6. The combination with a main counter, of turn-to-zero devices for the same, an auxiliary counter, a pivoted lever, a pawl mounted on said lever and arranged to operate the auxiliary counter, a spring connected to said pawl and adapted to draw the same into engagement with the counter and also draw the lever down, and means connected to the turn-to-zero devices for forcing the lever up.

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

FRANK H. BICKFORD.

Witnesses:

IRA BERKSTRESSER,  
WM. MCCARTHY.