

(No Model.)

3 Sheets—Sheet 1.

F. L. FULLER.
CASH INDICATOR.

No. 585,467.

Patented June 29, 1897.

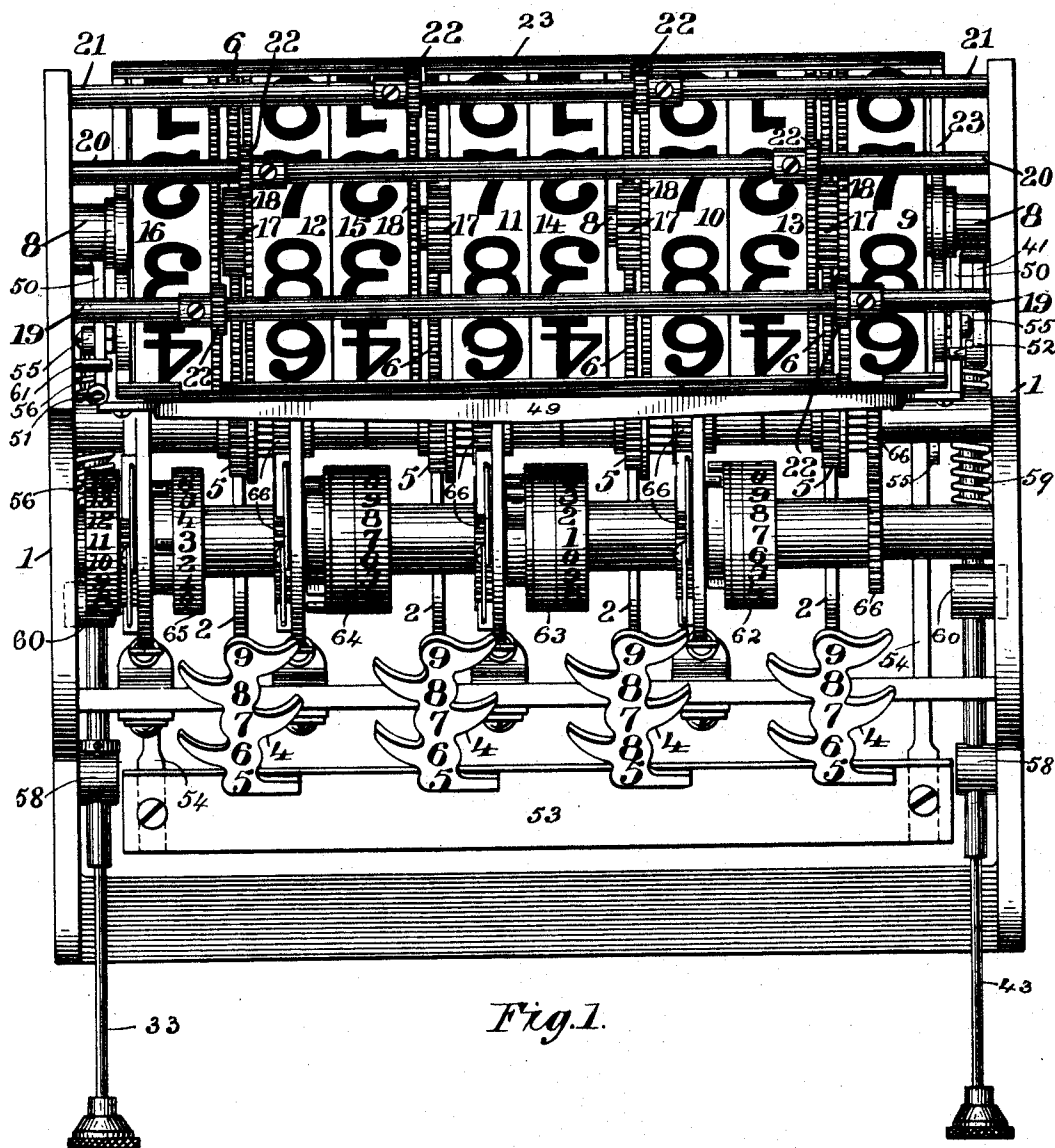


Fig. 1.

WITNESSES

Wm. J. Tanner
A. J. Tanner.

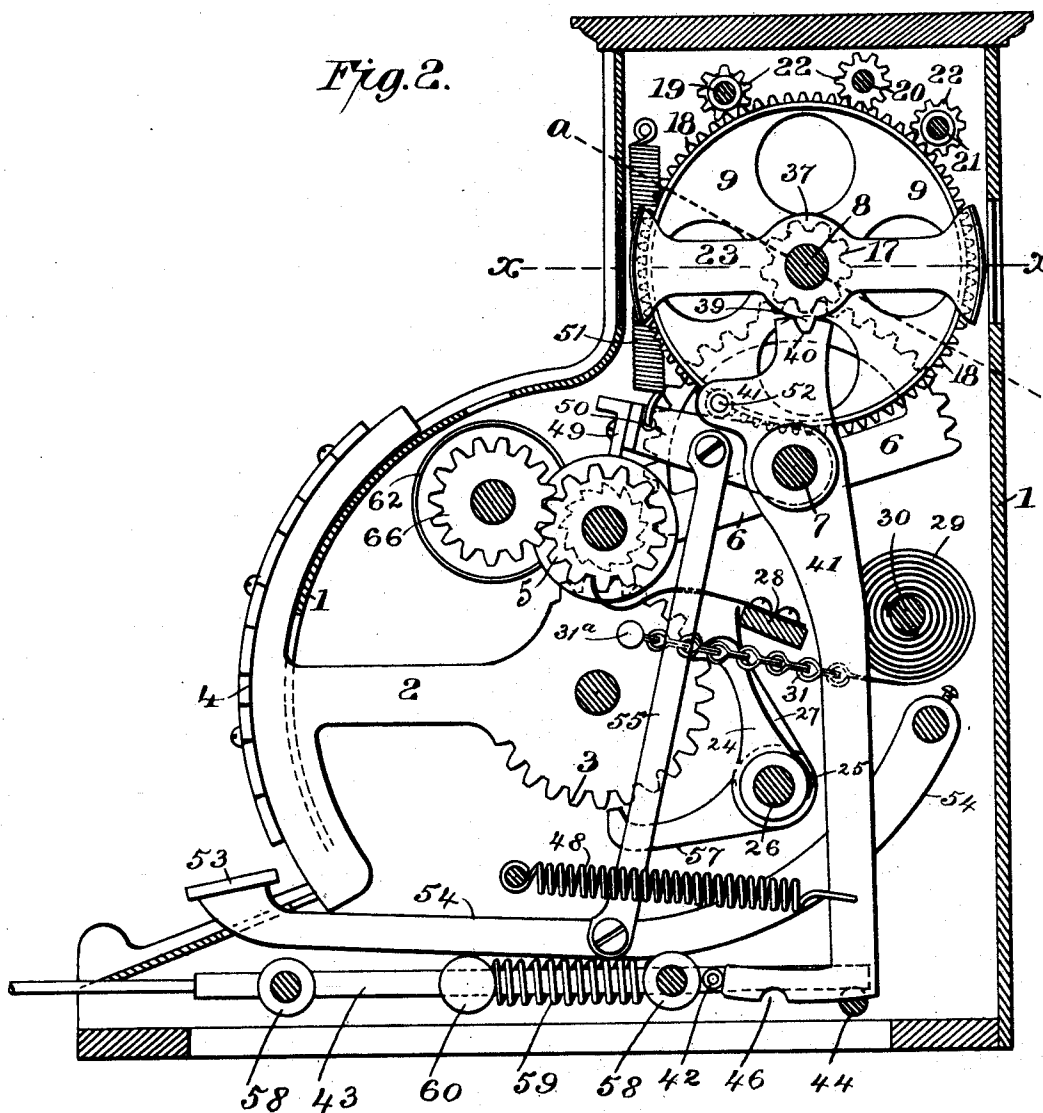
INVENTOR
FREDERICK L. FULLER.
by his attorney
J. N. Hubbard

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CASH INDICATOR.

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Fig. 2.



WITNESSES

Wm. J. Tanner
A. J. Tanner

INVENTOR

FREDERICK L. FULLER

by his attorney

D. H. Hubbard

(No Model.)

3 Sheets—Sheet 3.

F. L. FULLER.
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Fig. 3.

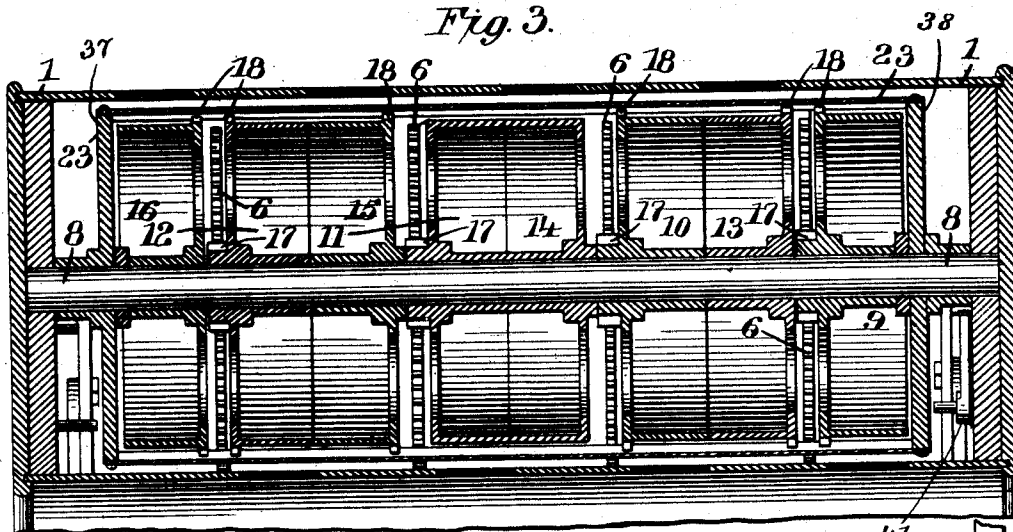
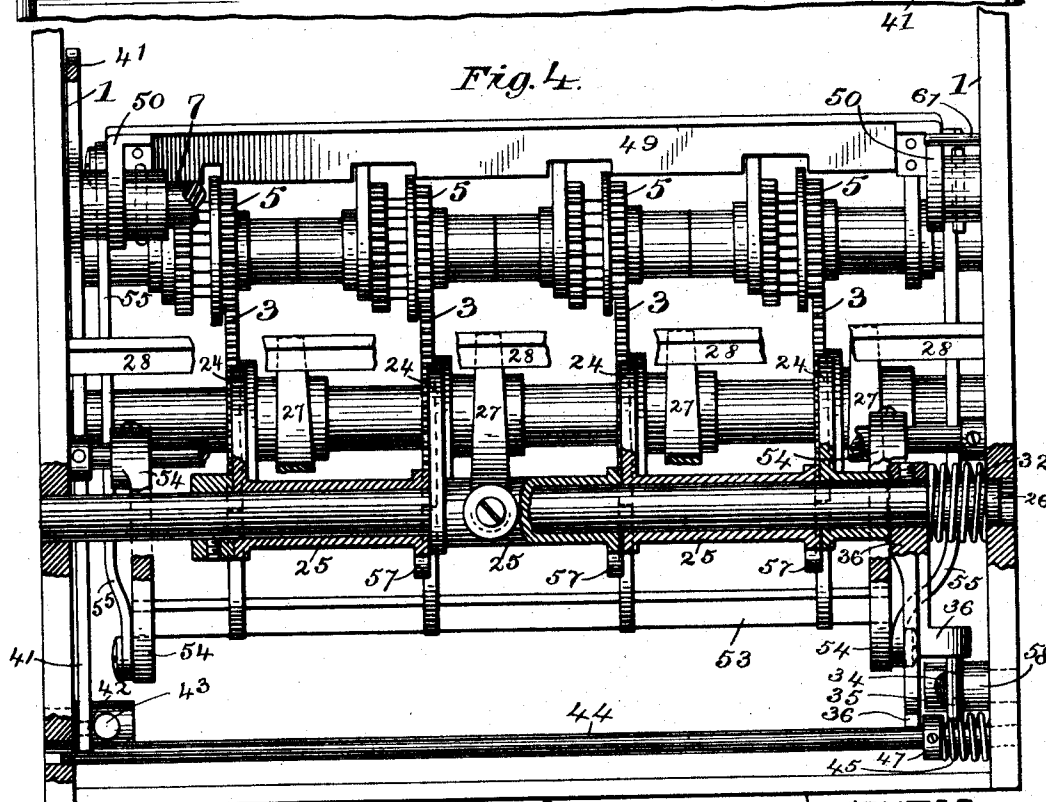


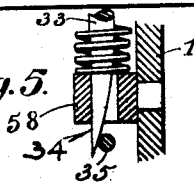
Fig. 4.



WITNESSES

Mrs. J. Tanner
A. J. Tanner.

Fig. 5.



INVENTOR

FREDERICK L. FULLER

By his attorney

J. A. Hubbard

UNITED STATES PATENT OFFICE.

FREDERICK LINCOLN FULLER, OF WATERBURY, CONNECTICUT.

CASH-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 585,467, dated June 29, 1897.

Application filed February 6, 1891. Serial No. 380,411. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK LINCOLN FULLER, a citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Cash-Indicators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to certain novel and useful improvements in cash registers and indicators, but is more particularly designed as an improvement upon the construction shown and described in certain Letters Patent of the United States granted to me jointly with George H. Griswold the 4th day of February, 1890, and numbered 420,554 and 420,555. In the patents just referred to a set of indicating-wheels is provided by means whereof the sum indicated may be shown to the purchaser, but these wheels are visible from one side of the machine only. In my present invention the case is provided with openings both at the front and at the rear, and two sets of indicating-wheels are mounted therein and so connected together that the amount indicated appears both at the front and the rear side of the machine with the figures both right side up and reading properly—that is, from left to right.

With these ends in view my invention consists in the arrangement and the connection of the indicators, and also in the details of construction and the several combinations of coöperating elements hereinafter to be fully and in detail explained, and then recited in the claims.

In order that those skilled in the art to which my invention appertains may fully understand its construction and method of operation, I will describe the same in detail, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a plan view of a machine embodying my invention, the case being removed; Fig. 2, an end elevation, the case being sectioned; Fig. 3, a horizontal section on the line *xx* of Fig. 2; Fig. 4, a partial rear

elevation, and Fig. 5 a detail of one of the push-rods.

Like numerals denote the same parts in all the figures of the drawings.

1 represents the inclosing case. Within this case are fulcrumed a number of operating-levers 2, each provided with a toothed segment 3 and an operating-handle 4. These mesh with and are adapted to operate gears 5, which in turn take into a segment or partial gear 6, mounted upon a shaft 7. As will of course be readily understood, the number of the partial gears 6 is equal to the number of the operating-levers. In the present case that number is four.

8 is a shaft journaled between the ends of the case or frame. This shaft affords a bearing for eight indicating-wheels, four of which have their figures so arranged as to show right side up at the openings on one side of the case and the alternate four are adapted to show in front of the openings in the other side of the case. In order that these may be clearly distinguished, I have denoted those which appear at one side by the numerals 9, 10, 11, and 12, and those which appear at the other side by 13, 14, 15, and 16. Each of the wheels 9, 10, 11, and 12 carries a gear 17, which meshes with and is operated by one of the partial gears 6. Each of the wheels, except the two central wheels, which will presently be described, is provided with a gear 18, affixed to the side thereof and a little larger in diameter than the wheel.

19, 20, and 21 are shafts journaled between the ends of the frame. Each carries two pinions 22. The pinions on the shaft 19 engage with the gears 18 upon the wheels 9 and 16. The pinions upon the shaft 20 in like manner engage the gears 12 and 13, and the pinions upon the shaft 21 engage with the gears upon the wheels 10 and 15, so that movement applied to any of these wheels will be transmitted through the shaft and pinions to one other wheel of the series. It will be observed that there are four couples of wheels, but only three shafts. The two wheels 11 and 14 lying together are simply connected so as to operate as one part, their contiguity rendering the shaft unnecessary. The operation of this part of my invention may be best

described by supposing that an amount, say "\$1.47," is to be indicated and totalized. To do this, the units-operating lever is depressed by means of the "7" handle. Said lever 5 through the gears 5 and 6 operates the wheel 9, so that the figure "7" thereon is brought in front of the opening in the case next the operator. This movement of the wheel 9, however, through the gears 18, pinions 22, and shaft 19, 10 operates the wheel 16 at the other end of the case so as to bring the figure "7" in front of that opening which is in the units-space when viewed from the side of the machine away from the operator. The tens or dimes lever 15 is then depressed by means of the "4" handle, whereupon the wheel 10 shows "4" to the operator and the wheel 15 shows "4" in the tens space at the rear of the machine. Then in like manner the dollars or hundreds lever 20 is depressed by the "1" handle, thereby so moving the double wheel 11 14 that the figure "1" appears on both sides in the hundreds place.

Each segment 3 is provided with a detent 25 24, carried by a sleeve 25, mounted loosely upon a longitudinally-movable shaft 26, for preventing return of the handles 2 after they have been depressed. The detents 24 are held yieldingly in engagement with their respective segments by springs 27, secured to the sleeves and engaging the under face of a plate or strip 28, extending across the machine. Each segment is also provided with a flat helical spring 29, connected at one end 35 to a stationary shaft or rod 30, extending across the rear of the machine and flexibly connected by means of a chain 31 to studs 31^a on the operating-lever of the segment eccentrically to its center.

The detents 24 are held normally in engagement with their segments by a spring 32 between the end of shaft 26 and the frame of the machine. They are thrown out of engagement therewith by a rod 33, extending 45 outside the machine and rearwardly therein and provided at its inner end with an inclined or cam-shaped portion 34, which upon the inward movement of rod 33 engages a pin 35, projecting downwardly from a bracket or arm 50 36, secured to the end of shaft 26. Upon the inward movement of rod 33, therefore, its inner end engaging pin 35 will move the arm 36, and with it the shaft 26, toward the frame of the machine (from left to right, Fig. 4) 55 against the pressure of spring 32, thus moving the detents 24, carried by said shaft, sideways out of engagement with the segment. Upon the withdrawal of the rod 33 the parts, including the shaft, the detents, and the arm 60 36, are all returned to normal position by the spring 32.

In connection with the indicating devices and the sight-openings, through which the indications are read, is employed a shutter 65 23, consisting of a plate for each sight-opening (two being shown in the present case) connected to sleeves or hubs 37 38, loosely

mounted on shaft 8. The hub 37 is provided with a notch or tooth 39, which is engaged by a corresponding tooth or notch 40 upon the 70 upper end of a lever 41, fulcrumed upon shaft 7 and extending downwardly into position to be engaged by a pin 42 upon the inner end of a longitudinally-movable rod 43, similar to the rod 33, but on the opposite side of the 75 machine. Beneath the foot of lever 41 and extending across the machine at its rear is a longitudinally-movable shaft or locking-bolt 44, one end of which is cut away slightly to permit the passage of the foot of the lever, 80 and the other end of which is provided with a spring 45, which when the lever 41 has been moved rearwardly sufficiently to bring a recess 46 in the foot of the lever into register with shaft 44 moves the shaft longitudinally 85 through and into engagement with said recess, so as to lock the lever against further movement in either direction.

The shaft 44 is disengaged from the lever 41, so as to release the shutter by the bracket 90 36, which engages a collar 47 on said shaft and which when moved sideways by the rod 33, as before described, also moves said shaft in the same direction against the pressure of spring 45 until the cut-away portion of shaft 95 44 again registers with the foot of the lever, when a spring 48, connected to the lever and to the frame of the machine, returns the lever to normal position.

In connection with the indicating mechanism also there is employed a locking mechanism, operated from the shutter-operating mechanism, for locking the indicating mechanism when the shutter is moved to expose the indication and while it retains that position. 105 This locking mechanism consists of locking-plate 49, extending across the machine and supported from arms 50, loosely mounted on shaft 7. The locking-plate 49 is held normally elevated out of locking position 110 by a spring 51, connected to the plate and the frame of the machine, and is depressed to locking position into engagement with gear 5 by a pin 52, carried by lever 41, which, when the foot of said lever is moved 115 rearwardly by rod 43 engaging one of the arms 50, moves the latter and the plate 49 downwardly into engagement with the gear and holds the plate in that position until the shutter mechanism is released and returned to 120 normal position.

The locking-plate 49 is also adapted to be operated each time one of the handles 4 is depressed from a stop-plate 53, pivoted by arms 54 to the rear of the machine and connected by links 55 to the arms 50, supporting the locking-plate 49. The stop-plate 53, by engaging the hand of the operator, arrests the downward movement of the handles 4, but is itself slightly depressed when the hand 130 comes in contact with it. When thus depressed, it moves the locking-plate 49 into engagement with the gear 5, and when relieved of the pressure of the hand it, with the

locking-plate, is returned to normal position by spring 51.

The operation is as follows: When the handles 4 have been depressed to make an indication, as before described, the handles depressed will be prevented from returning by the detents 24, the shutter during this operation remaining in its normal position, closing the sight-openings. To expose the indication, the operator will shove the rod 43 inwardly and through the pin 42 rock the lever 41 on its fulcrum into engagement with shaft 44, as before described. During this movement the upper end of the lever engaging the hub or sleeve of the shutter 23 will rock the latter from its horizontal position to that indicated by the dotted line in Fig. 2, thus uncovering the openings in front of the indicating-wheels. Simultaneously with this movement of the shutter the pin 52, engaging the arms 50, will, through the latter, move the locking-plate downwardly into engagement with the gears 5, thus locking the indicating mechanism against operation. The parts are held in this condition so long as shaft 44 remains in engagement with the recess 46 in the foot of lever 41. To disengage said shaft and lever, the operator will press the rod 33 inwardly into engagement with arm or bracket 36, which is, as before described, thus thrust aside, and through it move the shaft 44 longitudinally against its spring 45 and out of engagement with lever 41, which is then, with the shutter 23, returned to normal position by the spring 48. Simultaneously the shaft 26, with the detent-carrying sleeves 25 thereon, is also moved longitudinally against its spring 32, thus moving the detents 24 sidewise out of engagement with their segments to permit the springs 29 to return the segments and indicator-wheels to normal position, when the rod 33, retracted by its spring 56, is disengaged from arm 36 and permits shafts 26 and 44 to resume their normal positions and the detents 24 to reengage their segments 3.

Connected to each detent-carrying sleeve 25 except the last is a detent 57 for engaging the next adjoining segment to the left to prevent simultaneous movement of adjoining segments. The detents 57 are normally disengaged from their segments, but as soon as one segment is actuated and throws its detent 24 upward the detent 57, carried by the sleeve of that detent, is thrown upwardly into engagement with the next adjoining segment.

The rods 33 43 are supported and guided in their backward and forward movements by bosses 58, secured to the frame, and the rod 43 is also provided with a retracting-spring 59, confined, like the spring 56 of rod 33, between a collar 60 on the rod and one of its supporting and guiding bosses 58. A stop 61 is also provided in the side frame of the machine which engages the upper sides of arms 50 of locking-plates 49 to limit the upward movement of the latter.

Registering mechanism is also provided,

consisting of disks 62 63 64 65, representing, respectively, units, tens, hundreds, and thousands, operated, respectively, from the units, tens, &c., indicating mechanisms. The registering-disk of each series is operated by the gear 5 of that series through suitable pawl-and-ratchet mechanism and pinions 66 during the movement of the indicating mechanism in indicating direction, suitable transfer mechanism being interposed between the respective registering-disks for carrying amounts from one to the other.

What I claim is—

1. The combination with indicating and registering devices and operating-arms therefor, of a pivoted shutter normally obstructing the view of the indicating devices so as to conceal the indication, and means disconnected from and operated independently of the operating-arms for operating the shutter to disclose the indication, substantially as described.

2. The combination with indicating and registering devices and operating-arms therefor, of a pivoted shutter normally obstructing the view of the indicating devices so as to conceal the indication, means disconnected from and operated independently of the operating-arms for operating the shutter to disclose the indication, and means for retaining the shutter in exposing position, substantially as described.

3. The combination with indicating and registering devices and operating-arms therefor, of a pivoted shutter normally obstructing the view of the indicating devices so as to conceal the indication, means disconnected from and operated independently of the operating-arms for operating the shutter to disclose the indication, means for retaining the shutter in exposing position, and means for releasing the shutter, substantially as described.

4. The combination with indicating and registering devices and operating-arms therefor, of a shutter normally obstructing the view of the indicating devices so as to conceal the indication, and a push-rod disconnected from and operated independently of the operating-arms for operating the shutter to disclose the indication, substantially as described.

5. The combination with indicating and registering devices and operating-arms therefor, of a shutter normally obstructing the view of the indicating devices so as to conceal the indication, a push-rod disconnected from and operated independently of the operating-arms for operating the shutter to disclose the indication, and a lock for retaining the shutter in exposing position, substantially as described.

6. The combination with indicating and registering devices and operating-arms therefor, of a shutter normally obstructing the view of the indicating devices so as to conceal the indication, a push-rod disconnected

from and operated independently of the operating-arms for operating the shutter to disclose the indication, a lock for retaining the shutter in exposing position, and a second
5 push-rod for disengaging said lock to release the shutter, substantially as described.

7. The combination with indicating and registering devices and operating-arms therefor, of a shutter normally obstructing the
10 view of the indicating devices so as to conceal the indication, means disconnected from and operated independently of the operating-arms for operating the shutter to disclose the indication, a lock for engaging and locking
15 said indicating devices, and connections between the shutter mechanism and said lock for operating the latter upon the operation of the shutter to expose the indication, substantially as described.

20 8. The combination with indicating and registering devices and operating-arms therefor, of a shutter normally obstructing the view of the indicating devices so as to conceal the indication, means disconnected from
25 and operated independently of the operating-arms for operating the shutter to disclose the indication, a lock for engaging and locking said indicating devices, connections between the shutter mechanism and said lock for oper-
30 ating the latter upon the operation of the shutter to expose the indication, a lock for retaining the shutter in exposing position, and means for disengaging said shutter-lock to release the shutter, substantially as de-
35 scribed.

9. The combination with indicating and registering devices and operating-arms therefor, of a shutter normally obstructing the
40 view of the indicating devices so as to conceal the indication, means disconnected from and operated independently of the operating-arms for operating the shutter to disclose the indication, a lock for engaging and locking
45 said indicating devices, connections between the shutter mechanism and said lock for operating the latter upon the operation of the shutter to expose the indication, detents for engaging and preventing return movement
50 of the indicating devices, and means for simultaneously disengaging said lock and detents from the indicating devices, substantially as described.

10. The combination with indicating and registering devices and operating-arms therefor, of a shutter normally obstructing the
55 view of the indicating devices so as to conceal the indication, means disconnected from and operated independently of the operating-arms for operating the shutter to disclose the indication, a lock for engaging and locking
60 said indicating devices, connections between the shutter mechanism and said lock for throwing and holding the latter in engagement with the indicating devices, a lock for
65 retaining the latter in exposing position, detents for engaging and preventing return

movement of the indicating devices, and means engaging said shutter-lock and detents for simultaneously releasing said shutter and indicating devices, substantially as
70 described.

11. The combination with indicating and registering devices and operating-arms therefor, of a shutter normally obstructing the view
75 of the indicating devices so as to conceal the indication, means disconnected from and operated independently of the operating-arms for operating the shutter to disclose the indication, a lock for engaging and locking said
80 indicating devices, connections between the shutter mechanism and said lock for throwing and holding the latter in engagement with the indicating devices, a lock for retaining the shutter in exposing position, detents for
85 engaging and preventing return movement of the indicating devices, means engaging said shutter-lock and detents for simultaneously releasing said shutter and indicating devices, and spring mechanism for returning said
90 shutter and indicating devices to normal position when released, substantially as described.

12. The combination with indicating devices and operating-arms therefor, of a shutter normally obstructing the view of the
95 indicating devices so as to conceal the indication, a push-rod disconnected from and operated independently of said operating-arms for operating the shutter to expose the indication, a longitudinally-movable locking-bolt for retaining the shutter in exposing position, and
100 a second push-rod engaging said locking-bolt for withdrawing it from engagement with the shutter so as to release the latter, substantially as described.

13. The combination with indicating and registering devices and operating-arms therefor movable varying distances, a lock for en-
105 gaging said indicating devices, a depressible apron in proximity to the path of movement of said arms and adapted to be depressed by the hand of the operator in operating said
110 arms, and connections between said apron and lock for throwing the latter into engagement with the indicating devices to arrest the movement of the latter, substantially as de-
115 scribed.

14. The combination with indicating and registering devices and operating-arms therefor movable varying distances, a lock for en-
120 gaging said indicating devices, a depressible apron in proximity to the path of movement of said arms and adapted to be depressed by the hand of the operator in operating said
125 arms, connections between said apron and lock for throwing the latter into engagement with the indicating devices to arrest the movement of the latter, and a spring for sustaining the apron in elevated position, substan-
130 tially as described.

15. The combination of two sets of indicating-wheels arranged in pairs, one set visible

from one side of the case, and the other set
from the other side, connections between each
pair of similar wheels whereby the same
amount is shown on both sides of the case, a
5 shutter normally obstructing the view of said
indicating-wheels, means for actuating said
shutter to simultaneously expose the indica-
tion, and means independent of said shutter-

actuating means for operating one set of the
indicating-wheels, substantially as described. 10

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

FREDERICK LINCOLN FULLER.

Witnesses:

SHERMAN HARTWELL HUBBARD,
M. C. HINCHCLIFFE.