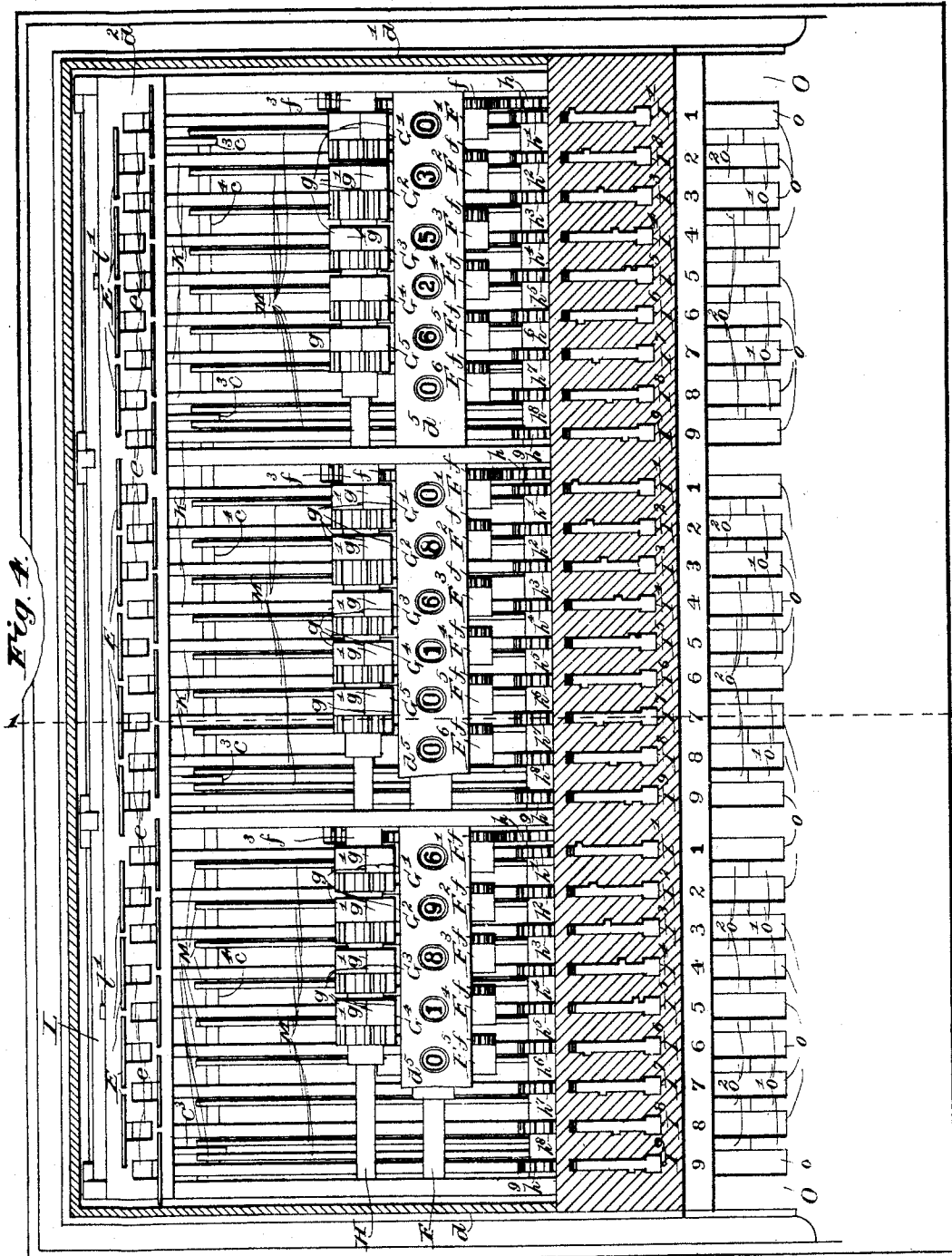




A. SMITHSON.  
CASH REGISTER AND INDICATOR.

No. 586,401.

Patented July 13, 1897.



Witnesses—  
*Kirkley Hyde.*  
*Arthur S. Hunter*

Inventor—  
*Alberto Smithson,*  
*By Albert M. Moore,*  
*His Attorney.*

# UNITED STATES PATENT OFFICE.

ALBERTO SMITHSON, OF DRACUT, MASSACHUSETTS.

## CASH REGISTER AND INDICATOR.

SPECIFICATION forming part of Letters Patent No. 586,401, dated July 13, 1897.

Application filed June 19, 1896. Serial No. 596,110. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERTO SMITHSON, a citizen of the United States, residing at Dracut, in the county of Middlesex and Commonwealth of Massachusetts, have invented a certain new and useful Improvement in Cash Registers and Indicators, of which the following is a specification.

My invention relates to cash registers and indicators; and it consists in the devices and combinations hereinafter described and claimed.

The object of said invention is to operate the registering, indicating, and drawer-unlocking mechanism by means of toothed checks numbered to correspond with the number of teeth with which they are respectively provided, which checks may be received, as their operation is completed, in a locked compartment to which the proprietor (or his trusted manager or cashier) alone has access, so that the number of the checks will show the number of times the machine has been operated up to the time when the compartment is opened, and the figures on the checks will show the amount of each transaction. The locked compartment may be left open or dispensed with, in which case each check may be used any consecutive number of times and only one check of each number will be required.

In the accompanying drawings, on two sheets, Figure 1 is a general vertical section from front to back of the register and indicator provided with my improvement on the line 1 1 in Fig. 4; Fig. 2, a plan of a check; Fig. 3, a plan of the check-receiving slot which corresponds to the check shown in Fig. 2; Fig. 4, a section in three different horizontal planes, on the line 4 4 in Fig. 1, of said register and indicator.

The case A consists of two compartments  $a^1$ , separated by a horizontal table or partition  $a^2$ , the lower compartment  $a^1$  containing a sliding drawer B, thrown outward or forward by a spring  $b$ , arranged in said compartment  $a^1$  back of said drawer, but normally held closed by a drawer-holder C, which consists of a bell-crank lever pivoted at  $c$  and having a hook  $c'$ , adapted to engage a piece  $b'$ , carried by the drawer and having an in-

cline  $b^2$ , which when the drawer is being closed runs under said hook  $c'$  and rocks the holder or lever C against the resistance of the spring  $c^2$ , which spring then throws said hook down in front of said piece  $b'$ .

The frame D rests upon the table  $a^2$  and comprises end plates  $d^1 d^2$ , connected by horizontal bars or guides  $d^3 d^4$ , in which signal-rods  $e$  slide vertically, said rods supporting numbered signals or tablets E, which when raised to indicating position may be read through glazed sight-openings  $a^3 a^4$  in the top of the case A. The parts above enumerated are of the usual construction and operation except as hereinafter stated. The machine is represented in Fig. 2 as being in three sections for dollars, dimes, and cents, and the following description applies to either section.

The registering-wheels  $F^1 F^2 F^3 F^4 F^5 F^6$  bear on their peripheries at equal intervals the ten Arabic figures, (if used to register money of a decimal system,) and each of said wheels except the one on the extreme left of the series, at each complete revolution of the wheel next to the left, through the intervention of a stop-pinion  $G^1 G^2 G^3 G^4 G^5$ , each registering-wheel being provided with a gear  $f$ , having a multiple of ten teeth, (twenty being shown,) and each stop-pinion having at the left an even number of teeth, which engage the teeth of the gear of a registering-wheel next to the left and having at the right a stop portion  $g$ , provided with half as many concave surfaces  $g'$  as there are teeth in one pinion, each concave surface  $g'$  fitting the convex surface or face of the registering-wheel of the next lower denomination.

Each registering-wheel is provided with a transverse groove  $f'$  on its numbered surface to receive, one at a time, the projecting parts  $g^2$  of the corresponding stop portion  $g$  of the stop-pinion, and has a lateral projection  $f^2$  just in front of said groove  $f'$ , which, once in every revolution of said registering-wheel, engages the stop-pinion and rotates the same a distance measured by two teeth of said pinion, thereby causing the next registering-wheel to make a tenth of a revolution.

When a hinged cover or door  $a^5$  in the case A is raised, the amounts registered may be read through a stationary slotted plate  $d^5$  in

the usual manner, said door  $a^5$  being normally secured by a lock, (not shown,) of which the proprietor carries the key.

The registering-wheels and the stop-pinions are of the usual construction.

The gear  $f$  of the registering-wheel  $F'$  of the lowest denomination is engaged by a gear  $h$ , represented as having the same number of teeth as said gear  $f$  and turning with or on the shaft  $H$ , the latter shaft being parallel with the shaft  $F$ , on which said registering-wheels turn. A series of nine like pinions  $h^1 h^2 h^3 h^4 h^5 h^6 h^7 h^8 h^9$ , each having ten teeth, is arranged on said shaft and each turns with the gear  $h$ .

A series of nine parallel slots  $I^1 I^2 I^3 I^4 I^5 I^6 I^7 I^8 I^9$  are formed in the top of the case  $A$ , said slots being at right angles to the shafts  $F H$  and each slot lying in the same vertical plane as one of the signal-rods and being numbered like the corresponding signal.

There is a check  $J$ , preferably a plate of metal, for each slot and having on one edge a number of teeth  $j$ , corresponding to the number borne by one of said slots, each check having preferably also the same number marked thereon. Each check  $J$  is also provided with a ward, rib, or lateral projection  $j^1$  at the lower end thereof, which enters a corresponding groove  $i^1 i^2 i^3 i^4 i^5 i^6 i^7 i^8 i^9$ , which opens laterally out of each check-receiving slot  $I^1 I^2 I^3 I^4 I^5 I^6 I^7 I^8 I^9$ , the ward or rib  $j^1$  occupying a different position on each check from the position of the corresponding rib on any other check, so that no check can be placed in any slot but its own, as shown in Figs. 2, 3, and 4. Each check has also a thickened back or ribs  $j^2 j^3$  on one or both sides of the back edge, which enter and fit corresponding lateral enlargements  $i i$  in the check-receiving slots.

Any check placed in its slot and forced downward engages one of the actuating-pinions  $h^1 h^2 h^3 h^4 h^5 h^6 h^7 h^8 h^9$  and causes the gear  $h$  to be rotated a number of tenths of a revolution equal to the number of teeth on said check, and through the gear  $f$  causes the numbered registering-wheel  $F'$  of the lowest denomination to rotate an equal number of tenths of a revolution. Said check after passing below the actuating-pinion strikes and depresses the front end of a lever  $K$ , the rear end of which reaches under a signal-rod  $e$ , there being as many levers  $K$  as there are signal-rods, thereby raising the corresponding signal  $E$  into view at the sight-openings  $a^3 a^4$ .

The rear end of the lever  $K$  is provided with a projection  $k$ , which strikes and pushes back a wing  $L$  and which after rising above said wing falls on the top edge of said wing, said wing being thrown forward under said projection  $k$  by a spring  $l$ , Figs. 1 and 2. The wing  $L$  holds the raised signal displayed until the front end of the same or another lever  $K$  is depressed, when the wing is pushed

back from under the supported signal-rods  $e$  by another projection  $k'$ , arranged on the rear end of each lever  $K$  and sufficiently below the projection  $k$  to allow the wing to spring in over said projection  $k'$  and below said projection  $k$  on the same lever, said lower projection  $k'$  reaching slightly back of or farther from the fulcrum  $k^3$  of said lever  $K$ . The raised signal-rods fall of their own weight or are thrown down by a spring when the support of the wing is withdrawn in the usual manner.

A rod  $M$  is pivoted at  $m$  on the front arm of each lever  $K$  and engages the upper member of the drawer-holder  $C$ , which upper member consists of arms  $c^3 c^2$ , connected by a rod  $c^4$ , which extends across the machine, the rear end of the rod  $M$  being forked at  $m'$  to receive said rod  $c^4$ , so that when the front end of said lever  $K$  is depressed the rod  $M$  is pushed backward and throws back the rod  $c^4$  or upper arm of the drawer-holder  $C$  and raises the hook  $c'$  out of engagement with the drawer  $B$ , allowing said drawer to be thrown forward to project out of the case by the spring  $b$ , as above described.

A check having passed down by the front end of the lever  $K$  is received in a compartment  $N$ , of which the table  $a^2$  forms the bottom and the partitions  $n n'$  (shown in dotted lines in Fig. 1) form the front and back, said front  $n'$  having a door  $n^2$ , hinged at  $n^3$  and provided with a lock  $n^4$  of any usual construction, of the key of which lock the proprietor may retain possession. A count of the checks in the compartment  $N$  will show the number of cash transactions and the amount of each may be learned by an inspection of said checks.

The compartment  $N$  may be dispensed with to avoid the expense of a multiplicity of checks, using only a single check of each denomination, each check after performing its work being received in suitable slits  $o$  in the inclined plate  $O$ , (shown in Figs. 1 and 2,) the divisions  $o'$  between said slits being cut out at  $o^2$  to allow the thumb and finger to seize the check when desired.

As the actuating-pinions  $h^1 h^2$ , &c., are all alike it is obvious that if the ward or rib  $j^1$  is omitted all the checks may be used in the same guide-slot  $I^1 I^2$ , &c., and will cause a registration corresponding to the number of their respective teeth, but this use of the checks with a single guide-slot would render useless the signal-displaying devices herein shown.

No check after once being in engagement with the corresponding actuating-pinion can be withdrawn from its slot because the gear  $f'$  is prevented from turning backward by a retaining-pawl  $f^3$ , pivoted at  $f^4$  on the frame  $D$  and engaging said gear  $f'$ , and because said actuating-pinion cannot turn without turning said gear  $f'$  through the gear  $h$ , so that no registration greater than is due to

the number of teeth on a check can be made at one insertion of said check in its guide-slot.

I claim as my invention—

5 1. A check or plate, having a definite number of teeth in combination with a toothed wheel, a guide to direct said teeth into engagement with said wheel, to rotate said wheel an angular distance measured by a  
10 number of teeth on said wheel equal to the number of teeth on said check or plate, and a locked receptacle to receive said check or plate after operating said wheel.

15 2. The combination of a frame, having guide-slots, a system of numbered registering-wheels in which each wheel is given a partial rotation by the complete rotation of the wheel of the next lower denomination, the wheel of the lowest denomination having  
20 a gear, a second gear, engaging said first-named gear, pinions, rotary with said second gear, and toothed checks or plates, each adapted to enter one of said slots and to engage one of said pinions and to rotate said  
25 pinions an angular distance determined by the number of teeth on such check or plate.

30 3. The combination of a frame, having guide-slots, a system of numbered registering-wheels in which each wheel is given a partial rotation by the complete rotation of the wheel of the next lower denomination, the wheel of the lowest denomination having  
35 a gear, a second gear, engaging said first-named gear, pinions, rotary with said second gear, toothed checks or plates, each adapted to enter one of said slots and to engage one of said pinions and to rotate said pinion an  
40 angular distance determined by the number of teeth on such check or plate, signal-rods, guided vertically in said frame and carry-

ing signals, and levers, reaching under said signal-rods and operated by said checks, to raise said signal-rods and signals.

4. The combination of a frame, having guide-slots, a system of numbered registering-wheels in which each wheel is given a  
45 partial rotation by the complete rotation of the wheel of the next lower denomination, the wheel of the lowest denomination having a gear, a second gear, engaging said first-  
50 named gear, pinions, rotary with said second gear, toothed checks or plates, each adapted to enter one of said slots and to engage one of said pinions and to rotate said pinion an  
55 angular distance determined by the number of teeth on such check or plate, the case, a drawer sliding therein, a drawer-holder normally retaining said drawer in said case, and  
60 rods, each connecting said drawer-holder with one of said signal-raising levers, to release said drawer by the insertion of any  
check in the corresponding guide-slot.

5. The combination of a check or plate, having one or more teeth, a numbered registering-wheel, a gear, rotary therewith, a  
65 second gear, engaging the gear of said registering-wheel, a pinion, rotary with said second gear, a guide, to direct said check or plate into engagement with said pinion, and a retaining-pawl, to engage the gear of said reg-  
70 istering-wheel and to prevent a reverse movement of the same.

In witness whereof I have signed this specification, in the presence of two attesting  
witnesses, this 16th day of June, A. D. 1896. 75

ALBERTO SMITHSON.

Witnesses:

ALBERT M. MOORE,  
CLARENCE S. TRASK.