(No Model.) 3 Sheets—Sheet 1.

F. C. OSBORN.

CASH REGISTER.

No. 491,022. Patented Jan. 31, 1893.

Fig. 1.

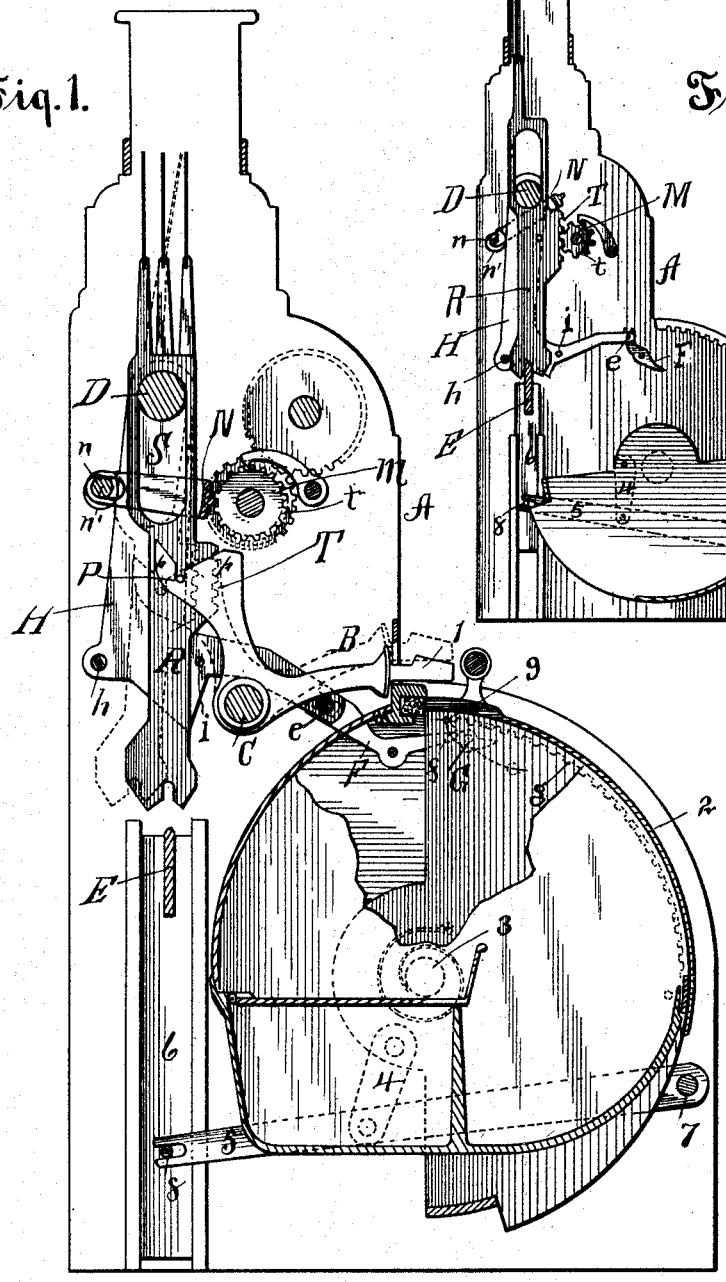
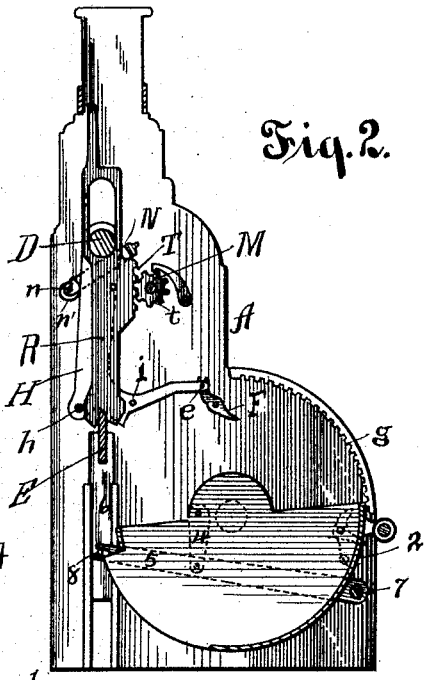


Fig. 2.



WITNESSES

L. W. Bradford

C. H. Fisk

INVENTOR

Francis C. Osborn

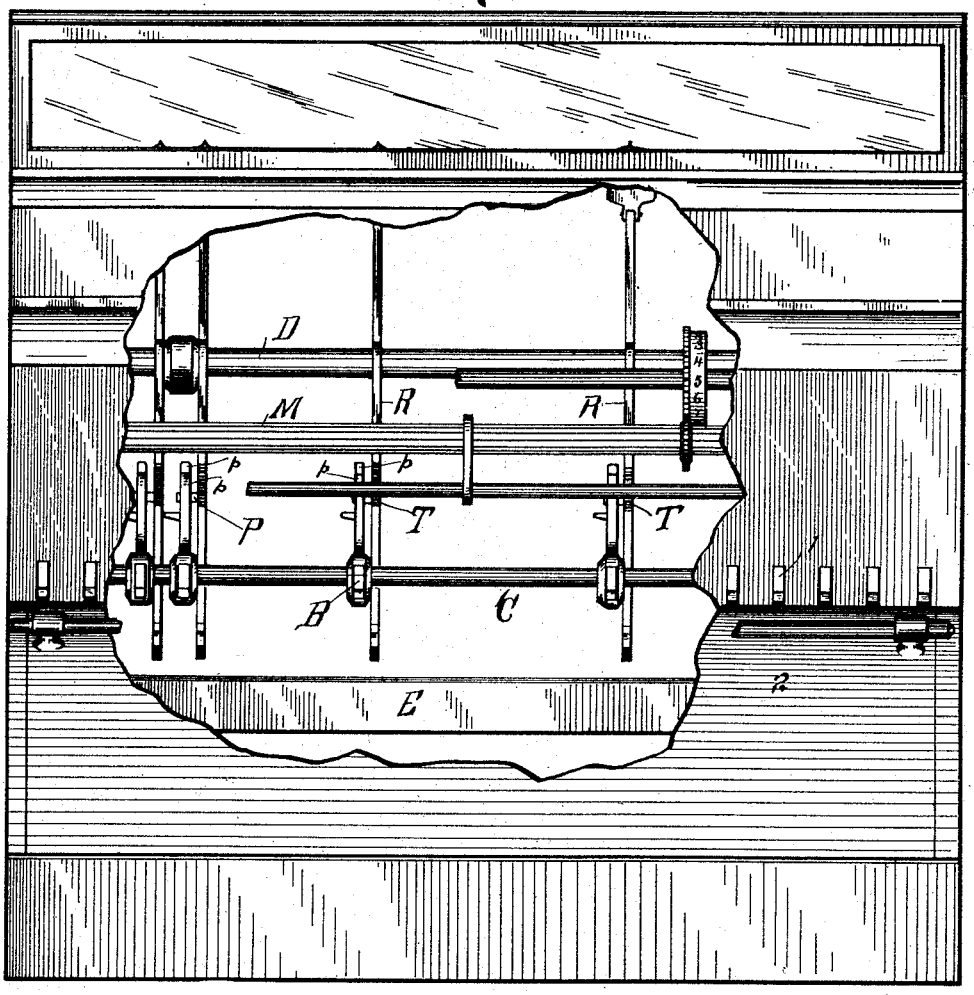
(No Model.) 3 Sheets—Sheet 2.

F. C. OSBORN.

CASH REGISTER.

No. 491,022. Patented Jan. 31, 1893.

Fig. 3.



WITNESSES
D. H. Bradford
C. H. Fisk

INVENTOR
Francis C. Osborn

(No Model.) 3 Sheets—Sheet 3.

F. C. OSBORN.

CASH REGISTER.

No. 491,022. Patented Jan. 31, 1893.

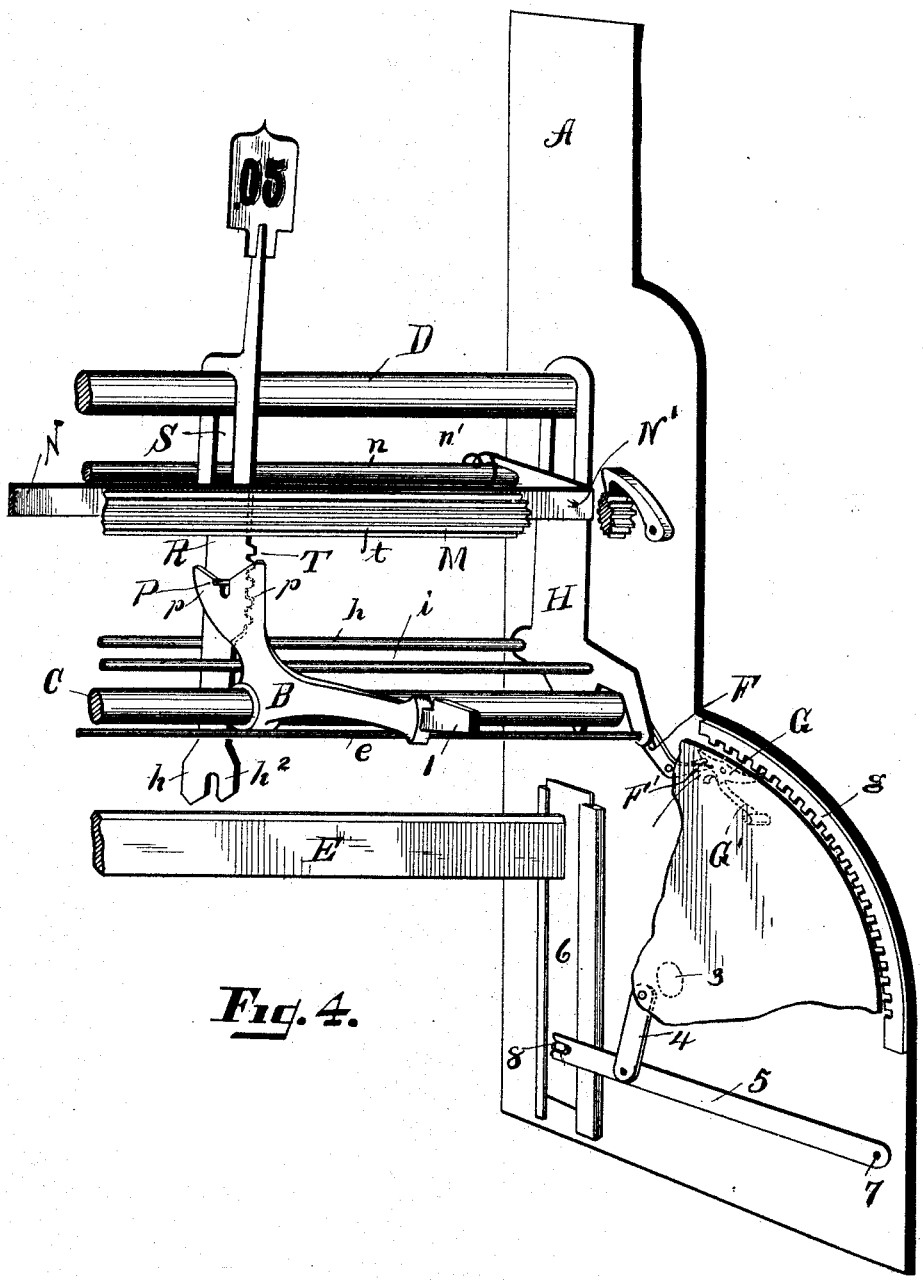


Fig. 4.

WITNESSES
W. W. Bradford
F. Clough.

INVENTOR
Francis C. Osborn
by Parker & Burton
his Attorneys.

UNITED STATES PATENT OFFICE.

FRANCIS C. OSBORN, OF DETROIT, MICHIGAN, ASSIGNOR TO HIMSELF, GEORGE MAITLAND, AND JOSEPH A. MARSH, OF SAME PLACE.

CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 491,022, dated January 31, 1893.

Application filed June 11, 1891. Serial No. 395,848. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS C. OSBORN, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Cash-Register, of which the following is a specification.

This invention relates to cash registers, of the class in which a tablet showing the amount to be registered is thrown into view, as the register is operated, and remains fixed at the place of view, until removed by a subsequent act of the person using the register. The register is provided with keys, each one of which, when depressed, brings into operating position, the rod or support, upon the upper end of which is held, the indicating tablet, employed to indicate the amount, shown on the key which was depressed. Connected with the keys and tablet supporting rods, is a registering apparatus, employed to indicate, the total of all sums shown on the tablets, since the machine was last set at the zero point.

In the drawings connected with this specification, I show only the means employed by me, to give the primary movement to the registering mechanism.

In the drawings accompanying this specification, Figure 1, shows in section, the register case with its inclosed machinery. Fig. 2, shows the register case with one of the tablets raised and with the money drawer open. Fig. 3 is a front elevation of the register case a part of the case being broken away to show the relative position of the tablet rods. Fig. 4 shows in perspective and in detached form a single tablet rod and key and those operating parts of the register common to all the rods and keys.

A represents a case within which are the keys B, mounted on an arbor C, and extending out through the walls of the case, and furnished on the outer end with numbered fingered pieces 1; the inner end of the key B is turned upward, so that the entire key is in the form of a bell crank lever, and the inner end is finished at its upper side in the form of a **Y**, between whose arms, is the pin P projecting from the side of the tablet rod R,; the spread of the arms *p*, *p*, is sufficient to prevent the pin P escaping from between them in any of the movements of the tablet rod as hereinafter described. The pin P rises above and out of contact with the arms *p*, *p*, but is always so located with respect to them, that it will drop between the arms as the tablet rod is dropped. The tablet rod R, when not held in an elevated position by mechanism hereinafter described, drops downward and hangs on a bar D, that passes endwise across the frame of the register. The rod R has through it an opening or slot S, that permits it to be pushed upward, while the bar D, still remains within the slot, and guides the upper end of the tablet rod.

The lower end of the tablet rod R, is provided with a fork or **Y**, into which is pushed the bar E, after the rod R has been pulled forward by the action of the arm *p*, on the pin P, as the outer end 1 of the key is depressed. The lower end of the tablet rod R is provided with a fork and the rod itself is arranged to swing on the bar D, so as to bring the fork over the bar E when the key 1 is pushed downward, but at other times the lower end of the tablet rod is forced backward so that both prongs of the fork at the lower end of the tablet rod are behind the path of travel of the bar E, and are not affected or moved by the bar E when that bar is raised. Depending from the same bar D at each end of the case is a hanger H; the hangers H support three small rods *e*, *h*, *i*, which extend across from one to the other, the rod *h*, being behind the tablet rods, the rod *i*, being in front of them, and the rod *e*, being beneath, the arm B of the key; these three rods all swing with the hangers H, and are swung by depressing the arm B,; the function of the rod *e*, is to swing the hangers H and to operate the lever F; the function of the rod *h*, is to hold the lower end of the tablet rods R, when elevated, forward so as to keep the rack T, in mesh with the pinion *t*, and this rod will be called "pressure rod *h*;" the function of the rod *i* is to push against the opposite side of the tablet rod and to force the lower end of the tablet rod backward, so as to throw the rack out of engagement with the pinion, detach the tablet rod from the pinion and allow it to drop by gravity; this rod will be called hereinafter

"detaching rod *i*," inasmuch as both of these rods are fixed to the same hangers H they always move at the same time, and one moves out of operative contact with the tablet rod as the other moves into operative contact with it; both the pressure rod *h* and the detaching rod *i*, are moved at the same time with the rod *e*, whenever the end of the key B is depressed, inasmuch as this movement of the key B pushes the rod *e*, downward and backward and swings the hanger H backward on the bar D. It also pushes downward one end of the lever F, and releases the double pawl G from locking contact with the rack *g*. The lever F, is mounted on the case; the double pawl G, is mounted on the cover of the money drawer, and the rack *g*, is attached to the framework of the case, and is arranged to catch and hold either end of the double pawl G, that may be presented to it. The end of the lever F that is operated by the rod *e*, is connected to that rod by a sliding joint, so that both the lever F and hanger H can move around their respective centers, while remaining in operative contact; the lower end of the tablet rod R, just above the fork, is of a width sufficient to nearly fill, the space between pressure rod *h* and detaching rod *i*, and the rods *h*, *i*, are so located with respect to the rod R, that when the rod R is pushed upward, and the hanger H is swung forward, as it will be by the rising of the rod R, the rod R, is held with considerable firmness in an upright position, with the teeth on the rack on the front side of the rod R, in contact with the teeth *t*, on the pinion M, and the rack will remain in contact with the teeth *t* of the pinion M, and the tablet rod will be held in an elevated position after the bar E has been dropped back to the position shown in Fig. 1, but the depression of the end 1 of a key B, throwing the hanger H backward and with the hanger H, the rod *i*, forces the lower end of the tablet rod R, backward, and throws the rack T out of engagement with the teeth *t*, and permits the tablet and rod, to drop by the force of gravity, to the position shown by dotted lines in Fig. 1; the swinging of the hanger forward is aided by the oblique under edge of the part against which the bar E comes in contact. Between the fork at the lower end of the rod R and the rack T, the stem of the rod R is narrowed so that when the tablet rod is down in the position indicated by the dotted lines in Fig. 1, the movement of the hangers H will not cause the detaching rod *i*, to push against that part of the rod which is behind it, nor on the other hand does the pressure bar *h*, act against that part of the rod which is then in front of it.

Above the rack T, is a bar N extending across the frame, and having a single tooth N′ or a rib on the side toward the pinion M, arranged to mesh in the pinion M; this bar N is hung by a sliding joint to an arbor *n*, is held forward into mesh by a spring *n′*; the space between the tooth on the forward side of the bar N, and the bottom edge of the bar N is equal to the pitch of the pinion M, or of the rack T and when the tablet rod is pushed upward so that the upper end of the rack T comes into contact with the lower side of the bar N, the tooth part of the bar N forms a continuation of the rack T, and causes the rack and pinion to intermesh accurately. The tablet rods are equal in number to the keys, while a single long pinion M, extending entirely across the case, receives motion from any one of the tablet rods, whenever that tablet rod is pushed upward.

The bar E extends across the case and is provided at either end with a cross head 6 movable vertically in ways or guides attached to the frame work; vertical motion is given to the bar E and the cross heads to which it is connected by means of a link or lever 5 hinged at one end by a pin 7 to the main frame work, and at the other end connected by a sliding joint to the cross-head 6.

The lever 5 is operated by the opening and closing of the money drawer in the following way; the money drawer is made in the form of a cylinder or part of a cylinder and turns on a journal or central arbor 3; a link 4 hinged to the end of the money drawer eccentric to the journal 3 and reaching from the point of connection to the link or lever 5 is hinged to the lever 5; as the drawer is opened or closed by rotating it on the arbor 3, the lever 5 is lowered or raised and the cross head 6 carrying with it the bar E is moved downward or upward. On the end of the drawer is a double pawl G, and on the main case is a rack *g*, the pawl G engaging in the rack *g*, holds the drawer either in a closed position or in an open position or prevents it from being moved backward in either direction after the operator has commenced to move it either in opening or closing it. The pawl G is hung on a pin passing through its middle point and is held against the rack by a spring G′; the side of the pawl next to the spring is fashioned in a double ogee curve; the two branches meeting at the middle point above [that is on the spring side] of the pin; the end of the spring is curved to fit the reverse curve or re-entering curve on either side of the meeting point just spoken of and the spring can be placed with this curved part pressing against either side of the meeting point of the double curve on the pawl, and when pressing on either side forces down the end of the pawl farthest from its point of pressure. A lever F is hinged to the case near the upper part of the travel of the pawl G, and when the drawer carrying the pawl is entirely closed, the end of the lever F rests against the end of the pawl G or a projection on the pawl G; the second end of the lever F is connected by a sliding joint to rod *e*, [see Fig. 2] and whenever the rod *e* is pushed downward by the key B, the end of the lever F is also pushed downward, and the end F′ is pushed upward against the pawl G, dis-engages the pawl at one end from the ratchet, forces the raised meeting part on the

back of the pawl under the spring G′ and brings the opposite end of the pawl into engagement with the rack. It is evident that the drawer can be moved in a direction away from the holding end and toward the free end of the pawl, but that any attempt to move the drawer in the other direction will be prevented at once by the engagement between the pawl and the rack. A similar device at the opposite end of the travel of the pawl G, is employed to throw the pawl over after the drawer has been opened and it is desired to close it.

It will be observed, that in a machine constructed according to my invention the movable parts are relatively few in number, and that most of the effective operations are brought about, by parts which act upon one or more tablet rods as may be desired; the principal object of the key is to set in position the tablet rod, and to operate the hanger H to release from the pinion *t*, tablet rods that have been previously thrown upward and caught upon that pinion; it will be further noticed that any tablet rod which is elevated, is in a position to be released by the movement of the rods *h*, *i*, and that the rods *h*, *i*, are moved to release the tablet rod, whenever the key lever is depressed. It will be further noticed that the form of the tablet rods is such that when they are dropped down and hang upon the rod D their lower ends are out of position to be caught and lifted by the lifting bar E, and that they normally hang in this position, and are only brought in position to be raised by the operation of the key proper to each individual tablet rod.

Having thus described my invention what I claim as novel and desire to have secured to me by Letters Patent is;—

1. In a cash register the combination with a series of vertically movable tablet rods carrying tablets, a bank of keys one for each tablet rod, means on the keys for engaging the rods to move the same laterally, a lifting bar for the tablet rods, a cash receptacle and means actuated upon the opening of the receptacle to elevate the lifting bar, substantially as described.

2. In a cash register, in combination with a series of tablet rods, a lifting bar and cash receptacle, means for connecting the lifting bar and said receptacle, whereby the lifting bar is raised by opening said receptacle, and means for presenting any desired one of said tablet rods to the actions of said lifting bar, substantially as and for the purpose described.

3. In a cash register the combination with a series of vertically movable tablet rods carrying tablets, of a cash receptacle, and means raised by opening the receptacle to elevate the tablet rods, substantially as described.

4. In a cash register the combination with a series of vertically movable tablet rods carrying tablets, of a cash receptacle, a rotary lid for the same, a lifting bar for the tablet rods and a hinged connection between the lid and bar, arranged to elevate the bar as the lid is swung down to open the drawer, substantially as described.

5. In a cash register the combination with the tablet rods and lifting bar of a rotary lid, a swinging arm engaging the bar and a link connection between the lid and arm, substantially as described.

6. In a cash register the combination with a series of vertically movable tablet rods carrying tablets, a cash receptacle, means for elevating the tablet rods as the receptacle is opened and a series of keys for presenting the tablet rods to the elevating means, substantially as described.

7. In a cash register the combination of a vertically movable tablet rod, a fixed guide near the upper end of said rod, a key provided with a Y the forks of the Y having an upward presentation, and being adapted to receive between them a pin projecting from said tablet rod, and thereby adapted to swing the lower end of said tablet-rod, a lifting bar independent of said key adapted to raise said tablet-rod, substantially as and for the purpose described.

8. In a cash register the combination with two or more tablet rods, keys equal in number to said tablet rods and adapted to set said tablet rods in position to be lifted by a bar extending under all of them, a pinion or toothed wheel common to all of said tablet rods, a rack on each tablet rod arranged to mesh in the teeth of said pinion, a detaching rod adapted to be operated by any of said keys and to detach all of said tablet rods from engagement with said pinion, substantially as and for the purpose described.

9. In a cash register the combination with a series of vertically movable tablet rods carrying tablets, of a series of keys one for each tablet rod, a cash receptacle, a lock for the receptacle, means for disengaging the lock upon the movement of a key, a lifting bar and means for elevating the lifting bar as the drawer is opened, substantially as described.

10. In a cash register a tablet and tablet rod, a rack gear on said tablet rod, a pinion adapted to mesh with and be turned on its axis by said rack gear, a fixed guide controlling the movement of one end of the said tablet rod, a swinging hanger provided with the described holding rod and detaching rod, the said holding rod being adapted to compel the rack and pinion to remain in mesh after the tablet rod is elevated, substantially as and for the purpose described.

11. In a cash register the combination with a tablet-rod adapted to move vertically a rack immovably fixed thereto, a fixed guide permitting vertical but preventing lateral movement of one end of said rod, a lifting bar adapted to engage with the other end of said rod and to compel vertical movement and prevent lateral movement of the other end of said rod, a pinion connected with the register-

ing mechanism and arranged to mesh with said rack and be turned on its axis as the rod rises, substantially as and for the purpose described.

12. In a cash register the combination with a series of tablet rods carrying tablets, of a money receptacle, a pivoted cover for the same, a lifting bar for the tablet rods and means actuated by the cover raising the lifting bar as the cover is being forced back to open the receptacle, substantially as described.

13. In combination with a rack and pinion and guides controlling the travel of said rack, an auxiliary rack adapted to form a continuation of the first mentioned rack when in contact therewith, but to remain in mesh with said pinion when the first mentioned rack is moved out of mesh, substantially as and for the purpose described.

14. In a cash register the combination with a series of tablet rods and means for elevating the same, of a register, means actuated by the movement of a tablet rod for moving the register and means for retaining the tablet rods in an elevated position by continued engagement with the recorder actuating means, substantially as described.

15. In a cash registering machine a series of operating keys arranged in a single bank, a lifting rod provided with a horizontal handle extending across outside the register case, and immediately in front of the bank of keys adapted to receive the finger of the operator as it passes off of one of said keys after depressing the same; a series of tablet-rods each of which is adapted to be set by its proper key into a position to be raised by the movement of said horizontal handle, substantially as and for the purpose described.

16. In a cash register the combination with a series of swinging tablet rods and a register, of means carried by the rods for actuating the register normally out of alignment therewith, keys for forcing the rods into alignment with the register, means for elevating the rods and a movable frame for disengaging the register actuating means from the register substantially as described.

17. In a cash register, the combination with a series of tablet rods, a cash receptacle, means for lifting said tablet rods, actuated by opening said receptacle, independent means for holding the tablet rods in their elevated position, whereby they are upheld after the closing of said receptacle, substantially as described.

FRANCIS C. OSBORN.

Witnesses:
MARION A. REEVE,
EFFIE I. CROFT.