

No. 618,035.

Patented Jan. 17, 1899.

A. C. HOUGH.  
CASH RECORDER.

(Application filed Mar. 16, 1898.)

(No Model.)

3 Sheets—Sheet I.

Fig. 1

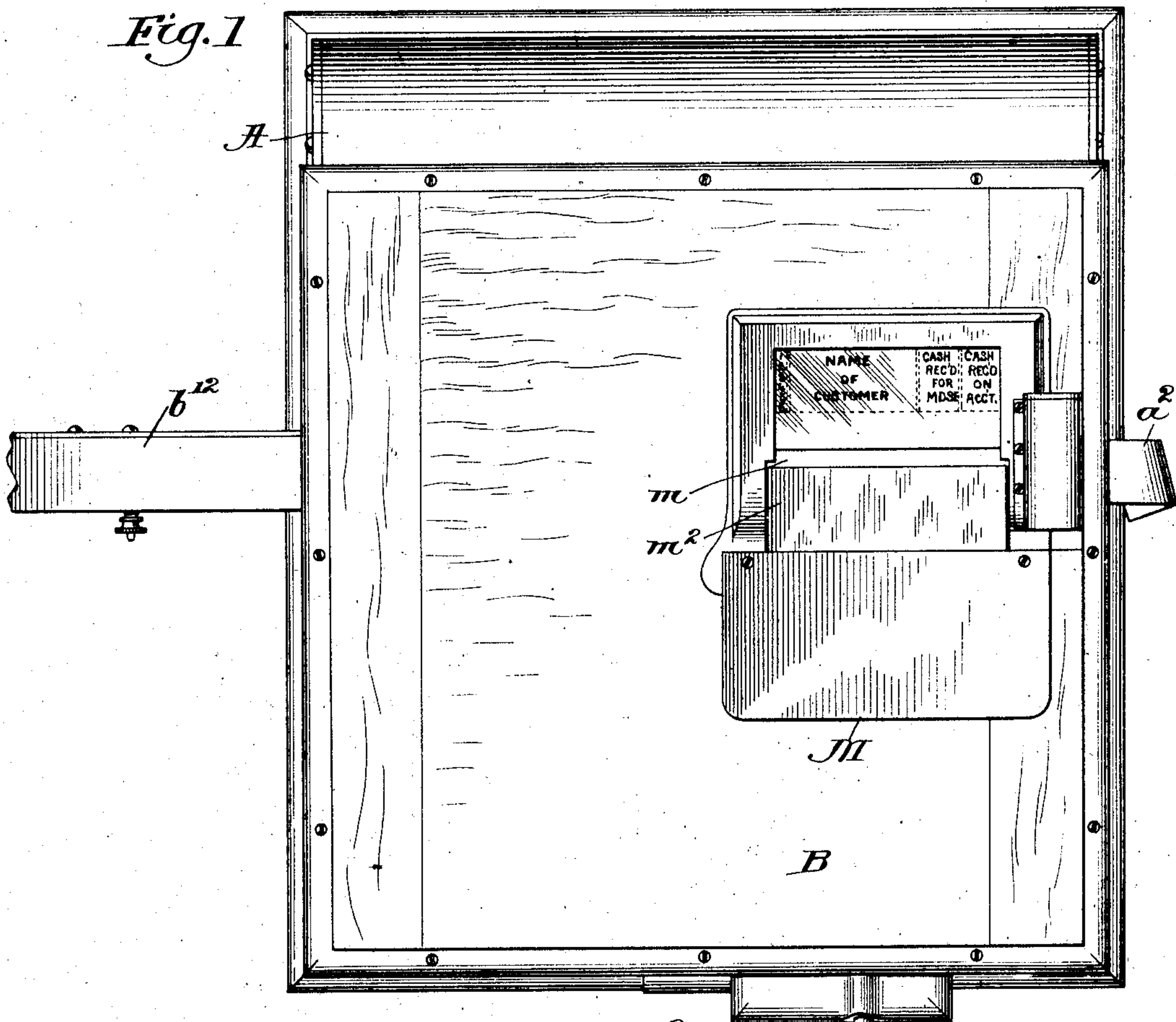
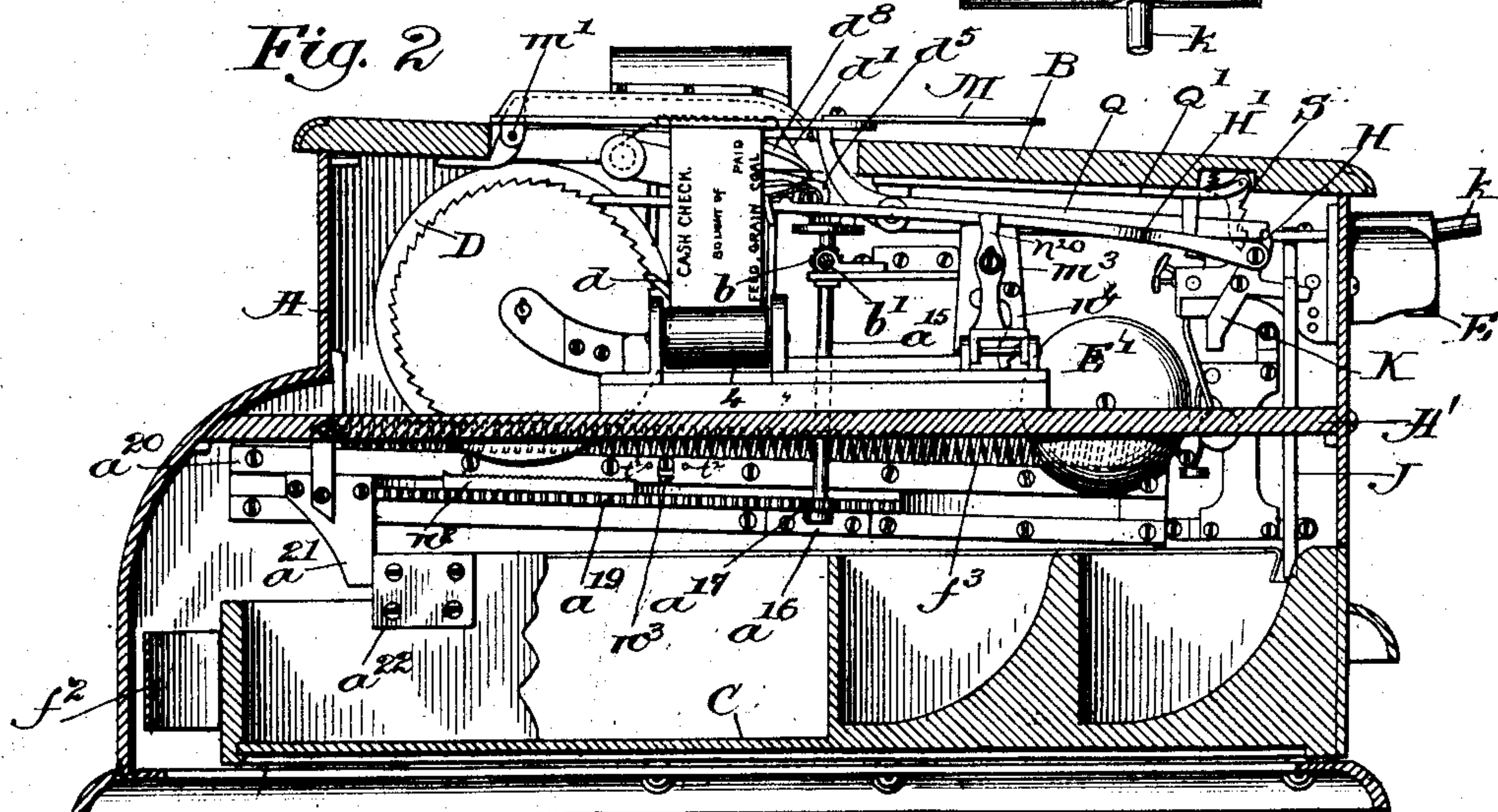


Fig. 2



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by Lewis & Clark





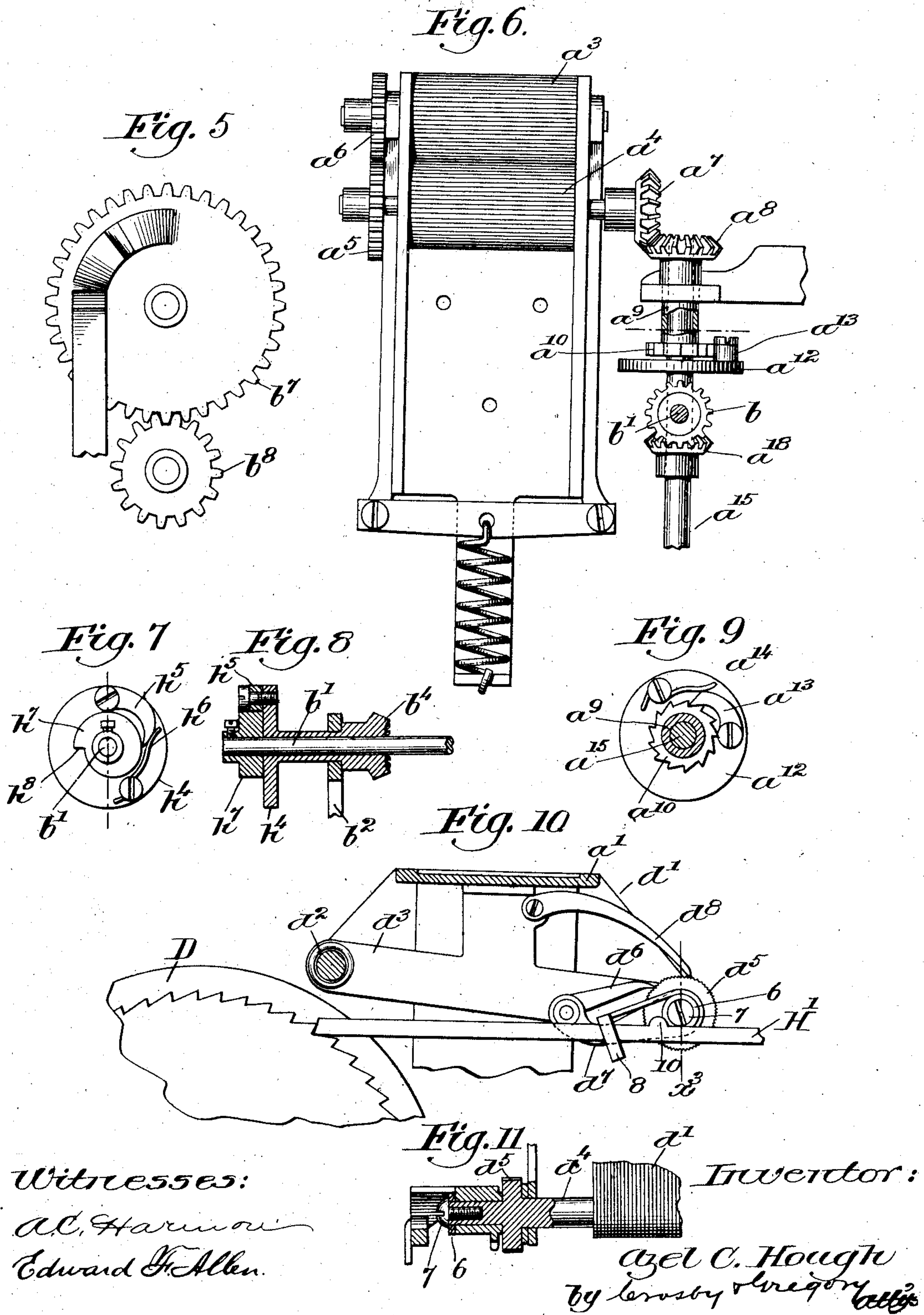


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CASH RECORDER.

(Application filed Mar. 16, 1898.)

(No Model.)

3 Sheets—Sheet 3.



Witnesses:

A. C. Harmon  
Edward F. Allen.

Inventor:

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# UNITED STATES PATENT OFFICE.

AZEL C. HOUGH, OF SOUTH BUTLER, NEW YORK, ASSIGNOR TO THE HOUGH CASH RECORDER COMPANY, OF INDIAN ORCHARD, MASSACHUSETTS.

## CASH-RECORDER.

SPECIFICATION forming part of Letters Patent No. 618,035, dated January 17, 1899.

Application filed March 16, 1898. Serial No. 674,052. (No model.)

*To all whom it may concern:*

Be it known that I, AZEL C. HOUGH, of South Butler, county of Wayne, State of New York, have invented an Improvement in Cash-Recorders, of which the following description, in connection with the accompanying drawings, is a specification, like letters and numerals on the drawings representing like parts.

This invention has for its object to improve cash-recorders whereby as each sale is made and recorded there will be delivered automatically a ticket or check showing the amount of the sale and the card of the person or firm carrying on the business, the delivery of this ticket or check to the customer enabling him to see the entry which has just been made by the clerk with relation to his purchase.

I have chosen to show my improvements embodied with a cash-recorder of the class represented in United States Patent No. 534,795, dated February 26, 1895. In that patent the sales-entry is made on a movable sales-strip being wound on a drum, the pencil of the salesman directly marking the sales-strip; but herein I have provided the machine with a carbon or other black tape or web, over which the sales-strip is fed, the ticket or check strip being fed under the said carbon tape or web and being movable, preferably, transversely to said sales-strip, the said ticket or check strip showing on it the entry made by the clerk on the sales-strip, the ticket or check strip being fed intermittently after each sale and cut or torn off after each entry or sale and handed to the customer.

Figure 1 is a top or plan view of a cash-recorder embodying my invention. Fig. 2 is a longitudinal section in the line  $x$ , Fig. 3. Fig. 3 is a top or plan view of the recorder, the lid or cover being removed and the sales-strip being broken off to show the carbon or other web under it crossing the ticket or check strip. Fig. 4 is a section of Fig. 3 in the line  $x'$ . Fig. 5 is an enlarged detail of the printing mechanism cooperating with the ticket or check strip. Fig. 6 is an enlarged detail of the feeding mechanism cooperating with the ticket or check strip. Figs. 7 and 8 are details of the ratchet mechanism for operating the printing mechanism in unison with the

feeding mechanism. Fig. 9 is a detail of a pawl-carrier and ratchet cooperating with the feeding mechanism. Fig. 10 is a detail showing part of the drum, the pawl for actuating it, and the means for feeding the carbon strip. Fig. 11 is a detail in the section  $x^3$ , Fig. 10.

The casing or frame A; the drawer C therein; the lid or cover B, suitably hinged to the casing at one end; the bolt J for locking the drawer, it being under the control of an arm K; a rocking frame H, controlled as to its movement through suitable finger-keys E, which, if manipulated properly, enable the salesman by pushing on the bolt  $k$  to swing the frame H to the left, viewing Fig. 2, to thereby cause its pawl H' to engage and actuate a ratchet-tooth wheel attached to a drum D, upon which the sales-strip is wound as it is being used, said ratchet-wheel being prevented from moving backwardly by reason of a suitable detent  $d$ ; the lever Q, adapted to have its short arm depressed by pressure of the hand of the salesman on the plate M, suitably hinged or pivoted upon the top of the lid at  $m'$ , the said plate M having a slit, as  $m$ , parallel with the edge of a spring-plate  $m^2$ , said spring normally bearing upon the top of the sales-strip as the same is being fed through the machine; the uprights  $m^3 m^4$ , supporting suitable pointed journals to sustain the roll of paper furnishing the sales-strip and marked  $E^x$ ; and the alarm mechanism, (marked  $E'$ ), which is actuated whenever an unauthorized person in attempting to open the drawer should fail to manipulate the proper finger-keys; the metallic plate Q', secured to the under side of the cover and having pivoted to its end a notched or ratchet-tooth pawl S, said pawl cooperating with a pin or projection of the lever Q, are and may be all substantially as fully shown and described in an earlier patent granted to me, No 534,795, dated February 26, 1895, and in a pending application, Serial No. 667,412, filed January 21, 1898. The finger-keys E are the same as in United States Patent No. 486,107, dated November 15, 1892.

To adapt the apparatus substantially such as hereinbefore referred to to delivering a ticket or check having recorded upon it the



sale just made by the salesman, I have added to the hereinbefore-described apparatus the mechanism which will now be described.

I have erected upon the usual plate or platform A' an upright or stand  $a$ , it constituting a leg or support for a guideway  $a'$ , over which is fed the ticket or check strip  $a^2$  to be described, said check-strip being acted on by suitable feeding mechanisms, herein represented as two rolls  $a^3$  and  $a^4$ , the roll  $a^4$  driving the roll  $a^3$  by means of two suitable pinions  $a^5$  and  $a^6$ , one on the journal of each of said rolls.

The journal of the roll  $a^4$  has a bevel-gear  $a^7$ , which is engaged and driven by a bevel-gear  $a^8$ , fast on a short sleeve  $a^9$ , having fixed upon it a ratchet-wheel  $a^{10}$ , said sleeve surrounding the upper end of a shaft  $a^{11}$ , having attached to it a circular disk or pawl carrier  $a^{12}$ , provided with a pawl  $a^{13}$ , acted upon by a spring  $a^{14}$ .

The shaft  $a^{15}$ , carrying the disk or pawl carrier  $a^{12}$ , is stepped in a suitable bearing  $a^{16}$  (see Fig. 2) and provided with a pinion  $a^{17}$ , it also carrying near said pawl-carrier a bevel-pinion  $a^{18}$ . The pinion  $a^{17}$  is engaged by the teeth of rack-bar  $a^{19}$ , fitted to slide in suitable guideways  $a^{20}$ , attached to the inner side of the casing A, (see Fig. 4,) said rack-bar having at its inner end a suitable projection or heel  $a^{21}$ , which is extended downwardly, said heel being struck by a plate or projection  $a^{22}$ , attached to and carried by the drawer, said plate meeting said heel and drawing the rack inwardly as the drawer is being closed, the inward movement of said rack in engagement with the teeth of the pinion  $a^{17}$  rotating the shaft  $a^{15}$ , and with it the pawl-carrier  $a^{12}$ , having the pawl  $a^{13}$ , causing said pawl in engagement with the ratchet  $a^{10}$  to turn the sleeve  $a^9$ , and with it the bevel-gear  $a^8$ , and actuate the feeding-wheels  $a^3$  and  $a^4$  to feed the ticket or check strip between said rolls, said strip having been previously marked with the sale just made.

During the operation of closing the drawer the bevel-pinion  $a^{18}$  engages and rotates a bevel-pinion  $b$ , fast on the end of a shaft  $b'$ , supported in suitable bearings  $b^2b^3$ , said shaft being extended loosely through a sleeve having at one end a bevel-pinion  $b^4$  and at its opposite end a disk or plate  $b^4$ , provided with a pawl  $b^5$ , acted upon by a suitable spring  $b^6$ , said shaft outside of said disk having fast on it a cam  $b^7$ , having a notch  $b^8$ , the bevel-pinion  $b^4$  engaging a bevel-gear  $b^5$ , fast on the shaft of a type cylinder or wheel  $b^6$ . It will of course be understood that the type may be changed to indicate any desired words or business or firm owning the cash-recorder. This type-carrying cylinder has attached to it firmly at its opposite end a pinion  $b^7$ , which engages a pinion  $b^8$ , (see Fig. 5,) attached to a bed-roll  $b^9$ , (see dotted lines, Fig. 4,) which supports the ticket or check strip referred to, said check-strip, in the form of a roll, being mounted on a suitable axle  $b^{10}$ , supported

in a shield  $b^{12}$ , connected to and extended from the framework of the machine. The type in this present instance is supposed to be inked by a hand appliance, and the ink is properly laid by or through the action of a roll  $c$ , (shown chiefly by dotted lines in Fig. 4 and full lines in Fig. 3,) the journals of said roll being acted upon by a suitable spring, as 2, to press it against the type-cylinder.

The ticket or check strip passes under suitable rolls 3 and 4, which in a measure act as guide-rolls, the roll 3 preventing the printed strip from rising and coming in contact a second time with the type-cylinder.

From the foregoing it will be understood that when the drawer is closed the feed-rolls and the printing-cylinder are both moved simultaneously, the printing-cylinder printing upon the strip the legend required—viz., the name of the firm and class of business or goods, &c.—leaving a suitable space to receive the mark of the salesman to indicate the amount of the sale.

The stroke imparted to the drawer and the motion imparted to the shaft  $a^{15}$  and the printing-cylinder are so proportioned that the printed portions will always come properly under the carbon or other ribbon  $d'$ , which overlaps the guide shelf or support  $a'$  and the strip  $a^2$ , lying thereon, so that the pencil of the salesman, when writing upon the sales-strip  $E^x$  to indicate the amount of the sale, will, through the carbon, mark the ticket or check strip in a like manner, the feed of the check-strip always being just enough to leave a ticket or check showing the sale just made protruding beyond the feed-rolls all ready to be torn off and delivered to the customer, as shown in Fig. 3.

The carbon ribbon  $d'$  is taken from a suitable roll or cylinder, as  $d^2$ , sustained in suitable bars  $d^3$ , two of said bars being arranged parallel to each other, and said ribbon is wound upon a suitable shaft or roller  $d^4$ , also supported between said bars, said roller having fast on it a ratchet-tooth wheel  $d^5$ , (see Figs. 10 and 11,) which is engaged by a pawl  $d^6$ , carried by a pawl-carrier  $d^7$ , shown as a lever having its hub mounted upon the end of the said shaft  $d^4$ , the pawl-carrier being retained in position on said end by means of a washer 6 and a screw 7. The pawl-carrier has a little lip or finger 8, which is extended down to one side of the drum-actuating pawl  $H'$ , and said drum-actuating pawl has a lump or cam 10, which, whenever the pawl  $H'$  is moved to turn the drum, acts upon the pawl-carrier  $d^7$  and lifts it, causing its pawl  $d^6$ , in engagement with the ratchet-wheel  $d^5$ , to move the said shaft  $d^4$ , and so gradually and slowly wind upon it the carbon ribbon  $d'$ , taking it from the roll  $d^2$ . The detent  $d^8$  cooperates with said ratchet-wheel to prevent any retrograde movement. When the drawer is closed and the ticket or check strip has been fed through ready to be torn off, a printed portion of said printed or check strip is left in



proper position under the carbon ribbon, so that the pencil of the operator, inserted through the slot *m*, may make a mark upon said strip between the words "Cash check" and, say, the words "Bought of." (See Fig. 2.)

When the proper finger-keys *E* of the apparatus have been depressed so that the operator by his thumb on the rod *k* is free to push said rod in and move the bar *H*, the said bar moves the bar *H'* and turns the drum carrying the sales-strip to remove from underneath the slot *m* the last sales-record made on the said strip, and as the rod *k* and bar *H* are so pushed in the arm or projection *K* thereon raises the bolt *J*, thus unlocking the drawer, so that a suitable strong steel or other spring, as *f*<sup>2</sup>, located at the rear of the drawer, is free to act to throw the drawer open. As the drawer is closed, as before stated, the rack-bar *a*<sup>19</sup> is pushed back by or through the contact of the drawer with the heel *a*<sup>21</sup>, and at the same time the strong spiral spring *f*<sup>3</sup> is stretched, and consequently when the drawer is started outwardly by its spring the spiral spring *f*<sup>3</sup> acts on the rack and causes it to follow the drawer, the said rack during the outward movement of the drawer turning the shaft *a*<sup>15</sup> and its attached disk or pawl carrier and pawl, the latter revolving or clicking around the teeth of the ratchet *a*<sup>10</sup>, leaving the shaft *a*<sup>9</sup>, however, at rest. During this rotation of the shaft *a*<sup>15</sup> by the opening drawer the rod or shaft *b'* is also rotated by or through the bevel-gears *a*<sup>18</sup> and *b*; but at such time the shaft *b'* turns loosely in the sleeve carrying the bevel-gear *b*<sup>4</sup>, and the plate *h*<sup>4</sup> and the cam *h*<sup>7</sup> turns under the pawl *h*<sup>5</sup> in the direction of the arrow on said cam, (see Fig. 7,) and consequently the disk *h*<sup>4</sup> and the pawl and the bevel-gear remain at rest and the type-cylinder is not moved; but as the drawer is being closed, or as soon as the projection *a*<sup>22</sup>, carried by the drawer, meets the heel *a*<sup>21</sup>, the drawer being then partially closed, the motion of the shaft *b'* is started, but in the opposite direction, so that the shoulder *h*<sup>8</sup> of the cam immediately meets the point of the pawl *h*<sup>5</sup>, and thereafter the disk *h*<sup>8</sup>, plate *h*<sup>4</sup>, and the bevel-gear *b*<sup>4</sup> are moved with the shaft *b'*, and the printing-cylinder and feeding-rolls *a*<sup>3</sup> *a*<sup>4</sup> are rotated for the proper distance. Herein the pointed journal or bearing *n*, entering the roll of paper forming the sales-strip, (see the left-hand side of the roll in Fig. 3,) is represented as carried by a rod *n'*, mounted in an elbow-lever *n*<sup>20</sup>, substantially such as described in my application, Serial No. 534,795, dated February 26, 1897, said elbow-lever having cooperating with it a suitable ratchet, as *n*<sup>4</sup>, (see Fig. 2,) the action of which is fully described in said application.

So far as I am aware I am the first to employ in a sales-recorder using a sales-strip which is operated automatically by the movement of the drawer after the same has been unlocked a ticket or check strip, the latter being arranged transversely with relation to

the sales-strip and being operated automatically during a movement of the drawer, so that blank spaces of the ticket or check strip may be always kept in proper relation to the blank spaces of the sales-strip when an entry is to be made through the intervention of a suitable carbon or other ribbon.

This invention is not limited to the exact construction shown for the automatic feeding mechanism for the ticket check strip or to the exact means for actuating the same so long as the said actuating means is under the control of the drawer in its movements.

It will be understood that the feeding mechanism for the ticket or check strip must have imparted to it a uniform feed movement in order that a printed part of the strip may always be put and left in the proper position under the carbon ribbon, so that the entry made by the salesman on the sales-strip may appear properly on the check-strip at the proper point, and it will also be remembered that the ticket or check strip is moved by the closing of the drawer. Now to insure this like movement of the ticket or check strip each time that the drawer is closed the drawer must always be opened to a certain point before it can be again closed, so that the proper extent of closing movement may be had to properly actuate the ticket or check strip mechanism. To provide for this, I have added to the rack-bar *a*<sup>19</sup> a toothed block *n*<sup>2</sup>, and on the guideway *a*<sup>20</sup> I have provided a locking-pawl *n*<sup>3</sup>, it being pivoted and free to swing between two stops *t*<sup>2</sup>, one at each side, as shown best in Fig. 2. The pawl *n*<sup>3</sup> normally hangs near the front end of the block *n*<sup>2</sup> when the drawer is fully closed and locked. As the drawer is opened the block *n*<sup>2</sup> meets and lifts the pawl *n*<sup>3</sup>, so that said pawl rides with its point on the tooth at the top of the block, and consequently the drawer cannot be closed until after the block *n*<sup>2</sup> has passed fully beyond the said pawl. As the drawer is closed after having been opened to put into it the cash of a sale, the inner end of the block *n*<sup>2</sup> again meets the pawl *n*<sup>3</sup>, but this time at its opposite side, lifting the pawl and again putting the toothed top of the block *n*<sup>2</sup> so that should the operator open the drawer the rack *a*<sup>19</sup> could not pull or draw under the action of the spring *f*<sup>3</sup>. In this way it will be understood that the drawer must be fully closed and the projection *a*<sup>22</sup> thereon must have, through the heel *a*<sup>21</sup>, moved the rack *a*<sup>19</sup> fully to the left before the rack—it having been started to the left, Fig. 2, by the drawer—can be again moved to the right by the spring *f*<sup>3</sup>. When the drawer has been fully closed, the block *n*<sup>2</sup> passes from under the pawl *n*<sup>3</sup>, letting it again drop, as in Fig. 2. Were it not for this block and pawl irregular movements might be given to the ticket or check strip which would thoroughly disorganize the operation of the cash-recorder.

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



1. In a sales-recorder, a drawer, locking means to hold the said drawer closed, a spring to open the drawer, when the locking means has been actuated, means to control and move  
5 a sales-strip on the opening of the drawer, means to sustain a ticket or check strip, a carbon sheet or web, and automatic means to move said ticket or check strip transversely with relation to said sales-strip, whereby a  
10 blank portion of said ticket or check strip may be insured opposite a blank portion of said sales-strip preparatory to making an entry thereon, in order that the salesman when making an entry on the sales-strip may dupli-  
15 cate the entry upon the ticket or check strip, the latter being delivered from the recorder, substantially as described.

2. In a sales-recorder, a case having a movable drawer, means to control and feed a sales-  
20 strip preparatory to opening said drawer, and independent means operated by said drawer to thereafter automatically control and feed a ticket or check strip transversely to said sales-strip, substantially as described.

25 3. In a sales-recorder, means to sustain and feed a sales-strip, means to support and feed a ticket or check strip transversely with relation to said sales-strip, feeding-rolls to grip said ticket or check strip, a drawer, and au-  
30 tomatically-operated means controlled as to its action by said drawer to automatically start said rolls into operation to feed said ticket or check strip transversely to said sales-strip, substantially as described.

35 4. In a sales-recorder, means to sustain and feed a sales-strip, a drawer, means controlled by the opening of said drawer to actuate said sales-strip, means to support a ticket or check strip, two sets of feeding-rolls to grip said  
40 ticket or check strip at opposite edges of said sales-strip, automatically - operated means under the control of said drawer to start said feeding-rolls into operation to feed said ticket or check strip transversely to said feed-strip,  
45 substantially as described.

5. In a sales-recorder, the following instrumentalities, viz: a drawer, means to lock the same, means to control and feed a sales-strip when the said drawer is unlocked and being  
50 opened, means to sustain and feed a ticket or check strip transversely to said sales-strip, means to automatically feed said ticket or check strip transversely to said sales-strip, and a printing mechanism to print said ticket  
55 or check strip intermittingly, the said printing mechanism and feeding mechanism for the check-strip being controlled as to their time of operation by the drawer, substantially as described.

60 6. In a sales-recorder, means to support and feed a sales-strip; means to support and feed a check-strip, and means to support a carbon sheet or web, combined with means to actuate said check-strip, a drawer, and means  
65 intermediate said drawer and the means for actuating the check-strip to feed the latter

transversely with relation to the movement of the sales-strip, substantially as described.

7. In a sales-recorder, means to control and feed a sales-strip; and means to control and  
70 feed a ticket or check strip; combined with a drawer; a rack adapted to be actuated by the closing of the drawer; and means intermediate said rack and the feeding mechanism for said ticket or check strip to feed the latter as the  
75 drawer is being closed, substantially as described.

8. In a sales-recorder, means to control and feed a sales-strip; means to control and feed  
80 a ticket or check strip; and a printing mechanism to print upon said ticket or check strip; combined with a drawer and rack adapted to be moved in one direction by the closing of said drawer; and means intermediate said  
85 rack and said ticket or check strip; feeding mechanism and printing mechanism to effect the movement of said ticket or check strip mechanism and said printing mechanism while the drawer is being closed, substan-  
90 tially as described.

9. In a sales-recorder, means to support a ticket or check strip, means to feed said strip transversely with relation to a sales-strip; a  
95 drawer; a rack moved by said drawer as the latter is being closed; a spring to move said rack when the drawer is being opened, and means intermediate said rack and said ticket or check strip feeding mechanism to operate the same to feed the said ticket or check strip  
100 only when the drawer is being closed, substantially as described.

10. In a sales-recorder, means to support a ticket or check strip; means to feed said strip transversely with relation to a sales-strip; a  
105 printing mechanism; a drawer; a rack moved by said drawer as the latter is being closed; a spring to move said rack when the drawer is being opened; and means intermediate said rack and said ticket or check strip feeding mechanism to operate the same to feed the  
110 said ticket or check strip only when the drawer is being closed, and means intermediate the means for actuating the feeding mechanism when the drawer is being closed and the said feeding mechanism, to turn the  
115 printing mechanism as the drawer is being closed, substantially as described.

11. In a sales-recorder, a support for a ticket or check strip; a drum to receive upon  
120 it a sales-strip; a pawl having a cam projection; means to operate said pawl to turn said drum; a carbon ribbon or sheet, means to sustain and move said carbon ribbon or sheet with relation to said ticket or check strip, and a pawl controlled by the cam for actuat-  
125 ing the said drum to wind the said carbon ribbon as the same is being used, substantially as described.

12. The upright shaft <sup>a</sup><sup>15</sup> having a bevel-gear and a pinion; a rack under the control  
130 of a drawer and engaging said pinion to move said shaft; a printing device having a bevel-



gear and cross-shaft fast upon it; a bevel-gear in engagement with the said upright shaft having fixed to it a notched plate; combined with a sleeve through which said cross-shaft is extended, said sleeve having a pawl-carrier and pawl adapted to be engaged by the said notched plate, the gear on said sleeve engaging a suitable gearing for actuating the printing mechanism, substantially as described.

13. In a cash-recording mechanism, a feeding mechanism to feed a ticket or check strip, a drawer; a rack actuated in one direction by said drawer and in the opposite direction by a spring; means intermediate said rack and said ticket or check strip having mechanism to actuate the same as the drawer is closed; combined with a toothed block and a pawl, said pawl cooperating therewith to restrain the closing of the drawer until after the latter has been opened to a predetermined position and thereafter restraining the backward movement of the rack, until after said drawer shall have been fully closed, whereby a defi-

nite length of feeding movement is always insured for the ticket or check strip, substantially as described.

14. In a cash-recorder, a support for a ticket or check strip; rolls to feed said strip; a drawer; means cooperating with said drawer to open it, means to prevent the drawer from being closed until it shall have been opened to a predetermined distance; combined with means actuated by the closing of said drawer to operate said ticket or check strip and feed-rolls, and means intermediate said drawer and the means for feeding the check-strip to actuate the check-strip-feeding mechanism as the drawer is closed, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

AZEL C. HOUGH.

Witnesses:

H. P. HANDLEY,  
F. E. CURTIS.