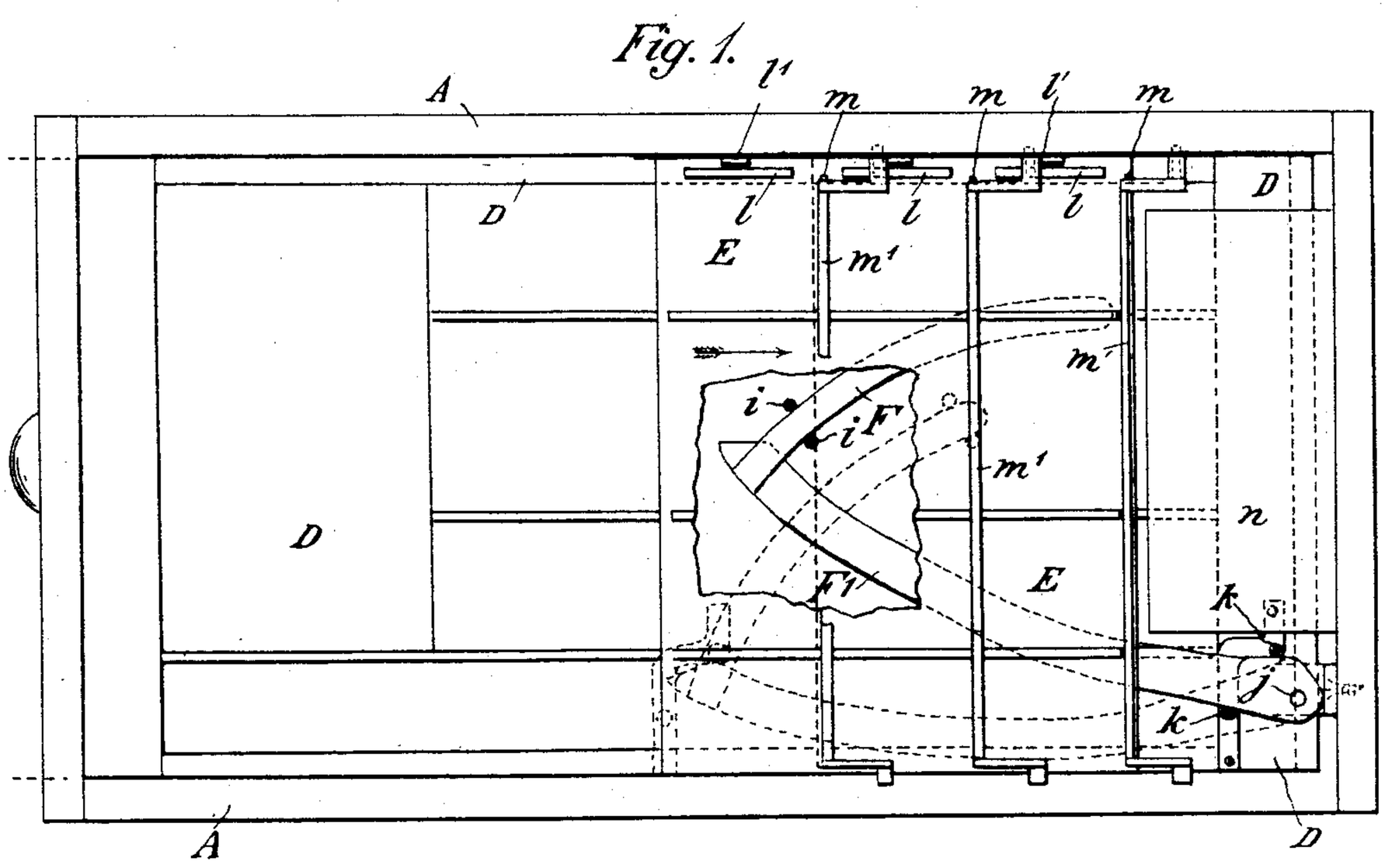
(No Model.) 3 Sheets—Sheet 1.

G. H. GLEDHILL.

MANUAL SALES RECORDER, CASH TILL, AND COIN DISPLAYER.

No. 539,001. Patented May 7, 1895.

Fig. 1.



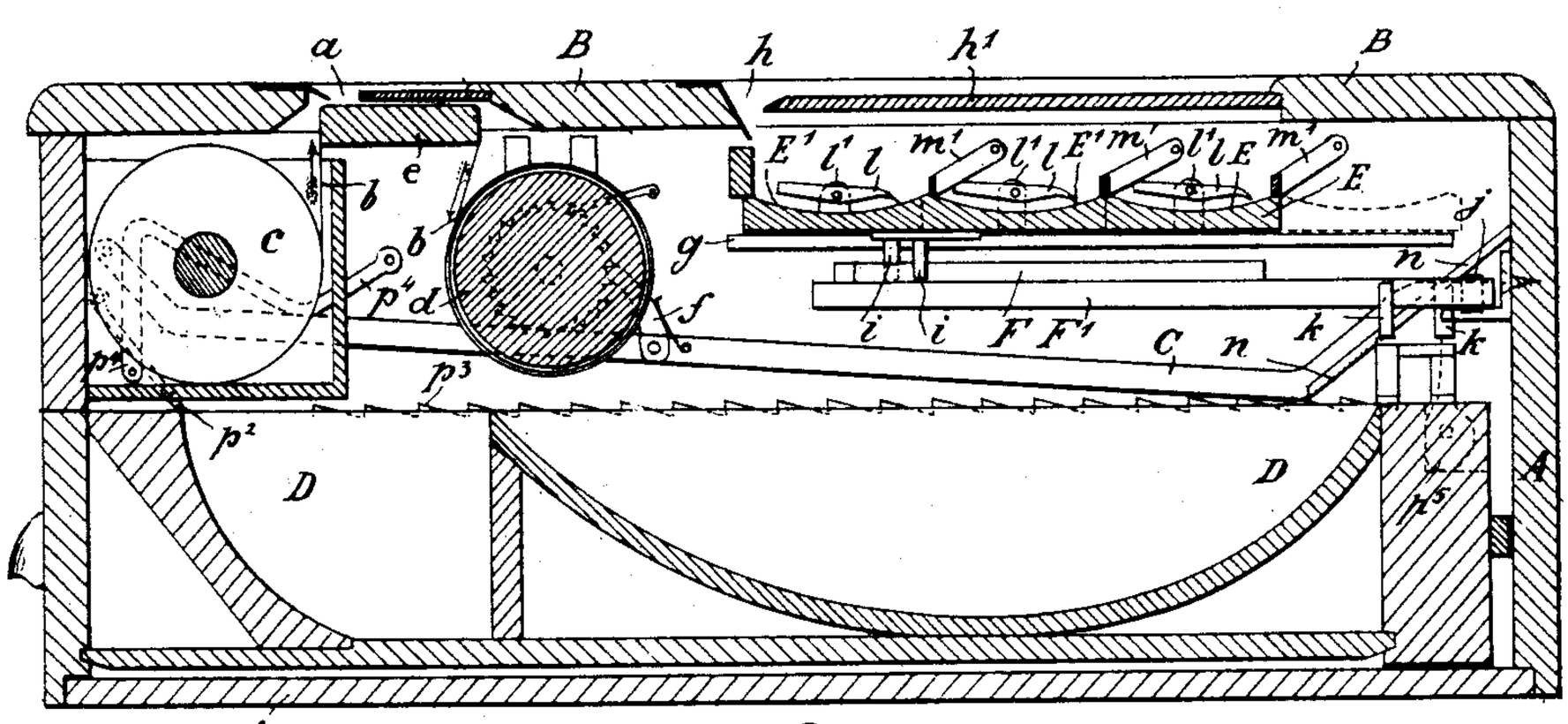


Fig. 2.

Witnesses.
L. Bauer.
A. C. Williams.

George H. Gledhill
Inventor.
By his attorney
Wm Wilson Thorn

(No Model.) 3 Sheets—Sheet 2.

G. H. GLEDHILL.

MANUAL SALES RECORDER, CASH TILL, AND COIN DISPLAYER.

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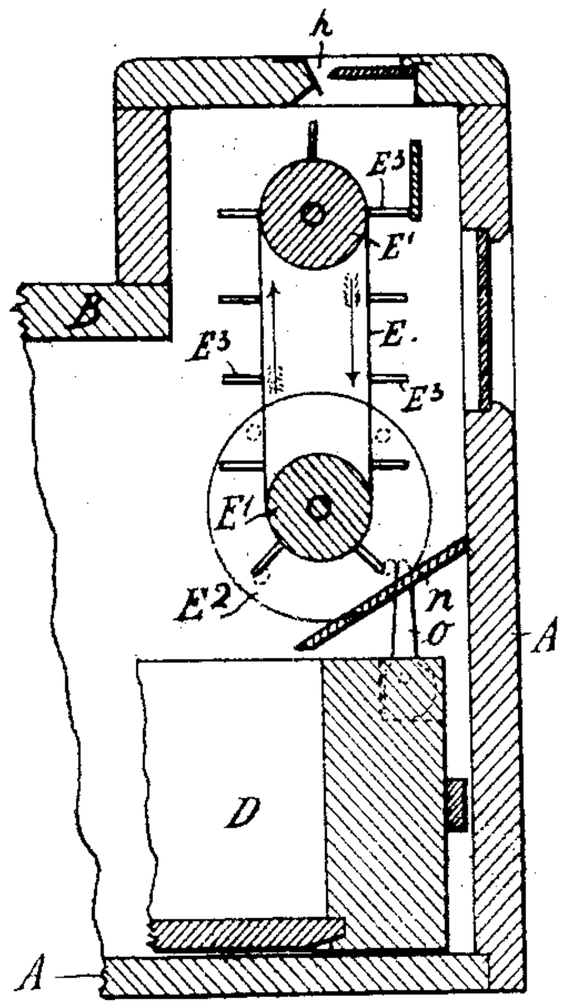
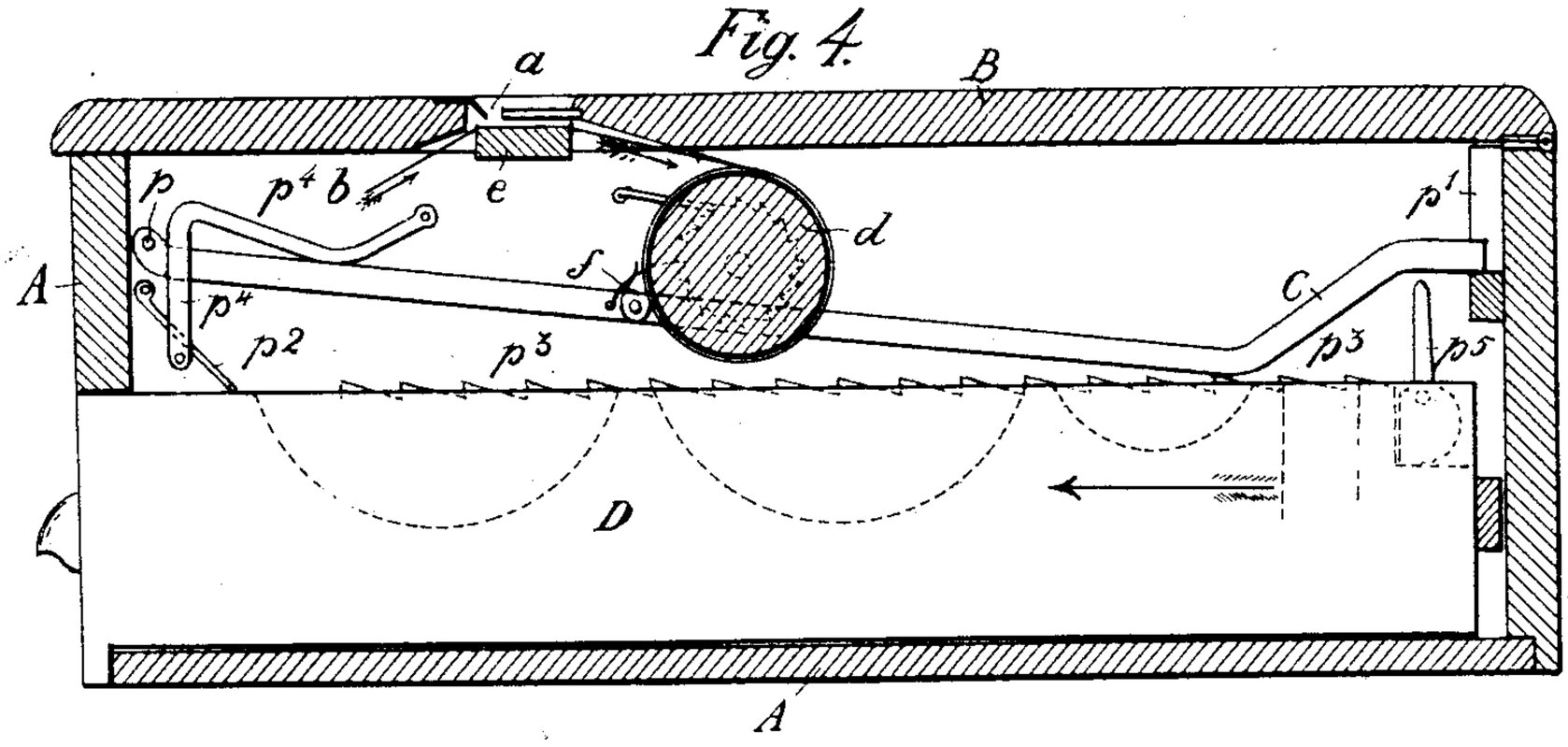


Fig. 3.

Fig. 4.



Witnesses.
C Bates
A. E. Williams

George H Gledhill
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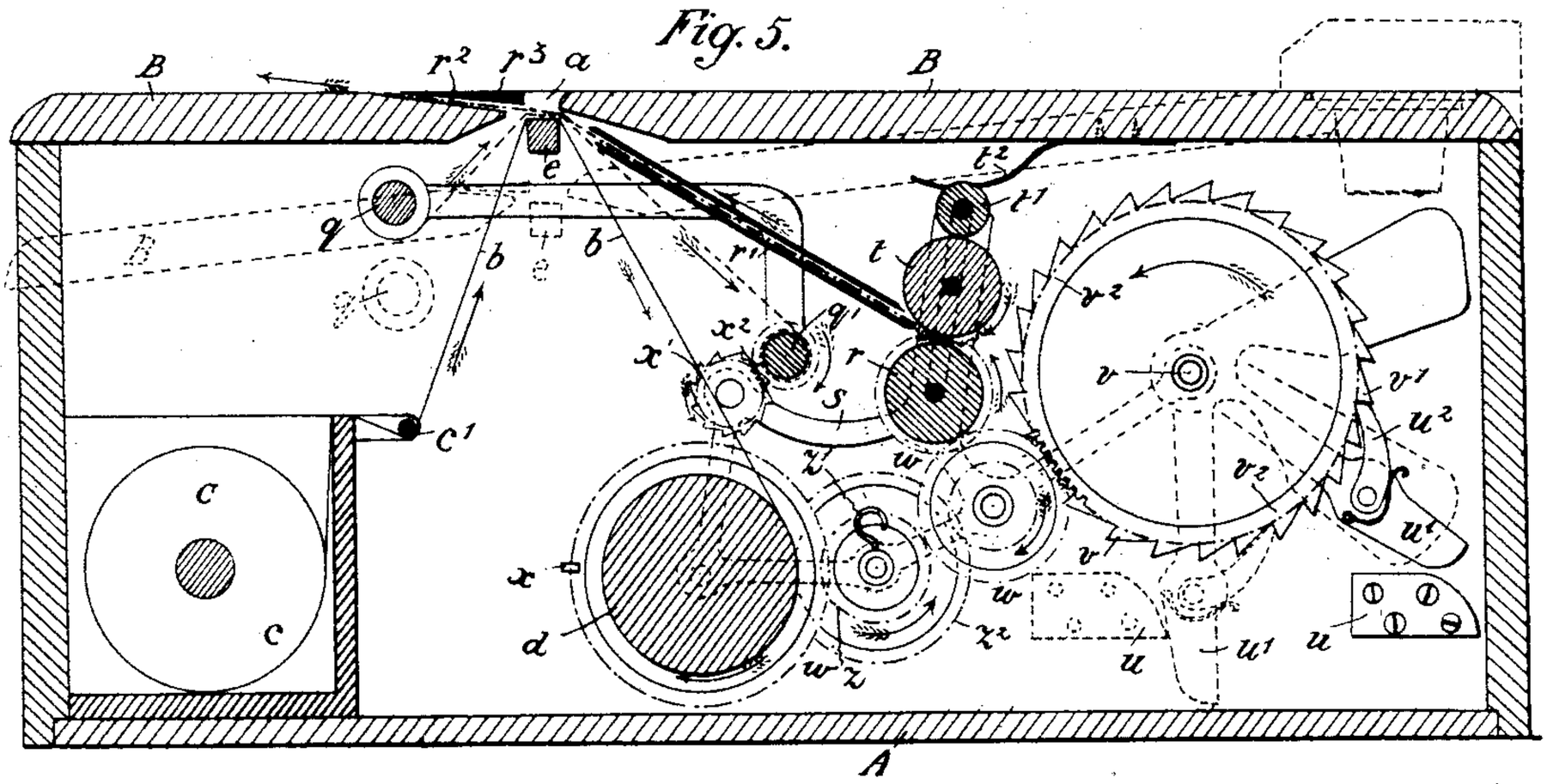
(No Model.) 3 Sheets—Sheet 3.

G. H. GLEDHILL.

MANUAL SALES RECORDER, CASH TILL, AND COIN DISPLAYER.

No. 539,001. Patented May 7, 1895.

Fig. 5.



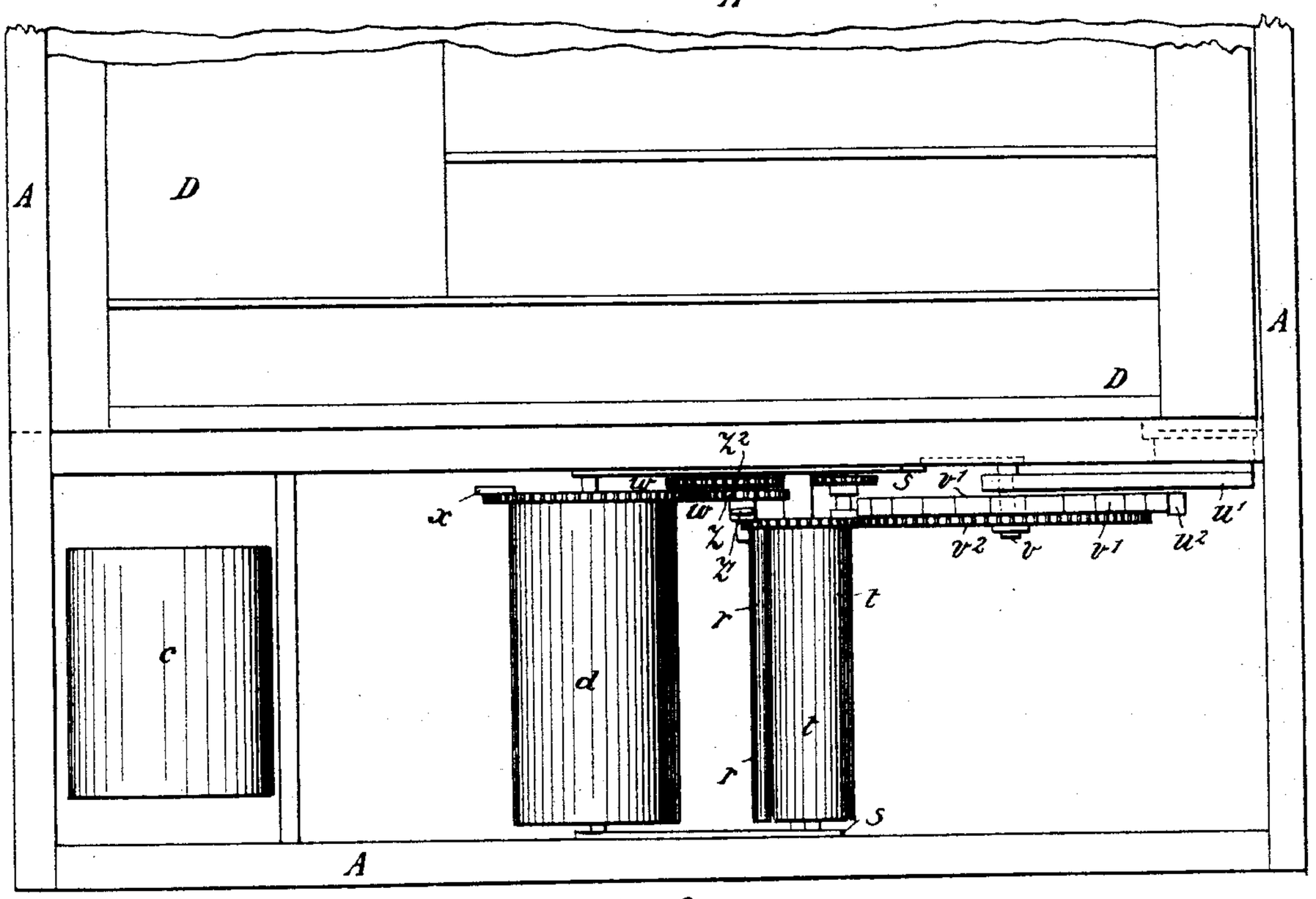


Fig. 6.

Witnesses.
C. Bauer.
A. E. Williams

George H. Gledhill
Inventor.
By his Attorney
Wm Wilson Horn

UNITED STATES PATENT OFFICE.

GEORGE HENRY GLEDHILL, OF HALIFAX, ENGLAND, ASSIGNOR TO WILLIAM THOMAS BLAINE, OF ST. LOUIS, MISSOURI.

MANUAL SALES-RECORDER, CASH-TILL, AND COIN-DISPLAYER.

SPECIFICATION forming part of Letters Patent No. 539,001, dated May 7, 1895.

Application filed August 13, 1894. Serial No. 520,331. (No model.) Patented in England June 27, 1892, No. 11,908.

To all whom it may concern:

Be it known that I, GEORGE HENRY GLEDHILL, a subject of the Queen of Great Britain and Ireland, and a resident of Trinity Works, Trinity Street, Halifax, England, have invented certain new and useful Improvements in Check-Tills, (for which I have obtained a patent in Great Britain, No. 11,908, bearing date June 27, 1892,) of which the following is a specification.

This invention relates to improvements in check tills and refers more particularly to the class of check till described in my Patent No. 391,958 and dated October 30, 1888, in which, first, the coin or coins received from the purchaser are exposed or exhibited for a short period of time; secondly, the money drawer after being partially closed cannot be again withdrawn or opened until it has been first pushed completely "home" so as to avoid fraud or dishonesty in recording each transaction, and, thirdly, a strip of paper is caused at each operation of the money drawer or lid, to travel a certain necessary distance over a rest, the lid being formed with a suitable aperture through which the salesman may write or record the amount of the purchase on the exposed portion of said strip of paper, known as the record paper.

My invention consists in the improved construction of check tills as hereinafter set forth and described, and in which I employ three strips of paper, *i. e.*, a voucher paper, a transfer or carbon paper and a recording paper, which three strips of paper are all moved by means of suitable mechanism at relatively different speeds of travel, said mechanism being actuated or set in motion by and at each complete operation of the money drawer or lid of the check till, means being also provided for automatically printing an advertisement, bill head, date or the like on the voucher paper, a suitable portion of said voucher paper being torn off by the salesman at each transaction and handed to the purchaser as a receipt, the amount of the purchase which has been written on said voucher paper being transferred on to the record paper by means of the interposed transfer paper.

Such being the nature and object of my invention, I will now describe the same more particularly, reference being had to the accompanying drawings forming a part of this specification.

Figure 1 on the drawings is a plan view of a check-till constructed according to the first part of my invention, the lid, together with the roll of paper and winding-on drum, being removed to show the parts underneath; and Fig. 2 is a transverse section of same. Fig. 3 is a detail showing a modification of apparatus for exposing the coins. Fig. 4 is a transverse section of a check-till constructed according to the second part of my invention. Fig. 5 is a transverse section, and Fig. 6 a plan view, of a check-till constructed according to the third part of my invention.

The same letters of reference indicate corresponding parts throughout.

Referring to Figs. 1 and 2, A designates the box or casing having a lid B in which is an aperture *a* for exposing the portion of the strip of paper *b* which is unwound from the paper roll *c* on to a drum *d* and passes over an intermediate bar or rest *e* underneath said aperture *a* in the ordinary manner. The drum *d* is caused to turn round on its axis to wind on the paper by pawl *f* attached to the inclined plane C which is actuated every time the drawer D is opened as afterward explained.

E is a tray or table resting on and adapted to slide backward and forward on supports *g* at each side of the box, said table being preferably fluted or made with concave portions E′. The coin or coins received from the purchaser are dropped through an opening *h* in the lid, on to the aforesaid table and can be seen for a period of time through the glass cover *h′* fixed in the lid immediately above the table. Affixed to the under side of the table are two projections or studs *i*, *i*, engaging with each side of a suitably shaped bar or inclined plane F attached to or forming part of the second curved bar or inclined plane F′ which is hinged at *j* to the back of the box A. To the rear end of the drawer D are also affixed two studs *k*, *k*, engaging each side of the portion F′ of the hinged bar and which, on the drawer D being opened or drawn out or a cam attached to the under side

of the lid causes the inclined planes or curved bars F, F′ to move toward the side of the box, as indicated in dotted lines and therefore impels the table toward the back of the box A as indicated by the dotted lines or in the reverse direction to that of the drawer, while the closing of the drawer operates the tray in the opposite direction, the dished tray E in all cases, returning to the same distance backward as it has been pushed forward for the purpose of presenting the first concave underneath the slit edge *h* and also to cause the coin or coins to be transferred to the next succeeding concave portion of the tray until finally the coins drop off the tray into the drawer D. In order to transfer the coins from one concave division to the next succeeding division as the tray moves backward and forward, I employ certain tumbling levers *l* having their under sides curved or inclined as shown, and they are hinged to brackets *l′* attached to one side of the tray, and over and under the said tumbling levers are adapted to ride small projections or studs *m* on the vibrating cross bars *m′*, which are hinged or pivotally supported in the sides of the box. On the forward movement of the table in the direction of the arrow, these studs ride over the tumbling levers *l* and raise the vibrating bars *m′* clear of the table and also clear of the coins thereon, the completion of the forward movement placing these studs *m* beyond the ends of the tumbling levers which are therefore released and regain their normal positions with their opposite and heavier ends resting on the surface of the tray. When the tray commences its return movement, the studs *m* pass under the tumbling levers and engaging with the inclined or curved surface thereof cause the vibrating bars to be drawn down on to the concave surfaces of the table and thereby scrape or force the coin or coins therefrom into the next concave portion or off the end of the table on to the inclined plate *n* which delivers them into the drawer.

If thought desirable stationary hanging scrapers may be employed suspended over a moving table for the purpose of transferring the coins from one position, or these parts may be vice versa.

By the mechanism hereinbefore described, the coin or coins received from the purchaser and placed through aperture *h* in the lid on to the table E, are immediately (on the drawer being opened) removed from under said aperture, and on the drawer being closed are forced farther on to the table in full view of the purchaser and remain in view until finally forced off the table into the drawer, by reason of which arrangement any question raised as to the value of the coin given can be at once settled.

The table E is divided into compartments lengthwise in a similar manner to the drawer in which to place gold, silver and copper respectively, or other coins, so that each coin of said metals ultimately passes into the corresponding compartments in the drawer. The vibrating bars *m′* are bent or recessed where these divisions occur so as to be clear of same.

The table E may be flat although I find that there is more liability of the vibrating bars becoming locked or jammed by reason of a coin finding its way under the said bars on a flat surface than on a surface such as herein shown. To prevent locking or jamming of the parts from the above named cause the vibrating bars may be supported in bearings in which they are free to rise or give according to the nature of the obstruction, and therefore pass over said obstruction; and cloth, india rubber, or other suitable material may be placed over the table to prevent the coins moving too freely when the drawer is violently actuated.

In Fig. 3, a modified arrangement of mechanism is shown for exposing the coin or coins given by the purchaser. In this case an endless belt or band E passes around two drums E′, and on the axis of the lower one is mounted a disk E^2 having pins or projections on its face with which an arm *o* pivoted on the drawer is adapted to engage each time the said drawer is opened which partially rotates the disk and therefore causes the band or belt to traverse a short distance. Rotary motion could also be imparted to the disk E^2 by a rod or pawl attached to the under side of the lid B. Suitable plates E^3 are attached to the endless belt and on to these the coins drop as they are passed through the aperture *h* in the box A, and they are carried down thereon and finally deposited on the inclined board *n* from which they slide into the drawer. The horizontal plates E, with the coins thereon pass down in front of a sheet of glass *h′* in view of the purchaser.

Referring to the second part of my invention which is shown plainly at Fig. 4, as applied to a simple construction of recording till, wherein C is an inclined plane of a similar description to that lettered I, in my Patent No. 10,247, of 1886, one end thereof being hinged at *p* to the side of the box A and the opposite end resting in the bottom of the guide *p′*, p^2 is a pawl or catch also hinged to the side of the box and adapted to engage with the teeth of the ratchet rack p^3 attached to the upper edge of one side of the drawer D. This said pawl p^2 is connected to the inclined plane C by means of a hinged link or lever p^4 resting on the said plane and carrying at its free end a pin or stud which abuts against the under side of the pawl p^2. At the rear of the drawer D is a pivoted finger p^5 which is maintained normally in a vertical position by the weight of its base, but is free to turn on its center in one direction so as to pass under and not operate the inclined plane on the drawer being pushed "home." In withdrawing the drawer (after writing the amount of purchase on the strip of paper) the finger p^5 rides under and elevates the free end of the inclined plane C and thereby raises

the link or lever p^4 which in turn raises the pawl p^2 clear of the ratchet teeth on the side of the drawer which can therefore be opened to the desired extent to put in money, or to take out the necessary change. If an attempt be now made to close the drawer the finger p^5 will be caused to fall into a groove in the side of the drawer by the resistance or weight of the inclined plane acting on the finger p^5 thereby allowing the catch or pawl p^2 to drop on to the serrations or teeth of the rack over which it will ride so long as the drawer is being pushed "home," but should there be any dishonest intention on the part of the salesman who after only partially closing the drawer afterward attempts to open it, the catch or pawl p^2 would be immediately engaged with one of the ratchet teeth and any outward movement of the drawer is impossible until it has been pushed completely "home" again. At each opening of the drawer the pawl f on the inclined plane moves the winding on drum d a distance equal to one or more teeth of the ratchet wheel on said drum, and thus traversing the paper a short distance places the last amount written thereon beyond the aperture and out of reach of the salesman. The above apparatus is shown also at Fig. 2 but is partly hidden from view by other mechanism which for the sake of clearness is not added to the till shown at Fig. 4.

The drawer D of the till is cushioned so as to be noiseless by a piece of india rubber or other yielding substance or material affixed to the back of the drawer.

I am aware that it is not new to employ apparatus to prevent the drawer being opened after being partially closed, but the checking action of such apparatus does not come into play instantaneously. According to my present invention, however, the pawl p^2 drops on to the serrations and is ready for action the very moment it is released.

Referring to Figs. 5 and 6 showing the application to check tills of my improvements for permitting vouchers to be given to the customer and a record thereof to be retained, c represents a roll of paper to contain the records of purchases made. This paper passes under a guide rod c' also over the table or rest e and is secured to and wound upon the drum d. q is a roller having wound thereon a supply of carbon or like transfer paper which also passes over the table or rest e and above the recording paper c and this transfer paper is secured to and adapted to wind on to a drum q', the said roller and drum being journaled in a bracket which can be removed bodily from the till when required. The voucher paper is uppermost and is unwound from a roller suitably placed in the box but not shown. This voucher paper passes between rollers r and t, the former or lower one being composed of india rubber or other suitable material and it is employed (in addition to feeding the paper) for the purpose of pressing the voucher paper against the printing roller t. This roller r is mounted in self adjusting bearings in the framework s secured to the sides to the compartment of the box in which the mechanism is placed. The loose end of voucher paper is passed between guide plates r', over the table or rest e and above the transfer paper, and finally conducted through the inclined or slanting opening r^2 in the lid of the box, and under the finger rest r^3 which is preferably tapered to an edge to form a knife for severing the written voucher from the paper. Resting on the drum r and also mounted in self adjusting bearings is a roller t having type thereon for printing the name of the firm or words such as "received" and other matter for advertising, dating and similar purposes, which type is inked by a roller t', the latter being pressed against and maintained in contact with the type by springs such as t^2 secured to the lid of the till. The various drums and rollers are actuated through a train of gearing by the closing of the drawer D in the following manner: An inclined plane or projection u is secured to the side of the drawer and when the latter is being pushed "home" the said inclined plane abuts against the end of a weighted lever arm u' mounted loosely on a stud or shaft v on which are fixed a ratchet wheel v' and toothed wheel v^2. The weighted lever arm u' is provided with a pawl u^2 engaging with the teeth of the ratchet wheel and as the said lever is forced from the position shown in dotted lines to that shown in full line, the ratchet wheel v' and consequently the toothed wheel v^2 is partially rotated, this motion being communicated by the train of wheels w to the drums d and r the former of which winds on the paper containing the record and the latter unwinding a length of paper which is forced through the opening r^2. By fastening a rod to lever u' and to the under side of the lid the same intermittent motion will be imparted to the rollers. In consequence of the paper which supplies the voucher having matter printed upon it and which printed matter is not required on the recording paper c, I have arranged, for the sake of economy in the paper c, to traverse the voucher paper at a quicker rate than the bottom recording paper the effect of which would be that the various items marked on the upper paper would be transferred to the lower paper in lines closely following one another, but the upper paper is fed forward a larger length each time, to permit the advertisement being printed upon it in addition to writing the amount of same. In order therefore to prevent waste of the bottom recording paper, the train of wheels for conveying motion to the drum d and pulling off roller r are of different diameters and the number of teeth to each wheel calculated so as to give the requisite increase of motion to the drum r over the drum d to unwind by the former a sufficient length of paper to form the voucher, and rotate the latter only to the

extent necessary to carry the record last made beyond the aperture to the same extent as at present, as is generally done.

In order to change the position of the transfer paper lying between the voucher paper and the recording paper, I employ means for intermittently moving the said transfer paper but at a much slower speed than the other papers, and for this purpose one side of the toothed wheel on the drum *d* is provided with a stud or projecting finger *x* which, at every revolution of said wheel, engages with a tooth on the ratchet wheel *x'* mounted on a stud and carrying a toothed wheel x^2 gearing with a similar wheel on the end of the drum *q'*. A partial rotary movement is thus given to the said drum at each revolution of the drum *d* and causes it to wind on the transfer paper so as to present a fresh surface to the table or rest *e* whereby there is no liability of a purchase not being recorded by reason of a portion of the transfer paper remaining too long in use on the rest *e*. The salesman writes the amount of each purchase on the upper voucher paper in the same way as he now writes it on the recording paper in the ordinary tills, but in my case the written matter is transferred to the recording paper by the intervening transfer paper. When the voucher, with the printed matter and amount of purchase written thereon is forced through the inclined opening in the lid, the salesman severs it by means of the sharp edge of the finger rest r^3 and hands it to the purchaser, the record thereof remaining on the paper strip *b* in the till as at present.

The pinion *z* which gears into the toothed wheel on the drum *d* is capable of being slid on its axis out of gear with said wheel by withdrawing the pin *z'* which secures it in position. This provision is made so that when unwinding the record paper from the drum *d* which may be done every night, the other mechanism shall not be actuated. The pinion *z* is provided with two studs or pins which are adapted to enter corresponding openings in the concentric toothed wheels z^2 when placed into gear with the wheel on the drum *d* so as to be revoluble with said wheel z^2. On the drawer D being reopened the weighted lever *u'* again assumes the position indicated by dotted lines.

Instead of the till being flat or level at the top as shown, it may be constructed after the manner of a desk as indicated by dotted lines in Fig. 5, and, if required, provided with ink wells.

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

1. In a money checking till having a lid B and a money drawer D, the combination therewith of a coin exhibiter comprising a table E adapted to slide backward and forward on supports *g* at each side of the box A said table E having affixed to its under side two studs *i* *i* engaging with each side of a bar F attached to a second bar F' which is hinged at *j* to the back of the box A, studs *k* *k* fixed to the drawer D and engaging with each side of said bar F', tumbling levers *l* hinged to brackets *l'* pivotally supported scrapers *m'* having studs *m*, an inclined plate *n*, aperture *h* and glass cover *h'* in lid B, all constructed, arranged and operating for the purposes and substantially as described and illustrated.

2. In a money checking till having a lid B, a money drawer D and a coin exhibiter consisting of a table E adapted to slide backward and forward on supports *g* at each side of the box A, said table E having affixed to its under side two studs *i* *i* engaging with each side of a bar F attached to a second bar F' which is hinged at *j* to the back of the box A, studs *k* *k* fixed to the drawer D and engaging with each side of said bar F', an inclined plate *n*, aperture *h* and glass cover *h'*, in lid B the combination therewith of scrapers *m'* having studs *m* to engage with and pass alternately over and under tumbling levers *l* hinged to brackets *l'* all constructed, arranged and operating for the purposes and substantially as described and illustrated.

3. In a money check till the combination of suitably hinged inclined plane C adapted to be actuated on the opening of the drawer D by means of a hinged finger p^5 and through the medium of a link p^4 raise the pawl p^2 clear of the rack p^3 with which the drawer D is provided, all constructed, arranged and operating for the purposes and substantially as described and illustrated.

4. In a money checking till having a drawer B provided with a rack p^3 a weighted finger p^5 pivotally attached to said drawer B, one side of the lower end of said finger being normally in contact with the end of the drawer so that when the said drawer is pulled open, said finger is caused to engage with and raise an inclined plane C pivoted at *p*, and when said drawer is being closed, said finger p^5 is thrown out of the vertical by reason of its frictional contact with the inclined plane C, thereby permitting said inclined plane C to fall into its normal position, a hinged link p^4 engaging with the inclined plane C and also with a pawl p^2 all adapted, arranged and operating for the purposes and substantially as set forth.

5. In a money checking till having a voucher paper, a transfer paper and a record paper, the combination therewith of a lug *u* secured to the drawer, weighted lever arm *u'* pivoted at *v*, pawl u^2 on the lever arm *u'*, ratchet wheel *v'* provided with a gear wheel v^2 train of wheels *w* drums *d* and *r*, the drum *d* having on its gear wheel a stud *x* adapted to engage at every revolution of said drum *d* with the ratchet wheel *x'* mounted on a stud and carrying a toothed wheel x^2 gearing with a similar toothed wheel on the end of the drum *q'*, a printing roller *t*, inking roller *t'*, spring

t^2, guide plates r' and a table e, all constructed, arranged and operating for the purposes and substantially as described and illustrated.

6. In a money checking till the combination with a box A having a lid B and money drawer D, a table E adapted to slide backward and forward on supports g at each side of the box A, said table E having affixed to its under side two studs ii engaging with each side of a bar F attached to a second bar F′ which is hinged at j to the back of the box A, studs kk fixed to the drawer D and engaging with each side of said bar F′, tumbling levers l hinged to brackets l', pivotally supported scrapers m' having studs m, an inclined plate n, aperture h and glass cover h' in the lid B, a lever C, hinged finger p^5, link p^4, pawl p^2, rack p^3, a lug u secured to the drawer, weighted lever arm u' pivoted at v, pawl u^2 on the lever arm u' ratchet wheel v' provided with a gear wheel v^2 train of wheels w drums d and r, the drum d having on its gear wheel a stud x adapted to engage at every revolution of said drum d with the ratchet wheel x' mounted on a stud and carrying a toothed wheel on the end of the drum q', a printing roller t, inking roller t', spring t^2 guide plates r', table e aperture a and inclined opening r^2 in the lid B, and a finger rest r^3, all adapted, arranged and operating for the purposes and substantially as described and illustrated.

In witness whereof I have hereunto set my hand in presence of two witnesses.

GEORGE HENRY GLEDHILL.

Witnesses:
CHAS. ROCHE,
HARRY PETER VENN.