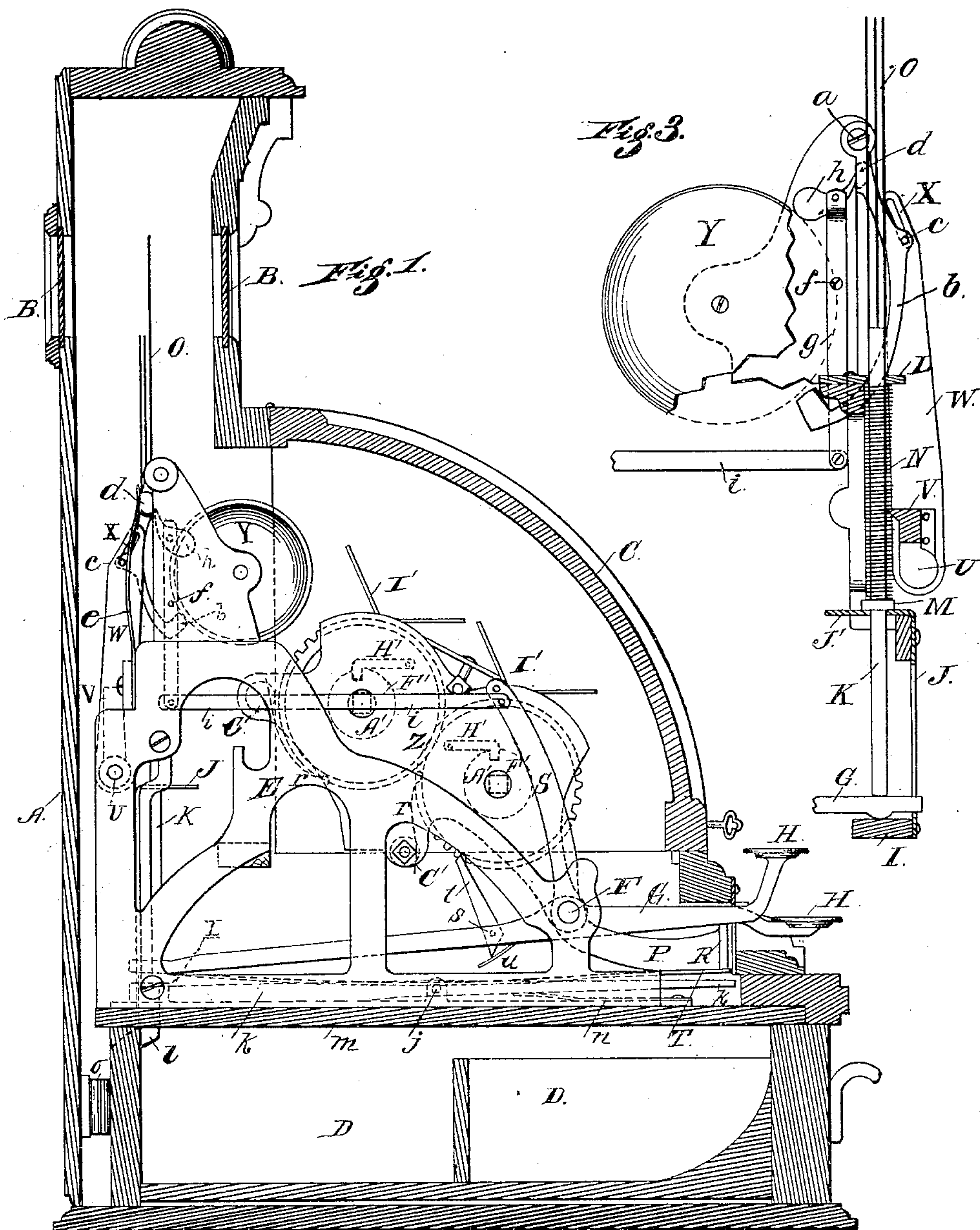


C. H. MALTBY.

CASH REGISTER.

No. 318,485.

Patented May 26, 1885.



Attest,
Jno. C. Miles
E. W. Reister

Inventor,
Clinton H. Maltby
by Stearns & Co.
his Atty.

(No Model.)

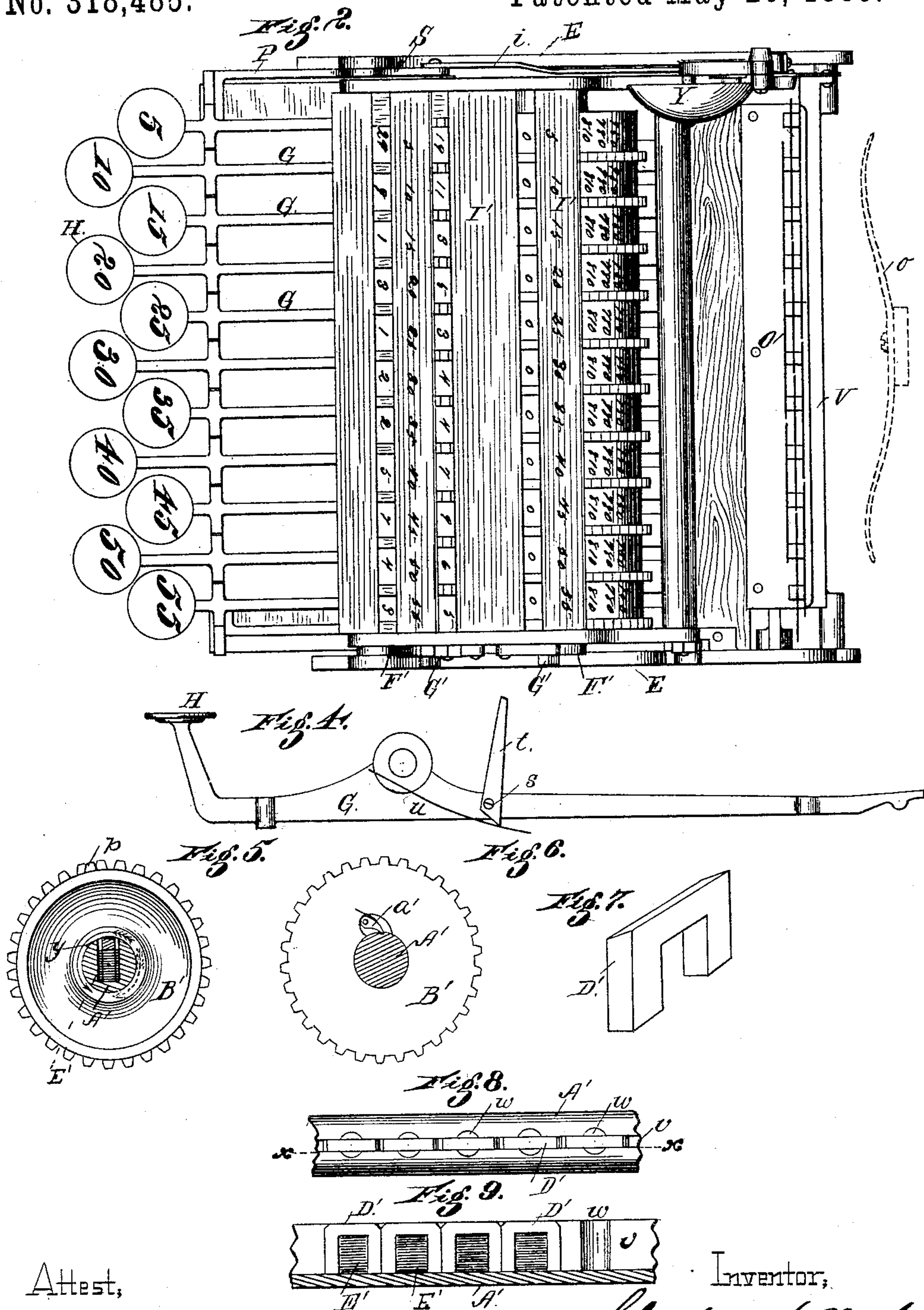
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his Attyr:

UNITED STATES PATENT OFFICE.

CLINTON H. MALTBY, OF DAYTON, OHIO, ASSIGNOR TO THE NATIONAL MANUFACTURING COMPANY, OF SAME PLACE.

CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 318,485, dated May 26, 1885.

Application filed September 21, 1883. (No model.)

To all whom it may concern:

Be it known that I, CLINTON H. MALTBY, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Cash Registers and Indicators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to an improvement in cash registers and indicators designed for the use of store-keepers and others as a means of accurately registering the total cash receipts for any given period of time—as a day, for instance—and for indicating to the customers that the amount paid has been registered by disclosing to their view such amounts upon figured tablets.

Like the machine shown in Patent No. 271,363, dated January 30, 1883, to Ritty and Birch, upon which this is an improvement, the arrangement and operation of the parts are such that no tablet can be exhibited without its value being counted upon the registering mechanism, and whenever any tablet is disclosed it remains so until the machine is operated to disclose a second tablet.

In the patent to Ritty and Birch, before referred to, the registering mechanism consisted of a series of independent abutting figured disks in one or more banks, each or each set of which was operated by its respective key. At the end of the day these disks would be turned more or less away from the zero or starting point, and no provision was made for resetting them to the zero-point for the commencement of the succeeding day's business.

My present invention has for its most important object the provision of means whereby a single complete revolution of each of the disk-shafts will cause the simultaneous resetting of all of the disks upon such shaft, so as to bring all of their zero-marks under the reading-apertures, which resetting can be done instantly without expenditure of labor and loss of time.

The novelty consists in the construction, arrangement, and combinations of the various parts, as will be herewith set forth and specifically claimed.

In the accompanying drawings, Figure 1 is a side elevation of my improved machine with the case and drawer in section. Fig. 2 is a plan view of the mechanism removed from the case. Fig. 3 is an enlarged detailed view in side elevation, looking toward the left of the machine, of the bell and tablet mechanism. Fig. 4 is an enlarged side elevation of one of the keys. Fig. 5 is an enlarged corresponding view of one of the registering wheels or disks with its shaft in section. Fig. 6 is a corresponding view showing the modification in the disk and shaft mechanism. Fig. 7 is an enlarged perspective view of one of the disk-resetting dogs. Fig. 8 is an enlarged plan of a portion of the disk-shaft with the dogs applied thereto. Fig. 9 is a sectional view through the line *x x* of Fig. 8.

The same letters of reference are used to indicate corresponding parts in all the figures.

I provide any suitable box or cabinet, A, ornamented as desired, and of the general shape indicated, though the shape and ornamentation may be varied infinitely, having coincident glass-covered apertures B, through its upper ends for disclosing to view the projected tablets; also having a hinged lid or door, C, upon opening which the registering mechanism is disclosed, and having, preferably at its lower end, a drawer-compartment, in which is a drawer or till, D. In this cabinet or case is fitted a metal frame-work consisting, chiefly, of two upright sides, E E, united by cross-bars and by the shafts and bars which support the operating mechanism.

Upon a transverse shaft or bar, F, in the lower front part of the machine, are hung or pivoted a series of parallel keys, G, which may be of the shape shown in Fig. 4, and each key has upon its front end, which extends through and projects from an opening in the front of the case, a button, H, upon which is marked a figure or number to correspond with the value intended to be indicated and registered whenever that key is operated by depressing the button. As in the Ritty and Birch patent, these keys may be arranged in banks to avoid unnecessarily increasing the width of the machine. The rear ends of the keys rest upon a bar, I, at the rear side of the machine, and extend through the slots in a vertically-slot-

ted guide-plate, J, Fig. 3, by which means they are supported, held from lateral displacement, and guided at their rear ends. The plate J has its upper end bent at right angles, 5 so as to extend in a horizontal plane, and through this bent portion J' are a row of apertures to permit the passage of a series of vertical rods, K, preferably square in cross-section, to prevent their turning in their correspondingly-shaped guide-orifices in the plate J'. The lower ends of these rods K rest upon 10 the rear ends of the keys G, one upon each key, and at their upper ends they are further guided by a transverse perforated horizontal plate or bar, L, Fig. 3.

Upon each rod K, just above the guide-plate J, is a swell or shoulder, M, between which and the bar L, and encompassing each rod, is a spiral spring, N. To the upper end 20 of each rod is suitably secured a thin flat tablet, O, which has upon both of its faces a figure or number corresponding with that upon the button of the key upon which said rod rests and by which it is operated. Thus far 25 the construction of the parts, with the exception of the springs N, is or may be substantially that shown and described in the Ritty and Birch patent, before referred to.

Pivoted upon the shaft F, on each side of 30 the machine, are two arms, P P, which extend forward and are connected at their front ends by a transverse bar, R, which rests just under the forward ends of the keys, as seen in Fig. 1. One of these arms P, preferably the one 35 on the left side of the machine, has an upward extension, S, beyond its pivotal point, as shown. Flat springs T, on each side under the arms P and transverse bar R, serve to hold the keys up at their front ends and to replace 40 the same when operated.

Pivoted at U, just in rear of the tablet-rods, is a horizontal wing, V, from one end of which extends upwardly an arm, W, whose upper end is slotted at X, Fig. 3.

45 Pivoted at *a* to the upper left-hand side of the frame is a pendent curved hammer, *b*, lying adjacent to the arm W, and with a lateral stud, *c*, entering the slot X. This hammer is arranged to strike a gong or bell, Y, 50 suitably secured to the frame. Projecting laterally from the hammer is a lug, *d*, with its under side rounded or beveled, as seen in Fig. 1.

A flat spring, *e*, attached to the frame and 55 bearing against the lug *d*, serves to hold the arm W and wing V in a substantially vertical position and to cause the hammer to strike the gong whenever any of the keys are operated, as will be hereinafter explained.

60 Pivoted at *f* is a vertical arm or lever, *g*, carrying at its upper end a pivoted gravitating tripping-dog, *h*, which bears against the lug *d*, and which may be of the same construction and is for the same purpose as the corresponding part in the Ritty and Birch patent.

Connecting the lower end of the arm *g* and the upper end of the arm S is a link, *i*.

From this construction it will be seen that whenever any key is operated by pressing its button the arms P are forced down, the arm S 70 thrown forward, thereby oscillating the lever *g*, whose tripping-dog *h* presses back the hammer *b*, which in turn oscillates the wing V through arm W and throws it sufficiently far back to permit the upward passage of the 75 shoulder M upon the ascending tablet-rod, whereupon the adjustment of the parts is such that the tripping-dog *h* holds its engagement with the lug *d* until the key has been depressed to its farthest limit, the shoulder M raised 80 above the wing V, and the tablet exposed to view through the apertures B of the case, at which time, when the key has reached its farthest limit of depression, the tripping-dog *h* slips past the lug *d* and frees the spring *e*, 85 which, recoiling, causes the hammer to strike the bell and reset the wing V in a vertical position, so as to receive and retain the shoulder M, and thereby hold up the tablet in its exposed position until, another key being oper- 90 ated, the wing is again oscillated or thrown back to permit the passage upward of the other shoulder M, and consequently releasing the shoulder M of the before-operated tablet-rod, which, by the action of the spring N, aided 95 by its own gravity, drops back to its normal position.

Pivoted, as at *j*, about the center of the bottom of the case, is an arm, *k*, whose front end extends under the bar R, and whose rear end 100 carries a bolt, *l*, which, passing through the bottom or division *m* of the case, engages with the rear inner side of the drawer to lock the same, as seen in Fig. 1. A flat spring, *n*, bearing upon the under side of the forward end of the 105 bar *k*, serves to hold the bolt *l* down. The under side of the bolt *l* is beveled, as shown, with a corresponding bevel upon the edge of the rear side of the drawer, over which the bolt slips, so that in closing the drawer the bolt 110 will be raised by the drawer in its passage until its rear side has passed beyond the bolt, when the same is freed and is forced down to effect a lock, as will be readily understood.

Fastened to the rear side of the case, just 115 behind the drawer, is any suitable spring, *o*, a plan of which is shown by the dotted lines to the right of Fig. 2. This spring bears against the rear side of the drawer, and whenever a key is operated to its farthest limit the bar R, 120 pressing upon the bolt-bar *k*, raises the bolt *l* until, the key having reached its farthest limit of depression, the drawer is freed, and the spring *o* propels the same partially out of the case. To relock the drawer it is only neces- 125 sary to push it in until the bolt re-engages it.

While I have thus illustrated and described the drawer and its mechanism, I do not claim the same, as it forms the invention of John Birch, who will make a separate application 130 for Letters Patent therefor.

Journaled in the frame of the machine, or, as in this instance, in a supplemental frame, Z, secured to the main frame, are two parallel

horizontal transverse shafts, A', upon which are strung the independently-revolving abutting registering-disks B'. The external construction and arrangement of these disks are substantially those shown and described in the Ritty and Birch patent, before mentioned, and each has at its one edge as many spurs or teeth as there are figures upon the periphery of the disk, and those of the lower bank have an additional spur, *p*, Fig. 5, which is in line with the spurs of the disks in the bank above, so that every time a disk of the lower bank makes one complete revolution its spur *p* engages with one of the spurs of the coincident disk in the upper bank and turns the upper disk one notch. Upon the transverse shafts C' are secured brake-springs *r*, (shown by the dotted lines in Fig. 1,) which prevent the disks from turning farther than one notch at a time when the keys are operated.

Pivoted to each key, as at *s*, is an upwardly-extending dog, *t*, which engages with the spurs of the disk directly over such key, as seen in Fig. 1. A spring, *u*, serves to support and hold in proper working position the dog *t*, and the adjustment is such that every time any key is operated to its farthest limit its registering-disk is revolved one notch. The return of the key to its normal position draws back the dog *t* for a fresh engagement.

As seen in Figs. 5, 8, and 9, the shafts A' have a longitudinal slot, *v*, extending from end to end, with equidistant enlargements or bores *w* in the walls thereof. In these slots are a series of abutting staple-shaped dogs, D', which are projected by spiral springs E', confined in the bores *w* and between the lugs of the dogs, as seen particularly in Fig. 9. There is one of these dogs for each of the disks, and they are so arranged as to be entirely independent in action, and to only engage with their respective disks. Their upper edges are slightly beveled, so that when the disks revolve upon the shafts in the direction indicated by the arrow in Fig. 5 no engagement of the dogs is effected. The journal or bearing of each disk, however, has a slight shoulder or notch, *y*, Fig. 5, which, when the shaft is revolved in the direction indicated by the dotted arrow in Fig. 5, enables the dogs to become locked with the disks and rotate the same. From this it will be seen that while during the operation of the keys the shafts A' are locked stationary by means to be presently described the disks turn freely on the shafts without engaging the dogs; but when it is desired to reset the disks of either or both shafts to the zero or starting point a single complete revolution of the shafts in the proper direction will engage and pick up the disks during their revolutions until their shoulders or notches *y* are all in line, and then carry the same all together to such a point as brings the zero-marks under the reading-apertures, as seen in the upper bank of Fig. 2.

The advantage of using staple-shaped pawls instead of round or square ones is that a

longer and more elastic spring may be used, and when the pawl is projected its legs will retain a bearing within the shaft and prevent its rotation or displacement, as will be readily understood.

To hold the shafts locked I secure upon their outer right-hand ends disks F', leaving the squared ends G' of the shafts projecting beyond the disks F' sufficiently to be grasped by a wrench or key. Each of the disks F' has a notch with which the end of a pivoted gravitating locking-dog, H', engages, as seen by the dotted lines in Fig. 1. The adjustment of the parts is such that whenever either of the dogs H' is raised and the shaft A' turned in the proper direction one complete revolution until the dog re-enters the notch and re-locks the shaft the disks upon such shaft will have all been brought with their zero-marks exposed through the reading-apertures.

Instead of the recessed staple-shaped dogs D', I may employ as an equivalent the construction represented in Fig. 6, where, pivoted in a recess in the side of each disk, so as not to interfere with the next abutting disk, is a pivoted spring-dog, *a'*, which engages with a shoulder or notch in the shaft A', and by which the same mode of operation and result in resetting the disks would be accomplished, as will be easily comprehended.

I' I' are the index-wings arranged over each bank of disks, and with apertures extending in straight lines across the machine, through which but a single number upon each disk can be read.

My manner of keeping the register is as follows: The machine illustrated has eleven keys, numbered in a progressive series, 5, 10, 15, up to 55. The key marked 5 is the five-cent key. The key marked 10 is the ten-cent key, and so on. The registering-disks of the lower bank, which are operated directly by the keys, have upon them numbers from 0 to 29, inclusive, in a progressive series of 0, 1, 2, 3, &c. The disks of the upper bank have a corresponding number of figures, but in a series which are multiples of 30—as 0, 30, 60, 90, and so on. Upon the index-wings, just over the reading-apertures, are numbers to correspond with the numbers upon their coincident keys, as seen in Fig. 2. Now, the manner of ascertaining the cash taken in at the end of a day's work, or at any time, may be illustrated by reference to Fig. 2, where it is shown that the five-cent key has been operated twenty-nine times, the ten-cent key nine times, the fifteen-cent key once, and the twenty-cent key three times, and so on across the bank. In this illustration none of the disks in the upper bank have been moved from their zero-points, because none of the disks of the lower bank have as yet made a complete revolution. Supposing, however, that the five-cent key be now operated, its zero-mark would be brought under the reading-opening, its spur *p* would have turned the disk in the upper bank one notch, and 30 would be ex-

posed under the reading-opening of the upper bank, and so on, as will be readily understood.

As in the Ritty and Birch patent, a third or a fourth bank of disks might be added, if necessary. The cabinet is, of course, kept locked by the proprietor, who alone can inspect the machine to take off the readings and reset it.

Having thus fully described my invention, I claim—

10 1. In a cash-register, and in combination with the series of figures, disks arranged in two banks, a key-lever, and intervening mechanism for operating independently each disk of the lower bank, and the disks of the upper bank
15 operated upon at predetermined intervals by the corresponding disks of the lower bank, the two parallel shafts for supporting the said upper and lower series of disks slotted and containing the spring-pressed pawls, one for each
20 disk, whereby the disks of either or both series can be turned back to zero-point by a

single rotation of its shaft, substantially as described, and for the purpose specified.

2. The combination of the independently-operating disks each having a notch on its inner periphery, the shaft having the longitudinal slot and the recesses for the springs, the staple-shaped pawls working in the slots of the shaft, and the springs located in the recesses in the shaft beneath the pawls and between their depending legs, substantially as
30 described.

3. The combination of the wing V, the slotted arm W, the hammer *b*, the bell *y*, the trip-lever *g*, the link *i*, the arm *s*, and the vibrating frame P P R, with the operating-keys G and tablet-rods K, substantially as described,
35 and for the purpose set forth.

CLINTON H. MALTBY.

Witnesses:

REBECCA RAMSEY,
SUMNER T. SMITH.