

No. 765,747.

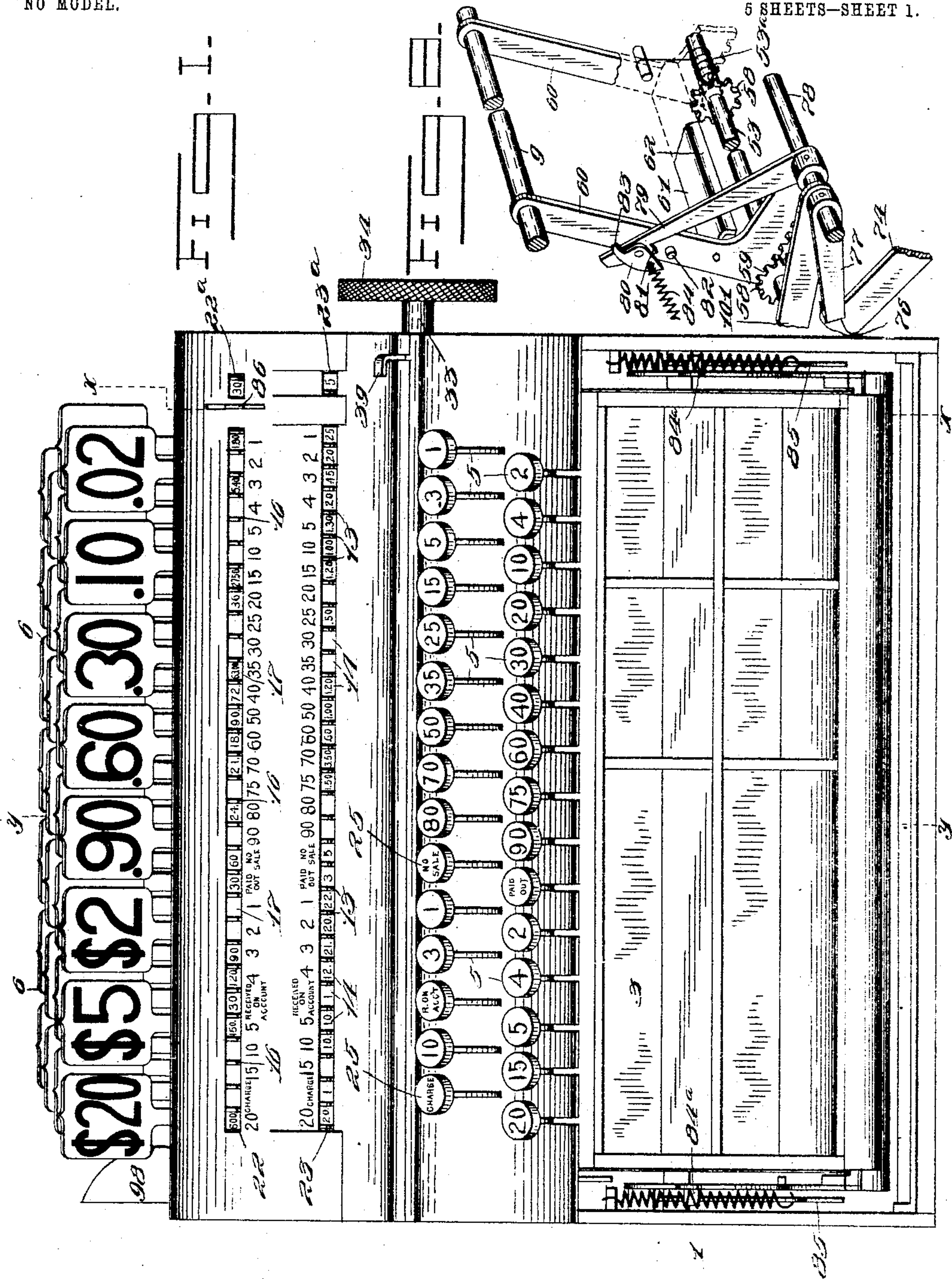
PATENTED JULY 26, 1904.

J. H. McCORMICK.  
CASH REGISTER.

APPLICATION FILED JULY 31, 1900.

NO MODEL.

5 SHEETS—SHEET 1.



Witnesses

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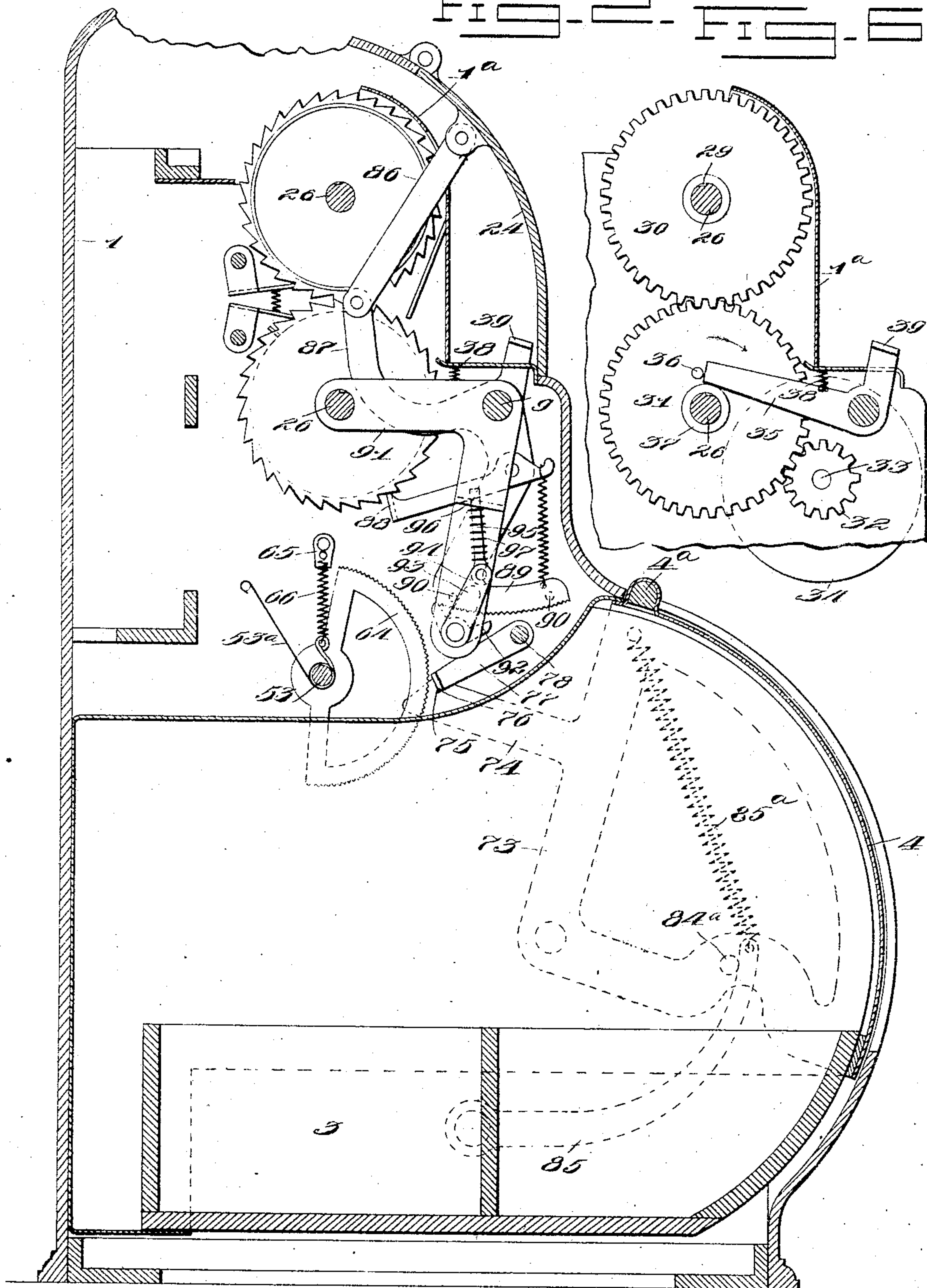
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5 SHEETS—SHEET 2.

FIG. 2. FIG. 6.



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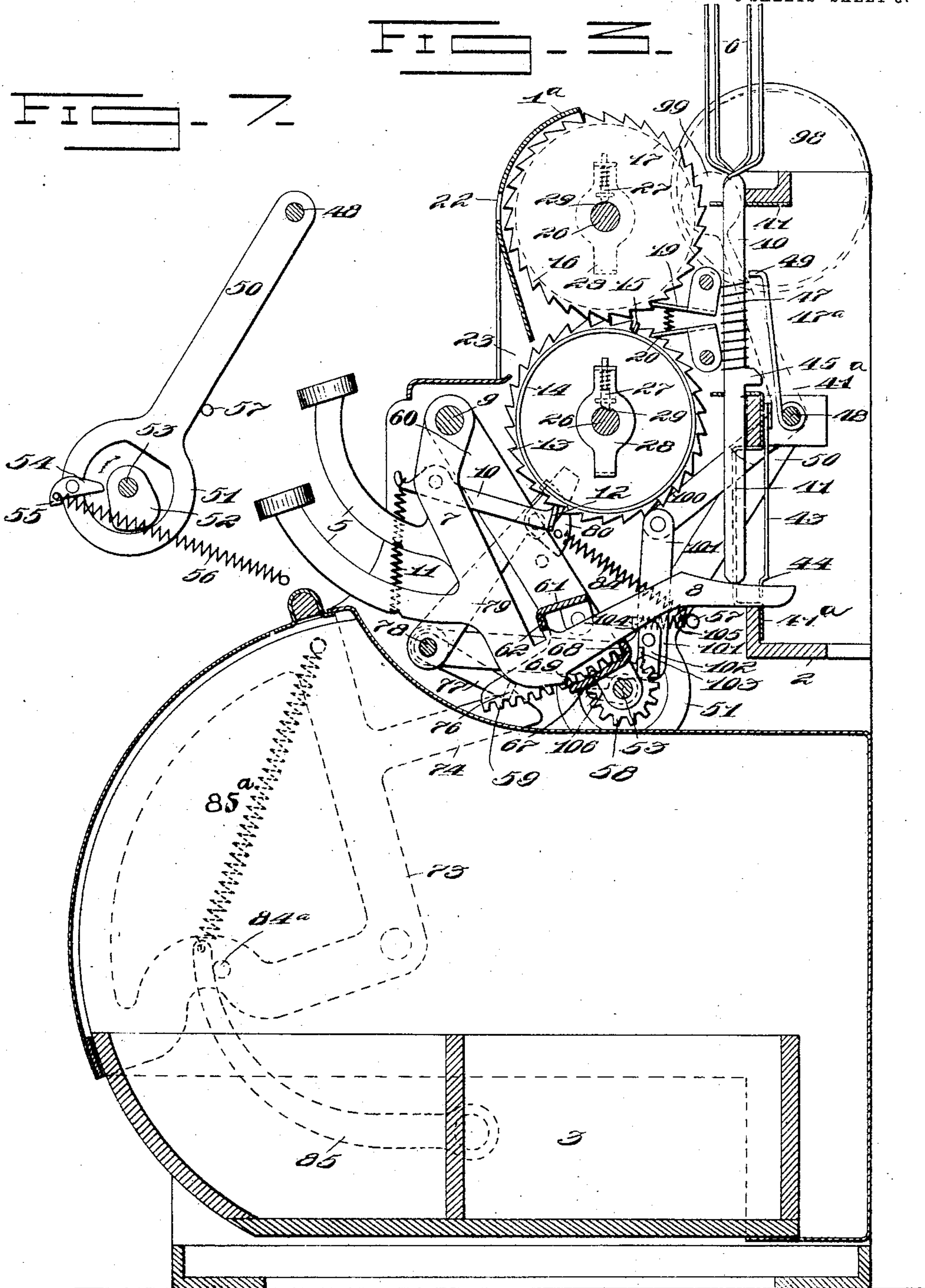
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5 SHEETS—SHEET 3.



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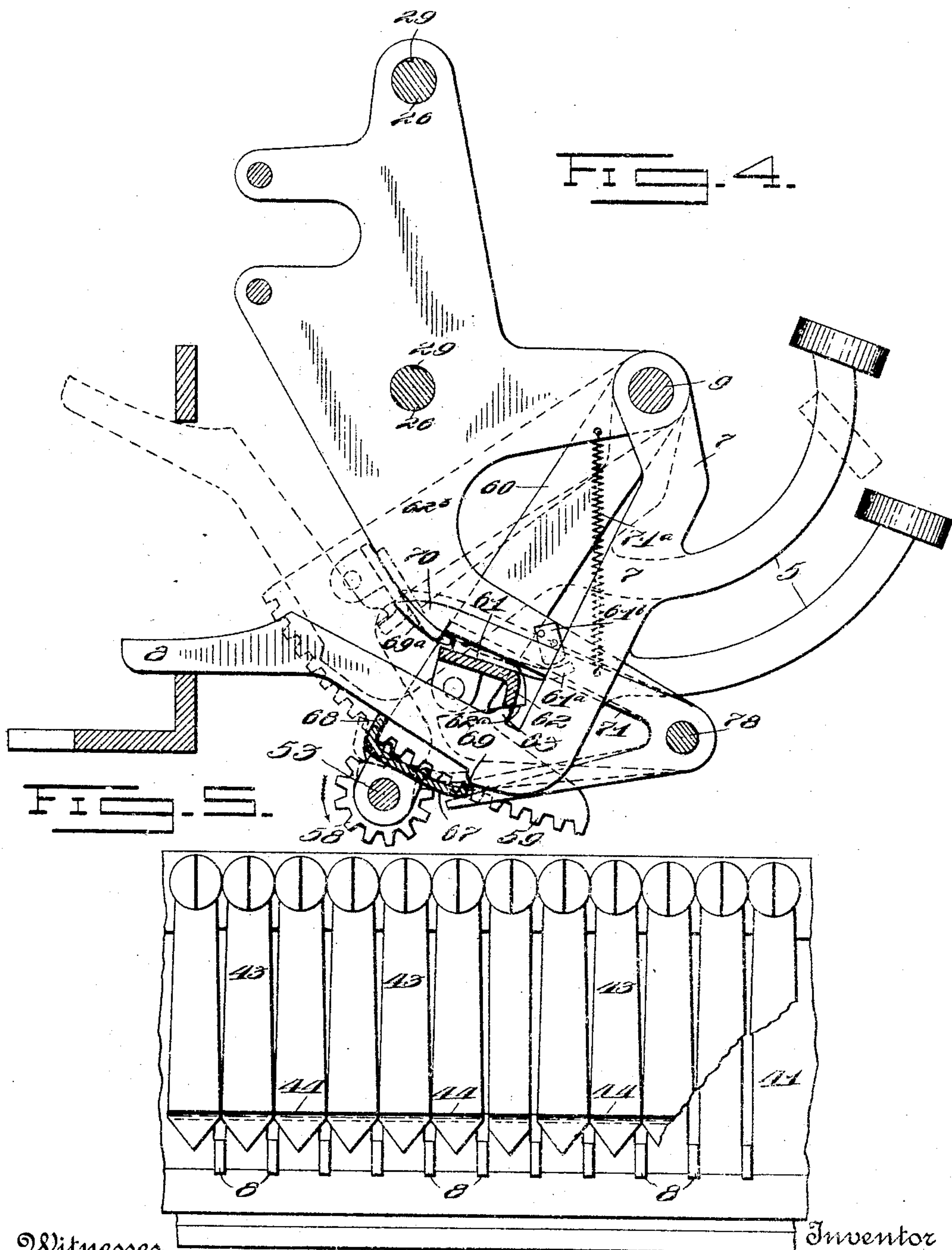
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APPLICATION FILED JULY 31, 1900.

NO MODEL.

6 SHEETS—SHEET 4.



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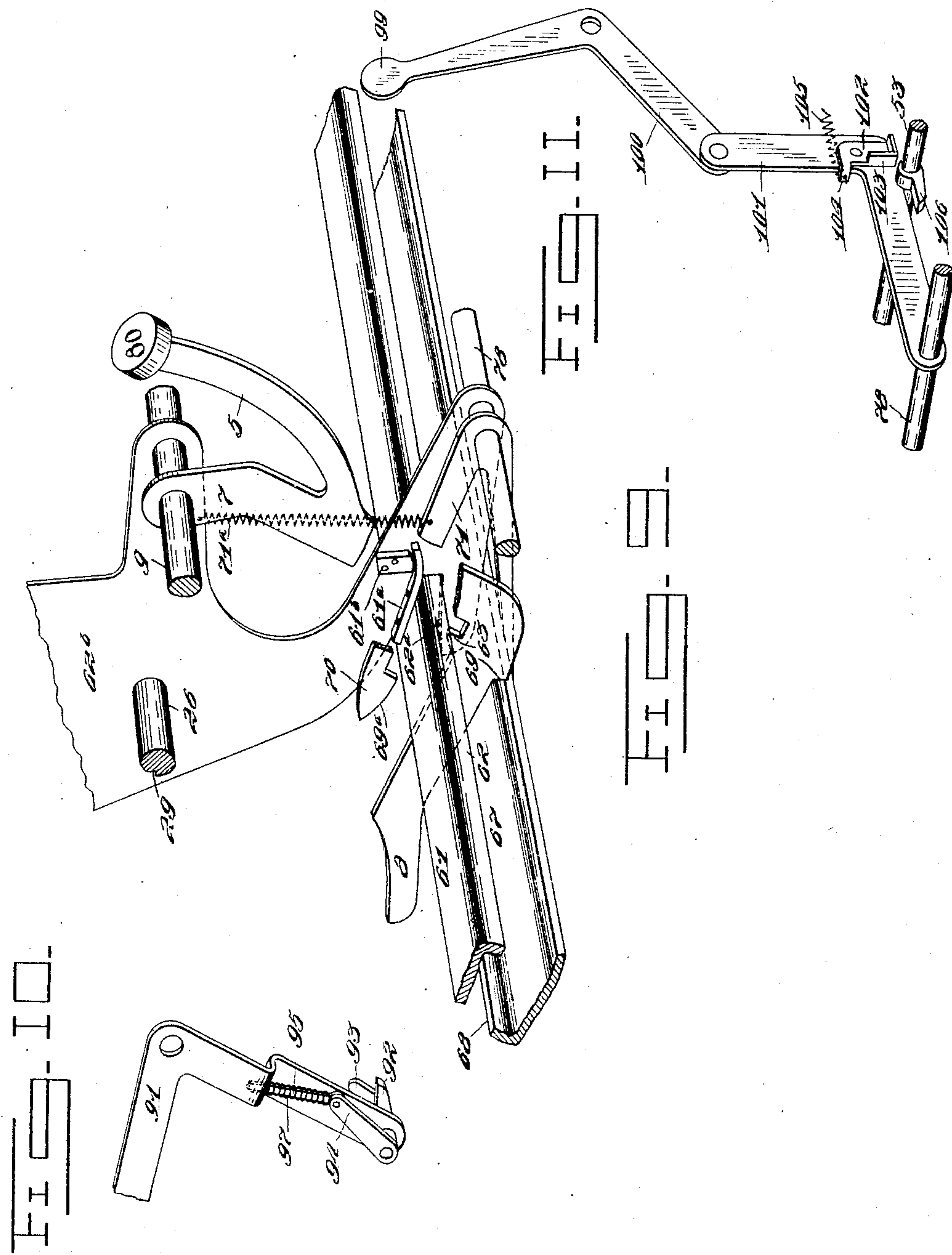
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# CASH REGISTER.

APPLICATION FILED JULY 31, 1900.

NO MODEL.

5 SHEETS—SHEET 5.



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# UNITED STATES PATENT OFFICE.

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## CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 765,747, dated July 26, 1904.

Application filed July 31, 1900. Serial No. 25,472. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN H. McCORMICK, 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, of which I declare the following to be a full, clear, and exact description.

My invention relates to improvements in detail-adding cash-registers.

My object is to provide a simpler form of cash-register which can be made at a low cost.

Most of the features of my invention are particularly adapted to the type of machine referred to, although some of them may be used in other kinds of cash-registers.

In the accompanying drawings, forming part of this specification, Figure 1 represents a perspective view of the machine embodying my invention, the cabinet being omitted and the cover for the cash-till being open to expose the till. Fig. 2 represents a vertical section, partly broken away, through the same on the line *x x* of Fig. 1, the parts being inclosed in the cabinet. Fig. 3 represents a vertical section through my machine on the line *y y* of Fig. 1, the cabinet being omitted. Fig. 4 represents an enlarged detail side elevation of the keys, key-coupler, rock-shaft, and coöperating parts. Fig. 5 represents a detail rear elevation of the pivoted hangers or key-stops. Fig. 6 represents an enlarged detail side elevation of the turn-to-zero gearing and its stop. Fig. 7 represents a detail side elevation of the lever for operating the indicator-supporting frame and the devices whereby it receives motion from the rock-shaft. Fig. 8 represents an enlarged detail perspective view, partly broken away, of the rock-shaft and its spring and coöperating parts. Fig. 9 represents an enlarged detail perspective view of the key-coupler, locking-plate, coupler latch-lever, and coöperating parts. Fig. 10 represents a detail perspective view of the full-stroke devices for the cabinet-cover, and Fig. 11 represents a detail

perspective view of the bell-operating levers and operating-cam.

In the aforesaid drawings, 1 represents the inclosing cabinet; 2, the main frame; 3, the cash-till; 4, the movable lid for the same; 5, the cash-keys, and 6 the indicators. Each of the keys 5, as more clearly shown in Figs. 4 and 9, is hung upon the transverse shaft 9 and comprises, in addition to its shank, upon the upper end of which it carries its designating numbered button, a nearly straight hanger 7, which inclines rearwardly and is provided at its lower end with a rearward extension 8.

As is usual in machines of this kind, each key is provided with an actuating-pawl 10, Fig. 3, which is pivoted to the hanger, while a spring 11, which connects the front end of each pawl with the shank of its respective key, by its tension, keeps the rear or operating end of the pawl in engagement with the ratchet-teeth 13 of its primary adding-wheel 14. The rear end of each pawl is bent laterally to form a flange 12, and it is this flange which engages the ratchet-teeth of the primary adding-wheel.

Many machines of this class which have been heretofore upon the market have been defective in that when a key is operated violently the adding-wheel acquires such momentum at the end of the downward movement of the key that it would overthrow or turn farther than it should, and thus record a larger amount than the numerical value of the operated key. In my present machine to guard against this overthrow the relative arrangement of the rear edge of each key-hanger 7 and its coöperating flange 12 is such that as the key completes its initial or downward movement such rear edge of the hanger contacts with the lower edge of the flange 12 of the actuating-pawl and locks it into engagement with the ratchet-teeth of the coöperating primary registering-wheel, and thereby absolutely prevents overthrow.

There is a lower row or series of primary registering-wheels, vertically above which is



located the row or series of secondary adding-wheels. In the usual manner a pair of adding-wheels coöperates with each key—that is, when a key is operated it turns its primary adding-wheel one tooth. When the latter has made a complete revolution, its transfer-pin 15 engages a tooth of the ratchet-wheel of the secondary adding-wheel and turns it one notch, which construction and operation in a general way are so well known as not to need more specific description here. Each of said pairs of wheels is provided with a pair of retaining-pawls 19 and 20, which are pivoted upon suitable transverse shafts and have a coiled spring which tends to swing the pawls in opposite directions, and thereby holds them in engagement with the ratchet-teeth of their coöperating adding-wheels.

The front of a wheel guard-plate 1<sup>a</sup>, mounted in the cabinet, as shown in Figs. 2 and 3, is formed, as shown in Fig. 1, with two longitudinal reading-slots 22 and 23, through which the proper numbers on the wheels 14 and 17 are exposed to view when the lid 4 of the cabinet, hereinafter described, is raised. The portion of the guard-plate just above the slot 23 is bent rearwardly, as shown in Fig. 3, so as to permit the reading of the lower counter-wheels.

The guard-plate between the slots 22 and 23 is suitably marked to indicate the values of the respective wheels, and in case of the special-transaction wheels it is marked with characters for indicating what they represent. The special keys 25 coöperate with their special-transaction wheels in substantially the same manner as do the amount-keys with their coöperating adding-wheels. The special wheels are preferably numbered consecutively, so as to keep a record of the number of times each key is operated.

All of the counter-wheels of the upper and lower rows are journaled upon transverse rotary shafts 26 and are arranged to be picked up and returned to zero by said shafts by means of spring-pressed plunger-pawls 27, mounted in suitable yoke-frames 28, fast to said wheels, as shown in Fig. 3. The operating ends of these plungers are arranged to be engaged by the walls of longitudinal grooves 29, formed in said shafts, and thus upon the rotation of said shafts the wheels will be carried therewith and returned to zero. The shafts 26 are simultaneously rotated by intermeshing gears 30 and 31, fast thereto near the right-hand ends thereof, as shown in Fig. 6. The gear 31 meshes with a pinion 32, fast to a short shaft 33, journaled in the frame, so that its end projects from the side of the machine for the attachment of a milled operating-wheel 34, as shown in Fig. 1. Normally the wheel 31 is locked against rotation by the end of a pivoted bell-crank lever 35, which coacts with a stud 36, mounted on said wheel. The bell-crank is held down upon a collar 37 on the

wheel 31 and in the path of the stud 36 by a coiled spring 38, interposed between said lever and a portion of the cabinet. The forward end of the bell-crank lever projects through a suitable slot formed in the guard-plate 1<sup>a</sup> and is provided with a laterally-projecting finger-lug 39. When it is desired to turn the counter-wheels to zero, the cabinet-cover 24, hereinafter described, is first opened, and the lug 39 is drawn forward, thus rocking the bell-crank lever and lifting its inner end out of the path of the pin 36. The wheel 34 is now given a slight forward movement, which causes the pin 36 to pass under the bell-crank lever. The bell-crank may now be released without interfering with the operation of turning to zero. When so released, said bell-crank again assumes its normal position in the path of the pin 36, and thus arrests all the gearing, shafts, and wheels when the zero position is reached after a complete revolution. The aforesaid indicators 6 are of the well-known tablet form and are preferably formed integral with their stems or shanks 40, which latter are mounted in suitable apertured guide-plates 41 and 41<sup>a</sup>, fast to the main frame. The lower ends of the shanks rest upon the rearward extensions 8 of the keys, and these extensions are prevented from slipping sidewise from under said shanks by the guide-plate 41<sup>a</sup>, which extends down the back of the machine and is slotted to receive said extensions, as shown in Fig. 3. The rear ends of said extensions coöperate with pivoted hangers or stops 43 (see Figs. 3 and 5) to prevent the simultaneous operation of more than one key in the same bank. These hangers are of the well-known construction shown in the patent to Heady and Patterson, No. 386,401, July 17, 1888, and are of a form well known in the art, with the exception that they are made extremely light and are formed with offset portions 44 near their lower ends to prevent their buckling when the keys are violently operated.

Each indicator-stem 40 is provided with a laterally-projecting lug 45 and a coiled spring 47, surrounding said stem and resting upon said lug. When an indicator is elevated, its spring is compressed against the upper plate 41, and when said indicator is subsequently released the spring assists or starts its initial return movement. The indicators are held in their elevated exposed positions by a supporting-frame 47<sup>a</sup>, mounted fast upon a transverse rock-shaft 48 and provided at its upper edge with a horizontal lip 49.

The rock-shaft 48, as shown more clearly in Fig. 7, is provided with a rigid pendent operating-arm 50, having an enlarged apertured lower end 51, through which passes the main rock-shaft 53. A cam 52 on said rock-shaft coöperates with a pawl 54, pivoted on said plate to rock said arm 50. The pawl 54 is arranged to move freely in one direction,



but is prevented from movement in an opposite direction by a lug 55, formed thereon, a spring 56 holding said lug in contact with the edge of the arm. The spring 56 also tends to

5 normally draw the arm 50 rearward against a stop-pin 57, mounted on the main frame, and thus rock the frame 47<sup>a</sup> forward to bring the lip 49 into position to support the indicators.

The rotary movement which, as presently  
10 described, is imparted to the shaft 53 causes the cam 52 to engage the pawl 54, and thereby rocks the arm 50 forward, which action rocks the supporting-frame 47<sup>a</sup> rearward and moves the lip 49 out of the path of the indi-  
15 cator-supporting lugs 45, so as to allow the elevated indicators to drop and the operated indicators to ascend. The cam 52 finally passes so far around as to clear the pawl 54 when the arm 50 is drawn back to its original  
20 position by the spring 56, and the supporting-frame 47<sup>a</sup> is thus rocked forward to bring the flange 49 under the elevated lugs 45 to hold the operated indicators in their elevated positions. As the cam 52 moves back it simply  
25 rocks the pawl 54 on its pivot without moving the arm 50, the spring 56 returning said pawl to its normal position after the cam has passed it. The rotary movement is imparted

30 to the shaft 53 through the medium of two pinions 58, fast to said shaft near the opposite ends of the same, Fig. 8. These pinions mesh with segmental racks 59, formed on the lower ends of arms 60, which latter are loosely hung from the aforesaid shaft 9. The said arms  
35 are connected near their lower ends by a key coupling-bar 61, which is pivoted at its ends, respectively, to the arms 60 and has a coupling-flange 62. The bar 61 is provided about  
40 midway between its ends with a cam-lug 61<sup>a</sup>, Fig. 9, having its forward end turned upward, so that when said bar is forced rearward by an operated key said upturned end will engage a cam block or projection 61<sup>b</sup>, mounted on an intermediate portion 62<sup>b</sup> of the main frame,  
45 and thus rock the bar 61 downward to bring the flange 62 in front of a lug 63, formed on the key. This action prevents the return of the key independently of the bar, and thus effects a coupling of all the operated keys to the bar. As the bar 61 moves forward, how-  
50 ever, the lug 61<sup>a</sup> passes out of contact with the block 61<sup>b</sup>; but said bar then contacts with the hook end 70 of a V-shaped lever 71, hereinafter described, and remains in contact with  
55 the same during the remainder of its movement and is thus held positively in its coupling position. When the coupler-bar 61 moves back to normal position, its flange 62 contacts with the rear beveled portions of the noses 63 of  
60 the unoperated keys, and said bar is thus forced upward to disengage it from the operated keys. As the shaft 53 is rocked rearward it puts a coiled spring 53<sup>a</sup>, Fig. 8, under tension to return said shaft, the coupler, keys,  
65 and other parts connected thereto to their

normal positions when the keys have completed their initial or downward strokes. The spring 53<sup>a</sup> is connected at one end to the main frame and at the other to one of the pinions 58.

A full stroke of the bar 61 in both directions is effected by the full-stroke device illustrated in Fig. 2 and which comprises a toothed segment 64, fast to the main rock-shaft 53, and a pivoted pawl 65, mounted on the main  
70 frame. This pawl is normally drawn into the position shown in Fig. 2 by a coiled spring 66, which is connected loosely to the shaft 53. This pawl coöperates with the toothed segment to compel a full stroke in either direc-  
75 tion in a manner well known in the art and needing no further explanation here.

In order to prevent the operation of the unoperated keys after the movement of any key has commenced and before its completion,  
80 I provide a pivoted locking-plate 67 upon the shaft 53 in such position as to extend under all of the keys. This plate is provided with a stop-flange 68 along its rear edge, its forward upturned edge being arranged to coö-  
85 perate with noses 69, formed on the respective keys.

When a key is operated, the coupler-bar 61 is correspondingly moved and engages the beveled portion 69<sup>a</sup> of the hook end 70 of the  
90 pivoted V-shaped bell-crank lever 71, which is held in normal position by a light spring 71<sup>a</sup>, Fig. 9. When the bell-crank is thus operated, its lower end, which projects under the plate 67, raises the forward edge of said  
95 plate into the paths of the noses 69 of the unoperated keys, and thus locks said keys against operation. The flange 68 normally rests against the under edges of the keys, and thus limits the downward movement of the  
100 forward edge of the plate 67. As the key continues its movement the hook end 70 continues to ride upon the plate 61, and thus holds the plate 67 up to its locking position. As the operated key returns, its nose 69 en-  
105 gages the front edge of the plate 67 and positively rocks said plate back to its normal position, the bell-crank lever being meanwhile released by the coupler-bar 61, passing wholly  
110 to the front of its hook end 70. The office of the last-mentioned part is to prevent rebound of the coupler. Should a key be violently returned after being depressed, its nose 69 will violently engage the front edge of the plate 67, and thus rocking said plate will op-  
115 erate the bell-crank 71 against the tension of its light spring 71<sup>a</sup> and cause its hook end to pass over the coupler-bar 61 and prevent the same from jumping backward.

The money-till 3 is stationary and is suitably  
120 divided to provide for the different denominations of coins. The cover for said till is mounted upon frames 73, which are pivoted to the main frame at opposite ends of the cas-  
125 ing. (See Figs. 2 and 3.) Each of these frames  
130



is provided with a latch-arm 74, notched, as at 75, to receive the lug 76 of one of two latching-arms 77. These arms 77 are fast upon the opposite ends of a rock-shaft 78, which latter carries an operating-arm 79. (See Fig. 8.) This arm carries a pivoted cam-pawl 80 and is formed with a hook end 81, which is arranged to cooperate with a pin 82, mounted on one of the arms 60. The pawl 80 is limited in its movements in one direction by a lug 83, formed thereon and abutting against the edge of the lever 79. When the parts are in their normal positions with the till-cover closed, the lugs 76 rest in the notches 75 and are so held by a coiled spring 84, which connects the pawl 80 to the main frame, as shown in Fig. 3. When in this position, the hook end 81 is held out of the path of the pin 82, and the keys are thus free to be operated. When the lid is opened, however, upon the return stroke of an operated key, as described below, the arms 77 are first raised and then allowed to descend to such an extent that the hook 81 is brought into the path of the pin 82, so that when the arms 60 approach to normal position the pin 82 will first elevate the hook 81 and then pass behind the same to prevent any subsequent operation of the keys until the till-cover is closed and the parts returned to the normal position. (Shown in Fig. 8.)

When a key is operated as above described, the arm 60, carrying the pin 82, is moved rearward, rocking the pawl 80 on its pivot during such movement, and thus avoiding any movement of the arm 79. This operation occurs upon the downstroke of the keys. As the keys move back the pin 82 engages the cam edge of the pawl 80, and as said pawl cannot be rocked in a reverse direction because of its stop-lug 83 it is forced upward, carrying the arm 79 with it. This movement of the arm rocks the shaft 78, and thus elevates the arms 77 to lift the lugs 76 out of the notches 75 and release the cover 4. When the cover is released, it is swung downward by gravity and passes in front of and partly under the forward portion of the till, a suitable free space being left between the till and cabinet for this purpose.

In order to prevent any shock upon the descent of the cover and to bring the same gradually to a stop, I provide each of the frames 73 with a laterally-projecting pin 84<sup>a</sup>. Each of these pins upon the descent of the cover 4 contacts with the upper edge of one of two spring-drawn cam-levers 85, pivoted upon the main frame. As the pins 84<sup>a</sup> pass along the edges of the levers 85 they gradually depress the latter against the tension of springs 85<sup>a</sup>, which normally tend to draw them upward. The cover is not completely arrested, however, until it has fully opened.

It is very desirable in this class of machines to record the number of times the lid is opened

to give access to the turn-to-zero devices and the registering-wheels. To this end the lid 24 is provided with a pivoted link-bar 86, which is in turn pivotally connected to a bell-crank lever 87. This lever is pivotally mounted upon the shaft 9 and carries a spring-drawn actuating-pawl 88, which cooperates with a pair of counter-wheels substantially in the same manner as the pawls of one of the special keys to count one unit at every operation. The lower end of the bell-crank lever is provided with a segmental full-stroke rack 89, carrying two tripping-pins 90, located near its opposite ends. A rigid frame 91, carried by the shafts 26 and 9, forms a support for a double full-stroke pawl 92, which is provided with a trip-arm 93 and an operating-arm 94. The trip-arm is arranged to cooperate with the pins 90 to trip the pawl from one of its inclined positions to the other to allow a reverse movement of the parts in a manner well known in the art. The arm 94 carries a pivoted rod 95, which projects loosely through an apertured shoulder 96, formed in the frame 91, and carries a coiled spring 97, which surrounds it and bears against the end of arm 94 and said shoulder. (See Fig. 10.) It will be observed that the tension of this spring will be exerted to hold the arm 94 to either one or the other side of its dead-center, and thus hold the full-stroke pawl to its work in either direction.

As shown in Fig. 1, the counting-wheels of the lid-counter are slightly separated from the remainder of the counter-wheels, so as not to be confused with the same, and are read through apertures 22<sup>a</sup> and 23<sup>a</sup> in the guard 1<sup>a</sup>. The aperture 23<sup>a</sup> is made in substantially the same manner as the slot 23, before described.

As it is desirable to sound an alarm each time the till-cover is opened, I provide the bell 98. (Shown in Fig. 3.) This bell is suitably secured to the main frame and is sounded by a clapper 99, mounted on a pivoted bell-crank lever 100, which is journaled upon the shaft 48. This lever is pivotally connected to an angular lever 101, pivoted on the shaft 78, (see Fig. 11,) and is provided with a pivoted pawl 102, having an angular operating-flange 103 and a stop-lug 104. The pawl and also the lever 101 are held in normal position by a coil-spring 105, which connects the lug 104 to the main frame. (See Fig. 11.) When the shaft 53 is rocked rearward, a cam-arm 106, mounted rigidly thereon, contacts with the flange 103 and rocks the pawl 102 on its pivot and finally passes free of the same, the pawl being returned to normal position by the spring 105. Upon the return movement of the cam-arm it again contacts with the flange 103 and forces the lever 101 upward, as the pawl cannot turn upon its pivot in the reverse direction because of the stop-lug 104, which engages the side of said lever. The cam-arm gradually elevates the lever 101



against the tension of the spring 105 and then finally releases it as said arm passes clear of the flange 103, and thus allows the lever to drop and the bell-clapper to be operated to sound the alarm. The cover 4 is preferably provided near its upper edge with a transverse rib or handle 4<sup>a</sup>, whereby it may be conveniently closed.

It will be seen that by the arrangement of the counting-wheels for the lid-counter upon the same shafts with the regular counter-wheels the lid-counter will be returned to zero when the shafts are rotated to return the regular counter-wheels to zero. The lid-counter will thus keep a proper record of the number of times the lid has been opened to read the total of the counter, but will be capable of being returned to zero with the regular counter.

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

1. In a cash-register, the combination with an operating mechanism, a counter, a casing inclosing the same and having a movable lid, a lid-counter connected to said lid, and means for simultaneously turning the regular counter and the lid-counter to zero.

2. In a cash-register, the combination with a counter, of a series of keys, a casing inclosing the counter and having a movable lid, a lid-counter connected to the lid, means for simultaneously turning the two counters to zero, and means for coupling the keys for simultaneous action.

3. In a cash-register, the combination with a series of counter-wheels mounted on a rotatable shaft, operating mechanism for said wheels, an inclosing casing for said counter-wheels having a movable lid, a lid counter-wheel mounted on said shaft and connected to the lid, and means for causing the regular counter-wheels and the lid counter-wheel to be simultaneously turned to zero upon the rotation of the shaft.

4. In a cash-register, the combination with a counter, of a series of operating-keys, a movable key-coupler, and means for moving the coupler positively into engagement with the keys when the latter are operated, and independent means for holding the coupler to such engagement throughout its stroke.

5. In a cash-register, the combination with a counter, of a series of operating-keys, a key-coupler for said keys, stationary means engaged by the coupler for forcing the same into engagement with the keys when the latter are operated, and independent devices for holding the coupler into engagement with the keys during its entire movement.

6. In a cash-register, the combination with a series of keys having locking-noses, of a latching-plate formed with a stop-flange and arranged to be moved into the paths of the noses of all the unoperated keys, a movable frame, a member common to all of said keys

and pivoted on said movable frame and a pivoted lever operated by said member and arranged to operate the latching-plate.

7. In a cash-register the combination with a series of keys, of a member common to and arranged to be operated by any one of said keys another member common to said keys and arranged to lock the unoperated keys and means mounted independently of the member but operated by the first-mentioned member to lock the locking member in position.

8. In a cash-register, the combination with a series of keys, of a member common thereto and arranged to be operated thereby, a lever having a hook end arranged to engage said member to prevent rebound of the same when it returns to normal position, and another common key member arranged to operate said lever and to be operated by the keys upon their return movements.

9. In a cash-register, the combination with a frame, of a series of keys having coupling-lugs, a movable key-coupler arranged to be operated by said keys, a projection on the frame arranged to positively move the coupler into engagement with the coupling-lugs, and means on the coupler arranged to engage the lugs of the unoperated keys upon the return of the coupler and thus force said coupler out of engagement with the lugs of the operated keys.

10. In a cash-register, the combination with a series of keys, of a key-coupler, a bell-crank lever having a hook arranged to engage said coupler to prevent its rebound, and a member common to and arranged to be operated by any one of said keys to operate said bell-crank lever.

11. In a cash-register, the combination with a series of keys, of a member common to and arranged to be operated by any one of said keys, another member common to said keys and arranged to lock the unoperated keys and means operated by this latter member for locking the first-mentioned member against rebound.

12. In a cash-register, the combination with a series of keys, of a member common to and arranged to be operated by any one of said keys, another member common to said keys and arranged to lock all the unoperated keys and be operated upon the return stroke of the operated keys, and a lever operated by this last-mentioned member and adapted to lock the first-mentioned member against rebound.

13. In a cash-register, the combination with a series of keys, of a key-coupling member common to and arranged to be operated by any one of said keys, another common member arranged to lock the unoperated keys and be moved by the operated keys upon their return movements and means operated by the last-mentioned member and arranged to prevent rebound of the coupler.

14. In a cash-register, the combination with



a series of keys having coupling-lugs, of a key-coupler arranged to engage said lugs to couple the keys thereto and means mounted on the coupler and arranged to engage the lugs of the unoperated keys to force said coupler out of engagement with the lugs of the operated keys.

15. In a cash-register, the combination with a frame, of a series of keys having coupling-lugs, a key-coupler arranged to be operated by said keys, a projection on the frame arranged to be engaged by the coupler to move it into engagement with the coupling-lugs, and means mounted on the coupler and arranged to engage the lugs of the unoperated keys to force said coupler out of engagement with the lugs of the operated keys.

16. In a cash-register, the combination with a series of keys, of a member common to said keys, a segmental rack mounted rigidly on said member, a shaft carrying a pinion meshing with said rack, a cam on said shaft, an arm arranged to be operated by said cam, indicators and an indicator-supporting frame operated by said arm.

17. In a cash-register, the combination with a series of keys having locking-noses, of a pivoted latching device arranged to lock all the unoperated keys by moving into the paths of said noses and to be returned to normal position upon the final return movement of the operated key by the nose of said key engaging and moving it.

18. In a cash-register, the combination with a series of keys, of pivoted levers, a pivoted coupling-bar connecting the same and arranged to be engaged and moved by the keys, a stationary projection arranged to engage said bar and rock it into coupling engagement with the keys, and independent means for holding the coupling-bar into engagement with the keys.

19. In a cash-register, the combination with a series of keys, of a pivoted frame, a rocking coupling-bar pivoted in said frame and arranged to be engaged and moved by the keys, a stationary projection adapted to be engaged by the coupling-bar to move the same into coupling engagement with the keys and independent means for holding the coupling-bar into engagement with the keys.

20. In a cash-register, the combination with a series of keys having coupling-noses, of a movable frame, a bar pivoted on said frame and arranged to be engaged and moved by

the keys and having a coupling-flange, a stationary projection arranged to be struck by said bar to rock it and bring its flange into coupling engagement with the coupling-noses of the operated keys and independent means for holding the coupling-bar into engagement with the keys.

21. In a cash-register, the combination with a series of keys, of a coupling-bar common to said keys, a pivoted lever having an extended head arranged to engage said bar during its entire movement, and a key-locking device arranged to be operated by said lever and also to be operated by the keys to actuate the lever to cause it to lock the common coupling-bar.

22. In a cash-register, the combination with a series of keys having coupling-noses, of a movable coupling-bar arranged to engage said noses to couple the keys thereto, means for temporarily forcing the coupling-bar into engagement with the noses and independent means for positively holding the coupling-bar to said engagement during a full stroke of said bar.

23. In a cash-register, the combination with a series of keys, of a movable coupling-bar arranged to be operated by the same, means arranged to engage said coupling-bar when it is moved to force it into coupling engagement with the operated key, and independent means for positively holding it in such engagement during its movement.

24. In a cash-register, the combination with a series of keys, of a movable coupler common to said keys, means for forcing the coupler into engagement with the keys upon their initial movement and independent means for positively holding the coupler to engagement with the keys during a full stroke of said coupler.

25. In a cash-register, the combination with a series of keys, of a pivoted frame, a pivoted coupler-bar mounted in said frame, means for forcing the coupler-bar into engagement with the keys upon their initial movement and independent means for positively holding the coupler-bar to engagement with the keys during a full stroke of said bar.

In testimony whereof I affix my signature in the presence of two witnesses.

JOHN H. McCORMICK.

Witnesses:

WM. H. MUZZY,  
ALVAN MACAULEY.