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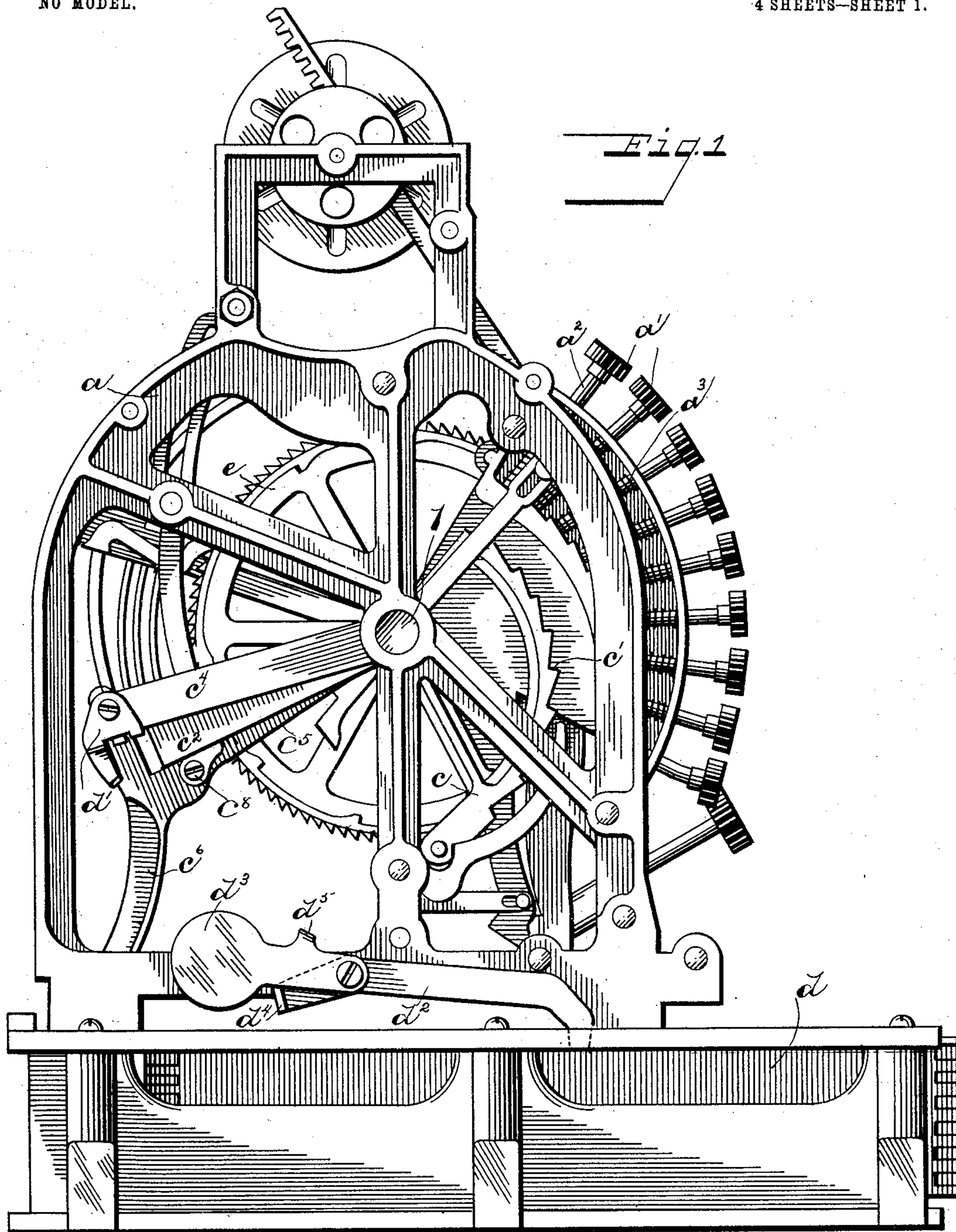
PATENTED JAN. 26, 1904.

J. P. EMORY.
CASH REGISTER AND INDICATOR.

APPLICATION FILED DEC. 5, 1902.

NO MODEL.

4 SHEETS—SHEET 1.



WITNESSES:

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Chas. J. Melch

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ATTORNEYS

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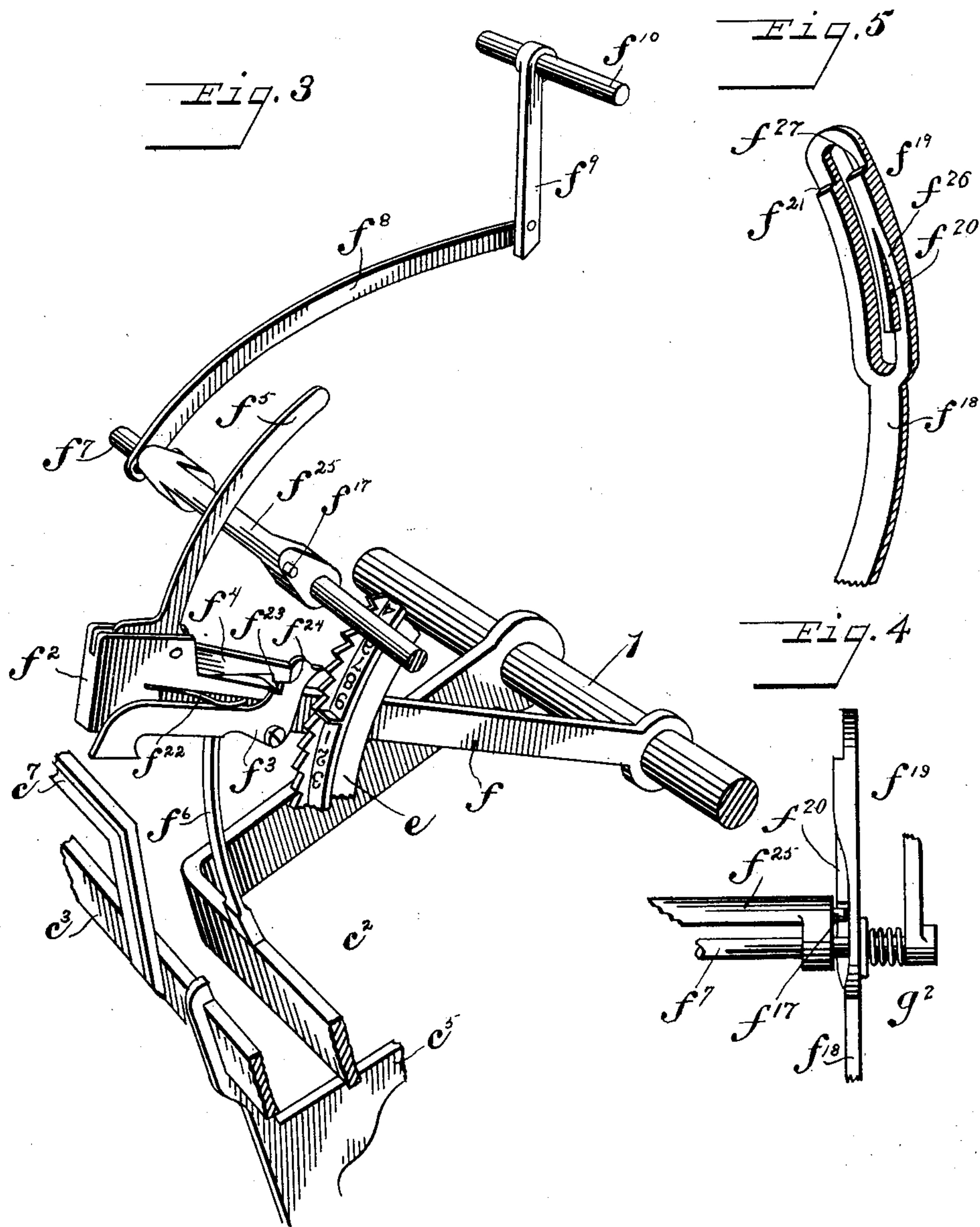
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4 SHEETS—SHEET 3.



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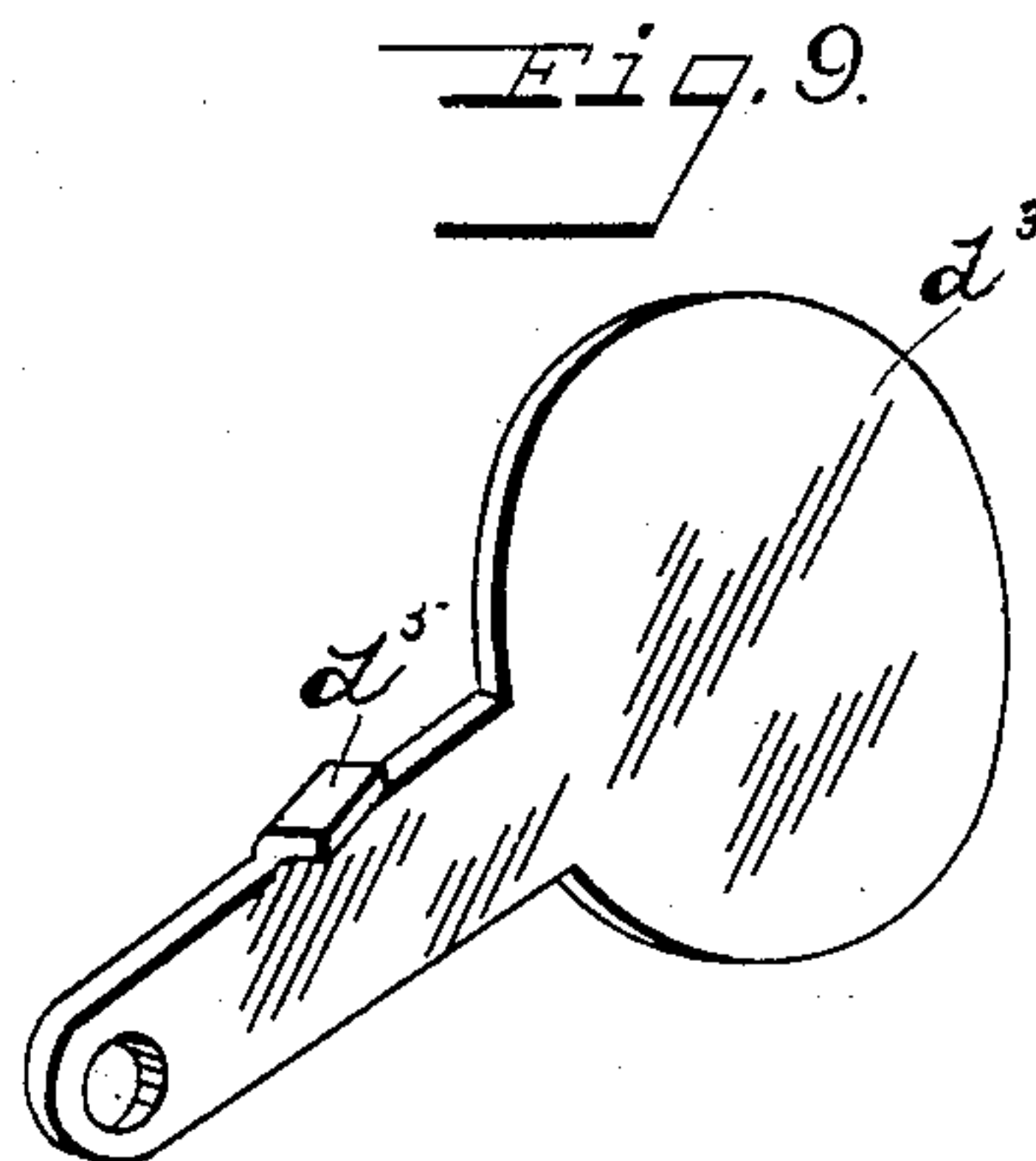
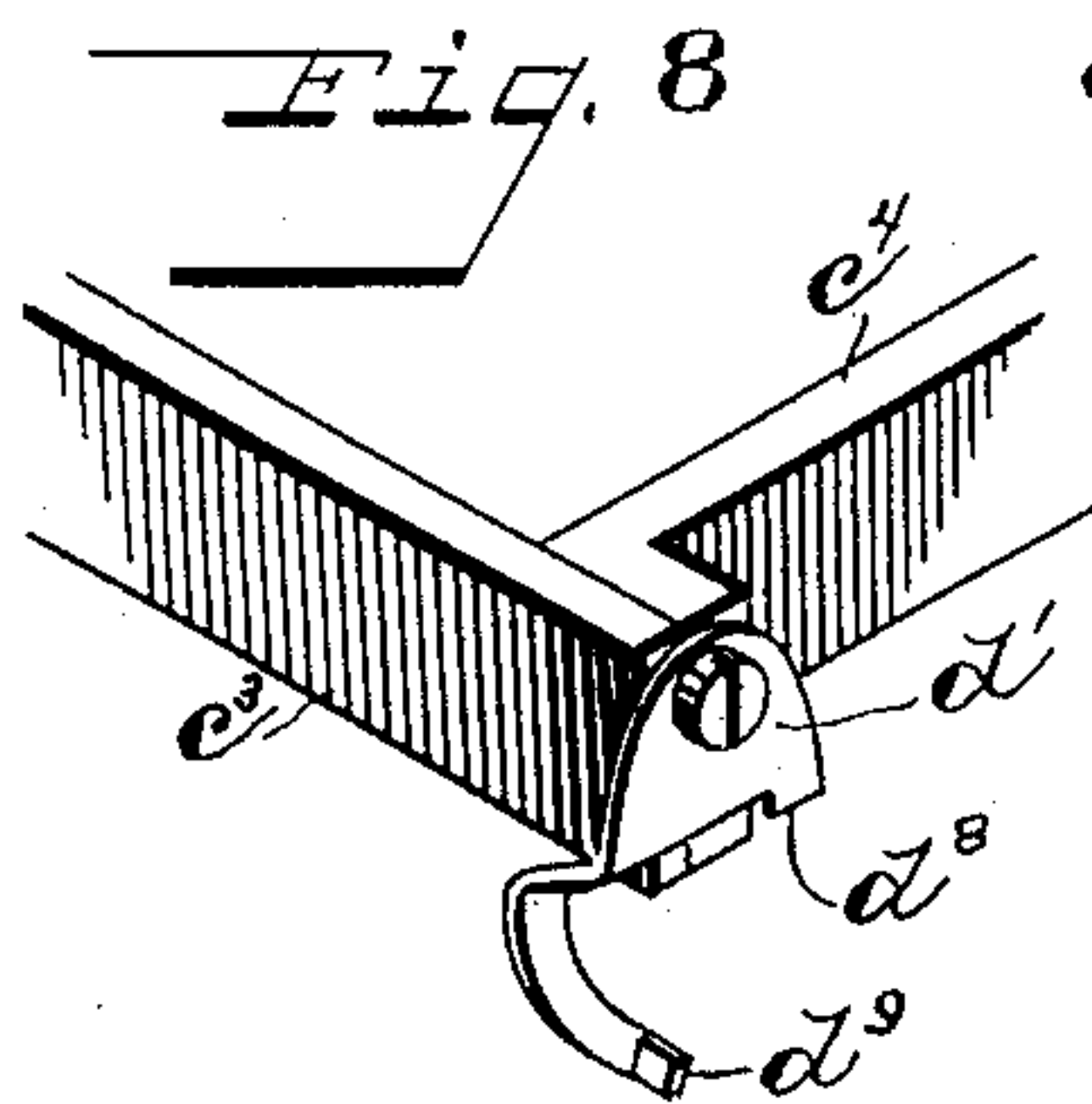
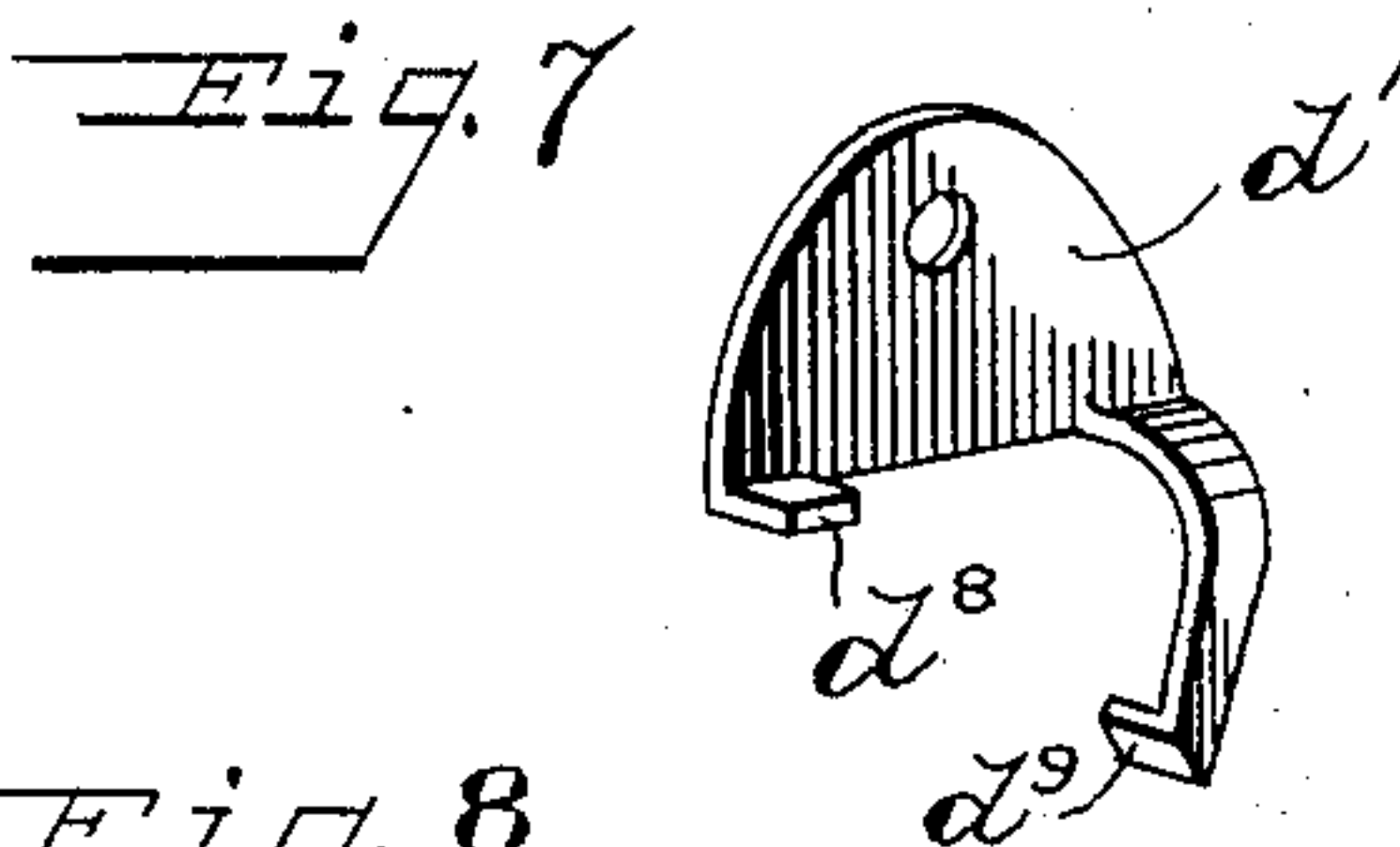
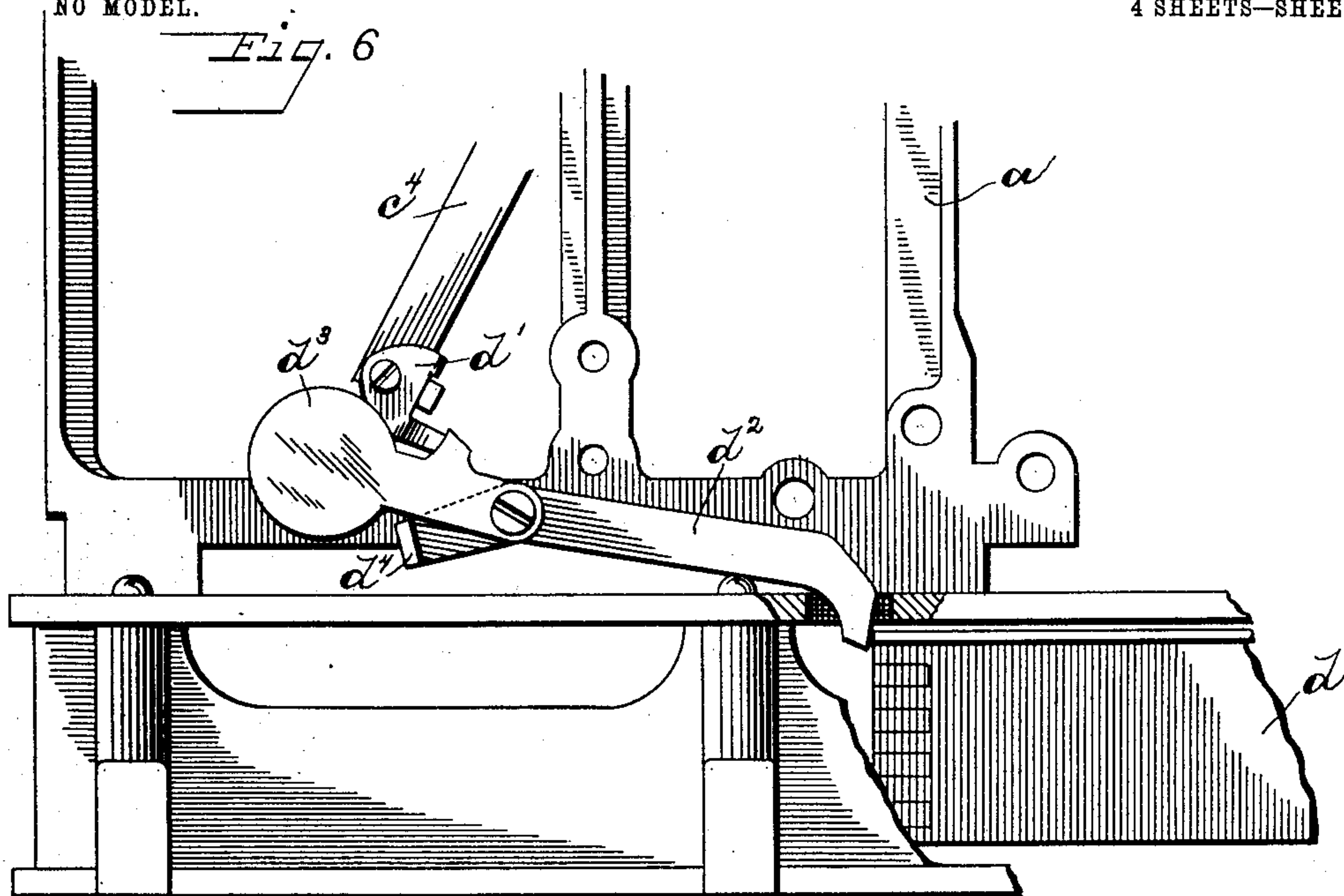
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NO MODEL.

4 SHEETS—SHEET 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOSEPH PETER EMORY, OF COLUMBUS, OHIO, ASSIGNOR TO THE HALL-WOOD CASH REGISTER COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

CASH REGISTER AND INDICATOR.

SPECIFICATION forming part of Letters Patent No. 750,272, dated January 26, 1904.

Application filed December 5, 1902. Serial No. 134,049. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH PETER EMORY, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Cash Registers and Indicators, of which the following is a specification.

My invention relates to improvements in cash registers and indicators.

My object is to prevent the machine being operated too hastily, and a further object is to insure the accuracy of the machine under all conditions of use.

My invention consists of the constructions and combinations of parts hereinafter described, and set forth in the claims.

In the accompanying drawings, Figure 1 is an end view taken from the left side of the machine. Fig. 2 is a transverse sectional view. Fig. 3 is a detail view of the operating mechanism for the registering devices. Figs. 4 and 5 are detail views of parts of same. Fig. 6 is a sectional view of the stop mechanism for the drawer. Figs. 7, 8, and 9 are detail views of parts of same.

Like parts are represented by similar letters of reference in the several views.

The frame of the machine is lettered *a*, and in this frame is supported a main shaft *l*, which supports the registering-wheels, as explained more fully in the patents to J. H. McCormick, Nos. 610,365, 610,366, and 610,492. Keys *a'*, having stems *a''*, are supported in the keyboard, as more specifically explained in said prior patents, and are normally pressed outward by springs *a'''*. Swinging frames (marked *c*) are hinged on the shaft *l*, having steps *c'* for the purpose of determining the extent of movement of said frame, as explained in said prior patents. Bars *c''*, hinged on the shaft *l* below the registering mechanism, constitute what are called the "auxiliary" operating-yokes of the machine.

The main operating-yoke of the machine is formed by a transverse bar *c''*, having arms *c'''*, which are perforated at the ends and pivoted on the shaft *l*. A bar *c''* extends below and forms supports for and gives movement to the

auxiliary yokes, one end of said bar *c''* being journaled on the shaft *l* and the other attached to the bar *c''* of the main yoke, forming a part of said yoke, and said bar *c''* has a downwardly-extending leg *c'''*, which normally has its lower end resting upon a roller extending from the drawer, (marked *d*.) *c''* is termed the "prime" mover. The main yoke has on one side of the machine a plate *d'*, pivoted thereon, of peculiar shape. (More fully shown in Figs. 7 and 8.) There is also pivoted to the frame of the machine a lever *d''*, with one end extending through the frame and projecting into the path of movement of the drawer. A weighted arm *d'''* is also pivoted on the frame and rests against a projecting lug *d''*, which extends from the rear of the lever *d''*. The arrangement is such that the weight of the arm *d'''* normally presses the inner end of the lever *d''* upwardly out of the path of movement of the drawer. The plate *d'* has a limited pivotal movement by reason of a lug *d''*, allowing same to swing within certain limits, said lug contacting against the side of the main yoke when the yoke is moved downwardly. Thereupon the extending arm *d'''* of the pivoted plate *d'* will contact with a lug *d''* of the arm *d'''* and raise and hold said weighted arm so as to allow the inner end of the lever *d''* to drop down back of the rear of the drawer, as shown in Fig. 6. Under such circumstances the lever *d''* will act as a stop to prevent too sudden return movement of the drawer; but so soon as the arm *d'''* has passed under and beyond the lug *d''* the weighted arm *d'''* will again drop down upon the extending lug *d''*, raise the inner end of said lever *d''*, and thereby release the stop.

The actuating mechanism for the registering devices is through a pawl-lever *f*, which is pivoted on the shaft *l*, having at its outer end a head *f''* formed thereon. A pawl *f'''* is pivoted near the outer end of said pawl-lever, and a latch *f''*, with an upwardly-extending arm *f'''*, is pivoted in the head *f''* of said pawl-lever. A stem *f''* extends downwardly from the pawl-lever *f* and rests upon the bar *c''* of the auxiliary yoke. The auxiliary yoke is op-

erated by the bar c^5 of the main yoke, and the main yoke has a shoe c^7 , which contacts with the ends of the pawls f^3 .

Extending across the machine and immediately above the pawl-levers f is a shaft upon which is loosely journaled a sleeve or roller f^{25} , which, together with links f^8 and f^9 and a shaft f^{10} , constitutes what is called the "movable" frame for the registering pawls and levers. The rear end of the link f^8 is slotted, and the pin g (see Fig. 2) engages within the slotted opening. Said pin g extends from the sleeve or roller f^{25} , and by reason of the slotted opening the sleeve or roller can move a limited distance independent of the connecting-link f^8 in order to permit the sleeve to be moved by the master-spring g' after the connecting-link f^8 is held against the tension of its spring, as will be more fully explained. The arm f^9 , which is pivoted on the shaft f^{10} , is shown in Fig. 2 held forward against the tension of the spring f^{11} by the stop f^{12} , which is pivoted on the shaft f^{13} . So soon as the drawer-key f^{16} is depressed the crank-arm f^{15} will be depressed, which through the connecting-link (shown in Fig. 2) will depress the stop f^{12} out of the path of movement of the arm f^9 , permitting the same to be moved rearwardly by the spring f^{11} . The rear end of the arm f^9 will pass over the stop f^{12} and lock said stop in depressed position, thereby holding the crank-arm f^{15} in its depressed position against the tension of its spring, (shown in Fig. 2,) and this locking action will take place prior to the opening of the drawer, because the connecting-link f^8 has sufficient movement independent of the sleeve or roller f^{25} . The sleeve or roller is so connected with the operating mechanism or prime mover that it will cause the arm f^9 to be returned to its normal position, thereby permitting the crank-arm f^{15} to be restored to its normal position by its spring. For this purpose I have shown a pin f^{17} extending from the end of the sleeve f^{25} , which is loosely mounted on the shaft f^7 and normally held in contact with the cam-plate f^{19} by the master-spring g' . Said master-spring g' is coiled around the shaft f^7 , one end engaging the frame of the machine and the other end the sleeve. There is a weaker spring g^2 , Fig. 4, which normally presses the cam-plate against the pin f^{17} . The cam-plate is connected to and supported by the bar c^5 of the main yoke at c^8 . In Fig. 1 I have shown the main yoke in normal position with the cam-plate in its normal position, such that the pin f^{17} is in the path of the projection f^{20} . The master-spring has been energized, and when the drawer-key is depressed and the connecting-link f^8 moved the master-spring will move the pin f^{17} out of the path of the projection f^{20} so soon as the drawer begins to move outwardly. When the cam-plate moves downward, the pin f^{17} will bear against the outer beveled surface f^{26} and the sleeve will be slid along the shaft f^7

against the tension of the master-spring until the pin passes the shoulder f^{27} . Thereupon the spring g' will slide the sleeve back to its normal position on the shaft f^7 and the pin on said sleeve will again be in the path of the projection f^{20} , so that when the drawer is pushed in and the cam-plate moved upward the pin f^{17} will contact with the projection. The top of the projection f^{20} is beveled, as shown in Fig. 5, so that the master-spring will be energized during the time the pin is sliding over the beveled surface and until it passes out of the path of the projection, and upon the further movement of the cam-plate said pin will travel along the inner face of said projection. When the pin is being pushed to the inner face of the projection, the connecting-link f^8 will be moved and the arm f^9 restored to normal position, so that the crank-arm f^{15} will be reset by its spring. When the pin reaches the extreme lower end of the projection f^{20} , the master-spring will again throw the pin into the path of the projection and will cause the sleeve to contact against the arms f^5 . The master-spring has therefore a twofold function—viz., of sliding the sleeve and of rotating it. The pawl is normally spring-pressed out of engagement with the registering-wheels e by reason of a spring f^{22} . Notches f^{23} and f^{24} are formed upon the inner end of the pawl, as shown in Fig. 3. The latch f^4 has its inner end contacting with the registering-pawls; but when said pawls are moved into engagement with the registering-wheels by the shoe c^7 of the main yoke contacting with the outer end of said pawl the latch locks the pawl in engagement with said wheels by reason of the inner end of said latch riding past the notch f^{24} into the notch f^{23} . This movement of the latch is accomplished by the movable frame consisting of the roller f^{25} and link f^8 .

The operation of the machine is as follows: The main operating-yokes and the auxiliary yokes are held in their upper position until the drawer-key f^{16} is operated and until the drawer d is permitted to open. When said drawer opens, the leg c^6 and the main operating-yoke drop downwardly and the shoe c^7 , extending upwardly from the main yoke, drops away from the outer end of the pawl f^3 , which permits the pawl to drop out of engagement with the registering-wheel e . At the same time the roller f^{25} is spring-pressed downwardly by reason of the stop f^{12} having been moved away from the lower end of the arm f^9 , and said roller raises the latch f^4 out of contact with the notch f^{23} and allows the pawl to assume the position shown in Fig. 3, holds the latch f^4 out of engaging position, and thereby permits the pawl-levers and pawls to operate entirely independently of the registering-wheels. The roller f^{25} is termed the "secondary" mover. When the drawer is pushed inwardly and the main operating-yoke is moved

upwardly, the shoe c^7 of the main yoke contacts with the outer end of the pawl and forces the pawl into engagement with the registering-wheel before the pawl-levers begin to operate. At this moment the pin f^{17} is in engagement with the inner side f^{26} of the cam-plate, which forces the roller f^{25} upwardly and away from contact with the arms f^5 of the latch f^4 , so that the weight of the latch throws the inner end of said latch into the notch f^{23} , and thereby locks the pawls in engagement with the registering-wheels. In this manner I have constructed mechanism by which the pawl-levers and pawls are held out of engagement during the downward movement of the main and auxiliary yokes, but are locked in engagement with the registering-wheels the moment the levers begin to operate in an upward direction.

The stop device which I have heretofore described is such that the drawer cannot be pressed inwardly in a manner to interfere with the registering mechanism, and the operator of the machine cannot hurriedly push in the drawer, and thereby interfere with the operation of these registering devices nor destroy the accuracy of the machine.

I should add that in machines of this character there are devices for preventing the movement of the drawer inwardly until it has reached its extreme outward movement. These devices are well known in the art; but my particular stop mechanism is intended to prevent carelessness in operating the machine too hastily without giving the registering mechanism an opportunity to move in the intended way.

Having thus described my invention, I claim—

1. In a registering-machine, the combination of registering mechanism with a prime mover, a secondary mover, actuating devices for the registering mechanism, means for causing said actuating devices to operate said registering mechanism by the prime mover and means controlled by the secondary mover for holding same engaged during the registering operation, for the purpose specified.

2. In a registering-machine, the combination of registering mechanism with actuating parts consisting of pawl-levers and pawls, a prime mover adapted to move said pawls into locking position and to operate said pawl-levers and pawls when said pawls are in locking position, and a secondary mover and locking devices operated by same for locking said pawls when in engaging position.

3. In a registering-machine, the combination of registering mechanism with a prime mover, a series of actuating devices normally out of engagement with the registering mechanism, and means controlled by said prime mover adapted to move and lock said devices into engagement with said mechanism when said prime mover is operated in one direction,

and a secondary mover adapted to cause said devices to be locked against engagement with said mechanism upon the return movement of said prime mover and devices in the opposite direction.

4. In a registering-machine, the combination of registering mechanism with a prime mover, a series of operating-pawls, and means controlled by said prime mover adapted to lock said pawls in engagement with said mechanism when said prime mover is operated only in one direction, and a secondary mover adapted to hold said pawls locked against engagement with said mechanism upon the return movement of said prime mover and pawls.

5. In a registering-machine, the combination of registering devices, a series of operating-pawls, a main operating-yoke, auxiliary yokes supported by said main yoke, operating-pawls adapted to rest on said auxiliary yokes, means for locking said pawls against engagement with said registering devices until thrown into engagement therewith by the main operating-yoke, substantially as set forth.

6. In a registering-machine, the combination of registering devices, a series of operating-pawls, a main operating-yoke and auxiliary yokes supported by said main yoke, means controlled by said main yoke for locking said pawls against engagement with said registering devices and means for forcing same into engagement therewith the moment the operating-pawls begin to move, for the purpose specified.

7. In a registering-machine, the combination of registering mechanism, a series of operating-pawls, a series of auxiliary yokes upon which said pawls rest, and a main operating-yoke for said series, means for locking the pawls against engagement with the registering mechanism but adapted to permit the pawls to move in one direction independent of the registering mechanism, for the purpose specified.

8. In a registering-machine, the combination of registering devices, a series of pawls, a series of auxiliary yokes adapted to carry said pawls, a main operating-yoke, means for holding said pawls out of engagement with said registering devices when said operating-yoke is moved in one direction, and means for locking said pawls in engagement with the registering devices when said main operating-yoke is moving in the opposite direction, for the purpose specified.

9. In a registering-machine, a series of operating-pawls, locking devices for said pawls, auxiliary yokes adapted to carry said pawls, a main operating-yoke and means thereon for holding said pawls in engagement with the registering mechanism but adapted to permit same to drop out of engagement for the purpose specified.

10. In a registering-machine, the combination of a series of registering devices, a main

operating device and a series of auxiliary operating devices, means for disconnecting the auxiliary devices from the registering devices during the movement of the main operating device in one direction, and means connected with said main operating device for locking said auxiliary operating devices and said registering devices in engagement during movement in the opposite direction, for the purpose specified.

11. In a registering-machine, the combination of registering devices, with actuating devices for said registering devices, a main yoke and a secondary yoke and means connected with said yokes for operating said actuating devices simultaneously by both of said yokes, for the purpose set forth.

12. In a registering-machine, the combination of registering devices with actuating devices for said registering devices, a main yoke and a secondary yoke, said actuating devices being in part supported on the main and in part on the secondary yokes, but adapted to be operated simultaneously by said main and secondary yokes, for the purpose specified.

13. In a registering-machine, the combination of registering devices with pawl-levers and pawls for said pawl-levers, a main yoke and a secondary yoke, said pawl-levers and pawls being adapted to be operated simultaneously by both of said yokes, and means operated by said main yoke for holding said pawls in engagement with said registering devices during the movement of said pawl-levers in one direction, and means operated by said secondary yoke for holding the pawls against engagement with said registering-wheels during the movement of said pawl-levers in the opposite direction, for the purpose specified.

14. In a registering-machine, the combination of registering devices with pawl-levers and pawls for said registering devices, a main yoke and a secondary yoke, said main yoke and secondary yoke forming independent rests or stops for the pawl-levers and pawls adapted to cause simultaneous operation of the pawl-levers and pawls by said main and secondary yokes, for the purpose specified.

15. In a cash-register, a main operating device and a registering device connected therewith, means for moving said operating device, a stop device for said means normally in the path of movement of said means and adapted to be vibrated by said means whenever said machine is operated, for the purpose specified.

16. In a cash-register, a main operating device and means to move said device, a stop mechanism for said means, including a weighted lever to normally hold said stop in inoperative position, said operating device being adapted to raise said lever to permit said stop to drop into operative position to prevent another operation of said device until said device has come to rest, substantially as specified.

17. In a cash-register, a main operating device and a drawer adapted to move said device, a normally inoperative stop for said drawer adapted to be thrown into operative position for a limited period by said operating device to prevent another movement of the drawer until said device has come to rest, substantially as specified.

18. In a cash-register, the main operating mechanism, a drawer, and stop mechanism for said drawer consisting of a lever with a weighted arm pivoted thereon, means connected with the operating mechanism for moving the weighted arm independently of said lever, for the purpose set forth.

19. In a cash-register, a main operating device, a drawer, and a stop-lever with a weighted arm, said lever having its inner end extending within the path of the drawer, but normally held out of the path of said drawer by said weighted arm, and means connected with said operating device for raising the weighted arm and thereby permitting the lever to be projected into the path of movement of the drawer, for the purpose specified.

In testimony whereof I have hereunto set my hand this 24th day of November, A. D. 1902.

JOSEPH PETER EMORY.

Witnesses:

ALLEN DE VILBISS, Jr.,
G. E. BOHM.