(No Model.) 3 Sheets—Sheet 1.

L. E. ALLEN.

REGISTERING MACHINE.

No. 573,381. Patented Dec. 15, 1896.

Fig. 2.

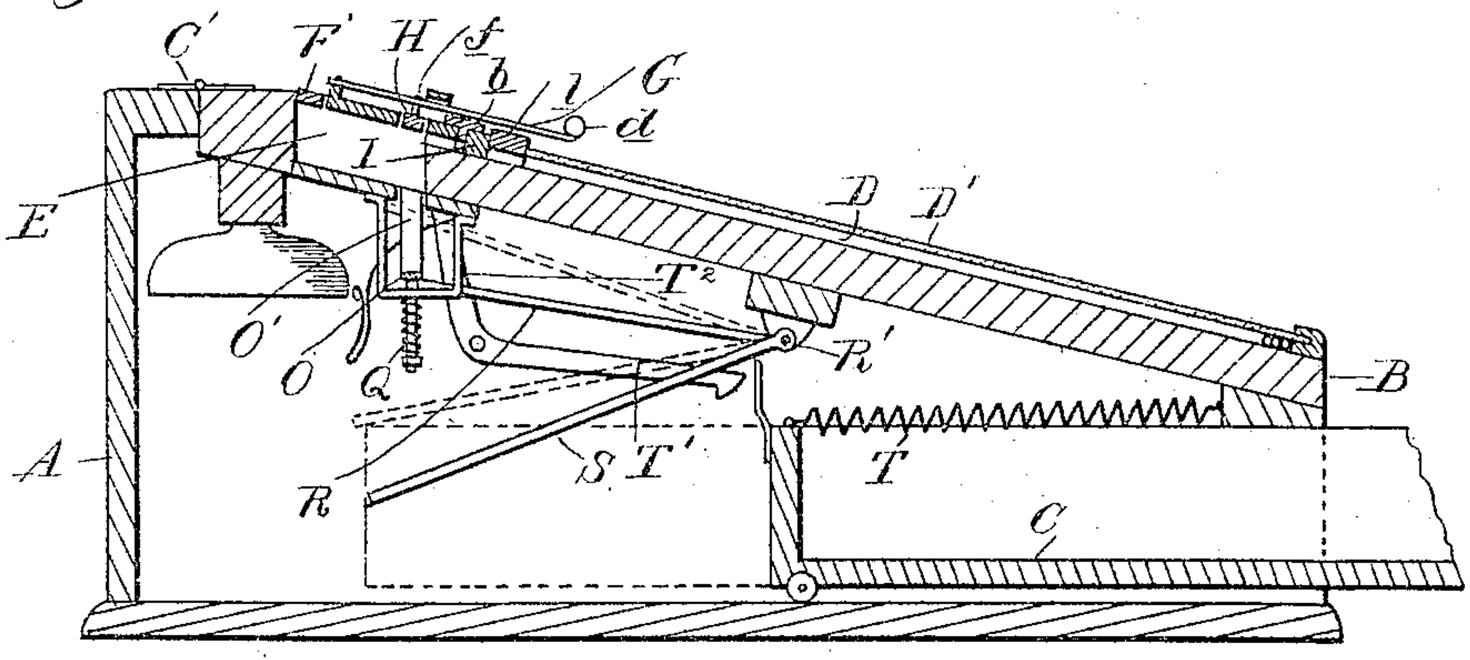

Fig. 1.

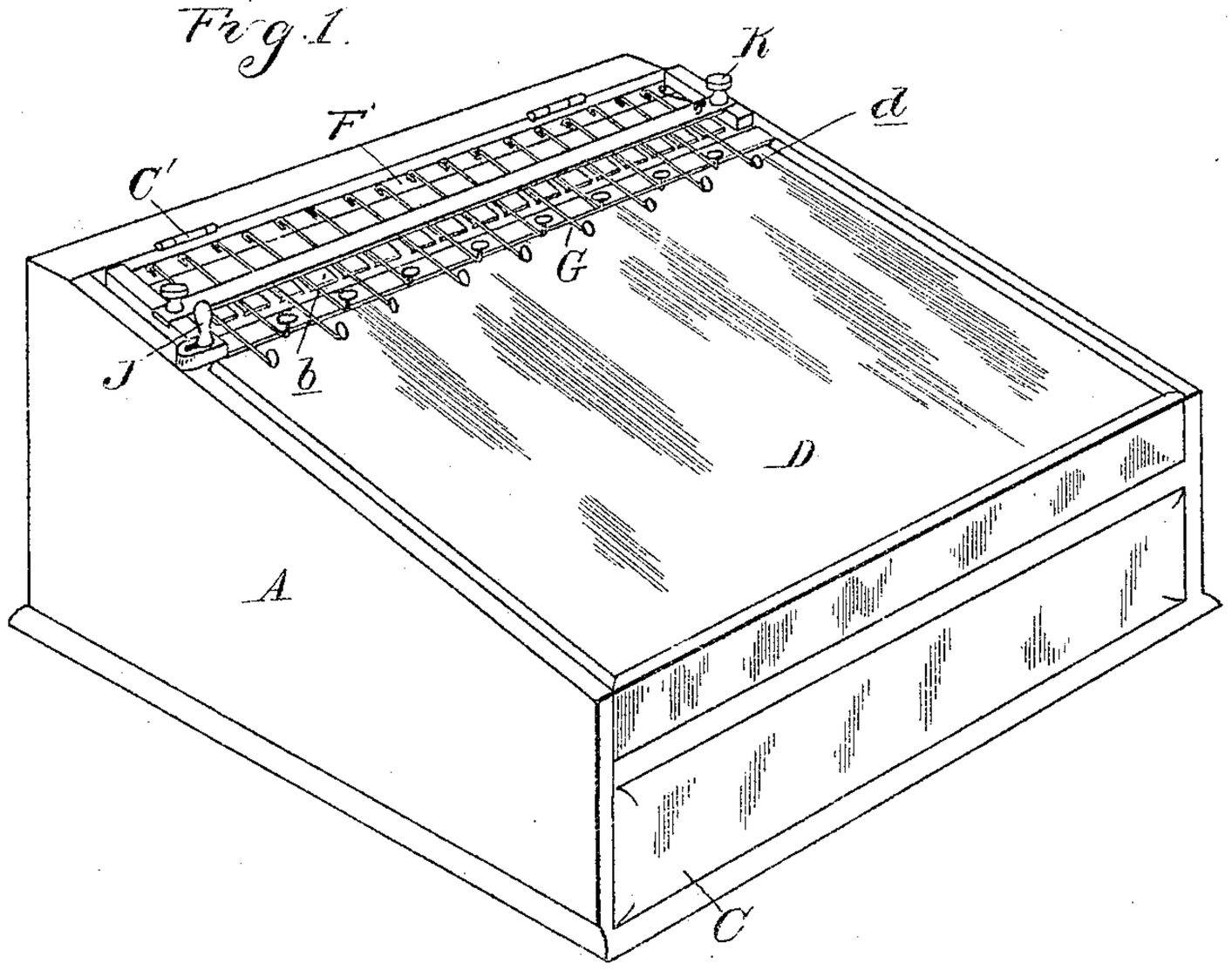

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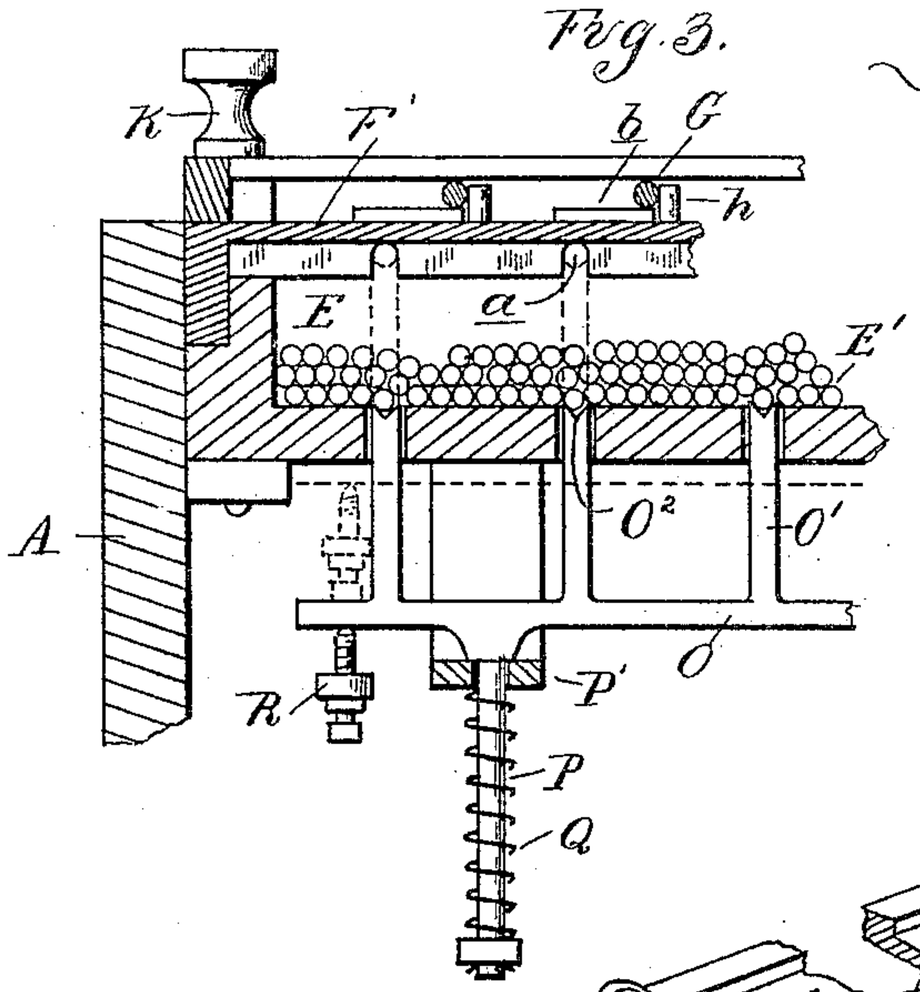
Fig. 3.



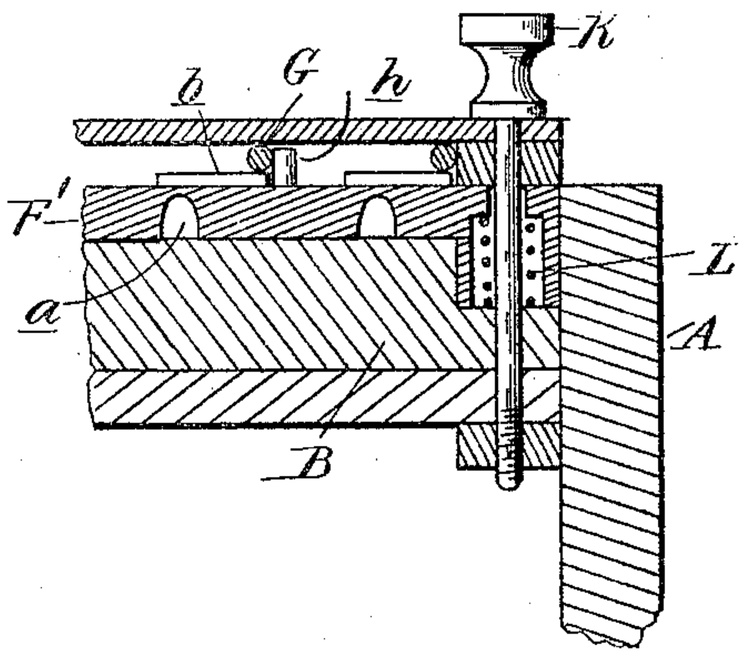


Fig. 4.

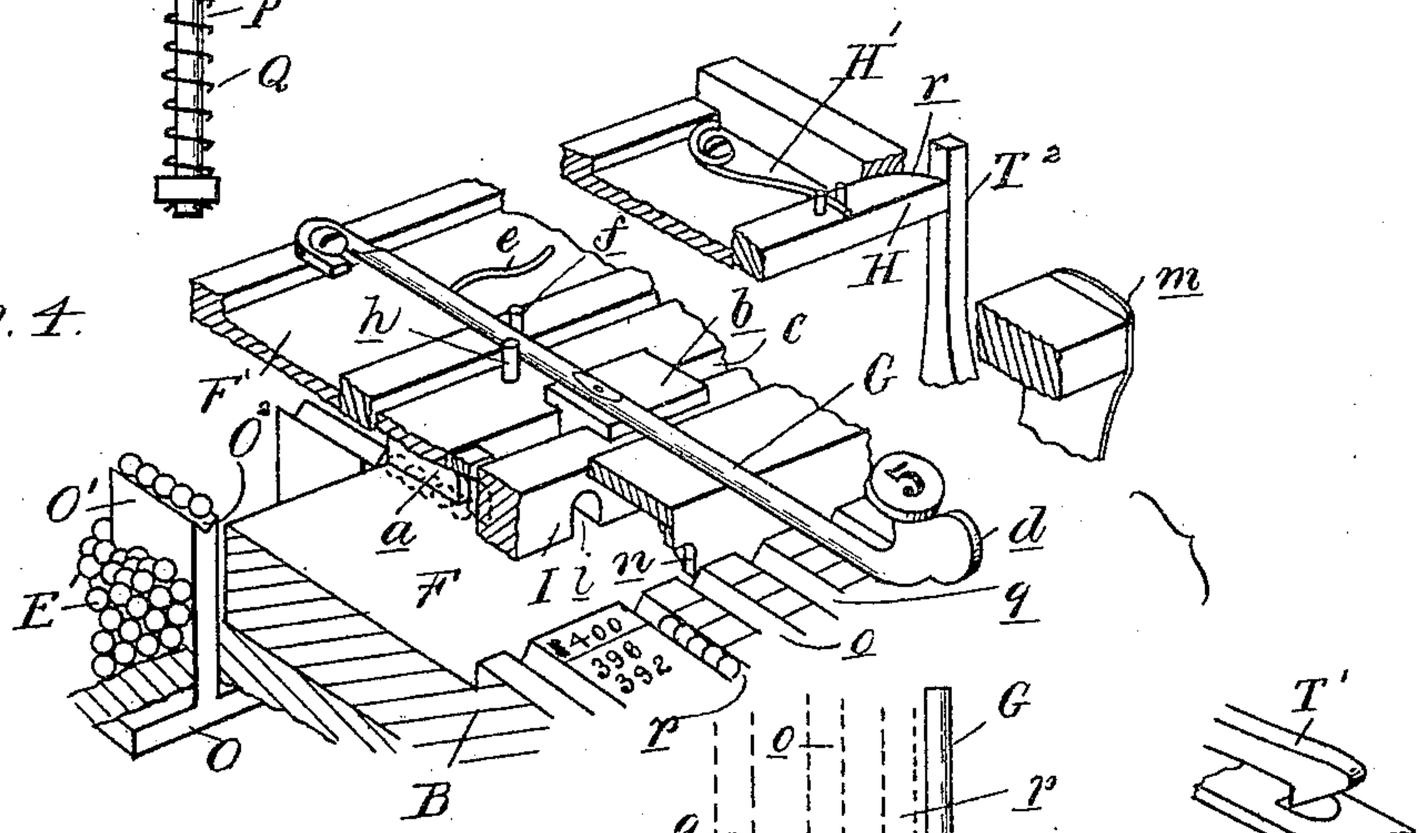


Fig. 6.

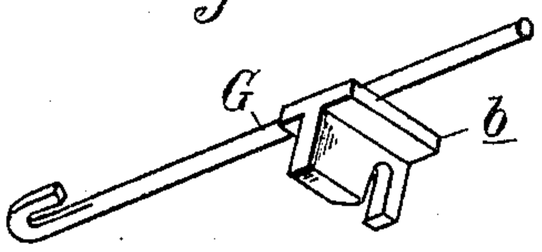


Fig. 5.

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REGISTERING MACHINE.

No. 573,381. Patented Dec. 15, 1896.

Fig. 7.

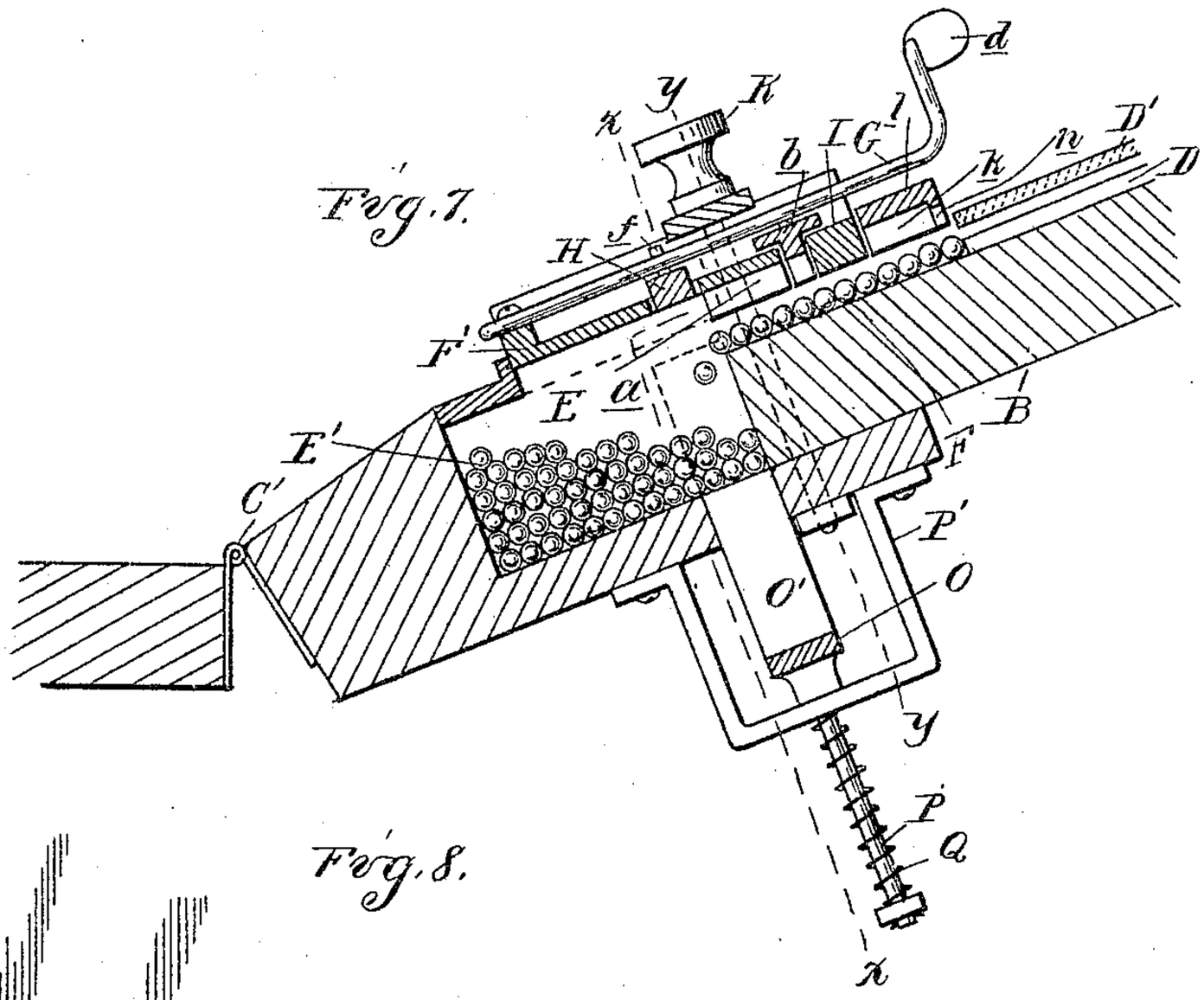
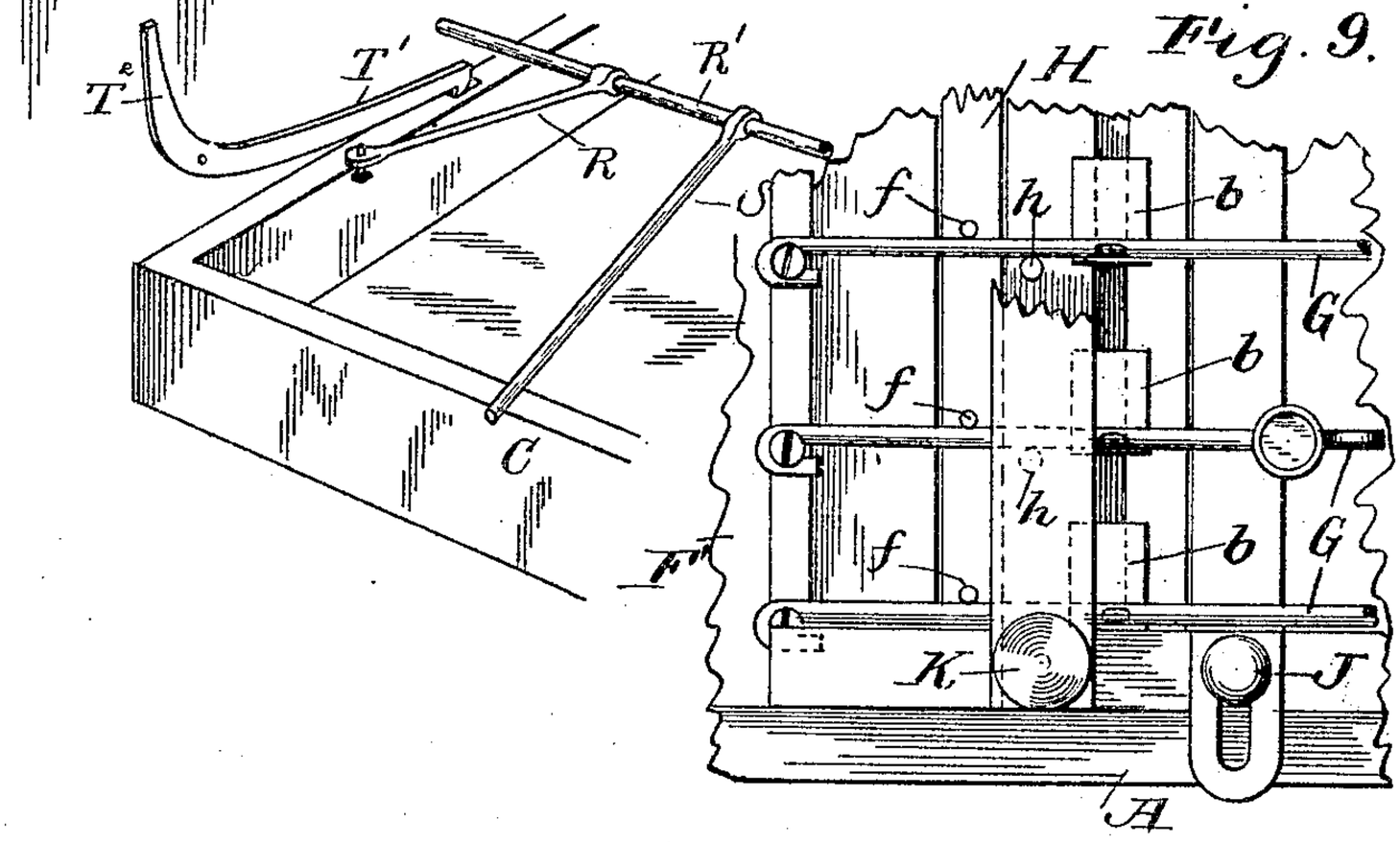


Fig. 8.

Fig. 9.



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UNITED STATES PATENT OFFICE.

LUTHER E. ALLEN, OF DETROIT, MICHIGAN.

REGISTERING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 573,381, dated December 15, 1896.

Application filed May 28, 1895. Serial No. 550,946. (No model.)

To all whom it may concern:

Be it known that I, LUTHER E. ALLEN, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Registering-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention consists in the construction of a registering-machine and of the several parts and arrangement and combination thereof hereinafter described and claimed.

In the drawings, Figure 1 is a perspective view of my registering-machine. Fig. 2 is a vertical central longitudinal section therethrough, showing the drawer open. Fig. 3 is a cross-section at the rear of the machine, looking from the rear, the left-hand portion thereof being on the line *x x* of Fig. 7 and the right-hand portion being on line *y y* of the same figure. Fig. 4 is a sectional perspective view of the upper part of the machine, illustrating the construction of the gate-frame, switches, &c. Fig. 5 is a bottom plan view of the gate-frame. Fig. 6 is a perspective view of a key and its gate. Fig. 7 is a section similar to Fig. 2, showing the ball-races inverted and the gates lifted for the purpose of discharging the counting-balls into the supply-chamber. Fig. 8 is a perspective view of the cash-drawer, its lock, and the charge-operating arm. Fig. 9 is a plan view of a portion of the gate-frame and associated parts.

A is the casing, having an inclined top or cover B, and in which is the money-drawer C. The cover B is hinged to the back of the casing by suitable hinges, such as C′, at its upper edge. Upon the upper face of this cover are formed a series of ball-races D, preferably substantially V-shaped in cross-section, covered by a transparent plate D′, as of glass.

At the upper end of the cover B is formed a supply-chamber E for the balls E′. On the cover between the ball-races and the supply-chamber is the inclined surface F, which forms a continuation of the bottom of the ball-races. Supported over this surface is a gate-frame F′. The under surface thereof is provided with grooves *a*, which form ball-receptacles above the gates *b*. These gates are apertured blocks sliding in the guideway *c* in the gate-frame F′ and are actuated by means of key-levers G, pivoted at the upper end of the gate-frame and having suitable finger-pieces *d* at their lower edge, by means of which they may be moved laterally to shift the gate. Each key-lever has a finger or spring *e* pressing on the top of the gate-frame to prevent accidental displacement when any other key-lever is being operated.

H is a bar sliding longitudinally in the guide-groove in the top of the gate-frame and having a series of pins *f*, one for each key.

H′ is a spring for actuating the bar H to hold the key normally against the stop-pins *h* on the gate-frame.

Below the gates is a guide bar or rib I, having a guideway or groove *i* on its under face, into which the ball is delivered by the gate upon the operation of a key. This guideway delivers the ball into the hopper-shaped opening or groove *k* on the under side of the switch-bar *l*. This switch-bar is held normally in its middle position by means of a spring *m* at each end, but can be moved by the operator by the switch key or post J to either side of its middle position. In its normal position all the discharge-openings *n* from the hopper-groove *k* in the switch-bar connect into the middle ball-races *o* of each series, these ball-races being arranged in groups of three or more. When moved to the right, this discharge-opening will communicate with the right ball-race *p* and when moved to the left the left ball-race *q*. The gate-frame is secured at its ends by means of the screw-bolts K, passing through the cover B.

Beneath the gate-frame and preferably around the screw-bolts are springs L, acting by their tension to raise the gate-frame when the screw-bolts are loosened, and thus raise the switch and gates and the frame above the ball-races and surface F, as shown in Fig. 7. In this position such balls as have been previously delivered into the ball-races may, when the ball-races are reversely inclined, as shown in Fig. 7, run into the receptacle E. Then by screwing down the screw-bolts K the device will again be in operation.

With devices of this kind it is usually customary to take the balls directly from a supply-chamber, but in this operation the balls are apt to wedge or bridge across the upper

end of the ball-race, and thus prevent their certain acting. To overcome this difficulty, I arrange the supply-chamber upon a different plane from that in which the ball-races are arranged and provide a charger for charging the receptacles or grooves *a* with balls properly alined, and thus prevent this difficulty. This charger I have shown as operated by the cash-drawer and all operated together. It is obvious, however, that the chargers may be actuated through other instrumentalities, and I do not wish it understood that my invention is limited to a cash-drawer.

The construction which I have shown in Figs. 1 to 8 comprises a bar O, extending across beneath the receptacle E and provided on its upper face with a series of plungers O′, having a V-shaped groove O^2 at the top. This bar is guided at its ends with rods P, which pass through stirrups P′, secured to the under side of the cover B. Q are springs on these rods which act with their tension to hold the chargers in their lower position.

R is a rock-arm on the rock-shaft R′, the end of which arm extends beneath the bar O, and S is another arm on the rock-shaft R′, extending into the path of the drawer C. This drawer is preferably thrown open by means of a spring T. T′ is a locking-lever for locking the drawer in its closed position. This lever has the upward extension T^2, which projects beside the end of the bar H, which is provided with an inclined face *r* and is adapted to rock the lever T′ to release the lock upon the operation of any key, so that the spring will throw it open.

The operator closes the drawer by hand, in which movement the drawer, striking the arm S, will rock the shaft R′ and raise the charger, which will pass through the shot in the supply-chamber and elevate them to the plane of the surface F, over which they will roll in the receptacle *a* against the gate. This insures always bringing of the ball to the gate in proper alinement.

What I claim as my invention is—

1. In a registering-machine, the combination with a top having a series of ball-raceways therein, a supply-chamber at the upper end of the raceways, and balls therein, of sliding gates between the raceways and receptacle, vertically-reciprocating chargers working in the supply-chamber, and having ball-retaining grooves or seats on their upper ends, keys for laterally shifting the gates, and means actuated by the keys for controlling the movement of the chargers in one direction, substantially as set forth.

2. In a registering-machine, the combination with a frame, a series of raceways, a supply-chamber, and balls therein, of gates between the raceways and supply-chamber, reciprocating chargers working in the supply-chamber, springs for actuating the chargers in one direction, keys for shifting the gates, means for moving the chargers against the tension of the springs, and means controlled by the keys for controlling said charger-moving means, substantially as described.

3. In a registering-machine, the combination with a casing, a series of raceways therein, a supply-chamber, a series of receptacles, and balls, of gates between the raceways and the receptacles, a series of chargers acting as conveyances to lift the balls from the supply-chamber to the receptacles, a series of keys for shifting the gates and moving the chargers in one direction, and means for moving the chargers in the opposite direction, substantially as described.

4. In a registering-machine, the combination with the ball-races, gates near the upper ends thereof, keys for actuating the gates, ball-receptacles above the gates, a ball-supply chamber, the balls and a series of chargers, one for each receptacle, and means for actuating all the chargers upon the operation of any key.

5. In a registering-machine, the combination with the ball-races, gates near the upper end thereof, keys for actuating the gates, plungers for carrying balls to the gates, the balls and a cash-drawer for actuating the plungers, substantially as described.

6. In a registering-machine the combination with a case having a hinged top, ball-raceways in the top, and a supply-chamber, of gates between the chamber and raceways, means for independently shifting the gates, means for simultaneously removing all of the gates, a series of balls, a cash-drawer, and means actuated by the drawer for transferring the balls from the chamber to the raceways, substantially as described.

7. In a registering-machine, the combination of the casing, an inclined cover thereon, a series of ball-races formed in the top of the cover, balls adapted to move therein and the receptacle in the cover at its upper edges below the plane of the ball-races, a gate-frame secured to the cover at the upper end of the races, laterally-movable gates therein, and laterally-movable keys pivoted on the frame and adapted to control the gates.

8. In a registering-machine of the kind described, the combination of the cash-drawer, the gate-frame, the actuating key-levers G, the gate *b* controlled thereby, stops for limiting the motion of the keys in one direction the spring-actuated bar H having pins adapted to engage the keys on the opposite side from the stops, and the latch for the drawer actuated by the bar H, substantially as described.

9. In a registering-machine of the kind described, the combination of the gate-frame, the key-levers pivoted thereon, the gates therein actuated by the keys, the cash-drawer, a lock for the cash-drawer, a spring-actuated sliding bar H having pins (one for each key) with which the key-levers engage and means for releasing the drawer-lock through said bar H, substantially as described.

10. In a registering-machine, the combination with the ball-races, the gates controlling the same and the receptacle *a* above the gates, of the ball-receptacle, the balls therein, the bar O below the receptacle, the plungers O′ on the bar, springs acting normally to hold the said plungers in their lower position, a cash-drawer and connection between the cash-drawer and the plungers for actuating the same as and for the purpose described.

11. The combination with a series of inclined ball-raceways, a ball-supply chamber located at the upper end and below the plane of the same having capacity for a stack or collected series of balls, a series of chargers working in a portion only of the chamber, and having ball-receiving recesses at their ends, means for reciprocating the chargers, and gates for the raceways, substantially as described.

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

LUTHER E. ALLEN.

Witnesses:

M. B. O'DOGHERTY,

O. F. BARTHEL.