

No. 692,786.

Patented Feb. 4, 1902.

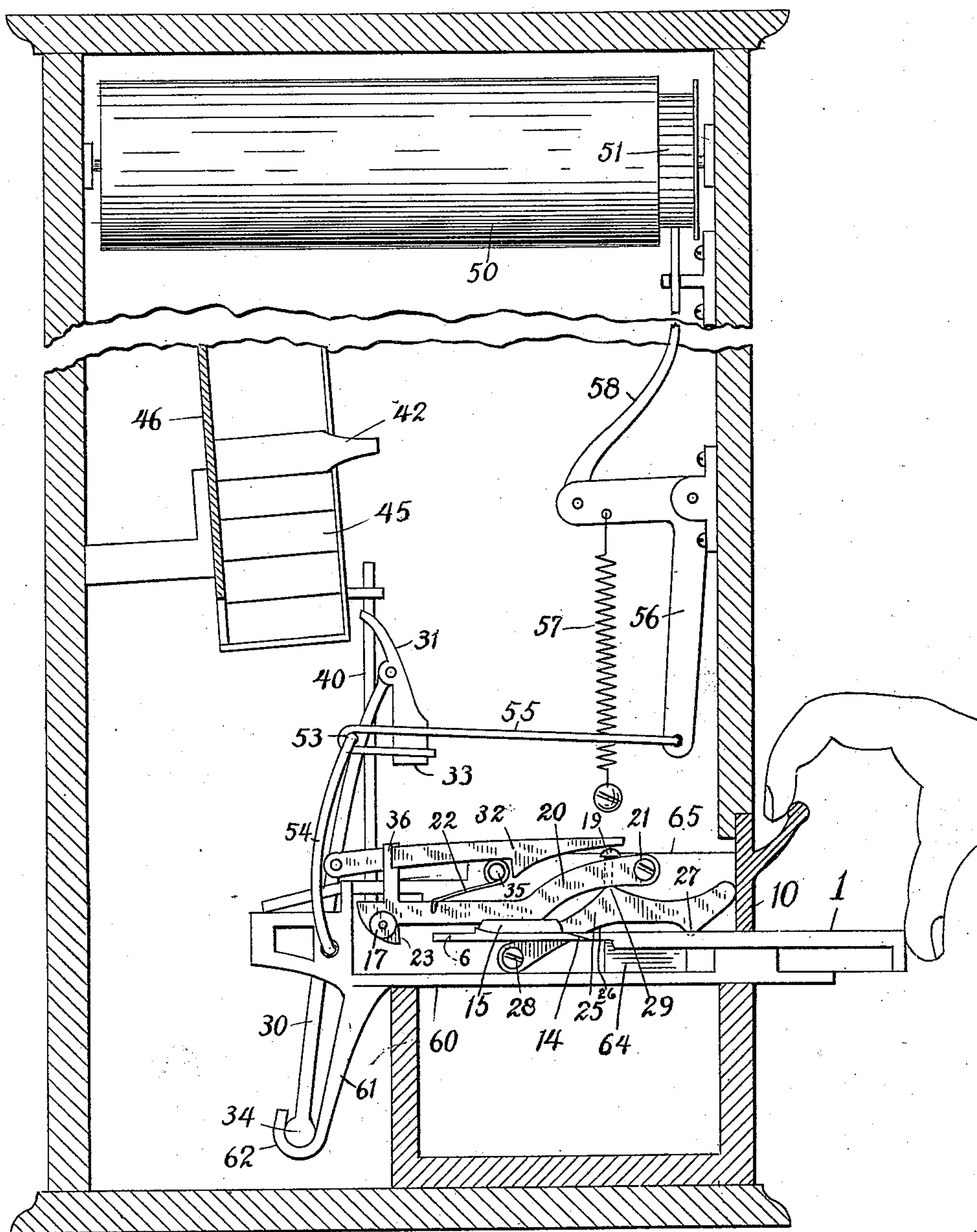
C. L. HURD.

COIN OPERATED VENDING MACHINE.

(Application filed July 20, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses,

E. H. Haste

E. E. Waite

Fig.1

Inventor,

Charles L. Hurd;

By A. B. Ephraim,
His Attorney.

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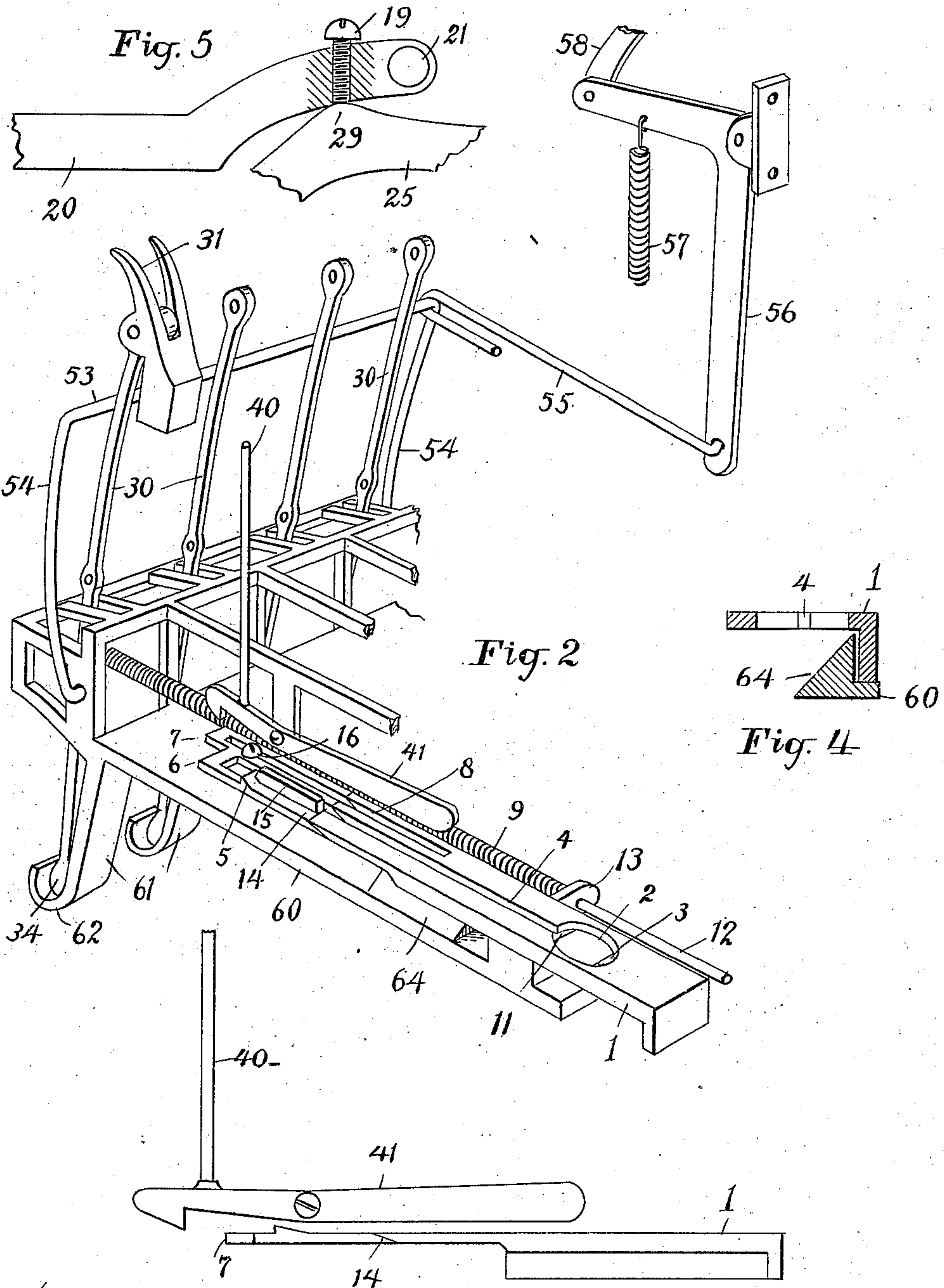
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Witnesses;
E. H. Waite
E. E. Waite

Fig. 3

Inventor,

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By *A. B. Bligham*,
His Attorney.

UNITED STATES PATENT OFFICE.

CHARLES L. HURD, OF CHELSEA, MASSACHUSETTS, ASSIGNOR OF ONE-HALF
TO NELLIE F. SMITH, OF CHELSEA, MASSACHUSETTS.

COIN-OPERATED VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 692,786, dated February 4, 1902.

Application filed July 20, 1901. Serial No. 69,063. (No model.)

To all whom it may concern:

Be it known that I, CHARLES L. HURD, of the city of Chelsea, county of Suffolk, State of Massachusetts, have invented certain new and
5 useful Improvements in Coin-Operated Vending-Machines, of which the following is a full, clear, and exact description.

My invention has for its object the construction of certain improvements in the locking devices and other details in coin-operated
10 vending-machines.

Referring to the drawings forming part of this specification, Figure 1 is a sectional side elevation of the major part of my vending-
15 machine. Fig. 2 is a perspective view of one of the slides and of certain other parts associated with the same. Fig. 3 is a side view of my improved device for locking the slide when the chute is empty. Fig. 4 is a trans-
20 verse section of a slide and its support, and Fig. 5 is a detail view showing the means for adjusting the relation of the detent and its supporting-lever.

The general arrangement of this invention
25 is much like that of my companion application Serial No. 50,611, certain of the details being precisely alike. The main differences relate to the locking devices for the slides and to means for positively locking the ejector-
30 arms from movement except when the proper coin has unlocked the slide connected therewith.

The slides 1 have formed therein the coin-receiving openings 2 and the slots 4 parallel
35 with the sides of the slides and communicating with said openings, as shown in Fig. 2. Through the slot 4 in each slide passes the lever 25, pivoted at 28 to the framework and having a nose 27 constructed to be engaged
40 by any coin or other object inserted in the opening 2 and to ride up and over the same as the slide is pressed inward. Supported on the shoulder 29 of this lever is a hooked detent 20, pivoted at 21 to the framework, the
45 parts being proportioned to bring the hook 23 of said detent into the path of the slide when the nose of the lever 25 is in its normal position within the slot 4; but the pivotal point 21 is located so near the shoulder 29
50 that but a slight elevation of the lever 25 is enough to raise the hook 23 free from the

slide. Although gravity holds the detent 20 in position to lock the slide, I prefer to employ a spring 22, fixed on the pin 35 and giving a suitable pressure upon the detent. 55

In my said companion application the slide-locking device is in a single piece with the hooked shank below instead of above the slide. My present construction is an improvement over the same for several reasons. In the first
60 place, should the spring 22 break, gravity would still hold the hook 23 in the path of the slide and prevent the latter's unwarranted manipulation, while in my former construction the breaking of the spring would permit
65 the hook to drop away from the slide, and so leave it free to be operated continuously until the chute was exhausted. Another advantage arises from the fact of the pivotal point of the lever 25 being below the slide, and
70 hence the action of a coin against the nose 27 is much easier than were such pivotal point above.

Each slide 1 is designed when pressed inward to come in contact with an ejector-arm
75 30 and swing its upper end through the lower end of a chute 46, associated therewith, each chute being suitably apertured to permit the lowermost article contained therein to be pushed out therefrom. The immediate means
80 for engaging and pushing the articles comprise the pivoted double-pronged pawls 31, weighted at their lower ends 33 to retain their pronged ends in correct position.

There are of course an equal number of
85 chutes, ejector-arms, and slides, four being the number of ejector-arms illustrated in Fig. 2. All these arms are pressed backward from the chutes by means of a single bar 53, fixed on the radial arms 54, pivoted at their lower
90 ends to the framework. This bar is pressed back against said ejector-arms by a spring 57, which may be connected directly therewith, but is here shown as connected through the bell-crank lever 56 and hooked rod 55. When
95 any one of the ejector-arms is moved forward by a slide, such arm meets the bar 53 and carries the latter with it, at the same time swinging the bell-crank lever 56 and tensioning the spring 57. 100

At the upper end of the case of my vending-machine is an auxiliary device designed to be

actuated whenever any one of the slides is operated, the particular device being here shown as a cylinder containing fortune-telling legends upon its surface and being actuated through the ratchet-wheel 51 and the elongated rod and pawl 58, pivoted to the bell-crank lever 56. In this manner whenever a slide is moved for the delivery of an article from a chute this cylinder is rotated and a "fortune" presented to the eye of the customer.

It is possible by the proper manipulation of a wire or similar slender rod to press directly against one or the other of the ejector-arms 30, and so cause the same to throw down the contents of a chute without the presentation of a coin to the slide. To prevent this, I furnish each of said arms with a pawl 32, pivoted thereto and resting on the pin 35. When no coin has been placed in the slide and the detent 20 unraised thereby, said pawl remains in engagement with the pin 35, and so prevents the ejector-arm connected therewith from being operated; but by forming the detent 20 with a yoke 36 said pawl is raised simultaneously with the detent, and so renders the ejector-arm free to be operated when the proper coin is introduced into the slide and the latter pressed inward. In this manner the unlocking of each slide and of its associated ejector-arm is automatically performed by the inserted coin.

In the construction of the framework and ejector-arms I form the lower end of each of said arms with a cylindrical boss 34 and cast the framework with an arm 61, having an open pocket 62 at its lower end. Such boss and pocket being cylindrical, the ejector-arm cannot turn on its longitudinal axis, but only swing thereon as a center. At the same time the arms can be readily put in place or removed therefrom.

In the operation of this slide the proper coin placed within the opening 2 and resting on the fixed ledge 11 and the ledge 3 formed as a part of the slide slides beneath the nose 27 of the lever 25 as the slide is pressed inward, and thereby raises said lever and the detent 20. If now a thin disk were introduced instead of a proper coin, the detent would fail to be raised high enough to clear the slide end, and the slide would be unable to be moved far enough to reach the ejector-arm. A washer of the correct thickness and diameter is equally unable to operate the machine for the reason that although the hook 23 will be raised thereby high enough to clear the end 6 of the slide, yet when the nose 27 reaches the hollow center of the washer said nose sinks therein and the detent drops into engagement with the shoulder 5, formed in and on the slide.

As shown in Fig. 1, the articles 45 in each chute support a weight 42, having a projection designed to meet and depress the vertical rod 40 when the chute is empty. As illus-

trated in Fig. 3, this rod rests upon a counterweighted pawl 41, designed to engage and hold the end of the slide 1 when depressed by said weight. The advantage of this arrangement is that the pivoted pawl can more strongly hold the slide from forcible motion. If the rod itself descended into the path of the slide, it might become bent by the possible force applied to the slide and so prevented from subsequent perfect action. The counterweight serves to enable me to dispense with a spring for raising the rod and so reduces the liability to failure.

The front edge of the lever 25, at the point 26, where it penetrates the slide 1, serves to dislodge and throw down into the cash-drawer any coin which might otherwise become fixed in the coin-opening 2 of the slide. This function is performed in substantially the same manner as set forth in my said companion application—that is, by the inclined front edge 26 of the lever 25 riding up onto the coin brought into its field by the inward stroke of the slide 1, and thereby pressing such coin down and out from the coin-opening, whence it drops upon the laterally-sloping shelf 64 and from thence to the money-drawer below.

In many forms of coin-operated machines it is found possible to solder a wire or thin strip of watch-spring to a coin and with the same to repeatedly operate the machine and so rob it of its contents. I have discovered that by locating a laterally-sloping shelf 64 immediately below the point where the slide coin-opening is designed to empty its contents and employing a coin-ejector of the general form set forth in my said companion application it is impossible to thus rob the machine. The reason for this is that the coin-ejector forces the coin down upon the sloping shelf and thence down the latter to one side until in the case of a coin soldered to a wire or watch-spring such wire or spring will be so bent and twisted, if not actually broken, that it is impossible to withdraw either the wire or coin.

As shown in Fig. 1, the point 26, at which the lever 25 penetrates the slot 4 of the slide, is the coin-ejector, acting in precisely the same manner as does the corresponding point in the dog of my said companion application.

As shown in Figs. 1 and 5, I prefer to provide the detent 20 with an adjusting-screw 19, coacting with the shoulder 29 of the lever 25, serving to perfectly adjust the hook 23 in relation to the end of the slide. This enables the coin-operated mechanism to be quickly and perfectly adjusted in the original construction thereof and in addition enables wear of the lever-nose 27 to be at any time compensated for.

A further improvement is that by means of which I avoid the frictional contact between the nose of the lever 25 and the part of the slide between the opening 2 and its outer end, such friction being quite considerable, owing

to the fact of the pressure of the spring 22 upon the detent 20 being greatly multiplied on the lever 25, and consequently upon the nose 27. This friction considerably increases the wear upon said nose, and hence the more quickly requires an adjustment of the screw 19 to compensate for such wear. To prevent this, I provide the detent 20 with a small wheel 17, revolubly supported at its hooked end. On the slide I form a raised track or bridge 15 of such a height and such a length that after the nose 27 has passed the center of a coin, and hence the hollow of a washer, such bridge comes beneath the wheel 17 and raises both it and the detent sufficiently to relieve the lever 25 of further pressure. In this manner as the nose of the said lever traverses the latter part of a coin and the surface of the slide itself it is given no more pressure thereagainst than its own light weight.

What I claim as my invention, and for which I desire Letters Patent, is as follows, to wit:

1. The combination with the slide having the coin-opening and the elongated slot communicating therewith, of the lever passing through said slot and pivotally supported below the slide and having the coin-engaging nose, and the detent pivoted above the slide and constructed to lock the slide except when raised by the upward movement of said lever given thereto by a coin in said opening, substantially as described.

2. The combination with the slide having the coin-opening and the elongated slot communicating therewith, of the lever passing through said slot and pivotally supported below the slide, said lever having the coin-engaging nose and the shoulder, and the detent pivoted above the slide and having the slide-engaging hook, said detent resting upon said shoulder near the former's pivotal point, substantially as described.

3. The combination with the coin-released slide and the ejector-arm operated thereby, of means for normally locking said arm, and slide-releasing devices constructed to unlock said arm simultaneously with their releasing of the slide, substantially as described.

4. The combination with the coin-released slide and the ejector-arm, of a pawl carried by said arm, a fixed pin engaged by said arm to hold the latter from unwarranted manipulation, and means operated by the slide-releasing mechanism for disengaging said pawl from said pin, substantially as described.

5. The combination of the slide, the coin-released hooked detent raised to free the slide, the ejector-arm, the pawl pivoted thereto, the fixed pin engaging said pawl, and a connection between said detent and pawl constructed to enable both to rise simultaneously, substantially as described.

6. In a coin-operated vending-machine, the combination with the chute and the weight slidable therein, and the coin-operated slide

constructed to empty said chute, of the vertical rod longitudinally movable by said weight, and the counterweighted pawl supporting said rod and constructed to engage and lock said slide when depressed by the action of the weight and rod, substantially as described.

7. In a coin-operated vending-machine, the combination with the slide having the circular coin-opening and the slot communicating therewith, of a coin-ejector located in said slot, and a laterally-sloping shelf beneath said opening, substantially as described.

8. In a coin-operated vending-machine, the combination with the slide having the circular coin-opening and the slot communicating therewith, of a coin-ejector located in said slot and a fixed laterally-sloping shelf located beneath the point at which said coin-opening discharges its contents, substantially as described.

9. In a coin-operated vending-machine, the combination with the slide having the coin-opening, of the pivoted lever constructed to ride over the coin in said opening, the hooked detent coacting with said slide, and means for adjustably supporting said detent by said lever, substantially as described.

10. In a coin-operated vending-machine, the combination of the slide having the coin-opening and the slot, the lever passing through said slot and having the nose and the shoulder, the hooked detent coacting with said slide, and the adjusting-screw tapped into said detent and abutting upon said shoulder, substantially as described.

11. In a coin-operated machine, the combination of the slide having the coin-opening and the slot, the lever located in said slot, the pivoted detent, the spring pressing said detent upon said lever, and a support carried by the slide and constructed to engage the detent and relieve said lever from the pressure of the detent during the latter part of the slide's inward stroke, substantially as described.

12. In a coin-operated machine, the combination of the slide having the coin-opening and the slot, the lever located in said slot, the detent and a spring pressing it upon said lever, and a wheel and a coacting support connected with said slide and detent, said wheel and support being constructed to relieve the lever from the pressure of the detent during the latter part of the slide's inward stroke, substantially as described.

13. In a coin-operated vending-machine, the combination of the slide having the coin-opening and the raised track or bridge, the detent normally locking said slide, a spring for pressing said detent into engagement with the slide, and a member projecting from said detent and riding up and on said bridge when an inserted coin has released the slide from the detent, substantially as described.

14. In a coin-operated vending-machine, the combination of the slide, the hooked de-

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tent normally locking the same, the spring
for said detent, the lever having the nose im-
pressed into engagement with an inserted coin
by said detent, and the wheel carried by said
5 detent, said slide having the bridge for rais-
ing said wheel and detent, substantially as
described.

In testimony that I claim the foregoing in-
vention I have hereunto set my hand this 12th
day of July, 1901.

CHARLES L. HURD.

Witnesses:

A. B. UPHAM,
FRANK A. SMITH.