

No. 690,433.

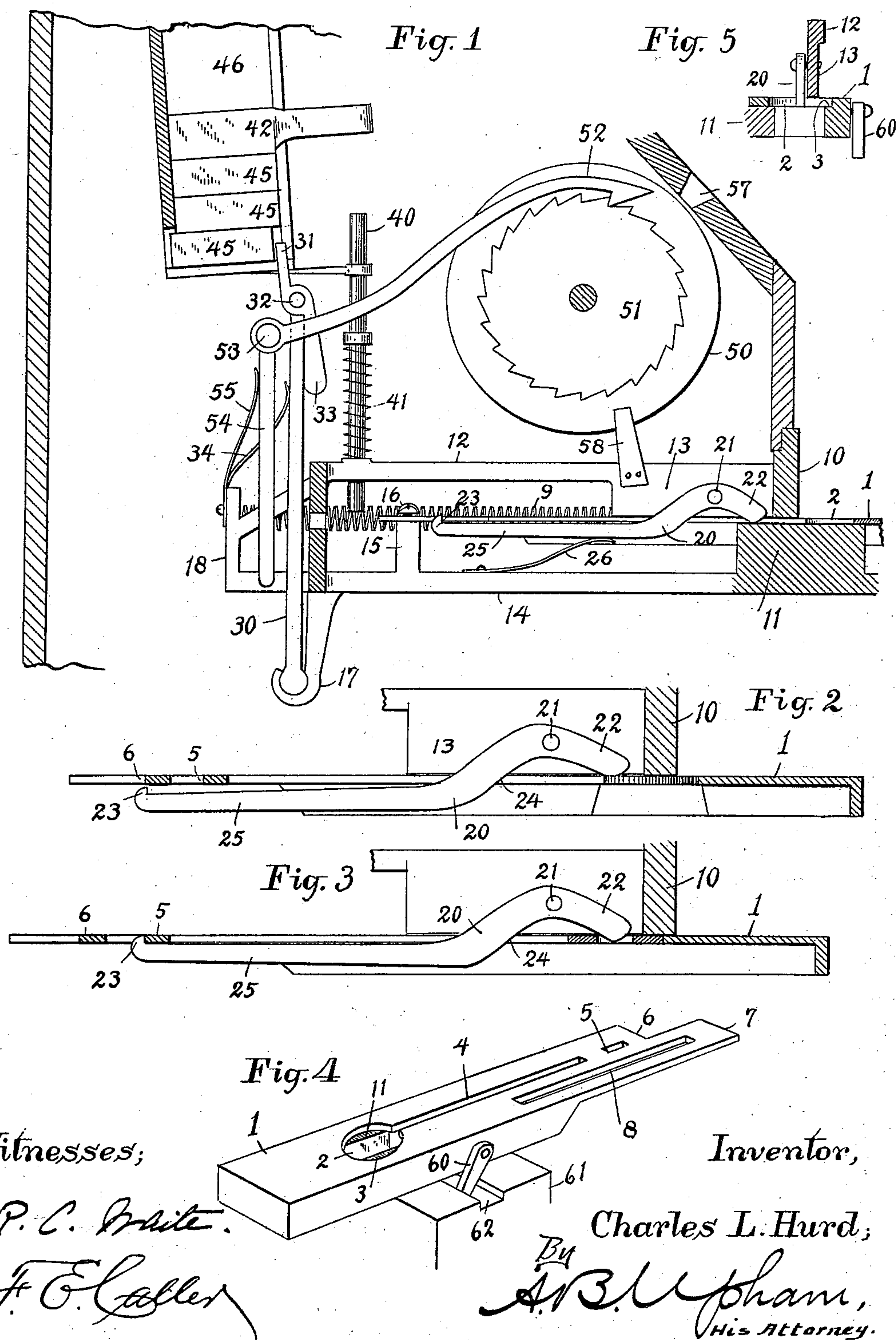
Patented Jan. 7, 1902.

C. L. HURD.

COIN OPERATED VENDING MACHINE.

(Application filed Mar. 11, 1901.)

(No Model.)



UNITED STATES PATENT OFFICE.

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COIN-OPERATED VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 690,433, dated January 7, 1902.

Application filed March 11, 1901. Serial No. 50,611. (No model.)

To all whom it may concern:

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

My invention relates to certain improvements in the details of coin-operated machines by means of which a single member or dog is made to perform the several duties of locking the slide when unaccompanied with a coin, to eject such coin when its duty is finished, and to guard against the successful use of washers, pliable blanks of lead or cardboard, and blanks of lesser diameter and thickness than the designated coin.

Referring to the drawings forming part of this specification, Figure 1 is a vertical section of the operative parts of my vending-machine. Fig. 2 is a longitudinal vertical section of the slide, showing the dog releasing the said slide by means of the proper coin. Fig. 3 is a similar view, but showing how a washer fails to unlock the slide. Fig. 4 is a perspective view of the slide, and Fig. 5 is a transverse section of the slide and parts of the surrounding members.

As in most vending-machines, I design to have a plurality of article-containing chutes located side by side and accompanied by an equal number of operating-slides. This duplication of parts being well known, I show in the drawings but a single chute and a single slide for operating the same.

The chute 40 is of the usual type, supported in a substantially vertical position and adapted to contain a superposed pile of small rectangular vendible articles, which are removed therefrom one by one through the action of a swinging member pressing the lowermost article back from beneath the remainder. The coin-released slide 1, the pressure against which is adapted to operate said swinging member, is shown most fully in Fig. 4, where it will be seen to be rectangular at its outer end and with a flat thin top having certain slots and openings through it. Of these the opening 2 in said slide is circular and designed to closely fit a designated coin, suit-

able ledges 3 and 11 being provided beneath widely-separated parts of this opening for the support of the introduced coin. Extending backward from this opening is a long narrow slot 4 for the reception of the locking-dog 20, while parallel with said slot is a second one, designed to receive the supporting post or screw 16. (Shown in Fig. 1.) This slot 8 is made long enough to permit the slide to be moved a sufficient distance to bring the coin-opening 2 into the field of the nose 22 of the dog 20 before the end 7 of the slide meets the article-removing arm 30 and then after such contact for the slide to be moved far enough to cause said lever to eject an article from the chute.

The locking-dog 20 is pivoted at 21 to the plate 13 and comprises two essential parts—the nose 22 and the hooked shank 25. Under the stress of the spring 26 said shank is pressed upward into the horizontal position, (illustrated in Figs. 1 and 3,) said nose being thereby held within the slot 4. Whenever now the slide is pressed backward or inward, the hook 23 at the end of said shank meets the shoulder 6 of said slide, and thereby prevents it from being moved far enough to actuate the ejector arm or lever 30. If, however, the proper coin has been placed in the opening 2 and rests upon the ledges 3 11, the inward pressure of the slide forces said coin in under the sloping end of the nose 22, and thereby raises the same, consequently throwing the hooked end of the shank downward. The shoulder 6 being in this way released from possible engagement with the hook 23, the slide can be pressed inward to its limit and the ejector-arm made to perform its appropriate function. If, however, a washer of the proper diameter and thickness were substituted for the coin, the hook 23 would be thereby prevented from interfering with the shoulder 6 as before; but the moment the washer-opening reached the nose 22 the latter would sink therein and the hook-shank rise. An opening being made for the purpose, a supplemental shoulder or stop 5 now meets the hook 23, and thereby prevents the slide from further motion.

Should a blank of proper thickness but smaller diameter be placed in the coin-open-

ing 2, the nose 22 would not be raised soon enough to quite clear the hook 23 from the shoulder 6, thus rendering such fraudulent attempt unsuccessful. On the other hand, if the blank were of proper diameter, but insufficient thickness, the hooked end of the shank would not be depressed far enough to clear the shoulder. Moreover, should a cardboard blank of the correct diameter and thickness be used the strength of the spring 26 causes the nose 22 to force the same downward, and thereby prevent it from succeeding. In the same way a lead blank is made equally unsuccessful.

15 A wire or strip of metal cannot be employed, both on account of the ledges 3 11 being so far apart and also because of the close proximity of the frame member 10, beneath which the slide moves.

20 Another function performed by the locking-dog 20 is that of insuring the extraction of the coin from the coin-opening 2 as the slide is actuating the ejector-arm. This is done by the sloping neck 24 of the shank coming in contact with the edge of the coin, and thereby forcing it down and out from the said opening, for, as shown in Fig. 1, the ledge 11 terminates abruptly at the point where it is intended to drop the coin.

30 As shown in Figs. 4 and 5, a detent 60 is pivoted to the side of the slide 1 for the purpose of preventing the latter from being manipulated several times with a single coin. Without such detent it might be possible to throw out one article 45 and then without allowing the slide to return far enough for the hook 23 to engage the shoulders 6 or 5 to again thrust it inward and eject another article or package. Said detent prevents such form of cheating in the following manner: Below the slide is a shelf 61, having a transverse notch 62 therein, while the ends of said shelf terminate at points corresponding somewhat with the positions of the detent at each extreme of the normal stroke of the slide, so that at such extremes the detent drops vertically downward. Then as the slide moves in either direction the detent simply drags over the face of the shelf, sinking into the notch 62 as it passes, but not being interfered with thereby. Should, however, the slide be stopped midway or before the completion of its stroke in either direction, then the detent by its engagement with the notch serves to prevent the slide's return from its partial stroke, and so renders impossible the fraudulent manipulation of the slide above referred to.

60 The under edge of the plate 13 is located in close proximity to the upper face of the slide in order to overlies the coin in the opening 2 as the slide is moved inward, and thereby to keep such coin from accidentally rising or tilting out from the opening and becoming clogged or fixed in the mechanism or otherwise interfering with the proper action thereof.

The package-chute 46 is formed with the

usual discharge-opening at its lower rear face and one or more slots through its bottom for the passage of the ejector devices. These devices comprise the ejector-arm 30, oscillated, as previously described, by the impact of the slide 1, and the pivoted weighted pawl 31. This pawl being pivoted at 32 to the upper end of the arm 30, its weighted tail 33 serves both to normally hold the pawl in the position illustrated and to prevent its being deflected backward when engaged with a package 45. A leaf-spring 34 causes the arm 30 to return as the slide is retracted, while a coiled spring 9 retracts the slide to its normal position.

One of the chief difficulties in connection with coin-operated vending-machines, aside from the fraudulent manipulation thereof, is the disappointment and vexation of honest customers received by the failure to obtain a package after the proper introduction of the coin. This most often occurs when the chutes have been emptied, and hence the machine can deliver no returns for the introduced coin. I have overcome this defect by providing means for preventing the movement of the slide when the chute associated therewith is empty, such means consisting of a rod normally supported by the slender spring 41, with its lower end just above and beyond the end 7 of the slide and with its upper extremity in the path of the descending weight 42, resting upon the topmost package 45. When all the packages have been ejected from the chute, this weight alights upon and depresses said rod into the path of the slide, and so locks it from further movement.

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

1. In a coin-operated machine, the combination with the slide having the coin-opening therein and the elongated slot communicating therewith, of the locking-dog pivoted to swing in said slot with such pivotal point located above said slide, said dog having the nose projecting downward toward the forward end of the slide, and the elongated shank projecting downward and through said slot and thence rearwardly for a distance considerably in excess of the length of the nose from said pivot, said shank having the hook engaging the rear end of the slide when the nose is unsupported by a proper coin introduced into the coin-opening, substantially as described.

2. In a coin-operated machine, the combination with the slide having the coin-opening therein and the elongated slot communicating therewith, of the locking-dog pivoted to swing in said slot with such pivotal point located above said slide; said dog having the nose projecting downward toward the forward end of the slide, and the elongated shank projecting downward and through said slot and thence rearwardly for a distance considerably in excess of the length of the nose from said pivot, said shank having the hook engaging

the rear end of the slide when the nose is unsupported by a proper coin introduced into the coin-opening, and the distance between the nose and throat or bend of the shank being proportioned to constitute a coin-ejector, whereby the same member serves the separate functions of slide-lock and coin-ejector, substantially as described.

3. In a coin-operated machine, the combination with the slide having the coin-opening and the slot communicating with the said opening, of an angular member pivoted above the slide and having a nose normally riding in said slot and pressed upon any coin which may be introduced within the coin-opening; said member being constructed to lock the slide when its nose is unsupported by a proper coin, and having a throat or bend projecting into said slot and constructed to eject the coin from the coin-opening, substantially as described.

4. In a coin-operated machine, the combination of the slide having the coin-opening, the slot communicating therewith and the slot in line with the first-named slot, and the ledge formed as a part of the slide; the fixed ledge; the locking-dog having the nose and the hooked shank, and pivotally supported in the

first-named slot; and the spring forcing said shank upward and the nose downward, substantially as described.

5. The combination with the coin-carrying slide, and the package-chute emptied by the manipulation of the slide; of the vertical rod elastically supported with its upper end near said chute and its lower end just above and beyond the end of said slide; and a weight resting on the packages in the chute and having a projection meeting and depressing said rod when the chute is empty, substantially as described.

6. In a coin-operated machine, the combination of the slide having the circular coin-opening and a ledge beneath one point of said opening and formed as a part of the slide, and hence moving therewith; a support for the slide having a stationary ledge opposite to the moving ledge, and a coin-released locking device, substantially as described.

In testimony that I claim the foregoing invention I have hereunto set my hand this 8th day of March, 1901.

CHARLES L. HURD.

Witnesses:

FRANK A. SMITH,
A. B. UPHAM.