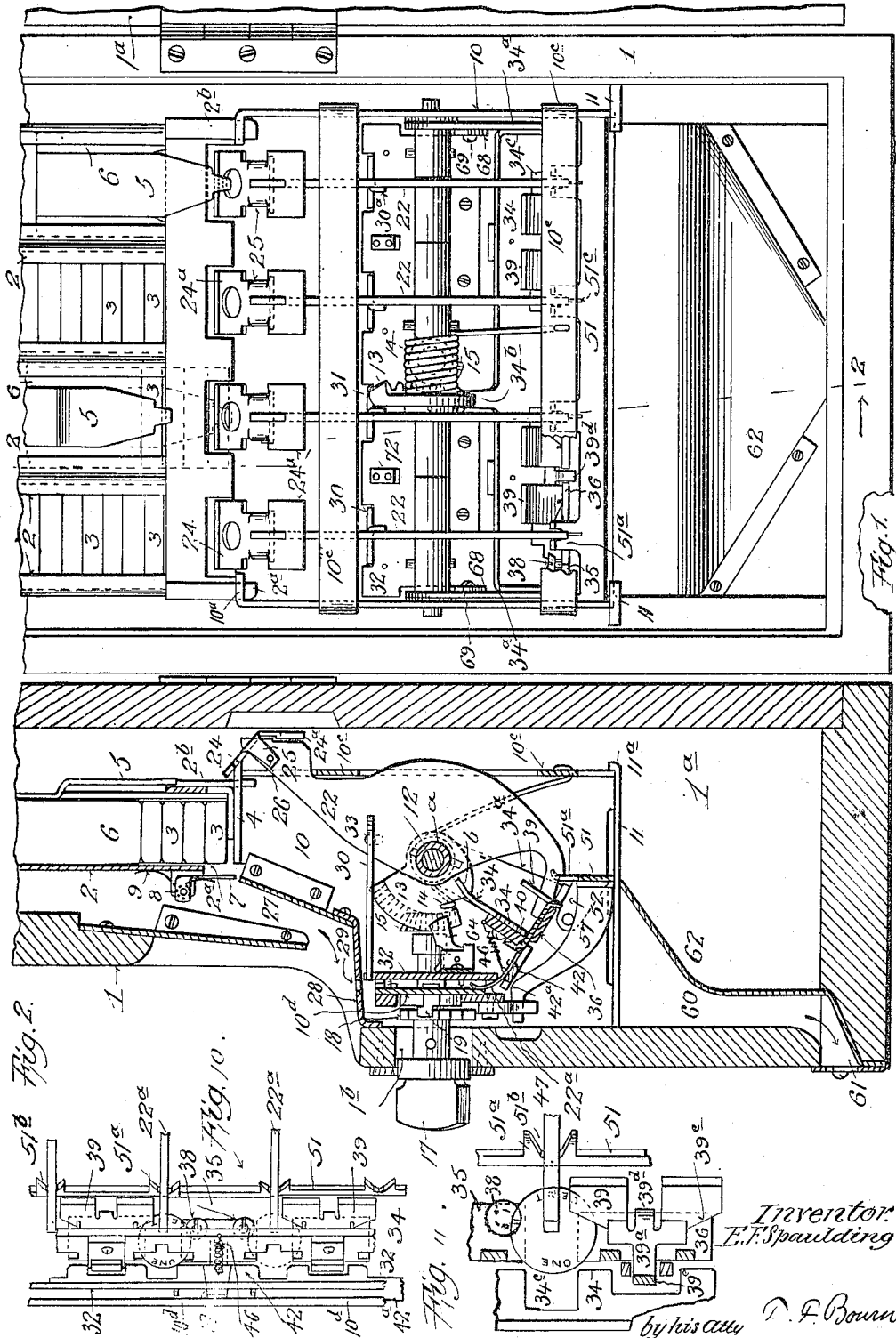


VENDING MACHINE.

Patented Nov. 4, 1919.

4 SHEETS—SHEET 1.

1,320,504.



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E. F. SPAULDING.
VENDING MACHINE.
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4 SHEETS—SHEET 2.

Fig. 3.

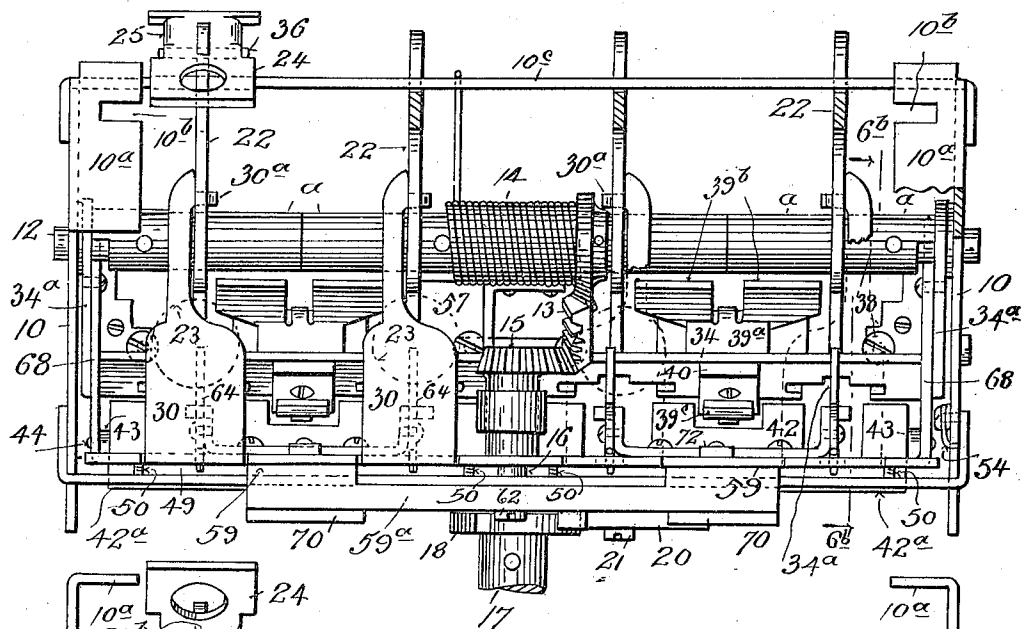
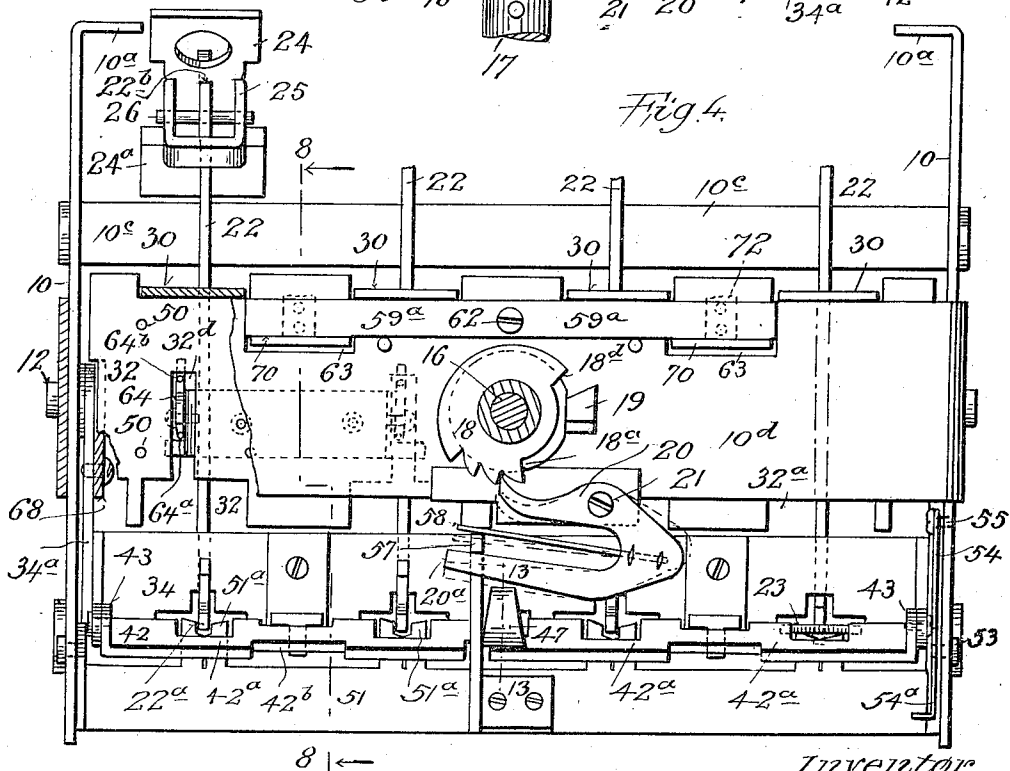


Fig. 4.



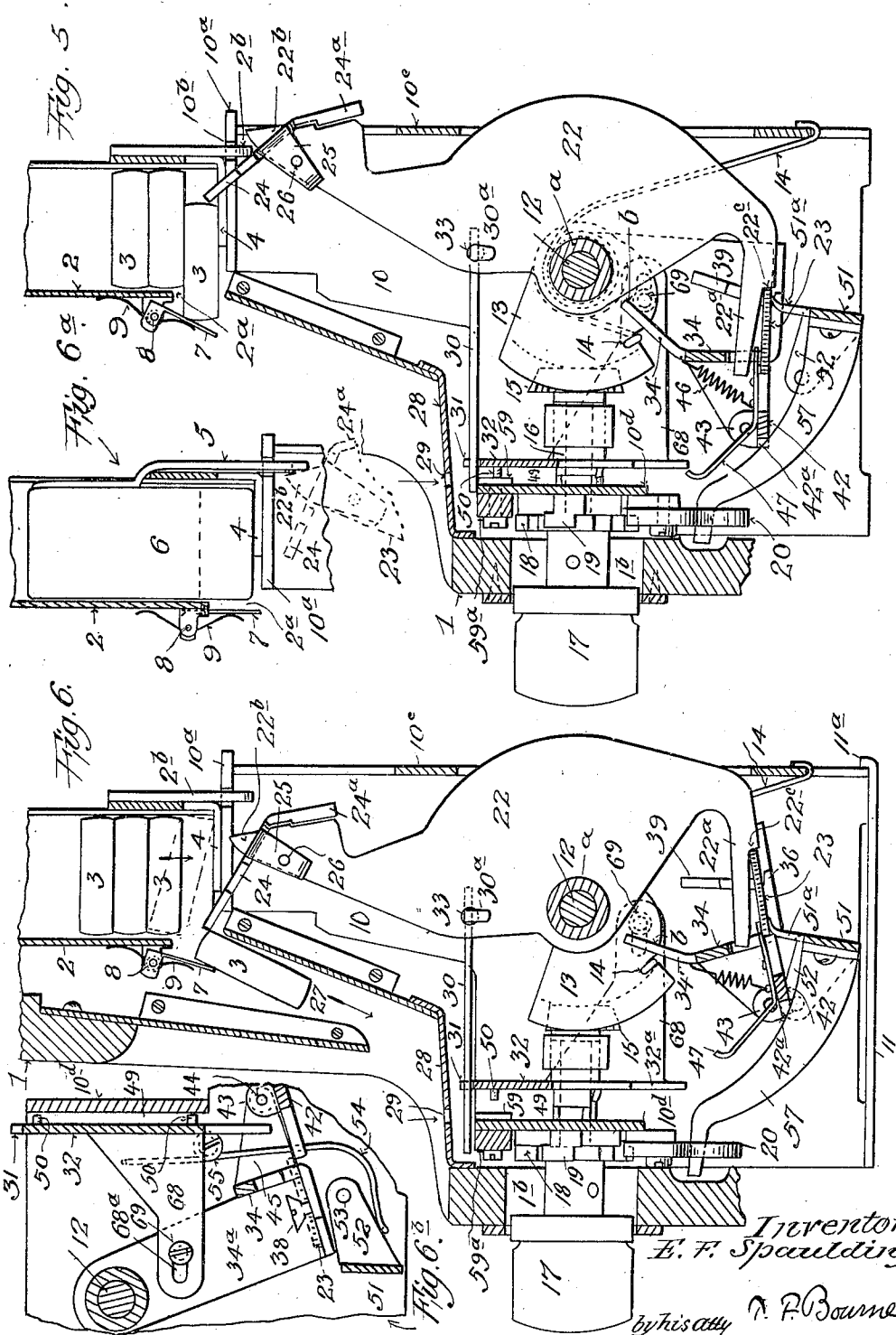
Inventor
E. F. Spaulding
by his atty T. R. Bourne

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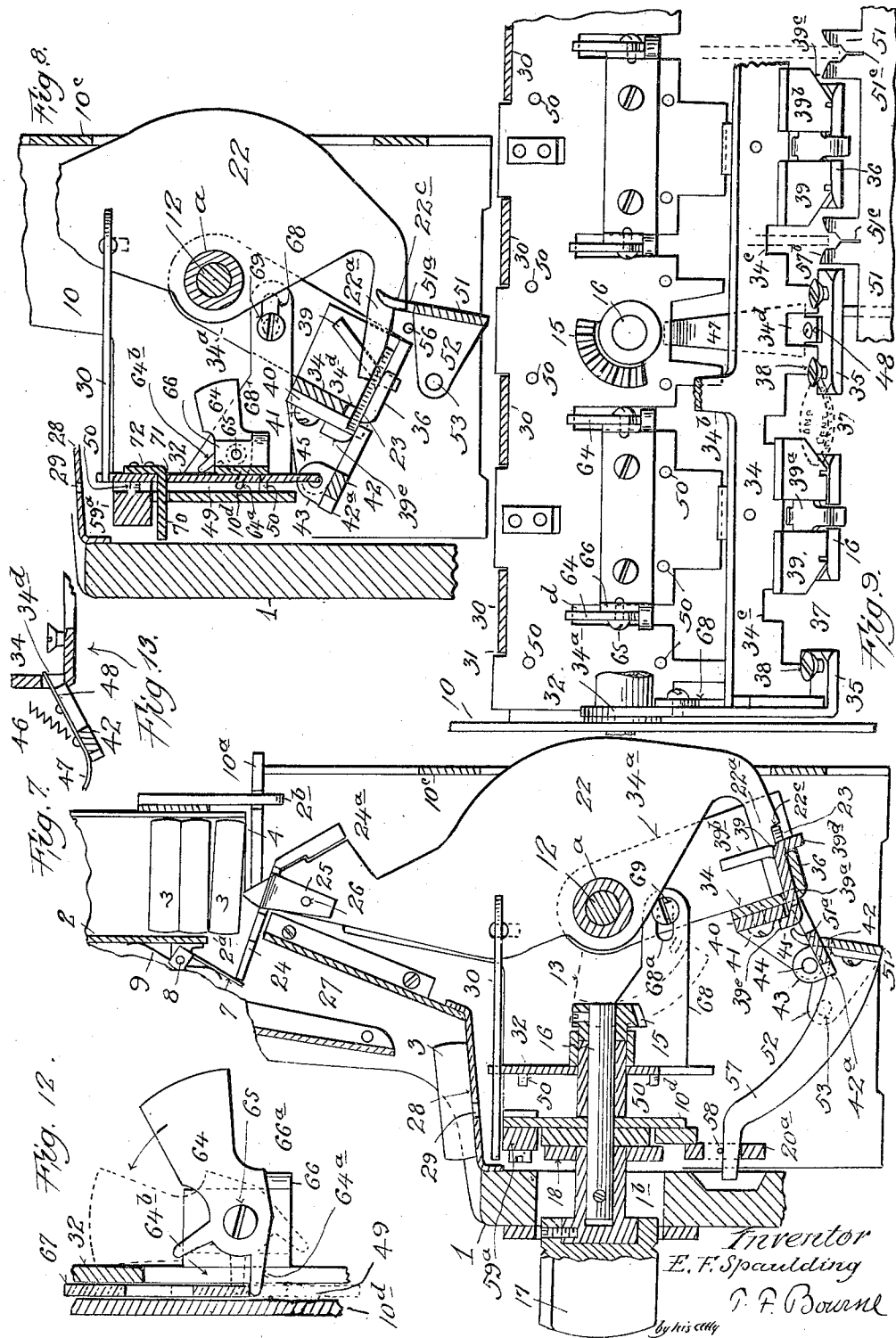
4 SHEETS—SHEET 3.



Inventor
 E. F. Spaulding
 by his atty. P. P. Bourne

APPLICATION FILED NOV. 8, 1917.

4 SHEETS—SHEET 4.



UNITED STATES PATENT OFFICE.

ELIJAH F. SPAULDING, OF BROOKLYN, NEW YORK, ASSIGNOR TO ARTEMAS WARD, OF NEW YORK, N. Y.

VENDING-MACHINE.

1,320,504.

Specification of Letters Patent.

Patented Nov. 4, 1919.

Application filed November 8, 1917. Serial No. 200,861.

To all whom it may concern:

Be it known that I, ELIJAH F. SPAULDING, a citizen of the United States, and resident of New York city, borough of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Vending-Machines, of which the following is a specification.

My invention relates to improvements in coin controlled vending machines, wherein the presence of a coin is utilized to permit the discharge of an article from the machine upon operation of appropriate devices by the purchaser.

My invention has particular reference to improvements in the class of machines set forth in Letters Patent No. 1,148,807 on vending machines, granted to me August 3, 1915.

My invention comprises novel details of improvement and combinations of parts that will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming part hereof, wherein,

Figure 1 is a rear view of a vending machine embodying my invention, the rear door being open; Fig. 2 is a vertical section substantially on the line 2, 2, in Fig. 1; Fig. 3 is a plan view illustrating my improvements, parts being removed and part in section; Fig. 4 is a partly broken front elevation of Fig. 3; Figs. 5 and 6 are enlarged vertical sections illustrating the coin control delivery devices in different positions of operation; Fig. 6^a is a sectional detail illustrating the position of the weight in an article chute after delivery of the last article therefrom; Fig. 6^b is an enlarged detail section substantially on the plane of the line 6^b, 6^b, in Fig. 3; Fig. 7 is a view similar to Fig. 6 showing the parts operated to final delivery and coin discharging position; Fig. 8 is an enlarged cross section substantially on the plane of the line 8, 8, in Fig. 4; Fig. 9 is a longitudinal vertical section, parts being removed, looking from the rear of the mechanism; Fig. 10 is a detail plan view, partly in section, illustrating the coin receiving devices and the coin extractor, and Fig. 11 is an enlarged detail section of part of Fig. 10; Fig. 12 is an enlarged sectional detail illustrating a washer catcher; Fig. 13 is a detail section on line 13, 13, in Fig. 4.

Similar numerals of reference indicate corresponding parts in the several views.

A suitable casing is indicated at 1, in which one or more chutes 2 are provided for the articles 3 to be vended. At the bottom of the chutes are spaced ledges 4 suitably secured to the chutes for the articles 3 to rest on, the rear portions of the chutes being open to permit the passage of the depending projections 5 from weights 6 that rest on the articles and are adapted to slide in the chutes respectively. The forward or delivery portions of the chutes at the lower ends thereof are provided with openings at 2^a through which the lowermost article 3 may be discharged. In front of each opening 2^a is a flap 7 pivotally supported upon the chute at 8 (Figs. 5, 6, 6^a and 7), normally pressed by a spring 9 to close in front of the corresponding opening 2^a. The flap 7 is adapted to be pushed outwardly by an article 3 when the latter is being discharged (Figs. 5 and 6), and the flap is adapted to swing back in front of the opening normally to prevent the surreptitious extracting of an article from the chute. Rearward swinging of the flap is limited by the chute. The chutes 2 may be fitted in casing 1 singly, or united together for joint removal from the casing in any well known manner. The rear hinged door 1^a of the casing is adapted to close over the chutes to protect the articles 3 therein, and the door may be fastened shut by a lock in any well known manner.

Beneath the chutes my improved coin controlled article delivering mechanism is located within casing 1. In the form illustrated said mechanism is carried by a suitable frame 10 that is adapted to be detachably rested upon supports or side brackets 11, shown located along the side walls of casing 1, and having upturned rear lugs 11^a to engage the lower rear corners of frame 10 (Figs. 1 and 2). The frame 10 at its upper edges is shown provided with inwardly extending rests 10^a, upon which the corresponding lower corners of the chutes rest, which lower corners of the chutes are shown provided with downward projections 2^b adapted to fit in transverse recesses 10^b respectively in the rests 10^a to detachably retain the chute (Figs. 1, 2 and 6). When the mechanism is to be removed the chute 2 may be lifted off frame 10 and

the latter may be pulled out of the casing, and when frame 10 has been replaced in the casing the chute may be replaced and applied upon said frame. At 12 is a transverse shaft shown journaled in the end walls of frame 10, to which shaft a segment-shaped miter gear 13 is suitably secured for rocking said shaft. A coil spring 14 is shown surrounding shaft 12, and one of its ends bears against said gear while its other end bears against the cross bar 10^c of frame 10, which spring serves to return shaft 12 to its normal position after operation. A weight may be substituted for such spring if preferred, substantially in accordance with my aforesaid Letters Patent. A miter gear 15 meshes with gear 13 for operating shaft 12. The gear 15 is secured to a shaft 16 that is journaled in the front wall or cross bar 10^a of frame 10. Shaft 16 projects outwardly from wall or cross bar 10^a and is provided with a handle or finger piece 17 for operating said shaft (Figs. 5, 6 and 7). Casing 1 is shown provided with an opening 1^b through which handle 17 is adapted to pass when frame 10 is placed within or removed from the casing. Shaft 16 is shown provided with a ratchet 18 (Figs. 2, 3, 4 and 6) having a shoulder 18^a adapted to engage a stop 19 on frame 10 to limit rotation of shaft 16 in one direction as influenced by spring 14, whereby to retain shaft 12 in the normal position, and ratchet 18 is shown provided with a stop 18^a to engage the stop 19 to limit manual rotation of shafts 16 and 12 in operating direction (Fig. 4). The ratchet 18 is adapted to retain shafts 16 and 12 in one or more partially operated positions, between the limits of rotation of shaft 16, by means of a dog 20 that is pivotally supported at 21 upon wall or cross bar 10^a as hereinafter explained (Fig. 4).

At 22 are rock levers pivotally supported upon shaft 12, each of which levers corresponds to one of the chutes 2, the levers being spaced apart according to the spacing of the chutes and located below the same. Spacers *a* are shown on shaft 12 adjacent to levers 22. If the machine is provided with one coin chute one of the levers 22 with devices hereinafter described to operate it will suffice. The levers normally rest against the upper cross bar or wall 10^c of frame 10 (Fig. 2), with their upper portions normally at one side of the vertical plane of the rear of the corresponding chute. The levers are adapted to pass under the corresponding chute to push the lowermost article from the chute through its opening 2^a when the lever is caused to rock forwardly by a coin 23 when it is opposed to the lower projecting portion 22^a of the corresponding lever. I have shown the upper ends of the levers each provided with an ejector 24, having depending ears 25 pivotally supported upon the corresponding lever 22, the weighted end 24^a of such ejector normally bearing against the rear of its lever 22 and thereby retained to push article 3 from the chute above. The ears 25 may bear against the sides of the corresponding levers 22 to retain the ejectors from lateral movement. After an ejector has pushed the lower article 3 from a stack of articles in a chute 2, the upper free end of the ejector will slide rearwardly under such lowermost article back to the normal position when lever 22 returns thereto. When the lowest or last article (or, if preferred, next to the last article) of a stack has been ejected, the weight 6 will have descended sufficiently low to cause its projection 5 to be brought opposite the upper projecting end 22^b of lever 22 to prevent said lever from resuming its normal position, as indicated in dotted lines in Fig. 6^a, whereby such lever cannot be operated again until the weight has been raised, as when a new stack of articles is placed in the corresponding chute with the weight on such articles. When the ejector 24 is moved forwardly to eject an article 3 from the chute, it will cause the corresponding flap 7 to be swung open by the article (Fig. 5), and when the article has been fully pushed out of the chute it will drop from under the flap 7 (Fig. 6) down through passage 27 within the casing to rest upon the exposed support or wall 28 in position for removal (Fig. 7). The support 28, which may be made of any suitable construction, is secured in frame 1 in front of the upper portions of levers 22, and said support is provided with a coin slot 29 corresponding to each lever 22. Beneath each coin slot 29 is a movable slot closer 30 operatively connected with the corresponding lever 22, and so arranged that when such lever is in the normal position (Fig. 2) the closer 30 will be retracted from beneath slot 29 to permit the passage of a coin therethrough, and when lever 22 is swung forwardly, for ejecting an article, the closer 30 will be correspondingly moved forwardly under slot 29 to prevent the entrance of a coin into the machine through said slot until the lever has returned to normal (Figs. 5, 6 and 7). The slot closer 30 is shown in the form of a flat plate slidable in a recess or opening 31 at the upper edge portion of a plate 32 which is movably supported within frame 10 as hereinafter explained. The closer 30 is shown provided with a bent lug 30^a movably fitted in a hole 33 in the corresponding lever 22, whereby such closer is detachably connected with the lever. The hook-like lug 30^a may be applied to lever 22 by turning the closer 30 flatwise with respect to lever 22 to pass the free end of the lug through hole 33, and then the closer may be

turned at right angles, with the lug in said hole, so that the closer may slide flatwise upon plate 32.

For operating the levers 22 by means of 5 coins I provide the following devices: A movable member 34 has spaced arms 34^a located adjacent the inner surfaces of the end walls of frame 10, and mounted upon shaft 12 to swing below the same, which member 10 is operatively connected with said shaft to be rocked therewith. I have shown member 34 provided with a projection 34' that is operatively connected with gear 13, as by being fitted in a slot 6 therein (Figs. 2, 5 and 15 6), whereby as said gear is rocked member 34 will be correspondingly rocked. Member 34 has laterally extending spaced projections 35, 36 for each lever 22, adapted to support a coin over or in the corresponding 20 space 37 therebetween (Fig. 9), within which spaces corresponding lower projections 22^a of corresponding levers 22 may operate. The member 34 is also shown provided with spaced recesses 34^c for the free 25 play of projections 22^a. Upon projection 35 is a stop 38, shown in the form of a screw, for coöperation with one edge of a coin and on the projection 36 is a coin stop 39 opposed to screw 38 adapted to coöperate with 30 the opposite edge of such coin, whereby the latter will be bridged across between the stops 38 and 39. The stop 39 is movably carried by member 34, and is so arranged as to resist thrust of the coin when it is moved 35 with member 34 to operate the corresponding lever 22, and to move independently when the member moves in the opposite direction for releasing the coin. Stop 39 is shown comprising a piece of metal having 40 a base 39^a from which extend outwardly flaring wings or projections 39^b having downwardly beveled edges 39^c to coöperate with a coin, the side edges of the base 39^a also coöperating with the coin, which base 45 rests upon the projection 36. Said base has a downwardly extending lug 39^d at the rearward side of projection 36, and an upwardly extending lug 39^e that is fitted in the forked lower end of a block 40 secured to the up- 50 wardly extending portion of member 34 by screw 41, whereby said stop 39 is supported for free movement upon projection 36 (Figs. 1, 3, 7, 8). When a coin is entered through a coin slot 29 the coin slides to position be- 55 tween the corresponding screw 38 and the opposing edge of stop 39, (as illustrated in Fig. 9), in which position the coin will be beneath the projection 22^a and opposing a shoulder 22^c of the lever for pushing the 60 lever to rock it (Figs. 5, 6, 7, 8). Since I have shown a plurality of levers 22, spaced apart, I have shown a movable stop 39 between two spaced screws 38, one side of which stop 39 coöperates with a coin from 65 one slot, and the other side of the stop 39

with a coin from another slot, which coins in turn coöperate with the corresponding stop screws 38, whereby each of the movable stops 39 is adapted to coöperate with two coins. It will be understood, however, that 70 if the machine were provided with a single lever 22, a single stop 39 to coöperate with a corresponding single stop 38 would be provided.

In order to guide a coin to operative posi- 75 tion between a stop 38 and the adjacent stop 39, and to cause said coin to push corresponding lever 22 when member 34 is operated, I provide a movable coin pusher 42 carried by member 34. Said pusher is shown 80 provided with lugs 43 at its ends pivotally supported at 44 upon arms 45 projecting laterally from member 34, whereby the pusher is movably carried by and with said member. A coil spring 46 (Figs. 1, 10, 5 and 6) connects 85 member 34 with pusher 42 on one side of the plane of the pivots of the latter, thereby tending to tilt the forward edge of the pusher behind coins on member 34. Normally, however, such edge of the pusher is 90 maintained below the coin, and the pusher serves as a guide for the coin to its position between the stops 38 and 39. For such purpose pusher 42 is shown provided with a 95 projection 47 adapted to engage the wall or cross strip 10^a of frame 10, when the parts are in their normal positions (Fig. 2), to tilt the pusher 42 against the tension of spring 46, and whereby when the pusher is carried along with member 34 when handle 100 17 is rotated, projection 47 will move away from said wall to permit spring 46 to tilt the pusher behind the coin (Figs. 5 and 6). To control the tilting of pusher 42 by spring 46 the projection 47 is provided with a pro- 105 jection 48, which projection enters a recess 34^d in member 34 to engage the latter to check the tilting of member 42 by spring 46 (Figs. 9 and 13).

When a coin is passed through a slot 29 110 it drops into the space 49 between the movable member 32 and the plate or cross strip 10^a (Figs. 1, 2, 5), and the coin slides between suitably spaced stops 50 on said plate which guide the coin to the corresponding 115 projecting portion 42^a of the pusher 42. Said portion 42^a normally is retained beneath the coin slot and passage 49 to receive the coin to guide it on the pusher to its seat on member 34 between stops 38 and 39, op- 120 posing shoulder 22^c of member 22 (Figs. 2 and 8). Plate 32 is cut away or provided with openings at 32^a (Figs. 5 and 6) coöperative with the corresponding projecting portions 42^a of pusher 42, in such manner that 125 when a coin drops upon the latter it will pass freely beyond member 32.

At a position to one side of or behind the position at which the coin is received be- 130 tween the stops 38, 39 on member 34, is lo-

cated a coin extractor, to discharge coins from member 34 after the operation of the corresponding lever 22 by the coin. Said extractor is indicated at 51 and is shown substantially in the form of a cross bar having arms 52 at its ends pivotally supported at 53 upon the end walls of frame 10 to rock. Said extractor is shown provided with upstanding lugs 51^a normally opposing a coin on member 34, and in the path of the coin, which lug is shown forked at 51^b whereby the projection 22^a of the corresponding lever 22 may play in such fork. The lugs 51^a are also shown slotted at 51^c (Figs. 1 and 9), whereby if a coin with a string attached be inserted in the machine and pushed with member 34 beyond a lug 51^a, the string will be caught in the slot 51^c to be severed when the string is pulled. The coin extractor 51 is normally retained in such position that a coin on member 34, when the latter is rocked forwardly, will push the extractor and tilt it by engagement of the coin with a corresponding lug 51^a, whereby the coin will ride over such lug (Fig. 5) and will advance beyond it (Fig. 7), and whereby during the return stroke of member 34 the rearward edge of the coin will engage the lug and the latter will dislodge the coin from member 34 for deposit in any suitable receptacle in casing 1. Any suitable spring may be utilized to normally retain extractor 51 in normal position with its lug 51^a in front of the path of a coin carried by member 34. Such a spring is indicated at 54 shown attached to frame 1 at 55 and bearing at its end 54^a against extractor 51 (Figs. 3, 4 and 6^a), said spring normally tending to tilt the extractor rearwardly with the arm 52 bearing against a stop 56 (Fig. 8), carried by an end wall of frame 10.

I have shown extractor 51 provided with a projection or finger 57 that extends forwardly to coöperate with the dog 20 before referred to. Said dog is shown provided with a spring 58 resting upon projection 57, said dog also having an arm 20^a beneath said projection (Fig. 4). When the extractor is in the normal position its projection 57 bears down upon arm 20^a of dog 20 to withdraw the dog from coöperation with ratchet 18, as indicated in dotted lines in Fig. 4, and so long as there is no coin upon member 34 said ratchet and shaft 16 may be rotated but the levers 22 will not be actuated. When a coin is deposited through slot 29 and rests between the appropriate stops 38, 39, of member 34, and shaft 16 is then rotated, the coin will be carried forward by the pusher 42 into engagement with a lug 51^a of extractor 51, causing the latter to tilt, and thereupon its projection 57 will rise and will push spring 58 upwardly, whereupon dog 20 will be raised into coöperation with a tooth of ratchet 18 to prevent reverse rotation

thereof, and whereby reverse movement of member 34 is prevented, requiring continued forward rotation of shaft 16 before the parts can be brought back to normal. As said shaft 16 is continued forwardly the ratchet 18 will pass the dog until the coin passes beyond lug 51^a, whereupon the latter will be released and its spring 54 will return the extractor to normal, whereupon projection 57 will descend to operate upon arm 20^a to withdraw dog 20 from coöperation with ratchet 18, whereby shaft 16, when released by the operator, will return to normal under the influence of spring 14 operating gears 13 and 15, and correspondingly member 34 and pusher 42 will return to normal positions.

To prevent tokens that are subject to magnetic attraction from reaching the member 34, if passed through a coin slot, I provide a magnet 59 which is shown projecting inwardly from wall or strip 10^b across space 49 (Fig. 3) and spaced from an adjacent stop 50, beneath the corresponding coin slot. When a magnetic token passes from the coin slot between said magnet and stop, the magnet will attract the token, to draw it to one side away from the line of descent to the projecting portion 42^a of pusher 42, so that the token may pass through the front space 42^b of said pusher below (Fig. 4), to a passage or way 60 within casing 1, which leads to an outlet 61 from the casing to discharge such tokens and prevent them from operating the mechanism: Passage 60 is shown provided between the front wall of casing 1 and the downwardly converging wall 62 secured within the casing. Since, in the example illustrated, provision is made for a coin slot for correspondingly controlling devices, I have shown two magnet poles 59 each spaced below two adjacent coin slots, the magnets being shown carried by a bar 59^a secured by screw 62 on the outside of wall 10^a which is provided with openings 63 for the passage of the magnet poles (Figs. 2 and 3).

The plate 32 is shown provided with fingers 64, which are shown pivotally supported at 65 upon lugs 66 secured upon the inner side of plate 32, which fingers rest in normal position upon stops 66^a of the corresponding lugs (Fig. 12). the said fingers are substantially similar to the fingers 35 set forth in my aforesaid Letters Patent, and are each provided with a lower projection 64^a normally extending through a corresponding slot 32^a in plate 32 across the path of coins and tokens passing through space 49, from the corresponding coin slot 29 thereabove, whereby the fingers will be tilted when a coin or token encounters them, yet the coin may pass downwardly to the projection 42^a of pusher 42. The fingers 64 also have projections 64^b above projections 130

64^a and so arranged as to pass into the corresponding slot 32^a of plate 32 when a coin or token tilts the finger by engagement with its projection 64^a (Fig. 12). If a token having a hole in it, such as a washer 67 (Fig. 12) is passed through a coin slot, and of sufficient weight to tilt the finger 64, it will engage the projection 64^a and tilt the finger to cause upper finger 64^b to enter the hole in the token by reason of the impetus given the finger by the stroke of the token, thereby temporarily retaining such token on the finger 64^b to prevent such token from reaching the projection 42^a, and if a light-weight token is inserted through the coin slot, but which is not sufficiently heavy to tilt the finger 64 out of its path, the projection 64^a by engaging such token will deflect it and cause it to pass to one side of the projection 42^a below and through the recess 42^b to the discharge passage 60. The plate 32 is made movable with the member 34 to be withdrawn from its normal position opposing wall 10^a of frame 10, so that if a washer be suspended upon the projection 64^b of a finger 64, the washer will be dislodged from such projection after the projection 42^a has been moved away from the vertical plane of passage 49. While in my aforesaid Letters Patent No. 1,148,807, I have illustrated means for moving plate 32 with the slidable coin-receiving member, my present invention contemplates means coöperative with the rocking or swinging member 34 for operating the plate 32 as follows: Said plate at its ends is provided with laterally projecting arms 68 which are shown provided with slots 68^a receiving screws or studs 69 carried by the adjacent arms 34^a, the relation of said screws or studs to the slots 68 being such that when plate 32 is in its normal position (Figs. 2 and 6^b) the screws or studs 69 will be at one end of the slots 68^a, and when the arms 34^a are first swung by the rotation of gear 13 to position for operating the levers 22, said screws or studs will first slide through the slots 68^a for a limited distance, enabling the projections 42^a to be withdrawn from beneath the passage 49 before drawing plate 32. Before the limit of such stroke of arms 34^a said screws or stops will encounter the distant ends of the slots 68^a so that during continued movement of said arms 34^a the arms 68 will be drawn along to correspondingly move plate 32 away from its normal position with relation to plate 10^a, thereby correspondingly moving the fingers 64, whereupon a washer hanging on such a finger will drop below and pass through passage 60 to the outlet 61, thereby preventing the operation of the coin controlled devices by such washer. Upon the return stroke of arms 34^a the screws or studs 69 will again push the arms 68 to restore the plate 32 to

its normal position and retain it there. The plate 32 is not only partially supported by the arms 68 on the screws or studs 69, but also on shaft 16 (Fig. 7). Plate 32 is shown provided with forwardly extending projections 70 (Figs. 3, 4 and 8) which are shown passing through the openings 63^a of wall 10^a beneath the magnet poles, which projections serve to strip from the magnet poles metal pieces hanging thereon. The projections 70 at their rear portions are shown passing through opening 71 in plate 32 and provided with upturned lugs 72 which may be riveted or screwed to plate 32 (Figs. 1, 3, 4, 8).

The operation may be described as follows: When a coin is inserted in a coin slot, it will pass downwardly between a stop 50 and an adjacent side of a magnet 59 and will tilt the finger 64 therebelow, and will drop upon the underlying projection 42^a of pusher 42, sliding thence upon member 34 where it will rest between corresponding stops 38 and 39. When handle 17 is next turned to the right in Fig. 4, member 34 will be swung to the right in Fig. 5, whereupon projection 47 will pass from its engagement with wall 10^a and spring 46 will tilt pusher 42 to cause its edge to pass behind the coin to push the latter. Continued movement of member 34 will cause the forward edge of the coin to engage lug 51^a of extractor 51, whereupon such lug and extractor will be tilted downwardly and its projection 57 will rise, at which time the forward edge of the coin will about engage the shoulder 22^a of the corresponding lever 22; such rising of projection 57 will cause it to push upwardly spring 58 to carry dog 20 into coöperation with ratchet 18. Further continued movement of member 34 will carry the coin over said lug 51^a (Fig. 5) and will cause tilting of corresponding lever 22, whereupon its ejector 24 will push the lowermost article 3 from the chute 2 into the passage 27, during which time the ratchet teeth will pass over dog 20 to prevent reverse rotation of the parts. When member 34 has reached the limit of its stroke said coin will have been carried beyond lug 51^a, and said article will have been fully discharged from the chute to pass down upon the surface 28 (Fig. 7), the further operation of the parts then being stopped by the engagement of shoulder 18^a of ratchet 18 with stop 19. As soon as the coin passes beyond lug 51^a the latter will be released and spring 54 will restore the extractor, whereupon its projection 57 will bear down upon the arm 20^a of dog 20, to withdraw the latter from coöperation with ratchet 18, to restore the dog to normal to permit the subsequent return of ratchet 18 and the other parts to normal. When the operator next releases handle 17

the spring 14 will restore the member 34 and other parts to normal, and during return stroke of member 34 the coin will encounter the lug 51^a which will stop return movement of the coin, and by reason of the continued return movement of member 34 the coin will be dislodged from the member, sliding between the stops 38, 39, and will drop into the coin receiver or the bottom of the casing, thereby releasing the corresponding lever 22, and all the parts will return to normal ready for another operation, the ejector 24 during the return of lever 22 to normal passing under the lowermost article of the stack which will have descended as soon as the last article was ejected from the chute, and said ejector 24 will rest back of the lowermost article 3 (Fig. 2).

Having now described my invention what I claim is:

1. In a vending machine the combination of a lever, a member movable relatively thereto and independently thereof and provided with means to retain a coin in position to engage the lever when the member moves the coin toward the lever, means to guide a coin to said member, a coin extractor in position to permit the passage of the coin with the member in one direction to operate the lever, and to discharge the coin from said member when the latter moves in another direction, and means to operate said member.

2. In a vending machine the combination of a lever, a member movable relatively thereto and independently thereof and provided with means to retain a coin in position to engage the lever when the member moves the coin toward the lever, means to guide a coin to said member, a coin extractor movably supported in position to be operated by the coin to permit the passage of the latter when moved with said member to operate the lever and to discharge the coin from said member when the latter moves with the coin in another direction, and means to operate said member.

3. In a vending machine the combination of a lever, a member movable relatively thereto and independently thereof and provided with means to retain a coin in position to engage the lever when the member moves the coin toward the lever, means to guide a coin to said member, a coin extractor pivotally supported and having a portion at one side of the normal position of said member to be engaged by a coin thereon to permit the coin to pass the ejector when the member and coin move in one direction, a spring normally retaining said extractor in position to be operated by a coin on said member and to be released by the coin when the latter passes from the extractor, and a stop to retain the extractor in position to engage the coin on the return

stroke of the member to discharge the coin therefrom.

4. In a vending machine, the combination of a lever, a member movable relatively thereto and independently thereof and provided with means to retain a coin in position to engage the lever when the member is moved in one direction to move the coin toward the lever, a coin extractor movably supported with relation to the member and coin, said extractor having a lug to cooperate with the coin when the latter is moved by the member, means to move the extractor to position its lug behind the coin when the coin passes beyond the lug to cause release of the coin from the member and lever when the member moves with the coin toward its normal position, and means to operate said member.

5. In a vending machine, the combination of a lever, a member movable relatively thereto and provided with means to retain a coin in position to operate the lever when the member is moved in one direction, a coin extractor movably supported with relation to the member and coin, said extractor having a lug to cooperate with the coin, means to move the extractor to position its lug behind the coin when the coin passes beyond the lug to cause release of the coin from the member and lever when the member moves toward its normal position, means to operate said member, said lug being forked to receive the portion of the lever cooperative with the coin, and means to operate said member.

6. In a vending machine, the combination of a lever, a member movable relatively thereto and provided with means to retain a coin in position to operate the lever when the member is moved in one direction, a coin extractor movably supported with relation to the member and coin, said extractor having a lug to cooperate with the coin, means to move the extractor to position its lug behind the coin when the coin passes beyond the lug to cause release of the coin from the member and lever when the member moves toward its normal position, and means to operate said member, said lug having a slot to receive a string attached to a coin when the latter is by the lug released from said member and lever, and means to operate said member.

7. In a vending machine, the combination of a lever, a member movable relatively thereto and provided with means to retain a coin in position to operate the lever, means to guide a coin to said member, a coin extractor movably supported in position to be operated by the coin when moved with said member to operate the lever and to discharge the coin from the member when the latter moves in another direction, means to operate said member including a ratchet, a

dog for said ratchet, and means connected with said extractor to cooperate with said dog to cause the latter to control the ratchet when the coin operates the extractor and to release the dog from the ratchet when the coin is released from the extractor.

8. In a vending machine, the combination of a lever, a member movable relatively thereto and provided with means to retain a coin in position to operate the lever, means to guide a coin to said member, a coin extractor movably supported in position to be operated by the coin when moved with said member to operate the lever and to discharge the coin from the member when the latter moves in another direction, means to operate said member including a ratchet, a dog for said ratchet, a projection from the extractor cooperative with the dog to normally retain the latter out of coaction with the ratchet and to place the dog in co-operation with the ratchet when the member moves the coin in one direction, and means to cause the extractor to move the dog out of coaction with the ratchet when the coin passes the extractor.

9. In a vending machine, the combination of a lever, a member movable relatively thereto and provided with means to retain a coin in position to operate the lever, means to guide a coin to said member, a coin extractor movably supported in position to be operated by the coin when moved with said member to operate the lever and to discharge the coin from the member when the latter moves in another direction, means to operate said member including a ratchet, a dog normally out of coaction with said ratchet, said dog having an arm and a spring, said extractor having a projection cooperative with said spring and arm, said projection controlling said arm to normally retain the dog out of coaction with the ratchet, said extractor when operated by the coin serving to cause the projection to operate the spring to move the dog into co-operation with the ratchet, said ejector being movable with its projection when released from the coin to cause its projection to operate the arm to withdraw the dog from the ratchet.

10. In a vending machine, the combination of a lever, a member movable relatively thereto and provided with means to retain a coin in position to operate the lever, a pusher for a coin carried by said member to permit deposit of the coin on the latter and to move behind the coin on the forward stroke of the member, and means to operate said member and pusher.

11. In a vending machine, the combination of a lever, a member movable relatively thereto and provided with means to retain a coin in position to operate the lever, a

pusher movably carried by said member normally out of pushing relation to a coin thereon, means to cause said pusher to move behind a coin on the member when the latter moves toward the lever, and means to operate said member.

12. In a vending machine, the combination of a lever, a member movable relatively thereto and provided with means to retain a coin in position to operate the lever, a pusher movably carried by said member normally out of pushing relation to a coin thereon, a spring to cause said pusher to move behind a coin when said member moves toward the lever, means to retain said pusher out of co-operative relation to a coin on the member when the latter is in normal position, and means to operate the member and pusher.

13. In a vending machine, the combination of a lever, a member movable relatively thereto and provided with means to retain a coin in position to operate the lever, a pusher movably carried by said member normally out of pushing relation to a coin thereon, a spring to cause said pusher to move behind the coin when said member moves toward the lever, said pusher having a single projection, an abutment for said projection cooperative therewith when the member and pusher are in normal position to normally retain the pusher out of pushing relation to a coin on the member, and means to operate said member and withdraw the projection from the abutment whereby the spring may move the pusher into cooperative relation to the coin.

14. In a vending machine, the combination of a lever having a shoulder, a member movable relatively thereto and provided with means to retain a coin in position opposing said shoulder to operate the lever when the coin is moved with the member on one stroke of the member, and means to release the coin from the member and lever on the return stroke of the member.

15. In a vending machine, the combination of a lever having a shoulder, a member movable relatively thereto and provided with means to retain a coin in position opposing said shoulder, a pusher carried by the member to push a coin against said shoulder on one stroke of the member, and means to release the coin from the member and lever upon return stroke of the member with the coin.

16. In a vending machine, the combination of a lever having a shoulder, a member movable relatively thereto and provided with means to retain a coin in position opposing said shoulder, a pusher carried by the member to push a coin against said shoulder on one stroke of the member, and a coin extractor adapted to permit movement of the coin with the member and lever in one direc-

tion and to engage the coin to release it when the member moves with the coin in the reverse direction.

17. In a vending machine, the combination of a lever, a member movable relatively to the lever, said member having spaced stops for a coin, one of said stops being movably adapted to retain the coin on the member in cooperation with the other stop when the member moves in one direction and to be moved by the coin for its release when the member moves in the reverse direction, an extractor cooperative with the coin on its return stroke to discharge the coin from said stops on the member, and means to operate said member.

18. In a vending machine, the combination of a lever, a member movable relatively to the lever, said member having spaced stops for a coin, one of said stops being movably supported on the member and provided with an inclined edge for cooperation with the coin between said stops, and an extractor cooperative with the coin on its return stroke to cause the coin to pass under said edge of said movable stop for releasing the coin from said stops, and means to operate said member.

19. In a vending machine, the combination of a lever, a member movable relatively to the lever, said member having spaced stops for a coin, one of said stops being movable on said member and having a base resting on the member, and an upturned wing having an inclined edge to cooperate with a coin, means to movably retain said stop on the member, and an extractor cooperative with the coin on its return stroke to discharge the coin to cause the coin to pass under said edge of said movable stop for release of the coin from said stops, and means to operate said member.

20. In a vending machine, the combination of a lever, a member movable relatively to the lever, said lever having spaced stops for a coin, one of said stops being movable on said member and having a base resting on the member, and an upturned wing having an inclined edge to cooperate with a coin, said base having a lug cooperative with said member and having another lug, a block on the member cooperative with the last named lug, whereby the stop is movably retained on the member, an extractor cooperative with the coin on its return stroke to discharge the coin to cause the coin to pass under said edge of said movable stop for releasing a coin from said stops, and means to operate said member.

21. A vending machine comprising a casing, a frame within the casing, a shaft carried by the frame, a lever journaled on the shaft and operative with relation to said lever, means upon said member to retain a

coin in cooperative relation to the lever for operating the latter, a gear on the shaft connected with said member, a second shaft having a gear cooperative with the first named gear, means upon the second named shaft projecting from the casing for operation of said shaft, the second shaft having a ratchet, a dog carried by the frame normally out of cooperation with the ratchet, an extractor movably supported in position to cooperate with a coin on said member, said extractor having means cooperative with said dog for causing cooperation of the dog with the ratchet when the member moves with the coin in one direction and to release the dog from the ratchet when the coin is released from the extractor.

22. A vending machine comprising a casing, a frame within the casing, a shaft carried by the frame, a lever journaled on the shaft, a movable member journaled on the shaft and operative with relation to said lever, means upon said member to retain a coin in cooperative relation to the lever for operating the latter, a gear on the shaft connected with said member, a second shaft having a gear cooperative with the first named gear, means upon the second named shaft projecting from the casing for operation of said shaft, the second shaft having a ratchet, a dog carried by the frame normally out of cooperation with the ratchet, said dog having a spring and an arm, an extractor movably supported in position to cooperate with a coin on said member, said extractor having a projection cooperative with said spring and arm, said projection bearing on the arm to normally retain the dog out of coaction with the ratchet, said projection being operative with said spring to place the dog in cooperation with the ratchet when a coin operates the ejector, and a spring to move said ejector and its projection to cause the latter to withdraw the dog from the ratchet when the ejector is released from a coin.

23. In a vending machine the combination of a frame having a wall, a plate spaced from said wall and provided with arms, a coin receiving member rockably carried by said frame and having a portion to receive coins from said space, and means movably connecting said arms with said member for permitting movement of said member separately from the plate for a distance, and for moving the plate with the member when the latter moves a farther distance.

24. In a vending machine the combination of a frame having a wall, a plate spaced from said wall and provided with arms, a coin receiving member rockably carried by said frame and having a portion to receive coins from said space, and pin and slot connections between said arms and said member permitting movement of the mem-

ber for a distance separately from the plate for moving the latter with the member when the latter moves a farther distance.

25. In a vending machine the combination
5 of a frame having a wall, a plate spaced from said wall and provided with arms, a coin receiving member rockably carried by said frame and having a portion to receive coins from said space, and pin and slot con-
10 nections between said arms and said member permitting movement of the member for a distance separately from the plate and for

moving the latter with the member when the latter moves a farther distance, said plate having a projection movable in an opening in said wall.

Signed at New York city, in the county of New York, and State of New York, this 5th day of November, A. D. 1917.

ELIJAH F. SPAULDING.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."