July 6, 1948. F. NIEWOEHNER 2,444,747

COIN-CONTROLLED VENDING MACHINE

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Fig. 2.

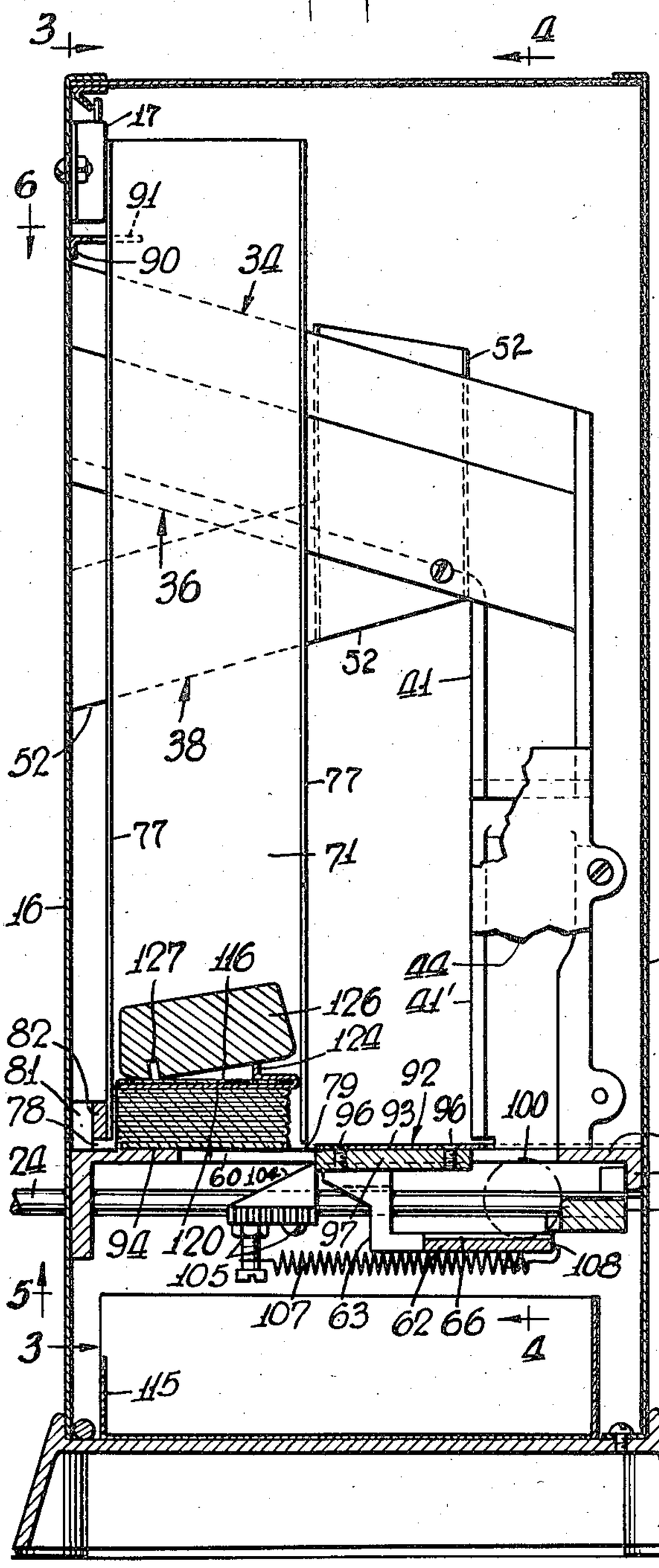

Fig. 1.

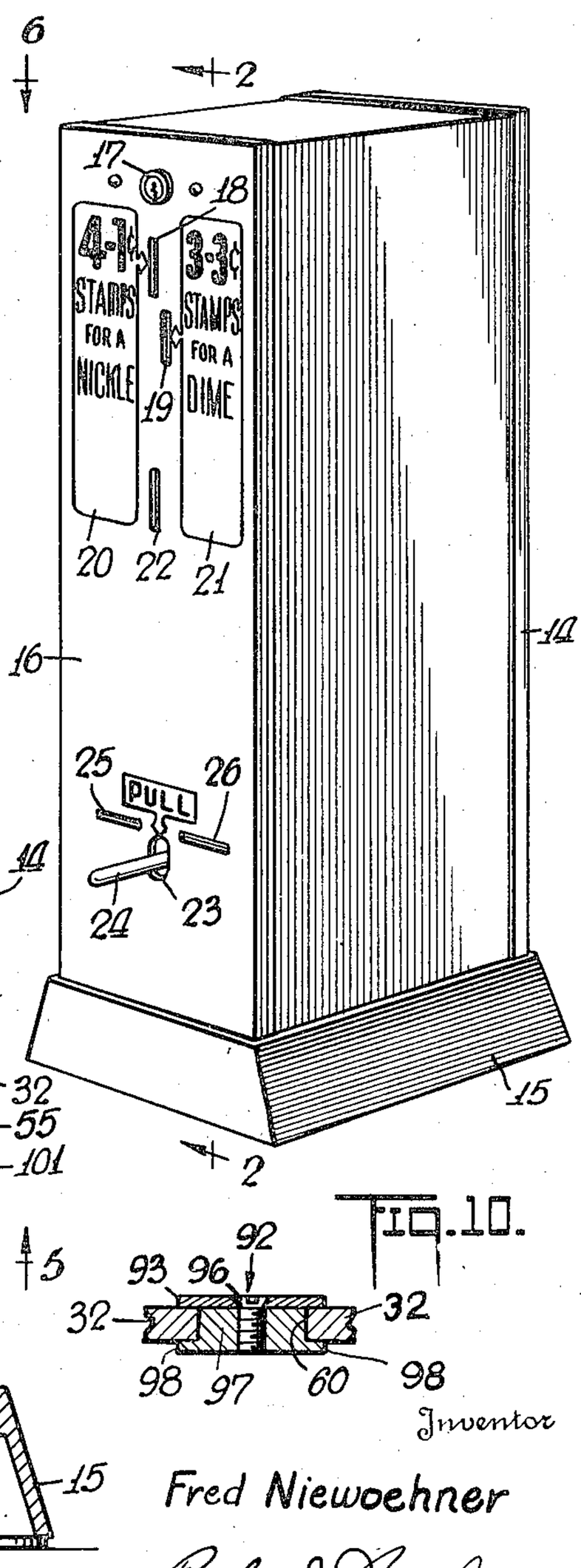

Fig. 10.

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Fig. 3.

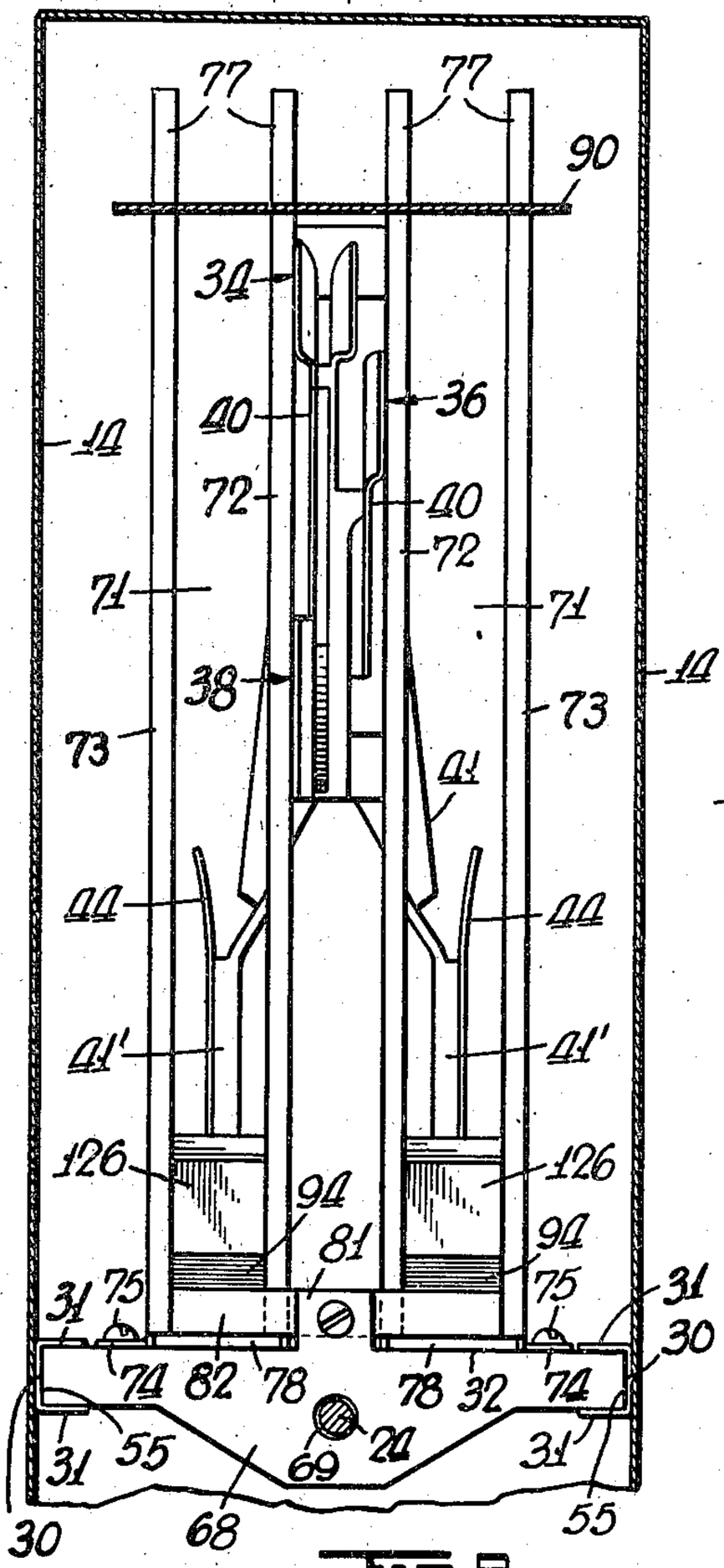

Fig. 4.

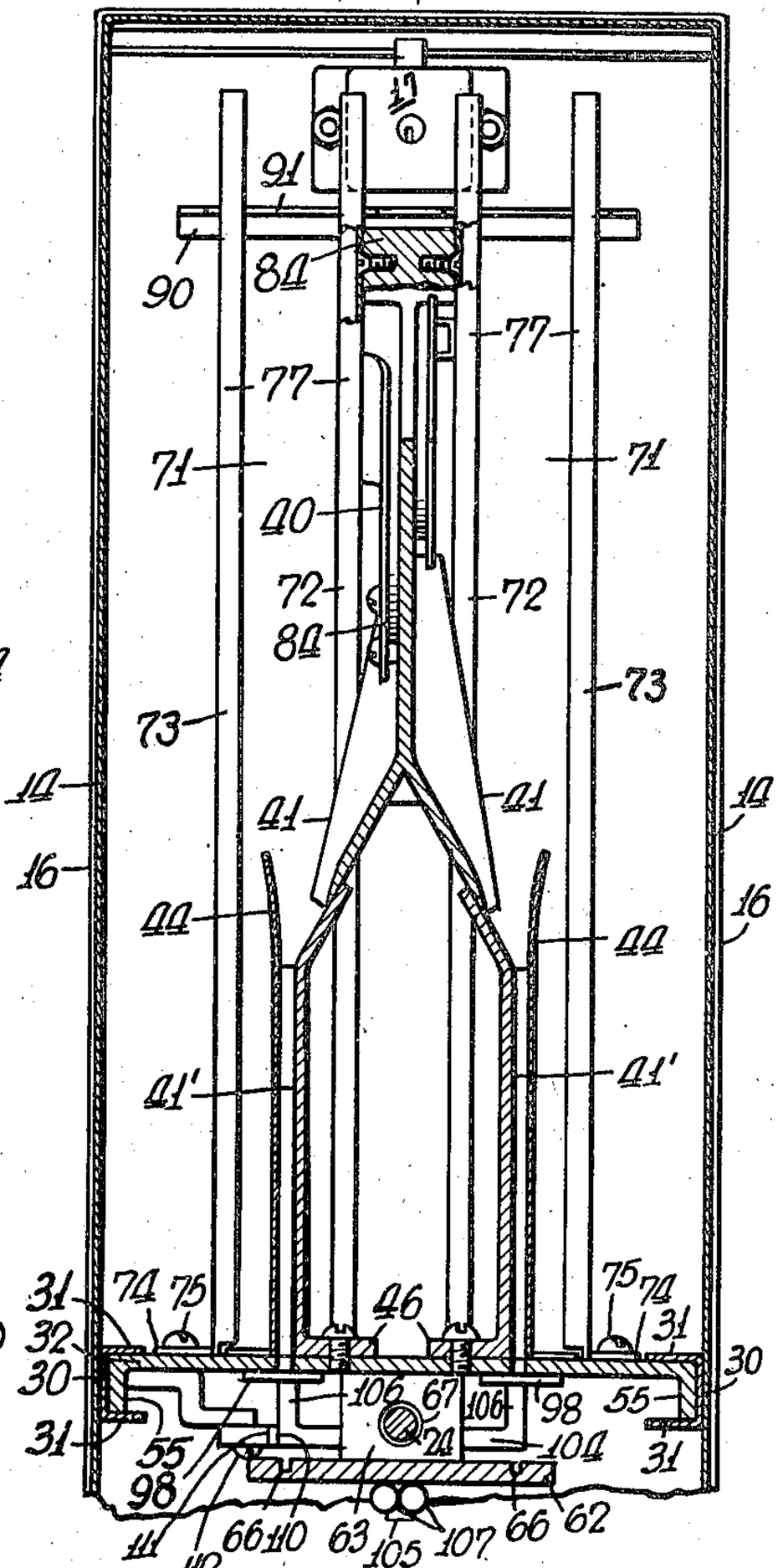

Fig. 9.

Fig. 13.

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COIN-CONTROLLED VENDING MACHINE

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FIG. 5.

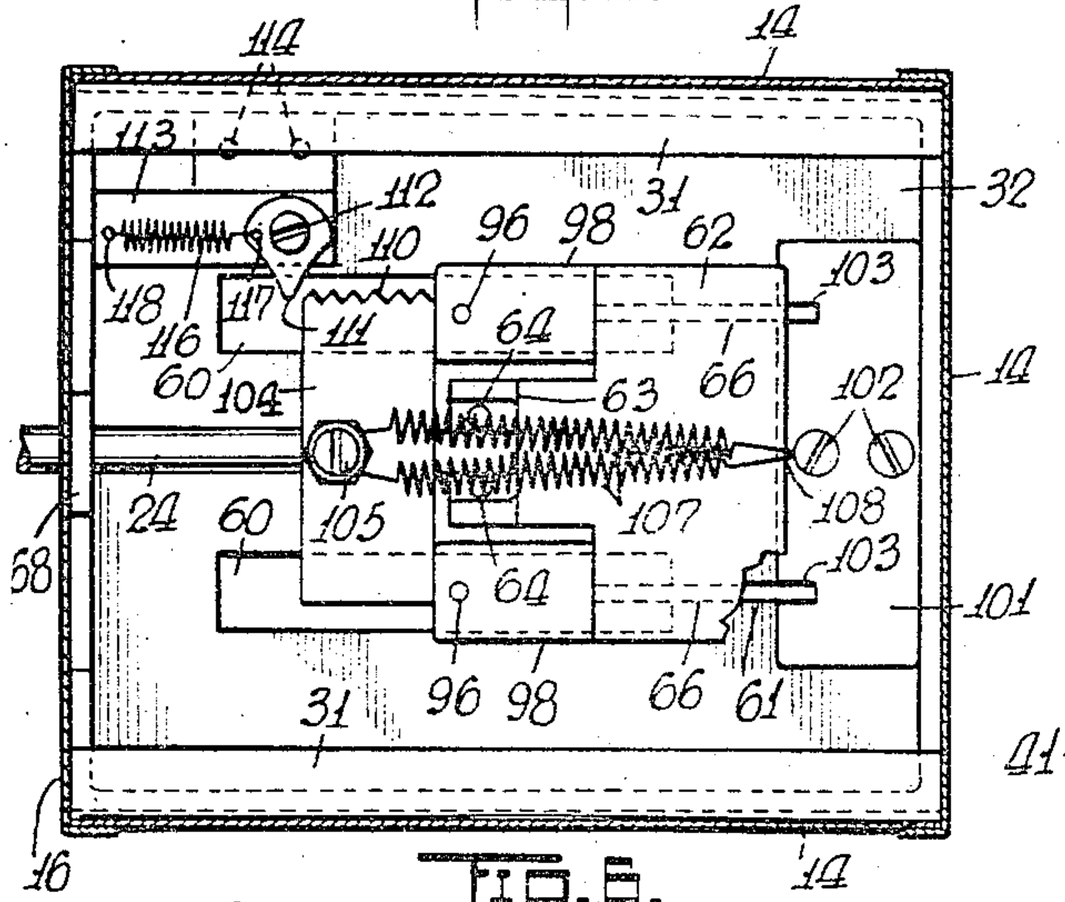


FIG. 6.

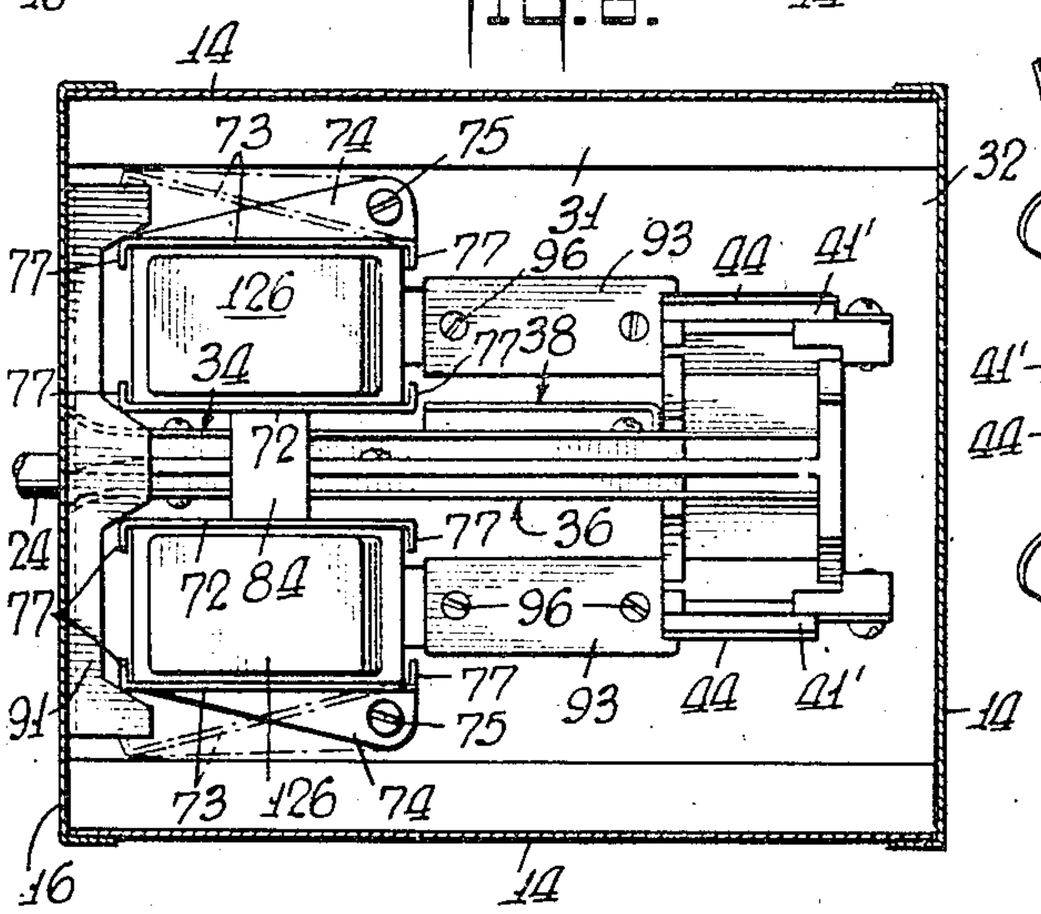


FIG. 8.

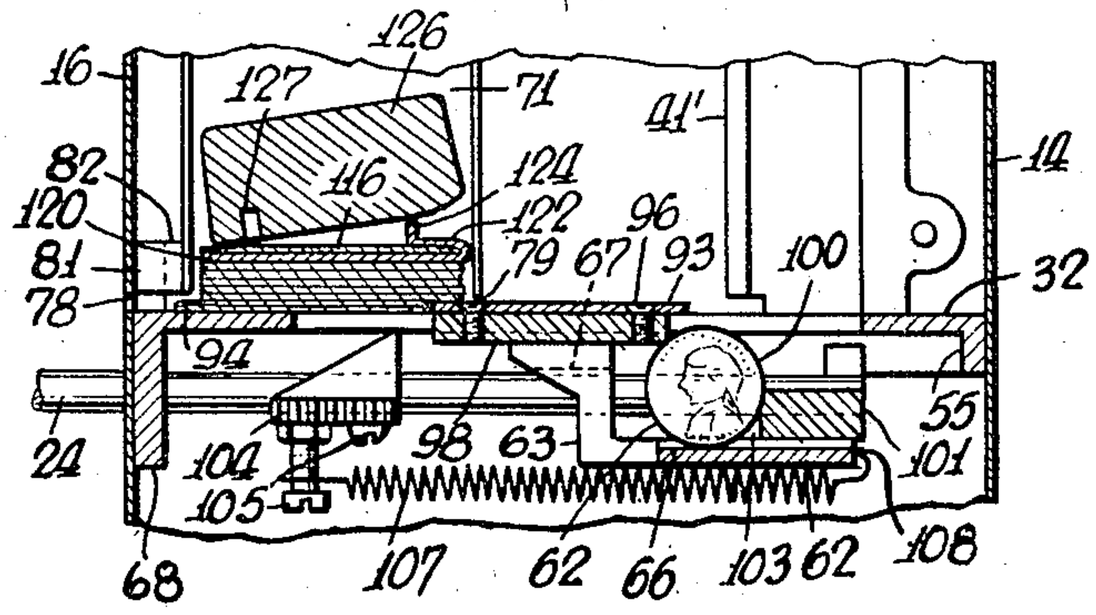


FIG. 7.

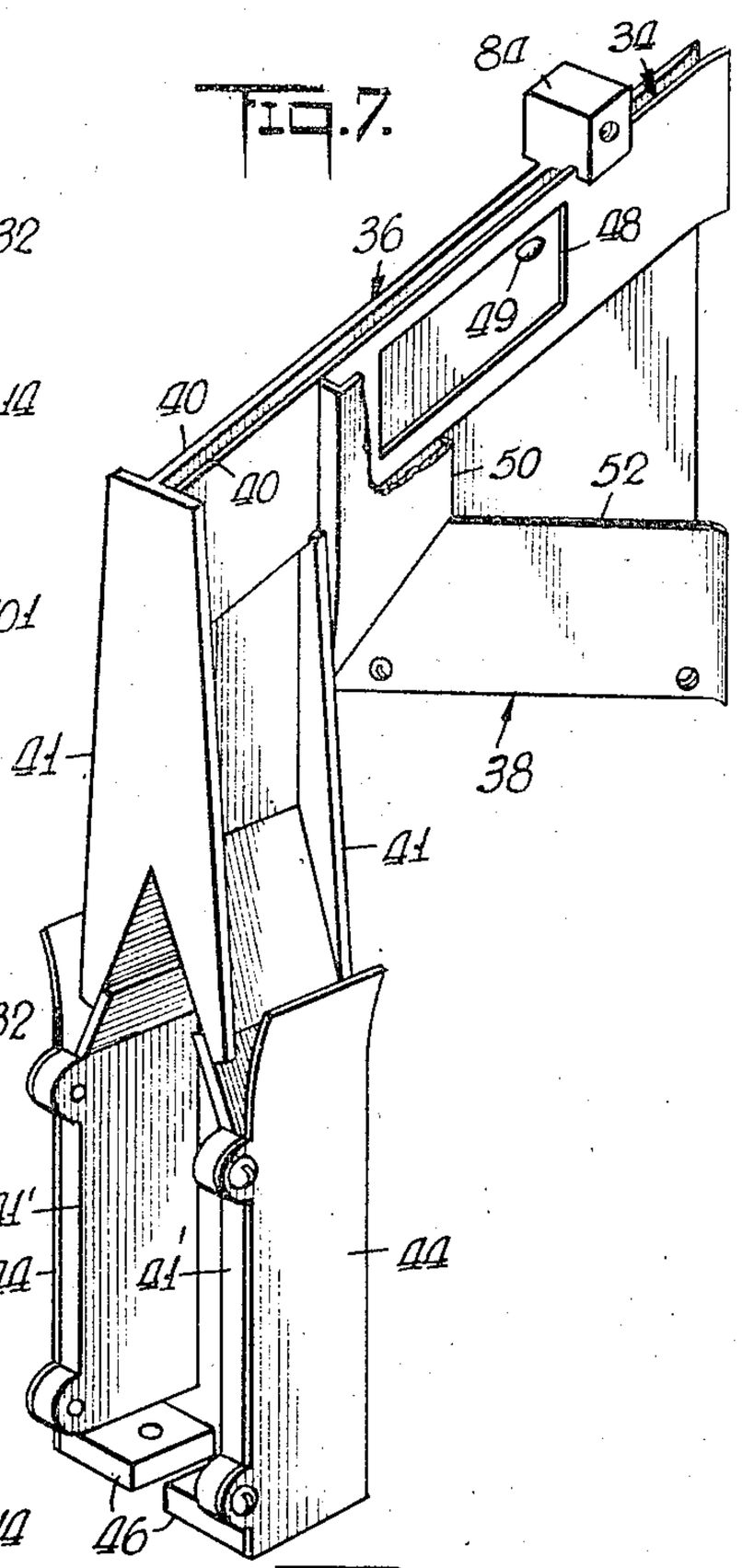


FIG. 11.

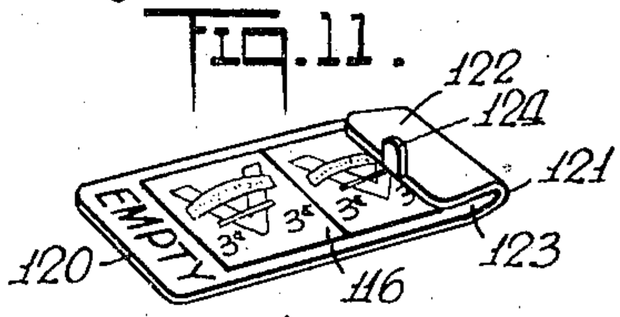
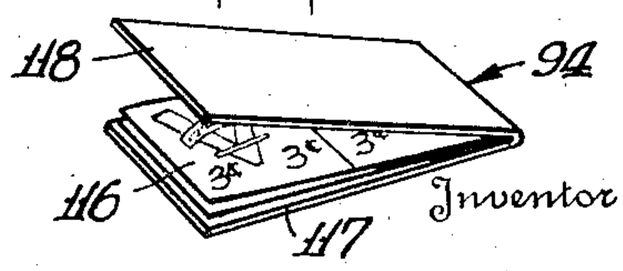


FIG. 12.



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Patented July 6, 1948 2,444,747

UNITED STATES PATENT OFFICE

2,444,747

COIN-CONTROLLED VENDING MACHINE

Fred Niewoehner, Bergenfield, N. J., assignor to Postage Stamp Machine Co., New York, N. Y., a co-partnership

Original application January 17, 1945, Serial No. 573,199. Divided and this application January 11, 1946, Serial No. 640,564

9 Claims. (Cl. 312—56)

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The present invention relates generally to a coin-controlled vending machine, and it has relation particularly to a postage stamp vending machine wherein the stamps are dispensed in sanitary folders or packets.

This application is a division of my copending application Serial No. 573,199, filed January 17, 1945, for improvements in coin-controlled vending machine.

An object of the invention is the provision of an efficient and economical coin-controlled postage stamp vending machine which is constructed in a simple manner of a minimum of parts; is positive in operation; and is relatively inexpensive to manufacture.

Another object of the invention is to provide an efficient and simple indicia for indicating when the machine is empty, and for locking and holding said indicia in its visual empty position until the machine is unlocked and reloaded.

A further object of the invention is the provision of a simple and efficient pivotal construction for the stamp holding magazines that will facilitate reloading and/or unloading.

Other and further objects and advantages of the invention, which result in simplicity, economy and efficiency will be apparent from the following detailed description, wherein a preferred form of embodiment of the invention is shown, reference being had for illustrative purposes to the accompanying drawings, forming a part hereof, wherein like numerals indicate like parts, in which:

Fig. 1 is a perspective view of a coin-controlled postage stamp vending machine embodying the principles of the invention;

Fig. 2 is an enlarged vertical and longitudinal sectional view of the coin-controlled vending machine shown in Fig. 1, illustrating the normal receiving position of a coin in dotted lines therein, the same having been taken substantially along the line 2—2 thereof, looking in the direction of the arrows;

Fig. 3 is a fragmentary vertical front elevational view, partly in section, of the machine shown in Fig. 2, with its front cover plate removed, the same having been taken substantially along the line 3—3 thereof, looking in the direction of the arrows;

Fig. 4 is a fragmentary vertical sectional view of the machine shown in Fig. 2, the same having been taken substantially along the line 4—4 thereof, looking in the direction of the arrows;

Fig. 5 is a cross-sectional view of the machine shown in Fig. 2, the same having been taken

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substantially along the line 5—5 thereof, looking in the direction of the arrows;

Fig. 6 is another cross-sectional view of the machine shown in Fig. 2, the same having been taken along the line 6—6 thereof, looking in the direction of the arrows;

Fig. 7 is an enlarged perspective view of the systems of coin chutes of the machine, showing particularly the manner in which spurious or rejected coins are returned to the operator;

Fig. 8 is a fragmentary vertical and longitudinal sectional view of the coin-controlled mechanism shown in Fig. 2, illustrating the position of the coin-controlled mechanism, including the coin, at the time the packet of stamps begins its movement into full dispensing position;

Fig. 9 is another fragmentary vertical and longitudinal sectional view of the coin-controlled mechanism shown in Fig. 2, illustrating its position in full dispensing with the "empty" indicia locked in its indicating position to show that the supply of stamps in the magazine is exhausted;

Fig. 10 is an enlarged fragmentary cross-sectional view of the slidable dispenser, showing the same mounted in its slot in the base member;

Fig. 11 is a perspective view of the follower and holder for the final stamps of the stamp magazine, which follower carries the visual indicia for indicating when the machine is "empty";

Fig. 12 is a perspective view of a partially opened packet of stamps of the type to be dispensed from the machine; and

Fig. 13 is a perspective view of one of the gravity weights to be positioned on the top of the "empty" follower on top of the column of stamp packets in a magazine, showing the locking slot which engages a detent of the follower for locking the same in an exposed position within the discharge slot of the machine.

Referring now to the drawings, there is shown in Fig. 1 a stamp vending machine comprising an outer casing 14, having a base 15 and a removable front cover plate 16 provided with a suitable lock 17. The cover plate 16 has in its upper portion a series of slots 18 and 19 for receiving coins of different denominations, as indicated by suitable direction plates 20 and 21, and a coin return slot 22 for returning spurious or rejected coins. The lower portion of the cover plate 16 is provided with a central opening 23 for receiving one end of a reciprocating or actuating handle 24, and a series of slots 25 and 26 through

which the articles to be vended may be discharged.

In Fig. 3, the casing 14 is shown with its front cover plate 16 removed. A pair of U-shaped channel members 30 are shown mounted intermediate the sides of the casing 14 with their open arms 31 projecting inwardly thereof, forming a stationary track-way or guide-way spaced above the base member 15 for receiving a removable base member 32 adapted to support the operating mechanism.

The coin chute systems are best shown in detail in Fig. 7, and consist of three separate and distinct chute systems, to-wit: a chute system 34 connected with the nickel slot 18, a similar chute system 36 connected with the dime slot 19, and a bifurcated return coin chute system 38 connected on opposite sides to the chute systems 34 and 36 for returning spurious or rejected coins to the operator through the return slot 22.

Each coin chute system consists of a plurality of sections, a rearwardly declining section and a vertical section. The chute systems 34 and 36 are identical in construction, and extend substantially parallel to each other, consisting of a rearwardly declining section 40, having an opening in its bottom at its rear and communicating with the vertical chute section shown made up of two parts 41 and 41'. The sections 41 of the vertical chute are formed from a single piece of metal, and the lower part 41' of each chute is made up of two parts. The main part of the section 41' is U-shaped and provided with an attachable cover plate 44. Suitable base flanges 46 are formed integrally with the lower ends of said sections 41' to provide means for fastening them to the base plate 32. These chute systems are constructed in this sectional manner only for convenience and cheapness of manufacture, and obviously may be formed in other ways without departing from the spirit of the invention.

A longitudinal slot or opening 48 (see Fig. 7) is formed along one side of each of the rearwardly declining sections 40 of the chute systems 34 and 36 to provide open communication with the return coin chute system 38. The bottom of the opening 48 is flush with the bottom of the chute 40, and is of a height slightly less than the diameter of a coin of the proper denomination to be conveyed therealong. Each of the chutes 40 has an abutment or projection 49 mounted inwardly on the wall opposite said opening 48 adjacent its forward end for deflecting all coins passing along said rearwardly declining section toward said opening 48. Obviously, if a deposited coin is smaller than the coin of the proper denomination, it would be deflected by the abutment 49 towards the opening 48 and pass therethrough into the vertical receiving section 50 of the return chute system 38, whereupon it will gravitate into the forwardly declining section 52 and be delivered to the operator through the return slot 22.

The removable base member 32 is provided with a downwardly and integrally formed outer flange or skirt 55 providing suitable supporting legs therefor. It is of a size and shape adapted to fit slidably within the casing 14 on the trackways or guide rails 31 thereof, and is provided with a plurality of longitudinal slots 60, which are narrowed adjacent their rear ends, as indicated at 61, to snugly receive a coin, as best shown in Fig. 5. A fixed coin receiver 62 is attached below the base member 32 in spaced relation thereto by means of an integral offset arm 63 through screws 64.

(See Fig. 5.) The coin receiver 62 is provided with spaced coin tracks 66 aligned with the coin slots 61 of the base member 32. The arm 63 is provided with a horizontal aperture 67 for receiving the handle 24. The forward or front edge of the base member 32 is provided with a downwardly extending flange 68 having a horizontal aperture 69 therethrough also for receiving the handle 24.

A plurality of spaced vertical magazines 71 are positioned adjacent the front edge of the base member 32, and are suitably centered over the forward ends of the slots 60. Each magazine 71 consists of a fixed inner upright 72 having horizontal base flanges by which it may be secured to the base member 32, and a second spaced outer upright 73, having a similar horizontal base flange 74 by which it is in turn attached to the base member 32 adjacent its rear end by a single screw 75. The outer uprights 73 are pivotally movable about their fastening screw 75, as indicated by the dotted line position shown in Fig. 6, so that they may be swung outwardly and away from their inner fixed uprights 72 to facilitate loading and/or unloading of the magazines. Each of the uprights 72 and 73 has inwardly projecting and vertically extending integral flanges 77 formed along their front and rear edges for preventing longitudinal movement of the stamp packets therein. The flanges 77 adjacent their lower ends stop short of the base plate 32 to provide a relatively narrow slot 78 in the front of the magazine and a similar slot 79 in the rear of the magazine for dispensing the stamp packets therefrom, as best shown in Fig. 2. A lug 81 formed integrally with the base plate 32 projects upwardly centrally therefrom to provide a support for a transversely extending cross-bar 82 mounted thereon in spaced relation above said base plate in front of the magazines 71. (See Fig. 3.) The bar 82 prevents the discharge of more than one packet at a time from the magazines 71, and also serves to prevent operators from endeavoring to "fish" packets out of the magazine with a knife blade, wire or similar foreign article (not shown). The inner uprights of the magazine 71 are held in fixed relation by means of suitable spacing lugs 84 (see Fig. 4), which also serve to hold the coin chutes 34, 36 and 38 in fixed position. The upper free ends of the upstanding guide members 72 and 73, forming the magazines 71, are further held in proper spaced relation by a suitable guide member 90 mounted on the removable front cover 16. The guide member 90 has a plurality of spaced fingers 91, which interlock and wedgingly engage the guides 72 and 73 when the cover 16 is positioned on the front of the casing 14, as best shown in Figs. 2, 3 and 4.

A separate and independently operable stamp discharging mechanism is provided for each of the magazines 71, and each dispenser is adapted to be operated slidably within one of the longitudinal slots 60, as best shown in Fig. 10. Each dispenser 92 consists of a flat dispensing plate 93, being substantially the width and thickness of a filled stamp packet 94 (see Fig. 12) to be discharged from the machine thereby. The dispensing plate or bar 93 is slightly wider than the slot 60 in which it operates, and is connected by a plurality of screws 96 to a bottom plate 97, having laterally extending longitudinal flanges 98, forming a coin engaging bar operating below the base plate 32. The bottom plate 97 is substantially of the width and height of the slot 60, and

serves to slidably guide the mechanism within the slot 60.

The operating mechanism of the vending machine consists mainly of a manually operable reciprocating handle 24 extending substantially the entire length of the base plate 32 and projecting forwardly a short distance therebeyond. The handle 24 is freely and slidably mounted under the base plate 32 in the horizontally aligned openings 67 and 69, best shown in Figs. 3 and 4, respectively. A coin pusher 101 is fixedly mounted on the rearwardly extending end of the handle 24 by suitable set screws 102 (see Fig. 5) and is adapted to be reciprocably carried thereby and moved forwardly therewith over and beyond the coin receiver 62. (See Figs. 8 and 9.) The coin pusher 101 is provided with a series of spaced slots 103, one each being aligned vertically with the spaced coin slots 61. (See Fig. 5.)

A transversely extending U-shaped stop bar 104 is mounted fixedly on the handle 24 intermediate the fixed coin receiver 62 and the front flange 68 of the base member 32 by means of set screws 105. The bar 104 is spaced on the handle 24 rearwardly from the front flange 68 the exact distance of its operating stroke, and this serves to limit the forward movement of the handle 24. The projecting spaced arms 106 of the U-shaped stop bar 104 are aligned one each with the slots 60 of the base member 32, and project upwardly until they extend into the path of movement of the forward edge of the coin engaging bar 98 (see Fig. 9). The handle 24 and its fixedly mounted coin pusher 101 and stop bar 104 are made reciprocable by means of a double coil spring 107 secured on one end to the rear edge of the fixed coin receiver 62, as indicated at 108, and secured at its opposite end to one of the fastening screws 105 securing the stop bar 104 to the handle 24.

The stop bar 104 is provided along one lateral edge with a series of teeth 110, which are intended to engage a pivotally mounted cam-shaped pawl or detent 111 mounted in juxtaposition therewith. The pawl or detent 111 is mounted pivotally on a suitable supporting bracket 113 by means of a screw 112. The supporting bracket 113 is, in turn, suitably attached by screws 114 to the underside of the base plate 32. The pawl 111 is held in engaging position at right angles to the teeth 110 by means of a spring 116, having one end thereof secured to the forward edge of its cam skirt, as indicated at 117, and having its other end secured to the supporting bracket 113 forwardly of the machine, as indicated at 118 (see Fig. 5).

In Fig. 12 there is shown a sanitary stamp folder or packet 94 within which stamps 116 may be positioned for vending from the machine. The packet 94 consists of a single piece of material, such as paper or cardboard, of a suitable size folded backwardly along its lateral axis, forming a bottom 117 and top 118.

A follower 120, which is shown best in Fig. 11, serves as a holder for the last stamps to be dispensed from a magazine, and also serves to indicate when the machine is empty of stamps in a manner hereinafter to be explained in detail. The follower 120 consists of a flat strip of suitable material, preferably metal, having one end bent upwardly and backwardly, as indicated at 121, to provide a top 122 and form a pocket 123 for receiving and holding the stamps 116. The top 122 has an upstanding integrally formed locking lug or detent 124. The word "empty" is written across the forward top edge of the bottom plate or projectable tongue, which is readable from outside of the machine when the follower 120 has been moved to its discharging position by the dispenser 92, indicating that the magazine 71 is out of stamps.

In Fig. 13 there is shown a perspective view of a gravity weight 126, which may be formed of any suitable heavy material. The weight 126 is adapted to be positioned over the top of the follower 120 in each magazine 71. The weight member 126 serves to keep the column of articles therebelow to be held compactedly together with the lowermost article against the base plate 32 in proper position to be dispensed. The weight 126 is provided with a transverse indenture or slot along the forward edge of its bottom, as indicated at 127, for receiving the locking lug or detent 124 of the follower 120 when the same is moved forwardly of the magazine into its discharging position.

In describing the operation of the machine, it will be assumed that the handle 24 is in its normal operating position under spring urging pressure. A coin of the proper denomination is positioned in one or both of the coin receiving slots 18 and 19, whereupon they will be conveyed separately by gravity through their respective chute systems 34 and 36 to the coin slots 61, respectively, in the base member 32 and dropped into the coin track or tracks 66 of the coin receiver 62 aligned vertically therebelow. Each of the coin tracks 66 with its respectively aligned vertical coin slot 61 and the coin slot 103 of the coin pusher 101 forms a pocket for receiving the coin delivered or dropped thereinto. The actuating handle 24 is now ready to be manually pulled forwardly or outwardly of the casing 14, against its normal spring urging means 107, carrying the coin pusher 101 forwardly and thereby forcing the coin 100 along its fixed coin track 66 until its upper forward edge engages its respective coin engaging bar 97, forcing it and its fixed flat dispensing plate 93 also forwardly. This forward movement of the dispensing mechanism continues until the stop bar 104 engages the flange 68, at which position the coin 100 has been pushed beyond the end of its coin track 66 and drops into a suitable coin box 115 positioned therebelow. Thus, it will be obvious that the coin 100 forms the only connection between the coin pusher 101 and the dispensing mechanism 92. The dispenser plate 93, as it is thus carried forwardly, forces a packet of stamps from the magazine, and, if it is the last stamps in the magazine, the follower 120 will be forced outwardly with its "Empty" indicia showing. The follower 120 will be locked in its projected position by the detent 124 engaging the slot 127 in the forward end of the weight member 126, and cannot be forced backwardly out of sight in the machine casing until the machine is opened and the detent 124 manually is removed from the slot 127. It will be apparent from the foregoing description that the operating handle 24 is freely manipulatable at all times, and there is no incentive on the part of an operator to play with it in the hope of forcing articles from the machine as in the case of machines that permit operation of the handle only when a coin has been deposited therein. If a coin has been deposited in only one of the coin receiving slots 18 or 19 that side of the machine only will operate to dispense stamps through its coin connection with its own independently movable dispenser, as each dispenser

operates separately and depends entirely on its coin 100 for connection for operation.

If the reciprocating handle 24 is pulled out only part of the way against its spring tension, and then slips from the grasp of the operator, it will not snap back into the machine as the pawl and ratchet arrangement will hold the handle at its intermediate forward position until regrasped by the operator and moved forwardly its full discharging stroke, whereupon the stamps will have been discharged or delivered to the operator. Once the teeth on the stop bar are moved entirely beyond the pawl, the handle may return to its normal position as the pawl is not effective on the return movement. When the handle 24 is being moved rearwardly, it also carries its fixed stop bar 104 rearwardly, and the upwardly projecting arms 106 thereof engage the forward ends of the coin engaging bar or bars 97, if they are positioned in the forward end of the slot or slots 60, and move them rearwardly thereof into their normal position for dispensing the next article from the magazine 71 when they are again moved forwardly by another coin connection. Obviously, if only one coin had been deposited in the machine, only the dispenser for that side of the machine will be forward in its slot 60 and will be moved backwardly when the handle returns to its normal position, as the other dispenser will already be in its normal position and out of position to be engaged by its upwardly engaging arm 106 as it is moved rearwardly the distance of the stroke of the operating handle.

While the invention is described as being specifically designed for vending packets of postage stamps, it is obvious that it may also be used without material change for vending any flat article such as cards, paper, envelopes, gum and the like. Therefore, whenever the word "stamp" is used in the specification, it shall be considered generically as including such other articles.

Although I have only described in detail one form which the invention may assume, it will be apparent to those skilled in the art that the same is not so limited, but that various modifications may be made therein without departing from the spirit thereof or from the scope of the appended claims.

What I claim is:

1. In a coin controlled vending machine, a magazine for holding a plurality of articles in a vertical column, dispensing means for discharging the lowermost article of said column, a follower adapted to be positioned over said column of articles, means carried by said follower for holding one of said articles for dispensing, lock engaging means carried by said follower, and a gravity weight member adapted to be positioned in said magazine over said follower to cause the column of articles therebelow to be held compactedly together with the lowermost article in position to be dispensed, said weight member having locking means adapted to cooperate with the lock engaging means of the follower when the same is moved into its dispensing position whereby said follower may be locked in such dispensing position until the magazine is reloaded.

2. In a coin controlled vending machine, a magazine for holding a plurality of articles in a vertical column, dispensing means for discharging the lowermost article of said column, a follower adapted to be positioned above said column of articles having means for holding one of said articles for dispensing, lock engaging means mounted adjacent the rear end of said follower, and a gravity weight member adapted to be positioned on said follower to cause the column of articles therebelow to be held compactedly together with the lowermost article in proper position to be dispensed, said weight member having locking means formed in its forward end and adapted to cooperate with the lock engaging means of the follower when the same is moved to its full discharged position by the dispensing mechanism, whereby said follower may be locked in such discharged position until the magazine is reloaded.

3. In a coin controlled vending machine, a magazine for holding a plurality of articles in a vertical column, dispensing means for discharging the lowermost article of said column, a follower adapted to be positioned above said column of articles having indicia thereon for indicating when the magazine is empty, means carried by said follower for holding one of said articles for dispensing, lock engaging means carried by said holding means, and a gravity weight member adapted to be positioned in said magazine over said follower to cause the column of articles therebelow to be held compactedly together with the lowermost article in proper position to be dispensed, locking means formed in the base of said weight member adapted to engage said lock engaging means of said follower when the same is moved to its full discharged position by the dispensing mechanism, whereby said follower may be locked in such discharged position with its indicia showing until the magazine is reloaded.

4. In a coin controlled vending machine, a magazine for holding a plurality of articles in a vertical column, dispensing means for discharging the lowermost article of said column, a follower adapted to be positioned above said column of articles having indicia along its front edge for indicating the magazine is empty, means carried by said follower for holding one of said articles for dispensing, means including a detent carried by said holder for locking the same in its discharged position, and a gravity weight member adapted to be positioned in said magazine over said follower to cause the column of articles therebelow to be held compactedly together with the lowermost article in proper position to be dispensed, a slot in the base of said weight member adjacent its front end for engaging the detent of said follower for locking the same when it is moved into its full discharged position by the dispenser, whereby said follower may be locked in such discharged position with its indicia showing until the magazine is reloaded.

5. In a coin controlled vending machine, a magazine for holding a column of articles in stacked position, dispensing means for vending the lowermost article of said magazine, a follower having a projectable tongue adapted to hold one of said articles being vended, and means for locking said tongue in its projected position when said article carried thereby is vended.

6. In a coin controlled vending machine, a magazine for holding a column of articles in a stacked position, dispensing means for vending the lowermost article of said magazine, a follower adapted to be mounted on top of the column of stacked articles having a projectable tongue adapted to hold one of said articles, said tongue carrying indicia thereon for visually indicating when said magazine is empty, and means

for locking said tongue in its projected position when said article carried thereby is vended.

7. In a coin controlled vending machine, a magazine for holding a plurality of articles in a vertical column, dispensing means for vending the lowermost article in said magazine, a follower having a projectable tongue adapted to hold the last of said articles in said magazine, a gravity weight member adapted to be mounted over said follower for holding the same and the column of articles compactedly together with the lowermost article in position to be dispensed, and means for locking said follower tongue in its projected position when said article carried thereby has been vended.

8. In a coin controlled vending machine, a magazine for holding a plurality of articles in a vertical column, said magazine having at least one pivotal side for facilitating loading the same, dispensing means for vending the lowermost article in said magazine, a follower having a projectable tongue adapted to hold the last of said articles in said magazine, a gravity weight member adapted to be mounted over said follower for holding the same and the column of articles compactedly together with the lowermost article in position to be dispensed, and means for locking said follower tongue in its projected position when said article carried thereby has been vended.

9. In a coin controlled vending machine, a magazine for holding a column of articles in a stacked position, dispensing means for vending the lowermost article of said magazine, a follower adapted to be mounted on top of the column of stacked articles having a projectable tongue adapted to hold one of said articles, lock engaging means carried by said follower, and a gravity weight member adapted to hold said follower and column of articles compactedly together with the lowermost article in vending position, said weight member having means adapted to cooperate with the lock engaging means of said follower when the same is moved into vending position to lock its tongue in projected position until said magazine is refilled.

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