A. HALL.

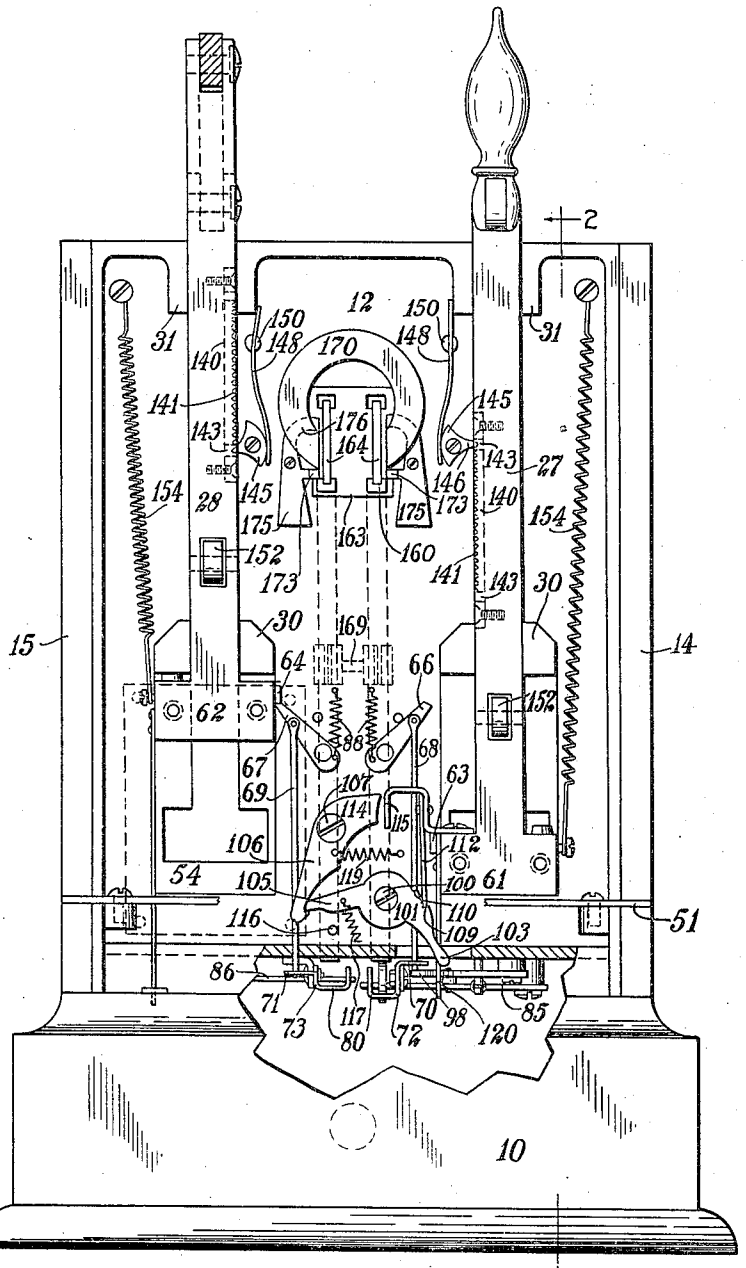
COIN CONTROLLED APPARATUS.

APPLICATION FILED SEPT. 30, 1914.

1,220,102.

Patented Mar. 20, 1917.

3 SHEETS—SHEET 1.



Witnesses

J. Frederic Cherry.

Justin C. Macklin

FIG-1

Inventor

Alfred Hall,

By Albert H. Bates, Atty.

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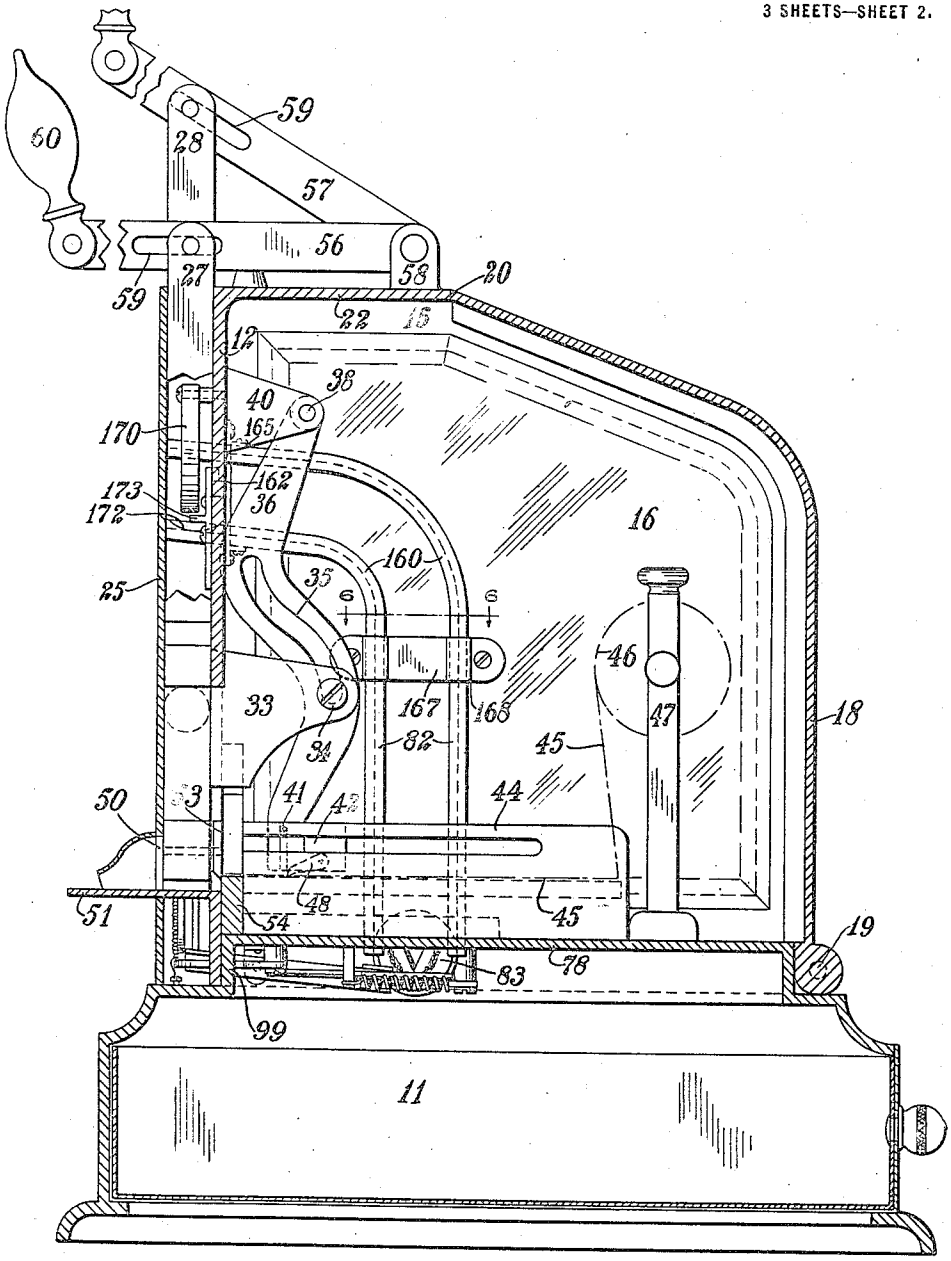

Fig. 2

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3 SHEETS—SHEET 3.

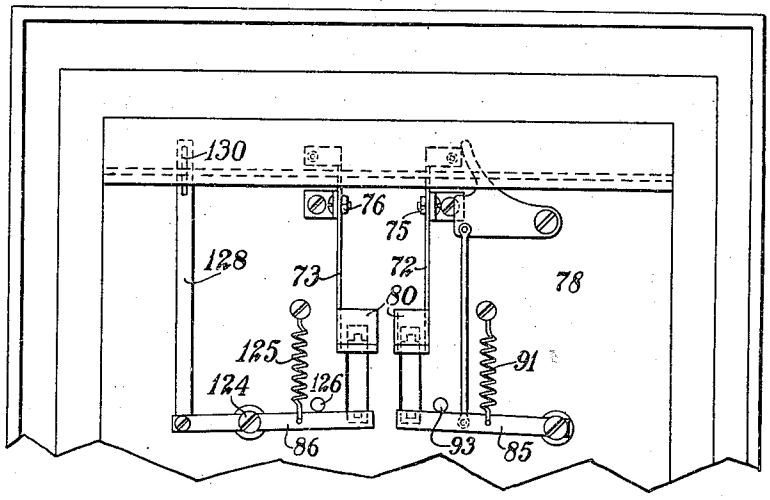

Fig. 3

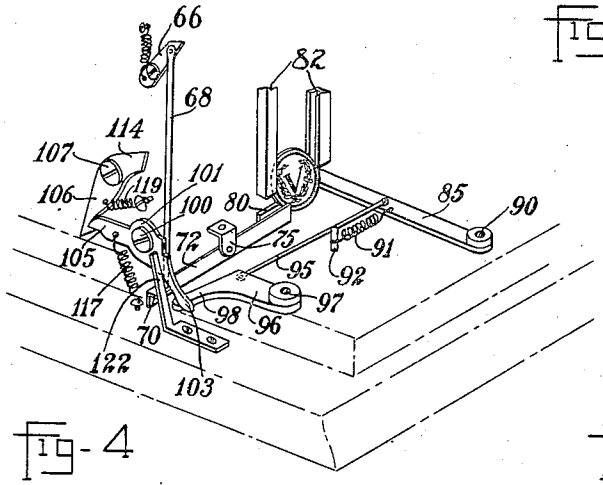

Fig. 4

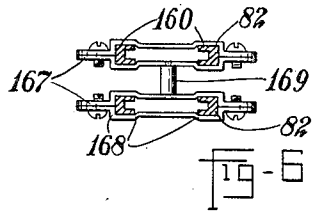

Fig. 6

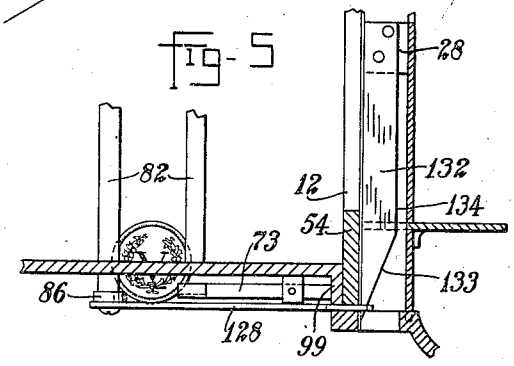

Fig. 5

Witnesses

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UNITED STATES PATENT OFFICE.

ALFRED HALL, OF PAINESVILLE, OHIO.

COIN-CONTROLLED APPARATUS.

1,220,102. Specification of Letters Patent. Patented Mar. 20, 1917.

Original application filed October 9, 1913, Serial No. 794,201. Divided and this application filed September 30, 1914. Serial No. 864,248.

To all whom it may concern:

Be it known that I, ALFRED HALL, a citizen of the United States, residing at Painesville, in the county of Lake and State of Ohio, have invented a certain new and useful Improvement in Coin-Controlled Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

As shown this device is adapted to make use of a roll of stamps which are separated from each other by a row of perforations, the construction of this device being shown, described and claimed in my application No. 794,201. The present application is a division of the above mentioned application and relates particularly to the coin-controlled operating mechanism for such device. The specific object of the invention is to provide a mechanism whereby a coin may release mechanism permitting the delivery of the proper number of stamps of a certain denomination, for example, one cent stamps, and also release mechanism whereby a coin may control the delivery of the proper number of stamps of another denomination, for example, two cent stamps.

My invention is hereinafter more fully described in connection with the accompanying drawings and the essential characteristics are set forth in the claims.

Referring to the drawings, Figure 1 is a front elevation of the stamp vending machine equipped with my coin controlled mechanism, showing this mechanism with the front plate removed and a portion of the casing broken away for clearness; Fig. 2 is a vertical section through the casing taken on the line 2—2 of Fig. 1; Fig. 3 is a bottom plan of the forward part of the casing showing the mechanism operated by the coin; Fig. 4 is a perspective view of the coin operating mechanism controlling the delivery of one cent stamps; Fig. 5 is a detail of the coin releasing device used in connection with the mechanism for the delivery of two cent stamps; Fig. 6 is a cross section of the coin chute taken on the line 6—6 of Fig. 2.

The machine shown comprises generally a casing and mechanism within the casing for feeding stamps from a roll and the coin controlling mechanism connected therewith. Briefly, the casing has a rectangular base 10, having an open side into which is fitted a coin drawer 11. On this base are mounted a front plate 12 and side frames 14 and 15, in which may be mounted plate glass windows 16. The rear of the upper casing thus formed is closed by a cover 18, having trunnions 19 hinged to the side frames and extending upwardly and forwardly and meeting, at 20, the rear edge of a top plate 22. The side frames extend forwardly and a front plate 25 fits against the forwardly extending portions forming a space in which are mounted vertically reciprocating levers 27 and 28, and the mechanism for controlling them, to be hereinafter described.

The plungers are guided by pairs of lugs 30 and 31, preferably integral with the front plate, and extending rearwardly of the plungers are projections 33, carrying pins 34 engaging an intermediate slot 35, in cam levers 36. These levers are pivoted at 38 to lugs 40, preferably integral with the front plate and at their lower ends each has a slot engaging a pin 41, in a slidable carriage 42, mounted between guide plates 44, between which the stamp strip 45 of a roll of stamps, indicated at 46, is adapted to be fed. The stamp rolls are carried on a suitable support indicated at 47.

A series of pivoted fingers 48 having downwardly pointed forward ends, engage the perforations between the stamps to feed them forward a distance equal to the given number of stamps, when the carriage is reciprocated through the lever 36, operated by the plungers as described. As the stamps are fed forwardly, they are delivered through openings 50 in the front of the casing onto a platform 51 and are severed by a knife member 53, carried on each of the plungers coöperating with the knife members 54 at the forward end of the guideway for the stamp strip. The plungers are adapted to be depressed to deliver the stamps by means of levers 56 and 57, pivoted to suitable ears 58 on the top plate, each having a slot 59 engaging a pin in the top of the plunger, the levers being provided with handles 60 which preferably have their upper ends pointed to prevent injury to the mechanism by striking or jarring with the hand.

Passing now to a description of the coin controlling mechanism; on the lower end of each of the plungers are laterally extending portions forming heads 61 and 62. These

heads carry the knives 53 which sever the stamps along the line of perforation. On the inner sides of each of these heads are provided shoulders 63 and 64 adapted to be normally engaged when the plungers are in their up position, by dogs 66 and 67. These dogs, however, may be raised out of engagement with the shoulders by small rods or links 68 and 69, depending from the dogs and each having at its lower end a reduced portion forming a shoulder adapted to be engaged by ears 70 and 71 respectively. These ears are formed on levers 72 and 73, pivotally secured at 75 and 76 to the plate 78, forming the floor of the upper portion of the casing. The levers extend rearwardly from their pivots and carry at their rear ends trough-like portions 80 extending under one side of a coin chute 82.

The rear end of each of these levers is adapted to be depressed by the weight of the coin arriving at the lower end of the coin chute, as indicated at 83, thereby raising the rod at the forward end of the lever, moving the corresponding dog out of engagement with the shoulder on the plunger, allowing that plunger to be depressed. The depression of the plunger operates other mechanism to be described, which releases a lever 85 supporting one side of the coin, thereby allowing it to drop.

In the embodiment herein described, my device is adapted for the sale of one cent and two cent postage stamps, there being four one cent stamps delivered on the insertion of a nickel, or two two cent stamps. As arranged, the mechanism is adapted to move the feeding carriage forward a distance equal to the width of two stamps, accordingly for the delivery of one cent stamps, it is necessary to depress the lever and plunger twice in order that four stamps may be delivered. It is only necessary, however, to depress the plunger once for the delivery of two two cent stamps, after which the plunger is locked in its up position by the dog until another coin is inserted.

As shown, the plunger 27 operates the mechanism for delivering one cent stamps and upon the insertion of one coin (a nickel) it must be depressed twice before being locked again in its up position. Accordingly, I provide mechanism shown in Figs. 1 to 4, for holding the dog 66 out of engagement with the plunger until the second depression thereof. I have provided a coin chute 82 for the control of each of the delivery mechanisms. The lever 85 standing under the edge of the coin chute for the one cent stamps is pivoted to the floor 78 at 90 and a tension spring 91 attached to the lever and to a pin 92 mounted in the floor, tends to pull the lever forwardly against a pin 93, limiting its movement. In this position it stands just under one edge and beneath one side of the coin chute, so that a coin coming to the lower end of the chute will engage the lever 85 at one side and the scoop 80 of the lever 72 at the other side, thereby depressing the lever 72 and raising the dog 66 allowing the plunger to be depressed. While the coin is in this position the dog is held free of the shoulder on the plunger, accordingly it is desired to release the coin by moving the lever 85 on the second depression of the plunger. A link 95 is pivotally attached to the lever 85, and to a lever 96, pivoted at 97 to the floor and having a forwardly projecting arm 98 extending through an opening in a short vertical wall 99 of the base 10. The arm 98 of the lever 96 may be swung laterally, moving the link 95 forwardly to move the lever 85, and release the coin.

Pivotally carried at 100 on the front wall 12 of the casing, is a bell crank 101 having an arm 103 adapted to engage the arm 98 and having its other arm 105 adapted to engage a latch hook 106, pivoted at 107 to the wall 12. Adjacent the pivot of the lever 101 and on the upper portion of the arm 103, are formed notches or steps 109 and 110 adapted to be engaged by a spring finger 112 carried on the plunger 27. The latch 106 has a projection 114 extending upwardly and laterally toward the plunger 27, and adapted to be engaged when swung downwardly by a finger 115 carried by the plunger 27. The bell crank 101 stands normally with the arm 105 abutting a pin 116 on the wall 12 toward which it is drawn under the influence of a spring 117. A spring 119 attached to the latch 106 and to the wall 12, draws the latch normally toward the arm 105. The operation of this mechanism just described is as follows.

A coin reaching the lower end of the coin chute for the one cent stamps, stops with one edge in the trough 80 on the lever 72 and the other on the lever 85. The weight of the coin depresses the lever 72, raising the dog 66 through the rod 68, leaving the plunger 27 free to be depressed. On the downward movement of the plunger 27, the spring finger 112, engaging the lower stop 109 of the bell crank, depresses it to the position shown in Figs. 1 and 4, and rotates the bell crank when the arm 105 is engaged by the hook on the latch 106. In this position the arm 103 has not moved the arm 98, of the lever 96 and the coin still rests in the position shown, depressing the lever 72 and holding the dog out of the path of the shoulder of the plunger or finger 112. On the second downward movement of the plunger 27, the finger 112 engages the upper stop 110 of the bell crank, rotating the bell crank about its pivot and the arm 103 is then brought into engagement with the arm 98 of the lever 96, pressing this lever

rearwardly, which through the link 95 moves the lever 85 rearwardly against the tension of the spring 91 and allows the coin to drop between the lever and the trough 80 of the lever 72.

In order that the coin will have time to drop, however quickly the plunger is moved, I provide a finger 120 secured to the side of the plunger 27 and adapted to extend into the path of the arm 98 to prevent its returning until the plunger has moved an appreciable distance on the upstroke. On the first depression of the plunger, this finger passes on one side of the arm and on the second depression, on the other side, where it extends into its path and prevents the return of the arm 98 and lever 96. The arm 105 of the bell crank lever is prevented from engaging the latch hook on the second up stroke of the plunger or hook, being swung upwardly on the further upward movement of the arm 105, when the finger 112 engages the upper stop of the bell crank lever, which brings the projection 114 into the path of the finger 115, which holds the hook out of the path of the arm 105 until the spring 117 has returned the bell crank lever to its normal position. A cam 122, Fig. 4, mounted on the base of the casing in front of the bell crank lever, is adapted to engage the lower end of the finger 112 and cause it to spring to the right out of engagement with each of the stops when the plunger is at the lower end of the stroke. On the second stroke of the plunger, this allows the bell crank to return to normal position by means of the spring as described, while the latch hook is held out of the path of the arm 105 by means of a finger 115, as just described.

After the delivery of the two cent stamps caused by one downward movement of the plunger the coin is released on the up stroke of the plunger allowing the dog 67 to engage the shoulder 64 on the plunger 28 and lock it in the up position. The lever 86 is intermediately pivoted at 124 and is held in its normal position above one side of the coin chute by means of a spring 125 similar to the spring 91, acting to hold the lever against a pin 126 mounted on the floor 78. Pivotally secured to the other end of this lever is a flat rod 128, extending through the short vertical walls 99, and the wall 12 and having a slot 130 in its forward end adapted to be engaged by a cam 132, rigid with the plunger 28 and having a wedge-shaped surface 133, extending forwardly and upwardly for a portion of its length and then vertically, forming a rest portion 134, which comes into engagement with the forward end of the slot in the rod, when the plunger is down. This rest portion provides an appreciable time interval during which the lever 86 is swung rearwardly, insuring the dropping of the coin. The distance between the ends of the levers 85 and 86 and the trough ends 80 of the levers 71 and 72, is great enough that a one cent coin placed in the coin chute will pass freely between them without depressing the levers 72 and 73, thus dropping harmlessly into the coin drawer.

To insure a complete stroke of the plungers, that is a complete upward and downward movement of each of them, I provide in the side of each plunger a vertical plate 140, each having a series of teeth 141 for a distance of its length substantially equivalent to the movement of the plunger. At the end of each series of teeth is provided a hole 143. Reversible dogs 145 pivotally carried by the front wall 12 are mounted adjacent each of the plates 140 and the nose 146 of the dog is adapted to engage the teeth 141. Leaf springs 148 carried in slotted pins 150 and having upwardly extending portions engaging the projections 31 bear against the arcual shaped backs of these dogs and tend to keep the nose of the dog in a horizontal position in relation to its pivot. Now when the plunger is pressed downwardly, the nose of the dog is pressed downwardly and allows the teeth to pass over the same freely, but prevents the return of the plunger. The upper hole 143 allows the nose of the dog to turn past its center, permitting the upward movement of the plunger. The teeth 141 are too near the pivot of the dog to allow this reverse movement until the holes 143 are reached. Accordingly, both on the up and down stroke, the nose of the dog can ride freely over these teeth in one direction only, and in the opposite direction the plunger is at once locked against movement. It will be seen that the complete operation of the mechanism described is necessary when the plunger is once started on its downward movement, and the releasing of the coin is insured.

The space between the wall 12 and the front plate 25 is such that the plunger just fits between them, and to reduce the friction on the front side of the plunger, I provide rollers 152 in each of the plungers adapted to bear against the front plate. After the plungers are depressed they are moved upwardly by springs 154 attached to the head of the plunger and to suitable screws mounted in the wall 12.

The coin chutes extend inwardly through suitable slots in the front plate 25, with a slight downward incline, and then turn downwardly extending vertically to the position over the levers for engaging the coin. The coin chutes are preferably made of small square bars 160, each having a shallow groove formed in one side adapted to engage the edge of the coin. These bars are supported at their upper forward ends by passing them through a plate 162, sub-

stantially closing an opening 163 in the wall 12, this plate having square openings through which the bars pass and slots 164 connecting these openings, through which the coins pass. The plate may be secured to the wall 12 by suitable screws and may be provided with laterally extending ears 165 through which short screws may pass, securing the bars in position. A similar plate may be provided on the floor 78 to hold the lower ends of the bars. At their intermediate position the bars are braced by pairs of straps 167, having offset portions 168 embracing the sides of the bars and having their outer ends secured together by suitable screws, the intermediate portion of the bars being separated sufficiently to allow a coin to pass freely. A distance pin 169 may be secured between the inner straps of each pair to brace one coin chute by the other.

Between the wall 12 and the front plate 25, I place a magnet 170 substantially circular in form, having a cut-away portion, leaving two ends which come between the bars 160 of the coin chute but just out of the path of the coin. This magnet will of course attract and intercept any iron or steel slugs or washers. When a slug of this nature is placed in the slot of the front plate, it will be drawn aside by the magnet, its lower edge sliding over a cut-away portion 172 on each of the lower bars of the chute. This cut-away portion allows the slug when attracted by the magnet, to come into contact with an arm 173 carried by a lever 175 pivotally mounted adjacent each coin chute. Each lever has an upwardly extending portion 176 which stands adjacent the plate 162 and the arm 173, is bent outwardly from the lever and stands substantially beneath the ends of the magnet: Now when a slug abuts the arm 173, which is below the pivot of the lever, it swings the lower end of the lever outwardly and the upper arm 176 inwardly into the path of the slug, intercepting it and making it impossible to push the slug past this stop by means of any pointed instrument which might be inserted into the slot, in the front plate.

From the foregoing description it will be seen that I have provided simple and efficient coin controlled mechanism adapted for use with any vending machine where it is desirable to deliver a given number of articles on the insertion of one coin, and is particularly adapted for use with a machine for the vending of stamps, tickets or like articles. My device may be cheaply manufactured and it does not readily get out of order. At the same time it is so constructed that it is difficult to secure the articles vended by the machine by fraudulent means.

Having thus described my invention, what I claim is:

1. In a device of the character described, the combination of a casing, a plunger, a latch engaging the plunger in one position, a coin chute, mechanism operated by the weight of a coin to release the latch, a movable stop for holding the coin in releasing position, means adapted to be operated by steps, the last step of which moves the stop and releases the coin, and means whereby the plunger operates said last named means.

2. The combination of a casing, a movable plunger within the casing, a latch engaging the plunger in its inoperative position, a coin chute, mechanism adjacent the end of the coin chute and connected with said latch whereby the weight of a coin releases said latch, a separate movable abutment for holding the coin in the latch releasing position, mechanism adapted to be moved by steps the last step of which moves said abutment and releases the coin, and means carried by the plunger engaging said last named mechanism to advance it one step on each depression of the plunger.

3. In a device of the character described, the combination of a casing, a vertically movable plunger carried by said casing, a latch adapted to engage the plunger in its up position, a coin chute within the casing, a lever having one end adjacent the coin chute and its other end connected with said latch whereby the weight of a coin releases the latch, a movable stop adjacent the end of the chute opposite said lever whereby the coin rests between the stop and the lever, means for moving said stop to release the coin, and means adapted to be advanced one step on each depression of the plunger, said means adapted to engage the stop moving means when moved the last step.

4. In a coin controlled device, the combination of a rigidly mounted downwardly extending coin chute adapted to engage a coin at opposite sides, a latch controlling the operation of such device, the latch depending for its operation on a position of a coin still in engagement with both sides of the coin chute, means adapted to be operated by steps consequent upon a plurality of actuations of said device, said means acting to hold the coin still in engagement at opposite sides with the coin chute and adapted to be moved from such position to permit the coin to drop on the last step of said means.

5. In a coin controlled mechanism, the combination of a latch for locking such mechanism adapted to be released by the weight of a coin, a coin chute, means for stopping the coin while still engaged by the chute and in releasing position, and means operated by steps, the last step of which releases the coin whereby said coin controlled mechanism is again latched.

6. The combination of a reciprocating plunger, a coin chute, mechanism adjacent the chute operated by a coin, a latch operated by said mechanism to release the plunger, a bell crank adjacent the plunger having a series of notches, means on the plunger engaging said notches to swing the bell crank on each movement of the plunger, a latch coöperating with the other arm of the bell crank adapted to hold it in the position last given it, means on the plunger adapted to release said last named latch when the last notch on the bell crank is engaged, and means whereby on the last movement of the plunger one arm of said bell crank releases the coin.

7. The combination of a plunger, a coin chute, mechanism adjacent the chute operated by a coin, a latch operated by said mechanism to release the plunger, a pivoted member having stepped notches, means moved by the plunger and adapted to engage said notches to swing the pivoted member, means for latching the pivoted member in the position last given it, means operated by the plunger to release the last named latching means after the pivoted member has been moved a given number of notches, and means operated by the pivoted member for releasing the coin on the last movement of such member.

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

ALFRED HALL.

Witnesses:
FRANCIS A. COUGHLIN,
KATHLEEN SCOTT.