

A. RYDQUIST.
 COIN CONTROLLED MACHINE.
 APPLICATION FILED APR. 26, 1909.

1,034,147.

Patented July 30, 1912.

4 SHEETS—SHEET 1.

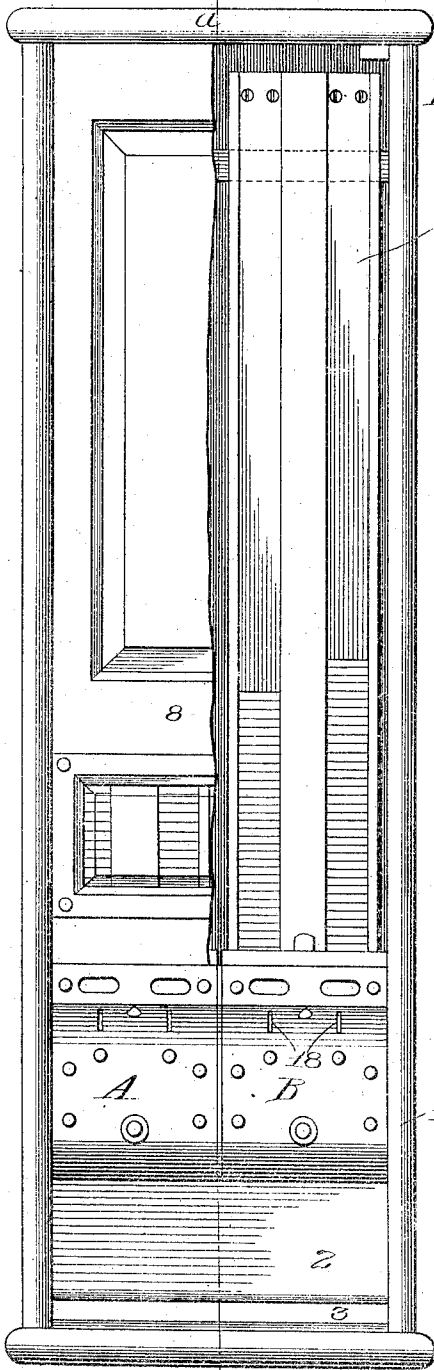


Fig. 1.

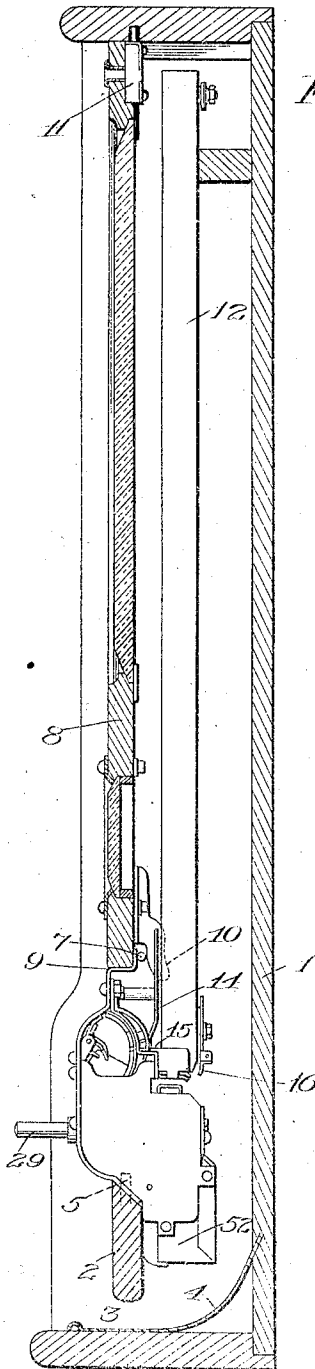


Fig. 2.

Witnesses

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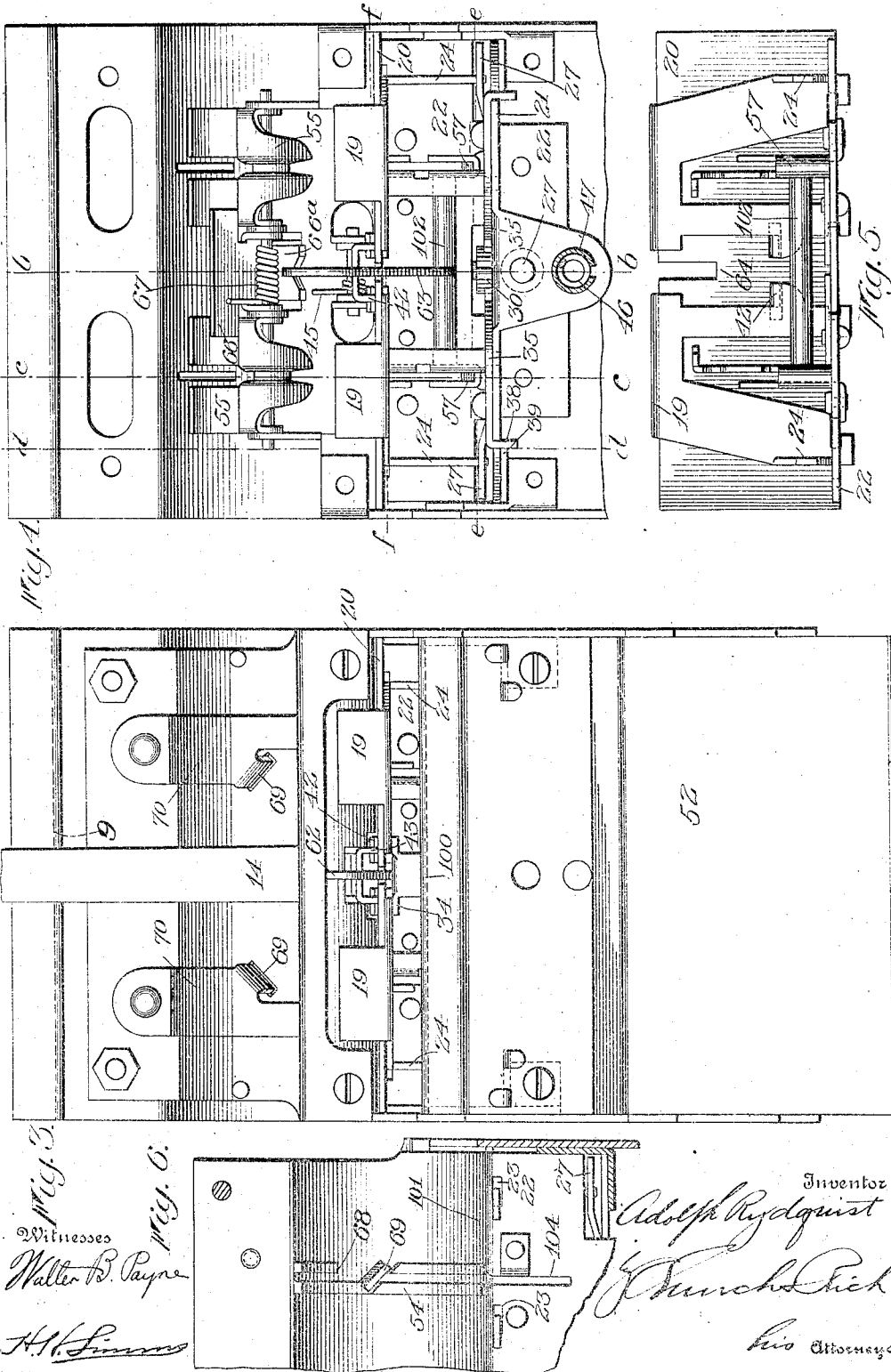
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 By Charles Rich
 Attorney

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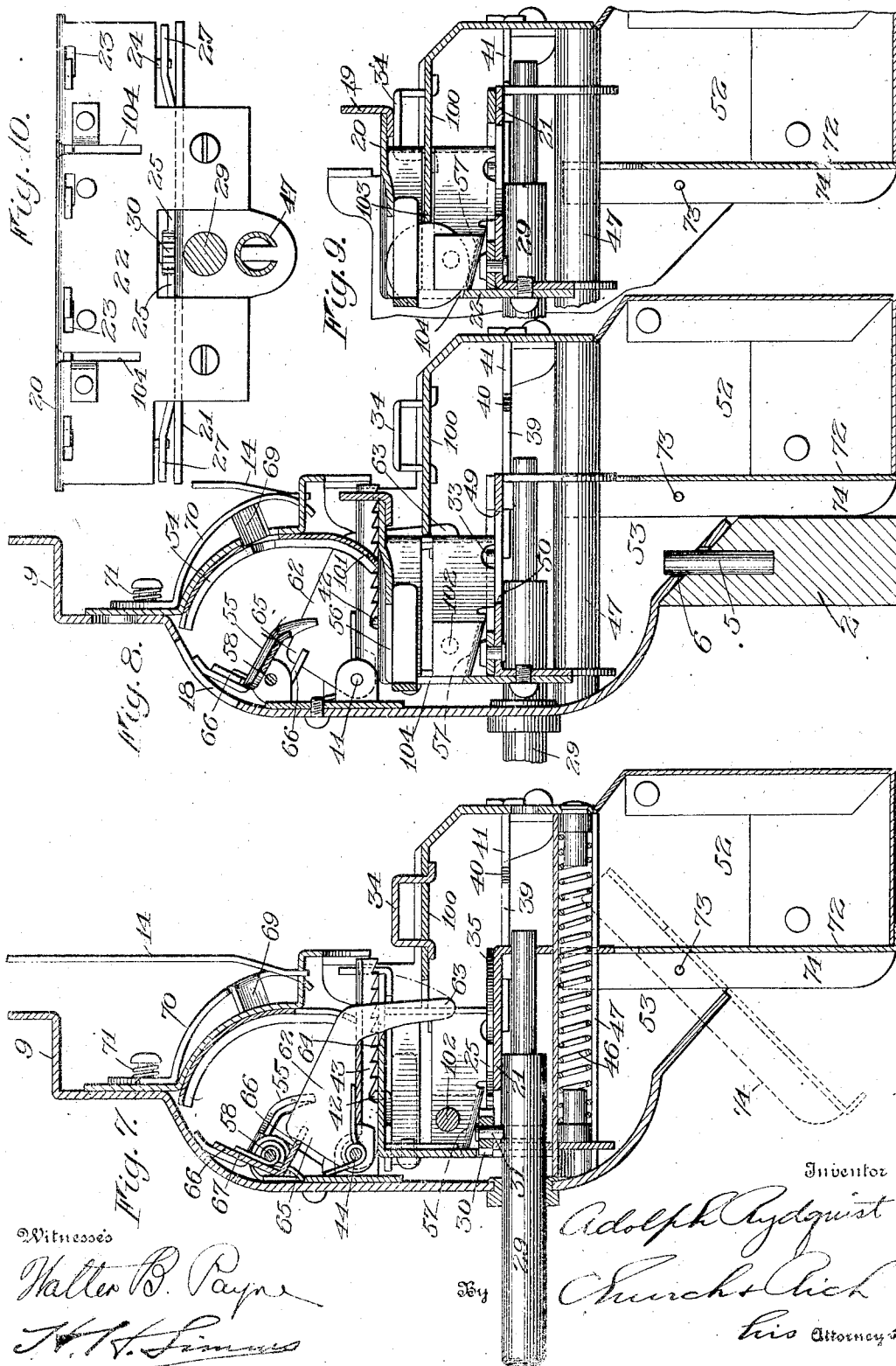
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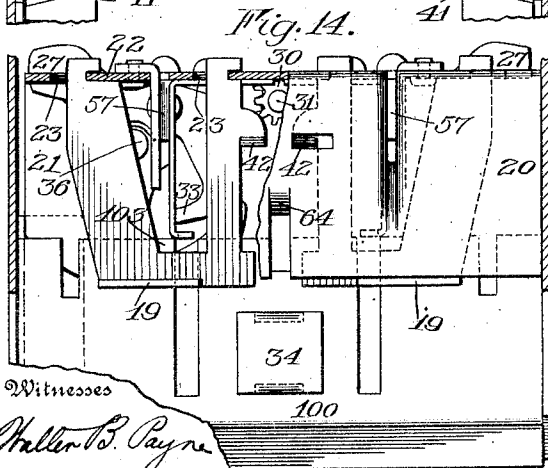
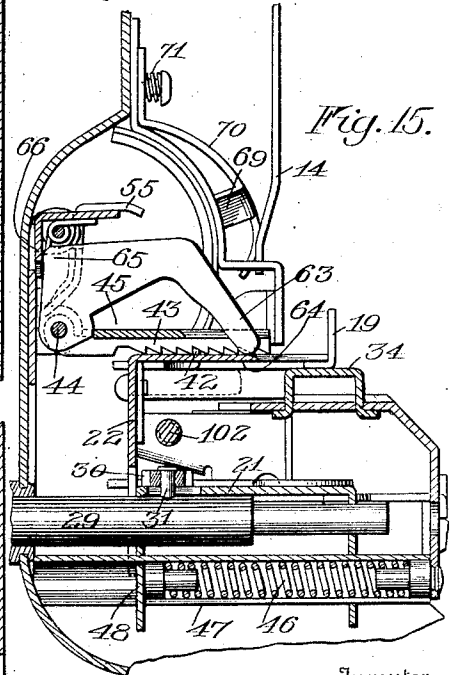
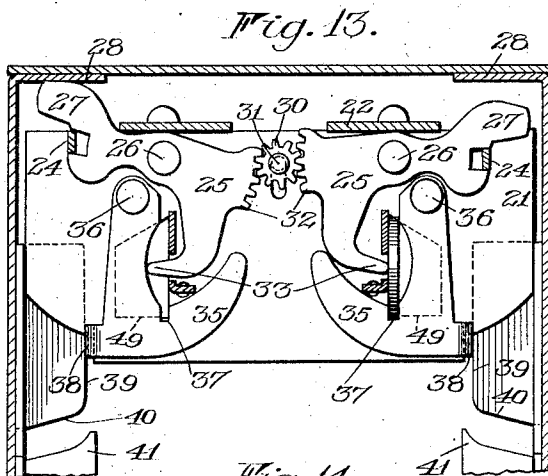
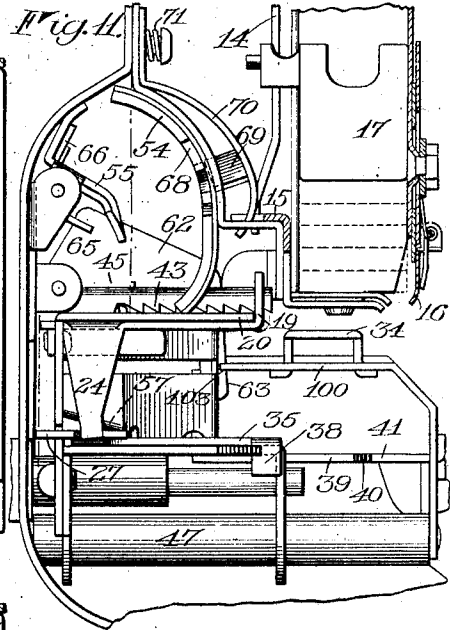
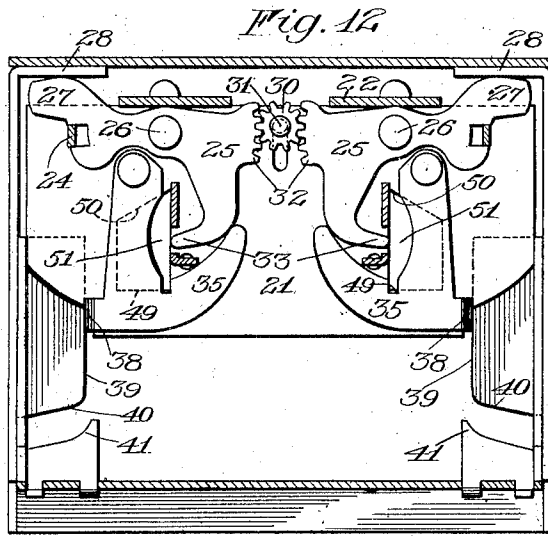
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 His Attorneys

UNITED STATES PATENT OFFICE.

ADOLPH RYDQUIST, OF ROCHESTER, NEW YORK.

COIN-CONTROLLED MACHINE.

1,034,147.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ADOLPH RYDQUIST, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Coin-Controlled Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference-numerals marked thereon.

The present invention relates to coin controlled machines, one of the objects of the same being the provision of a simple, strong and inexpensive means whereby the closure of a vending casing or cabinet also effects the locking of a coin controlled mechanism which is removable from the casing or cabinet.

Another object is to make provision whereby the introduction of a coin into the machine after the supply of material to be vended has been exhausted will not operate the coin controlled mechanism, but will cause the coin to be discharged to the exterior of the machine.

Another feature of the invention is the provision of a coin receptacle having a closure which can only be opened when the coin controlled mechanism is removed from the vending casing.

Still another feature of the invention is the provision of means whereby all paper, improper coins, slugs or matter other than coins adapted for operating the machine will be discharged to the exterior of the apparatus without interfering with the operation of the coin controlling mechanism.

Further objects are to provide improvements in the coin controlled mechanism whereby the operation of the latter will be more positive and the parts thereof will not be liable to breakage or disarrangement.

To these and other ends the invention consists in certain improvements and combinations of parts all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings: Figure 1 is a front view of a vending machine embodying the present improvements, the front wall being partially broken away for the purpose of illustrating vending receptacles within the casing; Fig. 2 is a section on the line *a-a* of

Fig. 1; Fig. 3 is a rear view of the coin controlled mechanism; Fig. 4 is a rear view of the same mechanism with the back plates thereof removed; Fig. 5 is a view showing the mounting of the ejectors as viewed from the under side; Fig. 6 is a detail view of a portion of coin intake chute illustrating the manner in which the coin is deflected when a vending receptacle becomes empty; Fig. 7 is a section on the line *b-b* of Fig. 4; Fig. 8 is a section on the line *c-c* of Fig. 4; Fig. 9 is a section on the line *c-c* of Fig. 4 after the carrier for the ejector has been shifted, a coin being illustrated as held by a magnet and about to be discharged without affecting the movement of the ejector; Fig. 10 is a front view of the carrier for the ejector; Fig. 11 is a sectional view on the line *d-d* of Fig. 4 illustrating a portion of the vending receptacle; Fig. 12 is a section on the line *e-e* of Fig. 4 prior to the shifting of the ejector carrier; Fig. 13 is a similar section in which the carrier has been shifted slightly and one of the ejectors has been set by a coin; Fig. 14 is a section on the line *f-f* of Fig. 4, and Fig. 15 is a section on the line *b-b* of Fig. 4 in which the ejector carrier has been shifted and the ejector set in ejecting position.

In the present embodiment of my invention there is employed a suitable casing or cabinet 1 having its front wall open and a cross piece 2 connecting its side walls near and in spaced relation to its bottom wall to provide a discharge 3 below the cross piece, a deflector 4 being provided to direct articles through the discharge.

Supported upon the cross piece 2 are one or more frames A and B carrying the coin controlled mechanisms which will be hereinafter specifically described. Each frame is held on the cross piece by lugs or projections 5 extending upwardly from the cross piece and adapted to fit within openings 6 in the frame or casing A or B, the latter being fitted to and removed from the cross piece 2 by a tilting movement; but, when in proper position in the machine, resting against a lug or projection 7 on the casing. They may be locked in this position by a closure 8 for the casing resting on seats 9 at the upper ends of and against the frames for the coin controlled mechanism and carrying depending hooks or projections 10 which engage behind the projections 7, and thus at

the same time secure the lower end of the closure against movement, the upper end of the closure being held by any suitable means, such as a lock 11, the key of which is held by an authorized person.

Within the casing is arranged one or more vending receptacles 12. In the present instance, these receptacles are rigidly connected in pairs, rest at their upper ends against braces 13 and are supported at their lower ends upon supports 14 projecting upwardly from the rear sides of frames A, B through slotted brackets 15 each on the lower ends of a pair of vending receptacles. The articles to be vended, which in this instance are in the form of blocks of gum, candy or other material, are placed one above another within the receptacle and are discharged from the lower end thereof to the rear, dropping upon the deflector 4 which carries them to the point from which they may be reached through the discharge 3. A gate or other device 16 normally holds the articles against discharge from each vending receptacle, but yields to permit said discharge, while a follower 17 rests upon the articles and maintains them in proper position within a vending receptacle.

The discharges from the vending receptacles 12 are effected preferably by ejectors 19, mounted in pairs upon a carrier that is guided in a frame A or B and preferably embodies an upper plate 20, a lower plate 21 and an upright portion 22 connecting the forward edges of the plate, the upright portion being provided with openings 23 through which headed portions of the ejectors 19 are introduced and shifted laterally to secure the ejectors in position and provide pivots or fulcrums permitting the ejectors to be moved to and from ejecting positions on the carriers. Preferably the ejectors have depending portions or arms 24 which are engaged by movable coin controlled devices or members 25 preferably pivoted at 26 to the plate 21 and engaged by coins in a manner to be hereinafter set forth. When the carrier is in its forward position the portions 27 of the coin controlled devices 25 project beyond the carrier and engage abutments 28 so that devices 25 will be operated to cause the ejectors to lie in ejecting positions on the carrier. Each pair of ejectors may be controlled by a single operating member, which is preferably mounted to move relatively to the carrier and to this end is in the form of a plunger 29 guided on the carrier and operatively connected to the coin controlled or engaging devices 25, so that a slight movement of the plunger relatively to the carrier causes the ejectors to be moved from ejecting positions on the carrier; provided a proper coin has not been fed to the machine to set an ejector in ejecting position. The connection between the

operating member or plunger 29 and the coin controlled members 25 is preferably in the form of a pinion 30 turning about an axis 31 arranged transversely to the line of movement of the plunger and meshing with racks 32 on the coin controlled devices 25. It is apparent that as neither of the two devices 25 is held against movement, the pinion will not rotate but will move the plunger or operating member 29 and turn both coin controlled devices 25 about their axis 26 to depress the ejectors. If, however, one of the coin engaging members 25 engages a coin said members will not move on the carrier and the pinion will turn on its rack 32 while also turning on the rack of the other member 25 and at the same time moving the latter. If both of the devices 25 are held against movement the plunger will not move relatively to the carrier. To the end that the coin controlled members 25 may be controlled by coins each of said members has a finger or portion 33 operating in proximity to a coin seat on the carrier, the coin seat being hereinafter more specifically described.

After an ejector has been set by a coin the ejector moves into engagement with a guide 34 which removes the strain from the coin and causes the ejector to be guided and supported throughout the ejecting operation. At the end of its ejecting movement, it drops below the guide and travels beneath the latter on its return movement. The guides for each carrier may be arranged between the two ejectors on a plate 100 which lies between the upper and lower plates of the carrier.

The release of the coin must of course be effected in order to permit an ejector to drop, and to this end the coin is removed from its coin seat before the end of the ejecting operation. This is preferably accomplished by providing a movable coin engaging member 35 pivoted at 36 to the plate 21 and having a slot or recess therein at 37 to receive an edge of a coin. This member 35 prevents the coin being removed from its seat when engaged by the finger 33, as the portion 38 on the member 35 cooperates with a guide 39 supported independently of the carrier to resist the movement. Near the end of the ejecting movement, when a portion 40 on the guide 39 is reached a movement of the member 35 is permitted to carry the coin from its seat and to allow the finger 33 to turn on its pivot, a switch member 41 being provided to insure the movement of the portion 38 on the guide 40.

After the ejecting movement has been started the carrier should not be returned to its initial position without completing the movement for otherwise the coin will be deposited in the coin box without giving anything in return. To prevent the return each

ejector may have rigidly connected thereto a pawl or tooth 42 which is maintained in co-operative relation with a ratchet member 43 that is pivoted at 44 independently of the carrier, two of these ratchet members 43 being connected for coöperation with the two ejectors of a carrier and pressed toward the latter by a spring 45. Of course, when an ejector reaches the end of its ejecting movement its pawl 42 will be thrown out of engagement with its ratchet and the carrier will be permitted to return to its initial position under the action of any suitable device, such for instance as a helical spring 46 abutting the carrier at one end and the frame at its other end. The spring may be arranged within a slotted tube 47 which is supported by the frame of the coin controlled mechanism and has the carrier guided thereon and working in the slot to engage the spring.

The seat upon which the coin rests to effect the operation of each ejector embodies walls 49 and 50 arranged at slight angles to each other and formed by an opening 51 in the plate 21 of the carrier. If the coin be of proper size it will be supported by these walls and during ejection movement will be turned on the wall 50 as a fulcrum by the member 35 so as to drop through the opening 51 into the coin receptacle 52. If, however, the coin is too small, that is, either too thin or has too small a diameter, it will pass between the walls 49 and 50 and drop into a chute 53 before the carrier has been moved, and as the chute 53 communicates with the discharge passage 3, the coin will pass to the exterior of the casing or cabinet. A coin that is too thick or too large in diameter cannot be passed through the intake opening 18.

A coin is delivered from each intake opening 18 to a seat on the carrier by an intake chute, a part of which is on the carrier while another part is on the casing of the coin controlled mechanism. The part on the casing may embody a guide 54 and a guide 55 which deliver the coin to the slot 56 in the top of the carrier through which it drops on to an inclined way 57 leading to a seat 49, 50.

It will be noted that the slot 56 will also operate to prevent coins of too great diameters or too great thickness passing to the coin slot. This is of great importance for should the slot 18 be enlarged intentionally in any manner there will still be a selecting device arranged within the casing out of reach of one desiring to injure the machine.

In order to clear the intake chute of paper or other material which cannot travel freely therethrough the lowermost guide 55 is pivotally mounted at 58 to turn about an axis transverse to the path of the travel of

coins through the chute, thus permitting the chute to be expanded and the material to drop upon the carrier from which it is displaced before a portion 101 of the frame of the coin controlled mechanism upon the movement of the carrier, being discharged into the chute 53, and thence to the exterior of the machine. The movement of the guide bar 55 is preferably effected by a lever 62 pivoted at 44 to the casing A or B and having an end 63 arranged in rear of the portion 64 on the carrier so that when the carrier moves rearwardly, the portion 64 rides on the portion 63 of the lever 62 and forces an enlargement 65 on the lever against an arm 66 on a frame 66 that presses against two guides 55 under the action of a spring 67 to hold the said guides in their normal positions.

Should a steel or iron slug, shaped similarly to a proper coin be introduced through an intake 18 it will travel through the coin intake chute to the inclined way 57 where it will be attracted by a pole of a magnet 102 and held away from the coin seat. The other pole of this magnet lies in proximity to the other inclined way on the carrier so that one magnet is common to two coin controlled mechanisms. When the carrier is moved any slugs will be moved away from the magnet by a fixed portion 103 of the frame which will force the slugs through the openings 104 from which they will be dropped through the chute 53 to the discharge 3.

After a vending receptacle has become empty it is desirable to prevent the coins reaching the coin seat on the carrier, and to this end the guide 54 is cut away at 63 and a stop or switch 69, controlled by the contents of the vending receptacle, moves into the path of the coin and deflects the same on top of the carrier so that when the carrier is moved rearwardly the coin will be swept off into the chute 53. Preferably the switch is arranged on a curved arm 70 and is pressed away from switching position by a spring 71. When a follower 17 reaches its lowermost position it engages the arm 70 and forces the switch 69 into the path of coins in the chute, thus causing them to be deflected through the portion 68 on to the top of the carrier from which they are displaced by the portion 101 on the movement of the carrier.

The coin box 52 is preferably carried by the frame of the coin controlled mechanism and depends in rear of the cross piece 2. Its closure 72 is hinged at 73 and is provided with flanges 74 which coöperate with a rear wall of the cross piece 2 when the coin controlled mechanism frame is introduced into the casing, thus holding the closure in closed position and providing a space between the coin receptacle and the cross piece

2 forming part of the chute 33, through which coins, slugs or other material drop to the discharge 3.

The operation has been set forth specifically with the description of the parts and may now be summarized as follows: Upon a coin of proper amount being dropped through the slot 18, it passes through the intake chute to the seat 49, 50. A pressure on the plunger 29 moves the carrier, and, at the same time, the coin engaging member 25 that is not engaging a coin moves to depress its ejector from ejecting position on the carrier while the other ejector is set or maintained in ejecting position because its coin engaging member cannot be moved. The strain is immediately taken from the coin as the ejector engages a guide 34 and continues in engagement therewith until an article is ejected from the rear wall of a receptacle 12, a return movement of the carrier being prevented until the ejection has taken place, because of the engagement of a pawl 42 with a ratchet 43. At the end of the ejecting movement of the carrier the ejector drops, this being permitted by reason of the fact that the coin has been discharged through opening 51 permitting the member 25 to move under the action of the plunger. The return movement of the carrier takes place under the action of the spring 46 and at the end of said movement the portion 27 of the devices 25 cooperate with abutments 28 and restore the ejectors to ejecting positions on the carrier.

While the present improvements have been embodied in a vending machine in which the ejectors act directly upon the articles to be vended it is to be understood that the invention is not limited to such a construction and that the term "ejector" is intended to cover any type of operating member for coin controlled machines whether acting directly or indirectly upon an article to be vended or operating any suitable mechanism.

A coin controlled mechanism constructed in accordance with this invention will protect the operating parts against the action of slugs, improper coins, paper or other extraneous matters. The action of the parts are simple yet positive and the user will either obtain value for a coin deposited or the coin will be returned. The coin receptacle is closed in such a manner that a jarring of the machine cannot displace the coins and cause them to pass from the discharge. Further all parts of the machine are simplified both in operation and construction.

I claim as my invention:

1. The combination with a carrier, of an ejector mounted thereon, of a ratchet member mounted independently of the carrier, a pawl movable with the carrier, and a device for controlling the engagement of the

pawl by the ratchet member to prevent a return of the carrier when a proper coin has been fed to the coin controlled device.

2. The combination with a carrier, of an ejector movably mounted thereon, a coin engaging member operatively connected to the ejector, and an operating member for the carrier, connected to the coin engaging member to cause the latter to operate the ejector unless said coin engaging member is engaging a coin.

3. The combination with a carrier, of an ejector movably mounted thereon, a coin engaging member operatively connected to the ejector, an operating member for the carrier connected to the coin engaging member to cause the latter to operate the ejector, a spring moving the carrier to an initial position, and an abutment arranged to effect the movement of the ejector to ejecting position on the carrier when the latter reaches its initial position.

4. The combination with a carrier, of an ejector mounted to swing thereon and having an arm extending therefrom, a coin engaging member pivotally mounted on the carrier and cooperating with the arm, and a plunger slidably arranged on the carrier and connected to the coin engaging member.

5. The combination with a carrier, of a pair of ejectors movably mounted thereon, an operating member for the carrier, also movable relatively to the latter and having connections with the ejectors.

6. The combination with a carrier, of a pair of ejectors mounted thereon, coin engaging members movably mounted on the carrier, each being operatively connected to an ejector and being provided with a rack, a pinion meshing with both racks, and an operating member for the carrier operatively connected to the pinion.

7. The combination with a carrier, of a pair of ejectors mounted thereon, coin engaging members movably mounted on the carrier, each being operatively connected to an ejector and being provided with a rack, a pinion meshing with both racks, and a plunger having the pinion journaled thereon about an axis transverse to the line of movement of the plunger.

8. The combination with a carrier embodying an upper and a lower plate, of a pair of pivotally mounted ejectors arranged to cooperate with the under surface of the plate and provided with depending arms, coin engaging members pivotally mounted on the upper surface of the lower plate, and operatively connected to the depending arms and provided with racks, a pinion cooperating with both racks, a plunger guided on the carrier and having the pinion turning thereon about an axis transverse to the line of movement of the plunger, a spring acting to move the carrier to an initial position, and

an abutment cooperating with coin engaging members to hold the ejectors in ejecting positions on the carrier.

9. The combination with an ejector and an operating member therefor, of a pair of movable coin engaging members controlling the position of the ejector, one being movable to engage a coin upon the movement of the operating member, and means for effecting the movement of the other coin engaging member to release the coin after the ejecting operation has been completed.

10. The combination with a carrier, of a pair of movable coin engaging members thereon, means for effecting the movement of one of said members to engage a coin at the beginning of the movement of the carrier in one direction, means for effecting the movement of the other member to release the coin, and an ejector controlled by said coin engaging members.

11. The combination with a carrier, of a pair of movable coin engaging members thereon, means for moving one of said members to engage a coin at the beginning of the ejecting movement of the carrier, a guide cooperating with the other member and holding the latter against movement until near the end of the ejecting movement of the carrier, and an ejector controlled by the coin engaging member first operating.

12. The combination with a carrier, of an ejector movably mounted thereon, of a pair of coin engaging members controlling the position of the ejector and movably mounted on the carrier, means for effecting the operation of one coin engaging member during the first part of the ejecting movement of the carrier, and a guide on which the other coin engaging member travels releasing the latter near the end of the movement of the carrier.

13. The combination with a carrier and an operating member therefor movably connected thereto, of an ejector movably mounted on the carrier, a pair of coin engaging

members, one of said members being operatively connected to the operating member and to the ejector, and a guide for the other coin engaging member holding it against movement until near the end of the ejecting movement.

14. In a coin controlled machine, the combination with a coin seat having two supporting portions arranged obliquely to each other, of devices cooperating with a coin of the seat for controlling the operation of the machine, and means for effecting a movement of said devices to displace the coin from the seat after the controlling operation.

15. In a coin controlled machine, the combination with a carrier provided with an opening having obliquely arranged walls for supporting a coin, of an ejector movably mounted on the carrier, a pair of movably mounted coin engaging members cooperating with a coin supported on said walls and controlling the ejector, and means for effecting the movement of said coin engaging members to shift the coin laterally in the opening to cause it to drop therethrough.

16. In a coin controlled machine, the combination with a coin seat having two supporting portions, of devices cooperating with a coin on the seat for controlling the operation of the machine and means for effecting a movement of said devices to displace the coin from the seat after the controlling operation.

17. In a coin controlled machine, the combination with a coin seat, of devices cooperating with a coin on the seat for controlling the operation of the machine, and means for effecting a movement of said devices to displace the coin from the seat after the controlling operation.

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