

R. ROBBINS.
CUP VENDING MACHINE.
APPLICATION FILED FEB. 2, 1911.

1,012,444.

Patented Dec. 19, 1911.

3 SHEETS—SHEET 1.

Fig. 1.

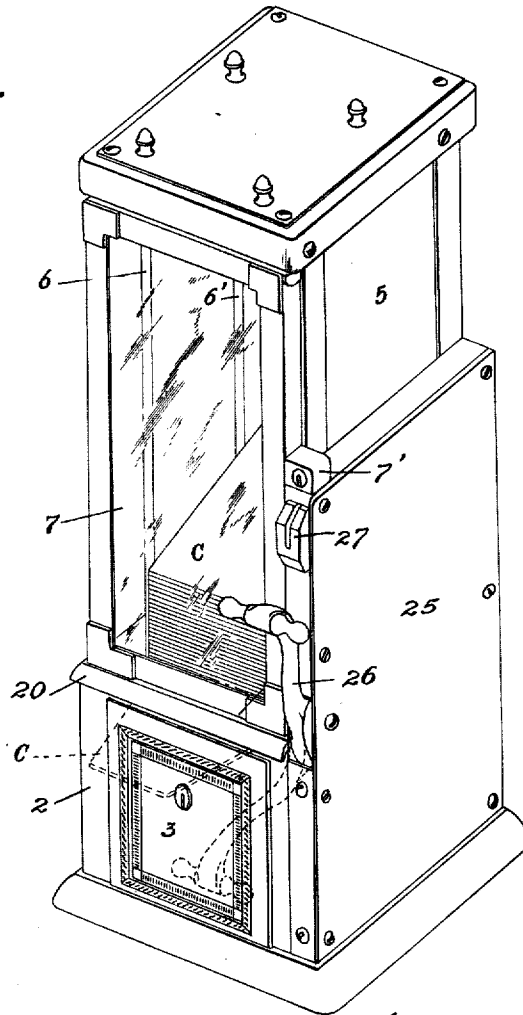
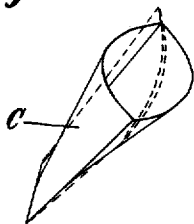
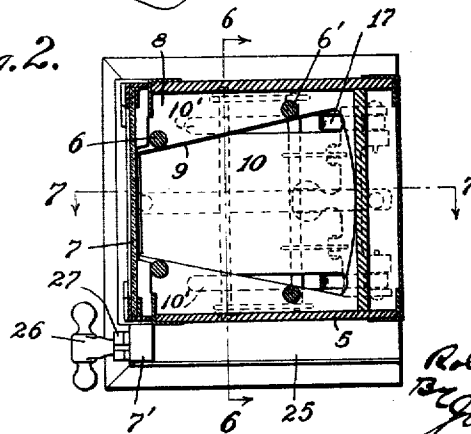


Fig. 12.



Witnesses;
By *Grill & Co.*
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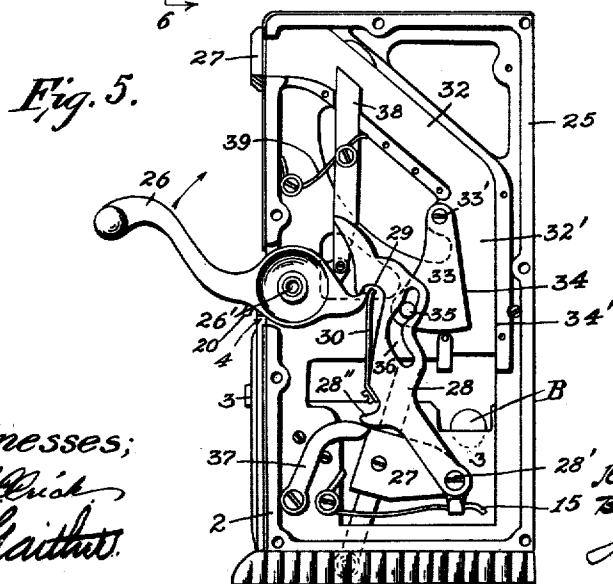
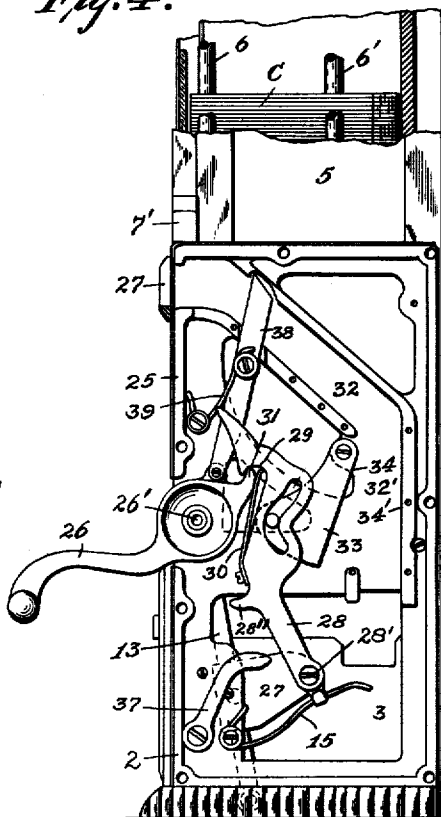
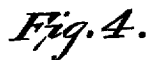
Fig. 2.



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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 6.

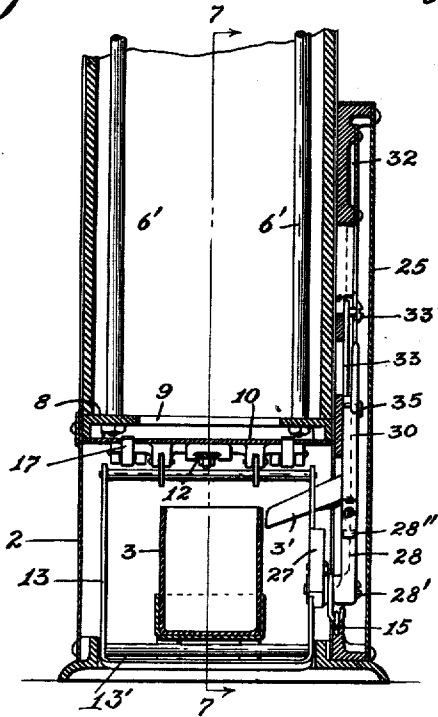


Fig. 7.

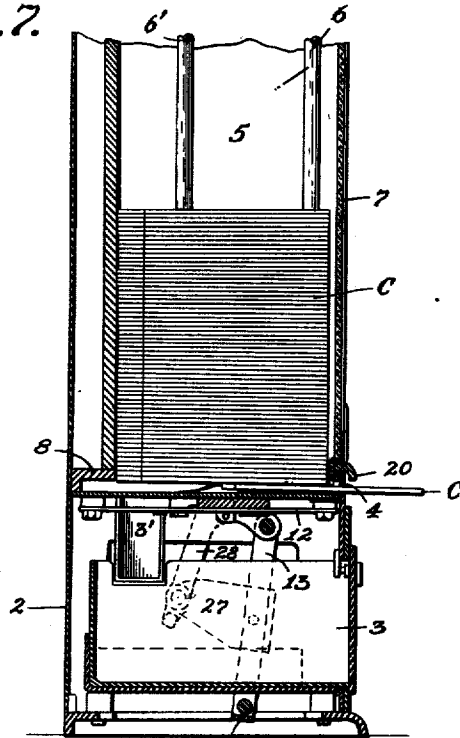


Fig. 8.

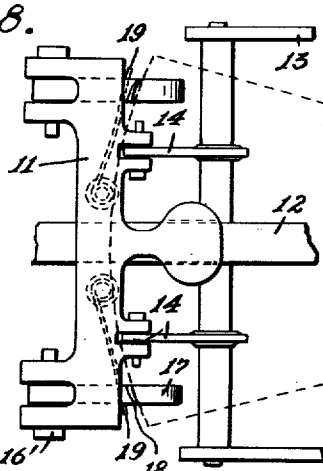


Fig. 9.

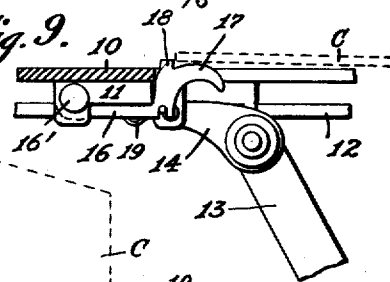


Fig. 11.

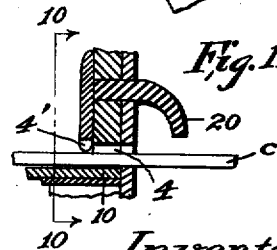
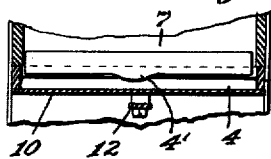


Fig. 10.



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UNITED STATES PATENT OFFICE.

ROLLAND ROBBINS, OF CRAFTON, PENNSYLVANIA, ASSIGNOR TO THE SANITARY FOUNTAIN AND VENDING MACHINE COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF DELAWARE.

CUP-VENDING MACHINE.

1,012,444.

Specification of Letters Patent.

Patented Dec. 19, 1911.

Application filed February 2, 1911. Serial No. 606,155.

To all whom it may concern:

Be it known that I, ROLLAND ROBBINS, a resident of Crafton, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Cup-Vending Machines, of which the following is a specification.

The primary object of this invention is to provide a simple and efficient vending machine with special reference to the requirements of the machine for dispensing drinking cups.

One object is to provide a mechanism which, while designed primarily to be made operative by a penny, may be made operative by any coin which the coin chute will admit, whether the same be a penny, nickle, dime, etc.

A further purpose is to provide a machine in which the exterior operating element, in the present instance a lever, is freely movable at all times but which operates to deliver an article only after a suitable coin or check has been inserted, the coin being released by the ensuing operation and passing into the till.

The mechanism which renders the machine operative only in the presence of a coin is the novel construction to which the present application is primarily directed.

There is wide-spread sentiment against the use of glasses, cups, dippers, etc., in public places. A number of States have already passed laws prohibiting the use of public drinking vessels, so that the provision of inexpensive individual drinking cups is a prime necessity, and already the business of providing them has assumed considerable proportions.

While the present invention, viewed as a coin controlled or operated machine, is not necessarily confined to the sale of drinking cups, it has been designed with special reference to the requirements of such a machine, and its efficiency for this service has been fully demonstrated.

In the accompanying drawings, Figure 1 illustrates the machine in perspective. Fig. 2 is a sectional plan on line 2—2 of Fig. 3, the cup magazine being empty. Fig. 3 is an elevation of the machine with the mechanism-inclosing plate removed, the full lines indicating the normal positions of the

parts and the dotted lines their position when operated in the absence of a coin or check. Fig. 4 is a similar view illustrating the positions of the parts when the article delivery mechanism has been moved for projecting a cup, and Fig. 5 is a similar view showing the positions of the parts during their return from delivering position. Fig. 6 is a vertical section of the machine, taken on lines 6—6 of Figs. 2 and 3. Fig. 7 is a vertical section taken at right angles to Fig. 6 on lines 7—7 of Figs. 2 and 6, with the delivering mechanism in cup projecting position. Fig. 8 is a detail illustrating in top plan the cup ejecting slide mechanism, and Fig. 9 is an edge view of the same. Fig. 10 is a sectional detail on line 10—10 of Fig. 11, showing the cup delivering slot, and Fig. 11 is a sectional detail, taken at right angle to Fig. 10. Fig. 12 is a view of one of the cups which the machine is specially designed to vend, the cup being shown open in full lines and closed in dotted lines, the latter being its form when delivered from the machine.

Referring to the drawings, 2 designates the lower portion of a machine constructed in accordance with the invention in which is located the till or money drawer 3, also the mechanism presently to be described for projecting the cups C one by one through the delivery slot 4 from the bottom of a pile contained in magazine 5. The pile of flatly folded cups is held between the forward vertical rods 6 and the similar rearwardly positioned rods 6'. The cups may be inserted through a glass door 7, which forms the front wall of magazine 5, the door being secured in any suitable manner, in the present instance by a lock 7'. The side edges of the folded cups converge toward their lower ends, and hence rods 6 are spaced apart just sufficiently to receive therebetween the narrower ends of the cups, and rods 6' are similarly spaced to receive the wider portions thereof. The rods 6 and 6' extend upwardly from ledge 8 at the base of magazine 5 and through the top of the magazine where they may be provided with ornamental knobs, as in Figs. 1 and 3. Ledge 8 extends around opening 9 which is slightly larger than the cup and of the

general shape of the latter, the bottom-like surface immediately beneath said opening being a plate 10 which immediately sustains the pile and from which the cups are delivered one by one through slot 4.

The delivery mechanism consists of the plate-like frame 11 which is slidable immediately beneath bottom 10 on the central track-forming bar or strip 12. The rocking bail frame 13 is pivoted at 13' in the bottom of frame-base 2, with links 14 connecting it with frame 11, and with spring 15 resisting movement of the bail forwardly toward the front of the machine, thus holding the cup-delivering frame 11 normally at the rearward limit of its travel, as in Fig. 2.

When the sliding frame 11 is actuated, in manner presently to be described, engagement is had with the lowermost cup of the pile by means of the opposite spring latches 16. Each of these latches is elongated in the direction of travel of slide 11 and is pivoted at its rear end to the under portion of the slide at 16'. The forward portion of the latch is extended upwardly and formed with the rounded top ledge 17, Fig. 9, immediately in advance of the cup-engaging upward projection 18. The latches move in slots 10' in bottom plate 10, and the parts 17 and 18 project just sufficiently above the plate to effectively engage the bottom cup. The latches 16 are held normally raised by springs 19, and as the latches in their rearward position are at least partially beneath ledge 8, Fig. 7, projections 18 are in position to engage the rear edge of the cup to be advanced. With the latches depressible and provided with the curved runner-like portions 17 they slide freely beneath the pile of cups on the return movement of plate 11. At the same time the friction of the rounded surfaces 17 on the under surface of the lowermost cup aids materially in advancing the same and in preventing it from twisting out of proper position or direction while being delivered. Slot 4 is sufficiently deep to permit a single cup to be easily passed therethrough, the passage of more than one cup at a time being prevented by the rounded lip 4' projecting centrally from the inner portion of the slot, Figs. 10 and 11. The outer portion of the slot may be protected by the overhanging guard or shield 20.

The coin controlled mechanism for operating the cup-delivering means is inclosed within the side extension 25 of the frame, the only portions of the same appearing on the exterior being the operating lever 26, and the coin inlet 27. The operating mechanism is connected to the parts to be operated by arm 27 rigid with and projecting rearwardly from one of the side arms of bail frame 13, the spring 15 being connected to

the outer extremity of said arm for holding the delivery mechanism retracted, as heretofore explained.

Pivoted at its lower end at 28' to arm 27 is the elongated arm or link 28 which is formed on its forward edge with a depression, the latter terminating at its upper end in a downwardly facing hook-like abutment 29, with a backwardly depressible spring 30 normally closing the depression, the spring extremity lying within the hook-like abutment, as in Fig. 3. The operating lever 26 is fulcrumed at 26', and the recessed forward edge of pivoted arm 28 lies normally in the path of lug 31 projecting from the lever. When arm 28 is free to move on its pivot 28' lug 31 engages spring 30, but instead of depressing the spring and engaging abutment 29, the arm 28 yields backwardly with the result that the parts move idly, as in dotted lines, Fig. 3, and the mechanism is not operated. Such operation is effected only when arm 28 is held against pivotal movement by the means which I will now describe.

Coin chute 32, of which 27 is the inlet, extends inwardly and downwardly, the coin being finally deflected into the till by the trough-like guide 3'. The upper portion of chute 32 inclines downwardly and rearwardly, and the remainder thereof is disposed vertically, as indicated at 32'. An edge wall of chute part 32' consists of the detent 33, pivoted at its upper end at 33', the detent normally lying partially within the chute, its inner edge 34 sloping downwardly gradually toward the opposite fixed wall 34' of the chute. The detent thus positioned obstructs the passage of a coin or check B, the latter lodging between the detent and the chute wall 34', as shown in Fig. 3. The slope of edge 34 of the detent is so gradual that the detent operates to obstruct the passage of coins of various sizes, and in turn the obstructed coin provides an effective stop for preventing the detent from moving on its pivot so that when thus held the delivery mechanism is operative. In this connection it makes no difference whether the coin lodges near the lower extremity of the detent or well upward toward pivot 33', the coin or check having no tendency to ride upwardly with the result that the detent is securely held. The operative engagement between detent 33 and arm 28, as here shown, consists of a pin 35 on the detent entered in the arm slot 36 of irregular form.

In operation, when a coin or check is inserted, as in Fig. 3, it lodges behind the detent 33 and the latter through the pin and slot connection holds arm 28 from movement on its pivot, with the result that when lever 26 is depressed spring 30 yields to the pressure of lug 31 and the latter engages abut-

ment 29, and the further downward movement of lever 26 results in raising arm 28 bodily and oscillating the bail frame 13 into the positions shown in Figs. 4 and 7, and thereby so projecting a cup from the delivery slot that it may be readily withdrawn by a purchaser. The irregularity in slot 36 is such that when arm 28 is at the extreme limit of its forward movement, Fig. 4, detent 33 is swung outwardly from the coin chute and the coin which effected the operation is released and permitted to pass into the till. On the upward movement of arm 28 a lug 28" projecting from its forward edge moves freely past the pivoted dog 37, the latter merely being deflected on its pivot. But on the return movement the engagement of the lug and dog is positive, as in Fig. 5, with the result that arm 28 is deflected laterally sufficiently to disengage abutment 29 from lug 31 and the parts return to their normal or set position in advance of the complete return of operating lever 26, detent 33 thus quickly resuming its normal chute-obstructing position and in readiness for the next operation.

An arm 38 is pivoted at its lower end to lever 26 in such manner that when the latter is depressed said arm is projected into the upper portion of the coin chute 32 and so obstructs the latter that even though a second coin be inserted in the meantime it cannot pass into engagement with the detent until the latter has been returned to normal position. Without this precaution coins might be inserted while lever 26 is depressed, in which case they would pass into the till without causing the machine to operate. In the present embodiment, arm 38 is utilized as a connecting means for spring 39 which opposes depression of the operating lever and returns the latter and holds it in normal position.

A characteristic of the invention is the non-operative connection between the hand lever and parts to be operated excepting in the presence of an inserted coin, the lever being normally free to move as in dotted lines in Figs. 1 and 3 and not being locked against movement or in an inoperative position, as is the case with the operating element of many vending machines which frequently results in serious damage due to attempts to compel the machine to operate when it is out of order, or to force an operation without inserting a coin. With the arrangement as here shown the operating lever may be oscillated at all times through as full a movement as is possible when the machine is delivering or vending, with the result that there is no incentive to apply force to the lever excepting with the deliberate purpose of wrecking the machine.

While the coin controlled operating mechanism is here shown applied to a machine

for vending drinking cups, I do not limit myself thereto. And in this connection it will be understood that by the term article-delivery-mechanism appearing in the claims, I refer to mechanism of any and every character that may be operated by a coin controlled mechanism, whether for delivering an article of merchandise or for giving value in other form.

The article delivery mechanism herein shown and described forms the subject matter of application Serial No. 611,461, filed February 28, 1911.

I claim:—

1. The combination of a coin chute, a movable abutment normally obstructing the chute and adapted to be held from moving by an inserted coin, article delivery mechanism, an operating handle, and means controlled and restricted in movement by said movable abutment when the latter is held immovable by a coin for operatively connecting the article delivery mechanism and the handle.

2. The combination of a coin chute, a movable device normally obstructing the chute and adapted to be held from moving by an inserted coin, article delivery mechanism, an arm pivotally connected to said mechanism and normally movable freely independently thereof and also connected to said movable device and held by the latter against pivotal movement when said movable device is being held immovable by a coin, and movable operating means in the path of which the said arm projects and which is adapted to engage and move the arm on its operative stroke only when the latter is held against pivotal movement by the said chute obstructing device.

3. The combination of a coin chute, a movable detent normally obstructing the chute and adapted to be held from moving by an inserted coin, article delivery mechanism, an arm pivotally connected to said mechanism, a pin and slot connection between the arm and detent with the latter holding the arm against pivotal movement when a coin is in engagement with the detent, and movable arm-lifting means into the path of which the arm normally extends with the arm held against pivotal movement by the coin-held detent with means for positively engaging the operating means and said arm.

4. The combination of a coin chute, a pivotally supported detent movable relatively to the chute and normally obstructing the same and adapted to be held against pivotal movement in one direction by an inserted coin, article delivery mechanism, an arm pivotally connected to said mechanism for actuating the latter when the arm is moved bodily, operating means into the path of which the arm normally extends with

means for engaging the operating means and the arm when the arm is held against pivotal movement, and a pin and slot connection between the detent and arm for holding the latter against pivotal movement when the detent is engaged by an inserted coin.

5 The combination of dispensing mechanism with coin controlled actuating apparatus comprising an arm connected to the mechanism for moving the latter, the arm also movable independently of the mechanism, operating means adapted to engage and move the arm when the latter is held against independent movement, and means made operative by an inserted coin for holding the arm against independent movement.

6. The combination of dispensing mechanism with coin controlled actuating apparatus comprising an arm pivoted to the mechanism and movable bodily for operating the latter, operating means adapted normally to deflect the arm on its pivot and also adapted to positively connect with the arm when the latter is held against deflection, and means made operative by an inserted coin for preventing the arm from being deflected.

7. Dispensing mechanism, in combination with coin controlled actuating apparatus comprising an arm movably connected thereto having a surface adapted to be engaged by an actuating device, an actuating device, a spring for preventing said engagement when the arm is free to move independently of said mechanism, and means made operative by an inserted coin for preventing such independent movement of the arm.

8. Dispensing mechanism, in combination with coin controlled actuating apparatus comprising an arm movably connected thereto and provided with an abutment, an operating device having a projection adapted to engage the abutment, a spring normally preventing such engagement when the arm is free to move independently of said mechanism, the spring yielding and permitting such engagement when the arm is held from so moving, and means made operative by an inserted coin for preventing independent movement of said arm.

9. Dispensing mechanism, in combination with coin controlled actuating apparatus comprising an operating lever, an arm pivoted to the said mechanism and provided with an abutment lying normally in the path of the lever, yielding means for deflecting the arm and its abutment from the path of the lever when the arm is free for pivotal movement relatively to said mechanism, and means made operative by an inserted coin for holding the arm against such pivotal movement.

10. Dispensing mechanism, in combina-

tion with coin controlled actuating apparatus comprising an arm pivoted thereto, an operating device adapted to deflect the arm without positively engaging the same when the arm is free for pivotal movement, said device adapted to engage and move the arm and the said mechanism when the arm is held against pivotal movement, means made operative by an inserted coin for holding the arm against pivotal movement, and means for disengaging the arm from the operating device after the latter has moved the said mechanism.

11. Dispensing mechanism, in combination with coin controlled actuating apparatus comprising an arm pivoted thereto and having an abutment-forming depression, a spring yielding inwardly toward the depression and normally closing the same, an actuating device adapted to engage the abutment when said arm is held against pivotal movement with the spring preventing such engagement when the arm is free to move, and means made operative by an inserted coin for holding the arm against pivotal movement.

12. Dispensing mechanism, in combination with coin controlled actuating apparatus comprising an arm pivoted thereto and movable bodily therewith for operating the same, an actuating device adapted to engage the arm and move it bodily, means operative after said mechanism has been operated for disengaging the arm and actuating device, and means made operative by an inserted coin for effecting the engagement of the arm and operating device.

13. Dispensing mechanism, in combination with coin controlled actuating apparatus comprising an arm movable bodily for operating the same, an operating device, means made operative by an inserted coin for effecting an engagement between the operating device and said arm, a dog movable in the path of the arm and deflected thereby when the arm is moved in one direction, the dog positively engaging and deflecting the arm on the opposite movement and disengaging it from the operating device.

14. The combination with dispensing mechanism, a coin chute, and coin controlled actuating apparatus comprising a pivoted detent normally obstructing the chute, actuating means for said mechanism connected to the detent and having a free non-operating movement when the detent is not held against pivotal movement by a coin in the chute lodging thereagainst, said actuating means having a positive movement for actuating said mechanism when the detent is held by a coin.

15. Dispensing mechanism, in combination with coin-controlled actuating apparatus comprising an arm pivotally connected thereto and formed with a slot of irregu-

lar form, a coin chute, a detent pivoted to hang normally in the chute and obstruct the passage of a coin with the coin when thus obstructed lodging against the detent and holding it from pivotal movement, a pin on the detent entered in the arm slot, actuating means adapted to engage the arm and move it bodily when the detent is held by a coin and thereby operate said mechanism, means for preventing operative engagement between the actuating device and arm when the movement of the detent is unobstructed by a coin, the arm when moving bodily operating to swing the detent on its pivot and release the coin.

16. Coin controlled actuating apparatus comprising a coin chute, a detent pivoted to hang normally within the chute and obstruct the passage of a coin with the face of the detent forming a sloping wall for the chute which gradually contracts the latter below the detent pivot, and moving means operatively connected to the detent and held in operative position only when a coin is lodged against the detent with the latter held from movement on its pivot.

17. Coin controlled dispensing-mechanism-actuating apparatus comprising a movable member, a connection having an operative pull stroke for moving said member, said connection being pivotally connected to and normally swingable independently of and without actuating said member, a handle normally freely movable and operatively disconnected from said connection, said connection being normally freely swingable with said handle, and a movable device adapted to be held by a coin to cooperate with said connection in forming an abutment to hold the same against normal swinging movement to establish operative pull stroke connection between said handle and said member.

18. Dispensing mechanism, in combination with coin-controlled actuating apparatus comprising an operating mechanism, a coin chute, a movable device connected to said operating mechanism and normally obstructing the chute, said device adapted to be held against movement by an inserted coin with means for actuating the operating mechanism only when the device is so held, said device being moved by the operating mechanism to release the coin, and a device actuated by the operating mechanism for obstructing the coin chute above said device while the operating mechanism is in action and thus prevent a second coin from passing to operating position until the parts have been returned to normal position.

19. Dispensing mechanism, in combination with coin-controlled actuating apparatus comprising an arm pivoted thereto and

movable bodily for operating the same, the arm provided with an abutment, an operating lever adapted to engage the abutment, a spring for preventing such engagement when the arm is free to move on its pivot, a coin chute, a pivoted detent within the chute and normally contracting the same and adapted to be held by an inserted coin against pivotal movement and thereby holding the arm in position to be engaged by the operating lever, a pin and slot connection between the detent and said arm, and a movable chute obstructing device with a connection between said device and the operating mechanism.

20. Dispensing mechanism, in combination with coin controlled actuating apparatus therefor comprising a coin passage, a movable device normally obstructing said passage, and an element normally freely movable with said device and independently of said mechanism, and having an operative mechanism-actuating stroke, said device adapted to be held immovable by a coin against said normal movement with said element to form an abutment forcing said element to travel on said mechanism-actuating stroke.

21. Dispensing mechanism, in combination with coin controlled actuating apparatus therefor, comprising a handle normally operatively disconnected from said mechanism and freely movable with respect thereto, an element normally freely movable independently of said mechanism and having an abnormal operative mechanism-actuating stroke with said handle, and a device normally freely movable with said element, and adapted to be held immovable by a coin against said free normal movement to form an abutment forcing said element to operatively connect said handle with said mechanism and travel with said handle on said mechanism actuating stroke.

22. Coin controlled dispensing-mechanism-actuating apparatus comprising a connection having an operative mechanism-actuating pull stroke, said connection having a normal non-operative swinging movement, a handle normally freely movable and operatively disconnected from said connection, and a normally freely movable device adapted to be held by a coin and cooperating when so held with said connection to hold the same into operative pull stroke connection with said handle.

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

ROLLAND ROBBINS.

Witnesses:

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F. E. GAITHER.