

R. ROBBINS.
CUP VENDING MACHINE.
APPLICATION FILED FEB. 28, 1911.

1,023,097.

Patented Apr. 9, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

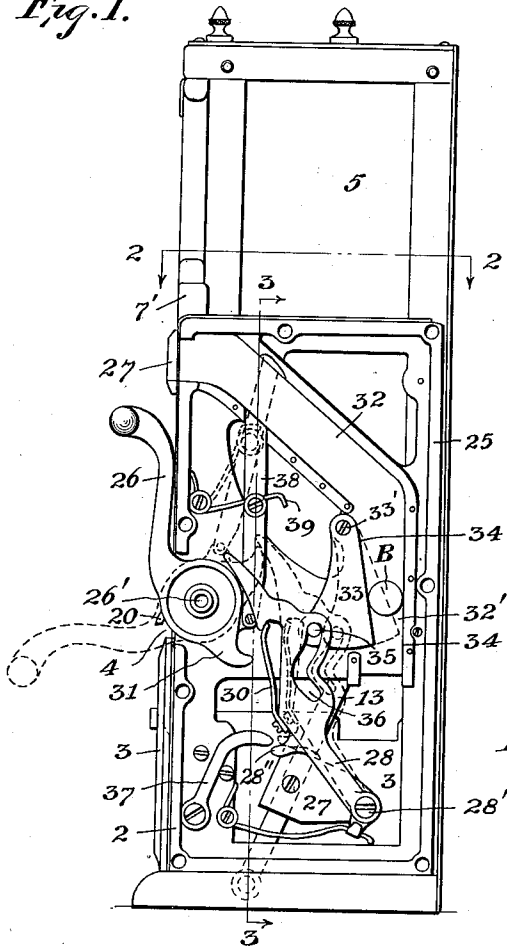


Fig. 3.

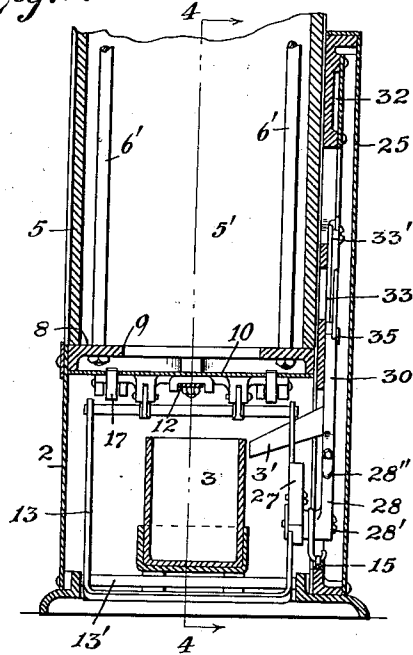


Fig. 4.

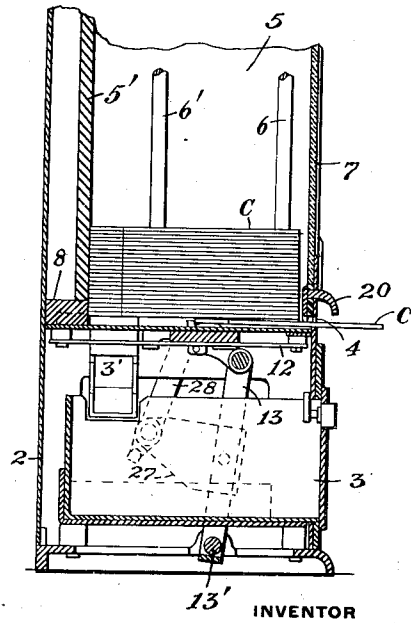
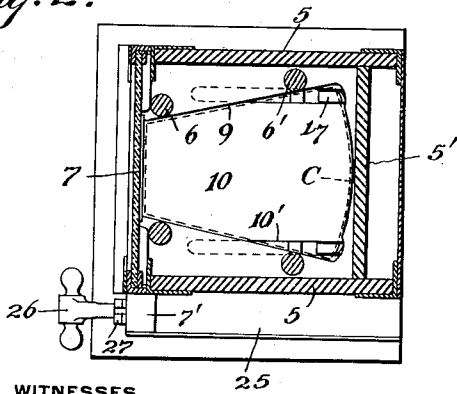


Fig. 2.



WITNESSES

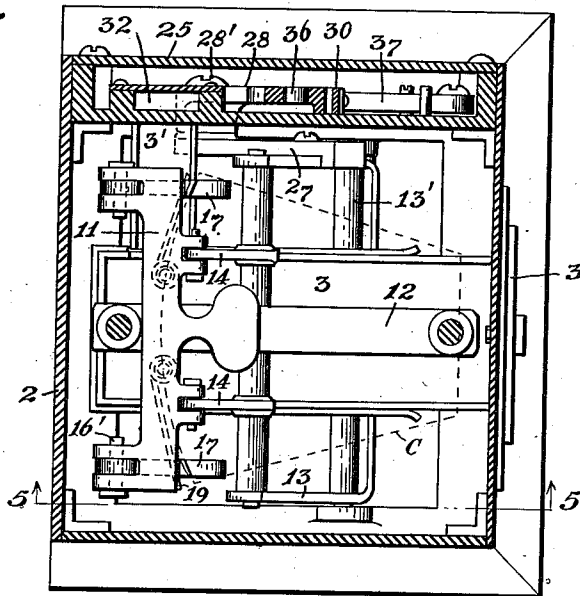
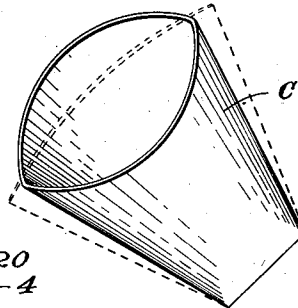
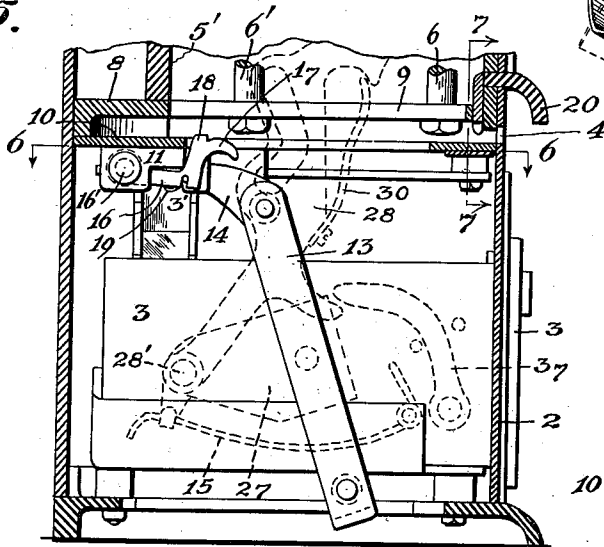
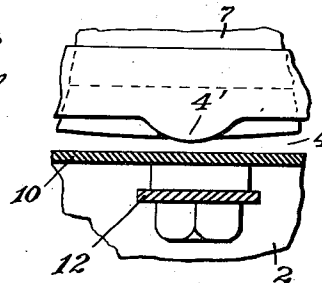
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2 SHEETS—SHEET 2.



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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.

1,023,097.

Specification of Letters Patent.

Patented Apr. 9, 1912.

Original application filed February 2, 1911, Serial No. 606,155. Divided and this application filed February 28, 1911. Serial No. 611,461.

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.

This is a division of my application filed February 2, 1911, Serial No. 606,155, entitled cup vending machines, and has particular reference to the article delivery mechanism disclosed therein. This mechanism is preferably operated by the coin controlled means here shown which forms the subject matter of said application, though obviously it may be operated by other means. And while the mechanism of the present application is designed primarily for delivering paper drinking cups in folded form, it may be utilized for other purposes, as will be understood.

The object of the invention is to provide simple and efficient mechanism designed with special reference to delivering the lowermost article of a pile, and particularly flat and relatively thin or sheet-like articles, such as folded paper drinking cups. These cups are delivered one by one, the lowermost cup being projected laterally through a discharge opening, this while the cup being delivered is supporting the considerable weight of the cups thereabove, and to accomplish this without mutilating the cups I have designed novel mechanism which obtains an effective hold on the undermost cup and advances it to delivering position, the cup-moving means being preferably depressible while being retracted, so that on its return movement it does not mar the then undermost cup, which latter it engages and delivers on the next operation of the machine.

In the accompanying drawings, Figure 1 is an elevation of the machine with the mechanism-inclosing plate removed, the full lines indicating the normal position of the parts, and the dotted lines their position when operated in the absence of a coin. Fig. 2 is a sectional plan on line 2—2 of Fig. 1. Fig. 3 is a vertical section of the lower portion of the machine, taken on line 3—3 of Fig. 1, and Fig. 4 is a section at right angles to the section of Fig. 3, taken on line 4—4 of Fig. 3. Fig. 5 is an elevation of the arti-

cle delivery mechanism, the inclosing casing and article magazine shown in section, taken on line 5—5 of Fig. 6. Fig. 6 is a sectional plan on line 6—6 of Fig. 5. Fig. 7 is a sectional detail on line 7—7 of Fig. 5. Fig. 8 is a detail of one of the drinking cups which the mechanism is especially designed to deliver, the cup being shown open in full lines, and folded or collapsed in dotted lines.

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 rear wall 5' of the magazine and door 7 cooperate with rods 6 and 6' to retain the cups in pile form and insure their passage to the delivery mechanism in proper position to be projected thereby.

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 Fig. 1. 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. 5.

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 edge 17, Figs. 5 and 6, 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. 5, 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 there-through, 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. 5 and 7. 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 28 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. 1. 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. 1, 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. 1. 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. 1, 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 abutment 29, and the further downward movement of lever 26 results in raising arm 28 bodily and oscillating the bail frame, 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, 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 engage-

ment of the lug and dog is positive, 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.

10 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 mean time 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.

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.

35 It will be understood that the article delivery mechanism herein claimed may be operated by a coin controlled or other mechanism of any preferred form, though the mechanism as shown is admirably suited for the purpose, especially when the machine is utilized for vending drinking cups. Also, the mechanism herein claimed may be used for delivering various articles of merchandise, though it is particularly well adapted for projecting flat and relatively thin articles one by one from the bottom of a pile, such as the folded drinking cups herein shown.

I claim:—

50 1. The combination of a magazine having a lateral opening at its lower end, the magazine bottom being slotted, a carriage movable beneath the bottom, carriage operating means, latches having horizontal portions pivoted at one end to the carriage and with the opposite ends of the latches extending upward in register with the slots in the magazine bottom, and springs holding the latches normally elevated with their upper turned ends projected through said slots.

60 2. The combination of a magazine having a lateral opening at its lower end with slots in the bottom of the magazine, a carriage

slidable beneath the magazine, depressible latch devices on the carriage projecting through the slots of the magazine, oscillating arms pivoted beneath the carriage with means for swinging the arms in the direction of movement of the carriage, and links connecting the arms and carriage.

3. The combination of a magazine having a lateral opening at its lower end, the magazine having a bottom for supporting a pile of articles one on top of the other, article moving devices having upwardly projecting portions for engaging the rear edge of the lowermost article of the pile, said devices also having forwardly projecting rounded portions for engaging the under surface of the article, and means for moving said devices relatively to said lateral opening.

4. The combination of a magazine having a lateral opening at its lower end, the magazine having a bottom for supporting a pile of articles one on top of the other, a carriage beneath the bottom with means for moving the carriage relatively to the magazine opening; depressible latch devices on the carriage normally projecting above the plane of the magazine bottom, the latches having upright portions for engaging the rear edge of the lowermost article of the pile and also having forwardly extending rounded portions for engaging the under surface of the article, and carriage moving means.

5. In combination, a magazine having a lateral discharge and a bottom support for a pile of articles to be delivered, a horizontal central track arranged below said support, a carriage carried thereby, arranged transversely and slidable longitudinally thereof and at its opposite end portions provided with vertically swingable article engaging and forcing members projecting forwardly and upwardly from said carriage, and means for reciprocating the carriage.

6. In combination, a vertically disposed magazine having a lateral discharge and a bottom floor for a pile of articles to be delivered successively through said discharge, a track bar arranged below an intermediate portion of said floor and approximately parallel therewith, a carriage between said floor and bar and supported by and slidable on said bar, article engaging and forcing members carried by said carriage and projecting upwardly through said floor, and means for reciprocating the carriage on said bar.

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

ROLLAND ROBBINS.

Witnesses:

ALEX. S. MABON,
J. M. NESBIT.