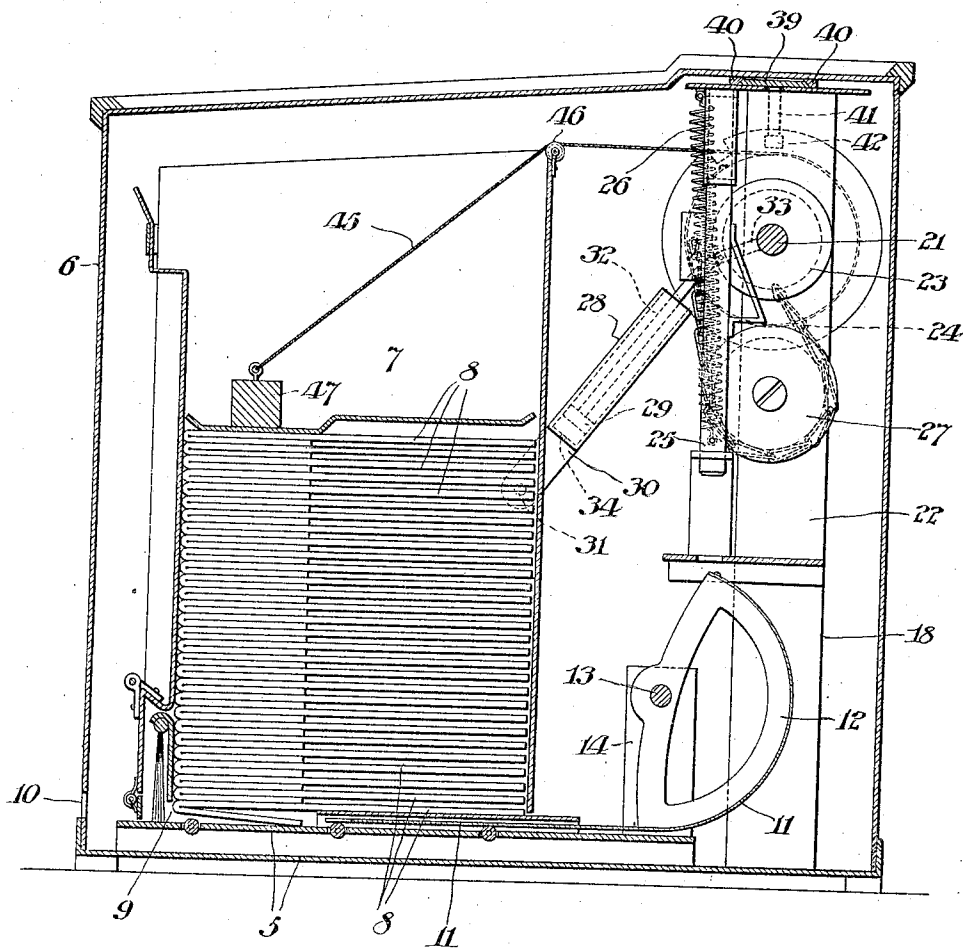


1,307,444.

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DISPENSING APPARATUS.
APPLICATION FILED MAY 31, 1917.

Patented June 24, 1919
3 SHEETS—SHEET 1.

Fig. 1.



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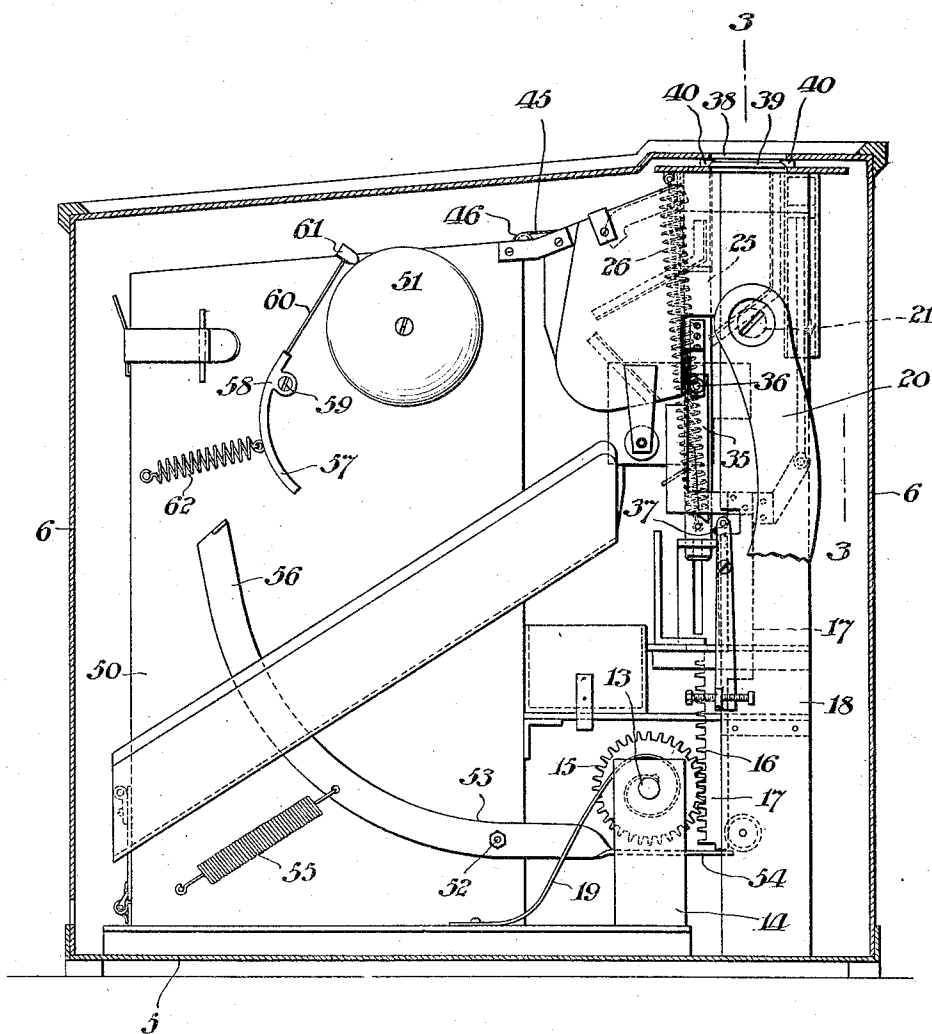
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Fig. 2.



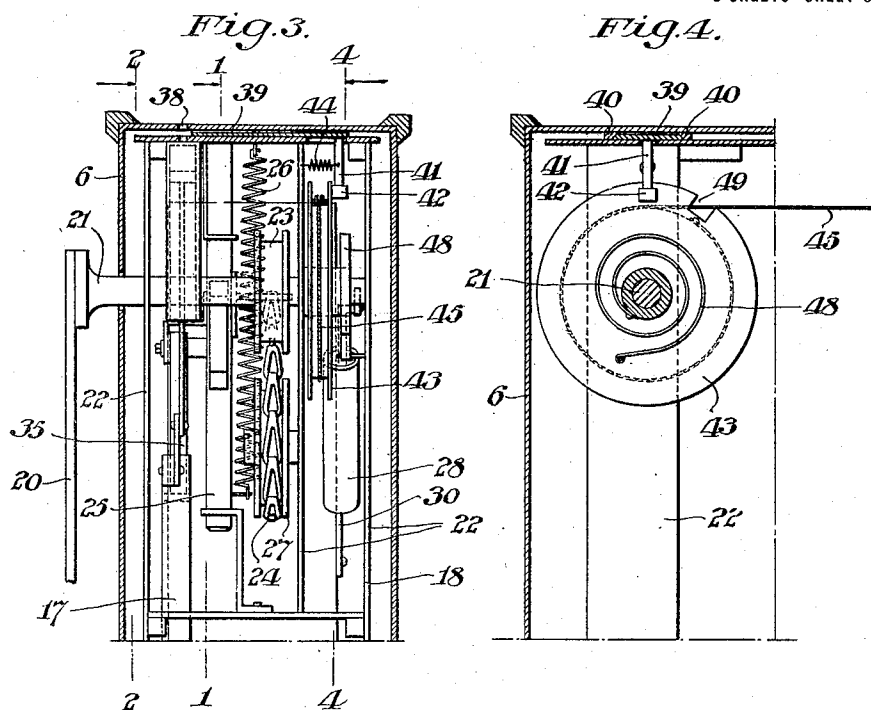
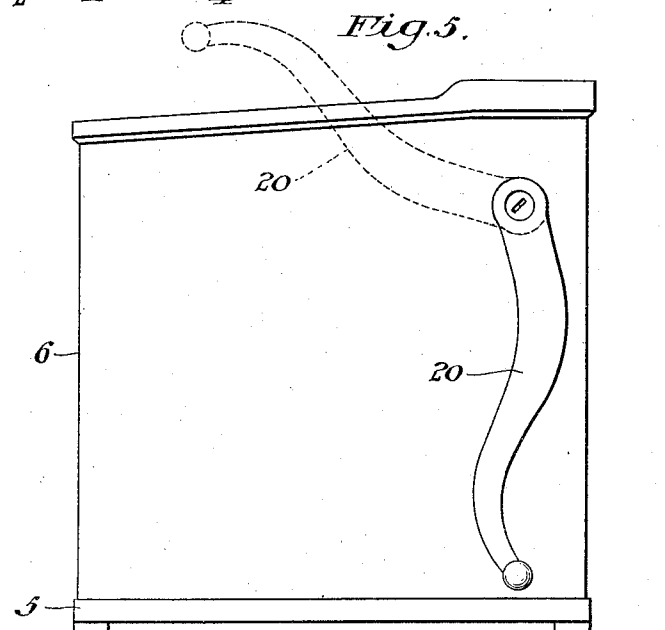
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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DISPENSING APPARATUS.

1,307,444.

Specification of Letters Patent. Patented June 24, 1919.

Application filed May 31, 1917. Serial No. 171,878.

To all whom it may concern:

Be it known that I, OTTO JAEGER, citizen of the United States, residing at Elkins Park, in the county of Montgomery and State of Pennsylvania, have invented certain new and useful Improvements in Dispensing Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to improvements in dispensing apparatus of the general character shown and described in Letters Patent of the United States No. 1,195,587 dated Aug. 22, 1916.

The object of my present invention is to improve the mechanism which operates the device which ejects the articles to be dispensed from the container; a further object of my invention is to provide a novel cushioning means for the said mechanism; a further object of my invention is to provide a novel means to automatically close an opening in the casing of the apparatus after a predetermined number of the said articles have been dispensed from the container; and a further object of my invention is to provide a novel signaling device which will be operated each time an article is ejected from the container.

With these objects in view my invented apparatus consists of the elements and the combinations of them hereinafter described and claimed.

In the accompanying drawings, illustrating my invention:

Figure 1 is a longitudinal, vertical section of a dispensing apparatus embodying my invention, on line 1—1 of Fig. 3.

Fig. 2 is a similar section, on line 2—2 of Fig. 3.

Fig. 3 is a transverse section through the upper portion of the apparatus, on line 3—3 of Fig. 1.

Fig. 4 is a sectional detail, on line 4—4 of Fig. 3, showing part of the door controlling devices.

Fig. 5 is a side view of the apparatus on a reduced scale.

Referring to the drawings, the frame or casing of the apparatus includes a base 5 and a housing 6 rising therefrom.

Supported on the base 5, within the housing 6, are walls which inclose a chamber or container 7 adapted to receive and contain

the articles 8 to be dispensed. The forward wall of the container 7 and housing 6 have discharge openings 9 and 10 therein through which the articles 8 may be successively discharged by a reciprocative ejector plate 11 which is formed of spring metal and guided by suitable means on the base 5.

The rearward end of the ejector plate 11 is secured to a member 12 having a curved face adapted to engage the body of the plate 11. The member 12 is secured on a shaft 13 which is mounted to turn in bearings 14 rising from the base 5 and which is provided with a gear wheel 15. The wheel 15 is in mesh with a gear rack 16 formed on the lower end of a vertically movable plunger 17 which is guided in a frame structure 18 which is mounted on the base 5 and forms part of the frame or casing of the apparatus.

When the plunger 17 is depressed, the wheel 15 is thereby turned to cause the forward end of the ejector plate 11 to project the forward end of the lowermost article 8 within the container 7 out through the openings 9 and 10 from which the said article may be readily withdrawn by hand. After the ejector plate 11 has been thus moved, it is returned to its normal position shown in the drawings by a spiral spring 19 which extends around the shaft 13 and has one end secured thereto and the other end secured to the base 5. The spring 19 also returns the plunger 17 to its normal position shown in the drawings.

The construction and operation of the parts thus far described are substantially the same as the similar mechanism illustrated and described in the Letters Patent hereinbefore referred to.

The plunger 17 is adapted to be depressed to operate the ejector plate 11 by a hand operated arm or member 20 and other devices which I shall now describe. The arm 20 is pivoted to the frame or casing by means of a shaft 21 to which the arm 20 is secured, and which is mounted to turn in standards 22 of the frame structure 18. The shaft 21 extends out through an opening in the housing 6, and the arm 20 is located exteriorly of the housing in a position to be conveniently operated by hand.

Secured on the shaft 21 is a grooved wheel 23 having one end of a chain 24 attached thereto. The other end of the chain

24 is attached to a vertically arranged, longitudinally reciprocative bar 25 which is guided in the frame structure 18 and is held normally elevated, in the position shown in the drawings, by a spring 26, one end of which is attached to the bar 25 and the other end of which is attached to the housing 6. The chain 24 extends from the wheel 23 down to and around the lower portion of a grooved idler wheel 27 and thence up to its point of attachment to the bar 25, whereby, when the arm or member 20 is moved from the full line position to the dotted line position shown in Fig. 5, the chain 24 will be wound around the wheel 23, and the bar 25 will be pulled down against the action of the spring 26 from the normal position shown in the drawings; and, when the arm 20 is released, after being moved to the said dotted line position, the spring 26 will raise the bar 25 to its normal position, as the action of the spring 26 and the weight of the arm 20 returns the arm or member 20 to its normal position.

As the arm 20 and bar 25 reach the normal position, while being returned thereto, as just described, their movement is arrested and cushioned by a pneumatic cushioning device comprising a cylinder 28 and piston 29 therein. The cylinder 28 is formed on an arm 30 which is pivoted, at 31, to one side wall of the container 7; and the piston 29 is carried by a rod 32 which is pivoted to an arm 33 projecting from the shaft 21. The cylinder 28 and piston 29 work on the principle of the well known pump for pneumatic wheel tires, and, as the piston 29 compresses the air within the cylinder 28, as the arm 20 and bar 25 return to the normal position, the air is permitted to slowly escape from within the cylinder 28 through a small opening 34 therein to produce the desired cushioning action.

The bar 25 carries an arm or pawl 35 which is pivoted thereto, at 36, and which is adapted to be engaged with a tooth or projection 37, on the plunger 17, whereby, when the arm or member 20 is raised and the bar 25 thereby depressed, the arm or pawl 35 will cause the plunger 17 to be depressed to eject an article 8 from the container 7, as previously explained.

Instead of using the arm of pawl 35 to connect the bar 25 and plunger 17, any other suitable means may be employed for this purpose, or the bar 25 and plunger 17 may be formed integral. The purpose of employing the arm or pawl 35 is to permit the dispensing mechanism to be controlled by coin-controlled devices, such, for example, as the coin-controlled devices disclosed in Letters Patent No. 1,204,776, dated Nov. 14, 1916, wherein the parts "11", "10", "28", and "39" correspond with the parts 17, 25, 35 and 37 described herein, my present inven-

tion being especially adapted for use in a coin-controlled vending machine.

The top of the housing 6 has a slot or opening 38 formed therein which may be used for the reception of a coin to operate the coin-controlled devices when they are employed in connection with my present invention, or which may be used for any other desired purpose. This slot or opening 38 is adapted to be closed by a door which comprises a horizontal plate 39 fitted to slide below the opening 38 and between guide bars 40 on the frame structure 18. The door 39 is provided with a downwardly projecting part or arm 41 having an anti-friction roller 42 on the lower end thereof adapted to engage one side of a grooved wheel 43 which is mounted to turn on the shaft 21. The roller 42 is held normally against the side of the wheel 43 by a spring 44, one end of which is attached to the arm 41 and the other end of which is attached to frame structure 18. This spring 44 also tends to move the door 39 from the position shown in Fig. 3 to a position beneath the opening 38, closing the same.

Although the signaling device and its adjunctive operative elements, described herein and shown in the drawings, form a part of my invention, I do not claim the same herein as they will form the subject matter of a separate and divided application for Letters Patent.

Secured to the wheel 43 is one end of a cord 45 which is wound around the wheel 43 and extends therefrom over a pulley 46 carried by a bracket on the rear wall of the container 7. The cord 45 extends from the pulley 46 down into the container 7 and has its other end attached to a weight 47 which is adapted to rest upon the stack of articles 8 and to descend by gravity within the container 7, as the articles 8 are successively removed therefrom.

The wheel 43 is provided with a spiral spring 48 which surrounds the hub of the wheel 43 and has one end attached thereto. The other end of the spring 48 is attached to a pin projecting from the frame structure 18, and, when the weight 47 descends within the container 7, the cord 45 is unwound from the wheel 43 against the action of the spring 48 which automatically rewinds the cord 45 around the wheel 43 when the weight 47 is raised from the lower to the upper portion of the container 7.

The wheel 43 is provided with an opening or notch 49 which, when the weight 47 is in the upper portion of the container 7, is related to the arm 41 and roller 42 as shown in Fig. 4, and which, when the weight 47 reaches its lowermost position, very close to the bottom of the container 7, is brought into registry with the arm 41 and roller 42, permitting the roller 42 to pass through the

opening 49 and the spring 44 to move the door 39 to a position closing the opening 38.

From the construction just described, it will be readily understood that when the articles 8 are all ejected from the container 7, the weight 47 will reach its lowermost position and thereby cause the door 39 to be moved to automatically close the opening 38. It will, therefore, be seen that, when my present invention is used in connection with coin controlled devices operated by a coin inserted into the opening 38, the opening 38 will be closed to prevent the insertion of coins into the apparatus, after all the articles 8 have been removed therefrom.

On one side wall 50 of the container 7 is a bell 51, and the dispensing mechanism is provided with means to strike or sound this bell, each time the operating arm or member 20 is raised sufficiently to eject an article 8 from the container 7, as follows: Fulcrumed, at 52, on the wall 50 is a lever 53, one arm 54 of which is held against the bottom of the plunger 17 by a spring 55 having one of its ends attached to the arm 56 of the lever 53, and the other of its ends attached to the wall 50. In the path of the free end of the lever arm 56 is one arm 57 of a lever 58 which is fulcrumed, at 59, on the wall 50 and has an arm 60 provided with a hammer 61 adapted to strike the bell 51 when the lever 58 is moved against the action of a spring 62 to move the hammer 61 away from the bell 51 and released, one end of the spring 62 being attached to the lever arm 57 and the other end of the spring 62 being attached to the wall 50. The levers 53 and 58 are so relatively arranged that when the plunger 17 is depressed, as previously explained, sufficiently to eject an article 8 from the container 7, the end of the arm 56 will engage the arm 57 and move the lever 58 against the action of the spring 62 and then release the arm 57, permitting the spring 62 to cause the hammer 61 to strike the bell 51. When the plunger 17 is returned to its normal position, the spring 55 holds the arm 57 against the bottom of the plunger 17 and returns the lever 53 to its normal position, and the lever arm 56 passes and escapes the lever arm 57 due to a slight yielding of the lever 58.

I claim:

1. In a dispensing apparatus, the combination with a casing providing a container for a vertically disposed series of articles to be severally dispensed, superposed means operating to apply pressure to the stack of said articles, a longitudinally reciprocative ejector plate slidable in said casing to and from a normal position and operating in its second position to eject the lowermost article in the series from the container, a pivoted member engaging and actuating said

slidable ejector plate in both directions, a shaft on which said pivoted member is mounted, a plunger, means to depress the plunger, connecting actuating devices between the plunger and shaft operating to rock the latter in one direction, and a spring tensioned by said movement of the shaft and tending, when released, to return all said connected elements to normal position.

2. In a dispensing apparatus, the combination of a casing providing a container for the articles to be dispensed, a rock shaft mounted to turn in the casing, an operating member secured to and projecting from the shaft and operative to turn said shaft from a normal position, a longitudinally reciprocative plate slidable in said casing from a normal position, means operated by said shaft when turned from its normal position to move said plate from its normal position, said means including a wheel mounted on said shaft and a flexible member connecting said wheel and said plate, and means operated by said plate when moved from its normal position to eject an article from said container.

3. In a dispensing apparatus, the combination of a casing providing a container for the articles to be dispensed, a rock shaft mounted to turn in the casing, an operating member secured to and projecting from the shaft and operative to turn said shaft from a normal position, a longitudinally reciprocative plate slidable in said casing from a normal position, a wheel secured on said shaft, a flexible member connecting said wheel and said plate, an idler wheel journaled in the casing and guiding said flexible member, whereby when said shaft is turned from its normal position said flexible member will move said plate from its normal position, and means operated by said plate when moved from its normal position to eject an article from said container.

4. In a dispensing apparatus, the combination of a casing providing a container for the articles to be dispensed, a weight adapted to rest upon a stack of said articles within the container and to descend by gravity as said articles are successively removed from beneath the same, a door movable to a position closing an opening in the casing, a wheel, means operated by said weight during the descent thereof to turn said wheel, and means controlled by said wheel to move said door to its said closing position when said weight descends to a predetermined position.

5. In a dispensing apparatus, the combination of a casing providing a container for the articles to be dispensed, a weight adapted to rest upon a stack of said articles within the container and to descend by gravity as said articles are successively removed from beneath the same, a wheel, means oper-

ated by said weight during the descent thereof to turn said wheel, a door movable to a position closing an opening in the casing, a spring tending to move said door to its said closing position, a part projecting from said door and engaging said wheel and preventing said spring from moving said door to its said closing position, said wheel having a notch therein which when brought into registry with said parts permits said spring to close said door, and means operated by said weight during the descent thereof to turn said wheel and bring its notch into registry with said part.

6. In a dispensing apparatus, the combination of a casing providing a container for the articles to be dispensed, an operating

member movable from a normal position, means operated by said member when moved from its normal position to eject an article from said container, a spring arranged to return said member to its normal position when moved therefrom and released, and a pneumatic cushion cushioning said member upon its return to its normal position by said spring.

In testimony whereof, I have hereunto affixed my signature this 18th day of May A. D. 1917.

OTTO JAEGER.

Witnesses:

WM. L. FLOOD,
ALEXANDER PARK.

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