

May 23, 1933.

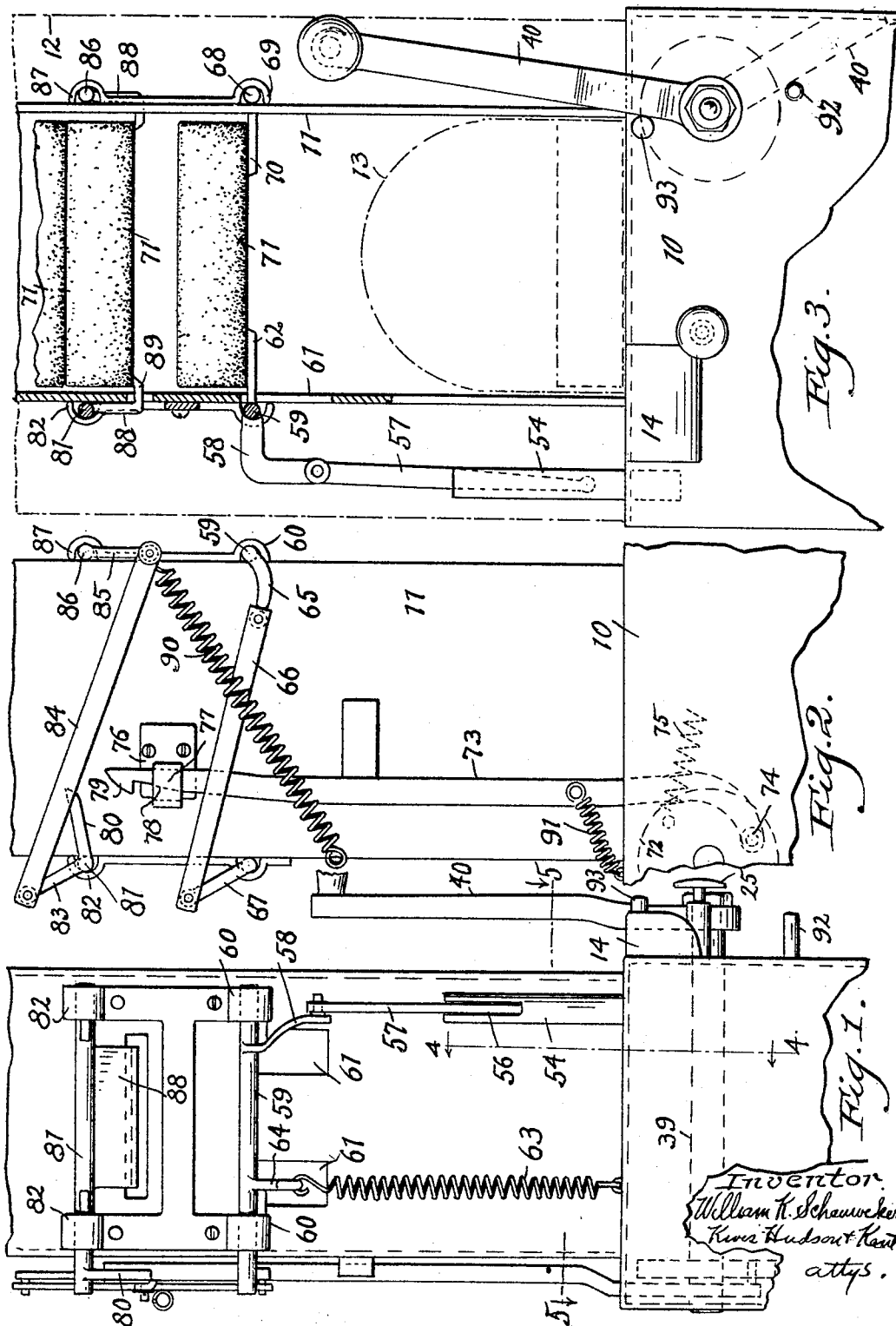
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1,910,367

VENDING APPARATUS

Filed May 21, 1931

2 Sheets-Sheet 1



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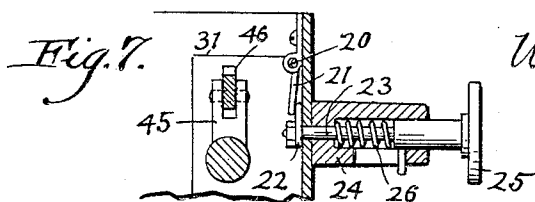
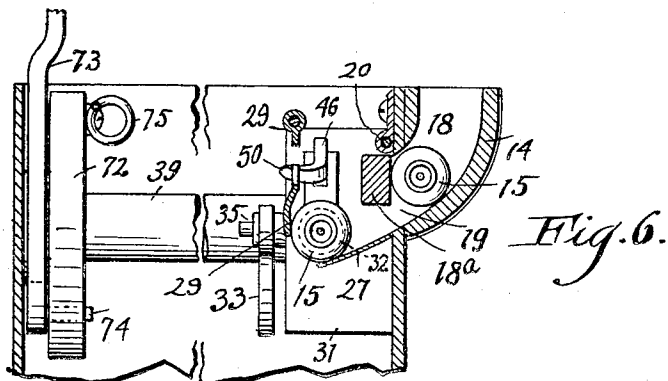
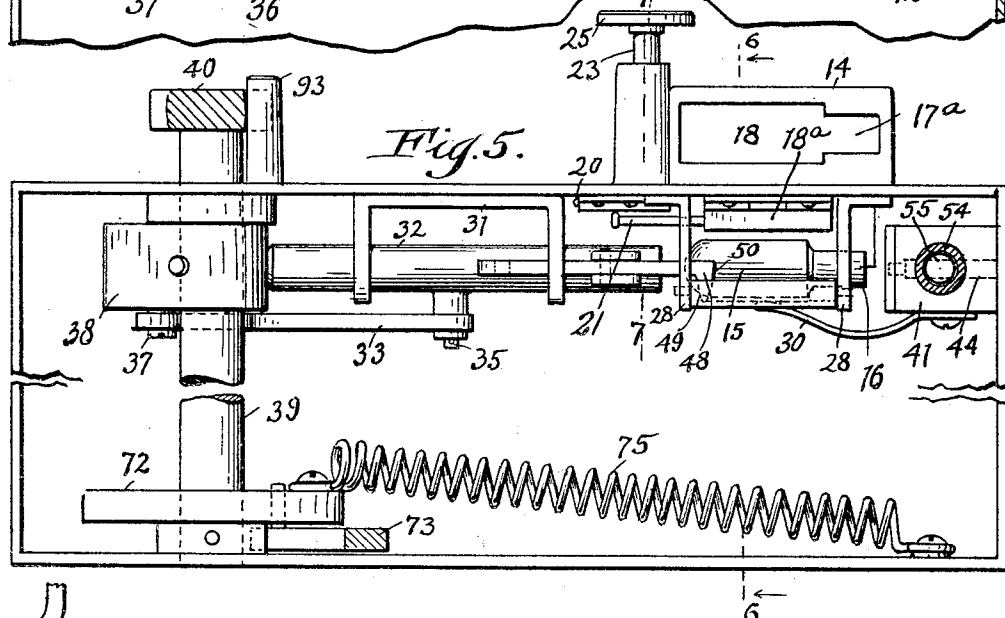
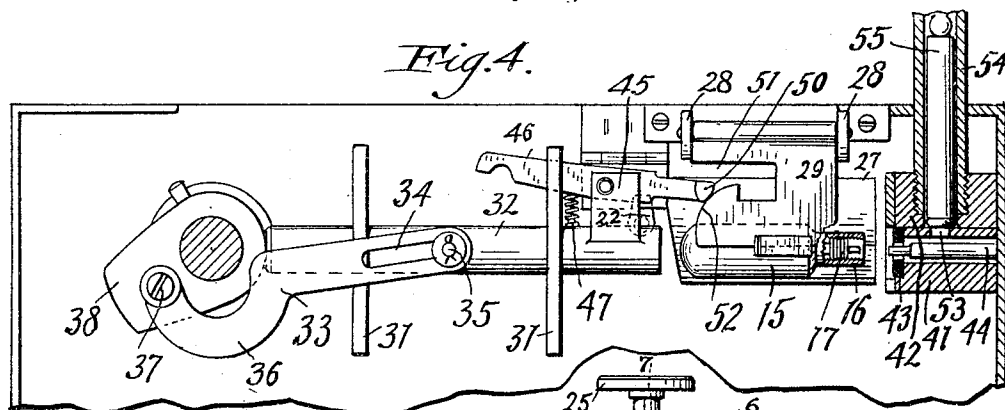
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2 Sheets-Sheet 2



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## UNITED STATES PATENT OFFICE

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## VENDING APPARATUS

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This invention relates to a vending apparatus of the type wherein the operating mechanism must be released or operated by means of a suitably shaped token or check, coin, or other device.

The majority of vending apparatus of this character are usually operated by the insertion of a coin of certain denomination, or by a token or check of certain size and configuration. However, considerable difficulty has been experienced in the use of vending apparatus of this character, since it has been possible to release or actuate the operating mechanism of such apparatus by means of slugs, foreign coins of less value than the coin intended to be used in the machine and other devices.

The principal object of the present invention is to provide a vending apparatus that is so constructed that the means for actuating the same cannot be easily and profitably imitated, with the result that likelihood of the apparatus being dishonestly operated is reduced to a minimum.

Another object is to provide a vending apparatus which is efficient in operation, and composed of a relatively few number of parts, so arranged that there is small chance of the apparatus becoming inoperative.

Additional objects and advantages will become apparent hereinafter.

An embodiment of the invention is illustrated in the accompanying drawings, wherein,

Figure 1 is a fragmentary side elevational view of the vending apparatus.

Fig. 2 is a fragmentary rear elevational view thereof.

Fig. 3 is a fragmentary front elevational view partly in section.

Fig. 4 is a longitudinal vertical sectional view taken substantially on line 4—4 of Fig. 1.

Fig. 5 is a horizontal sectional view extending longitudinally through the apparatus, taken substantially on line 5—5 of Fig. 1.

Fig. 6 is a transverse vertical section taken substantially on line 6—6 of Fig. 5, and

Fig. 7 is a sectional view taken substantially on line 7—7 of Fig. 5.

The apparatus comprises a base portion 10, within which is arranged part of the actuating mechanism, and a magazine portion 11 containing the articles to be vended, and provided with a suitable opening to enable the customer to remove the article that has been purchased. The magazine 11 is, of course, enclosed in a suitable glass or other transparent enclosure 12, the latter having an opening, as indicated at 13 in Fig. 3. It should be understood that the magazine 11 is only partially shown in the drawings, and that the same may extend to any suitable height. A member 14 is secured to the front of the base 10 adjacent one end thereof, for the purpose of receiving the device that effects the release or actuation of the mechanism, which, in turn, causes the article to be deposited opposite the opening in the magazine and in the glass casing.

In order to eliminate to a large degree the unlawful operation of the apparatus, it is proposed to construct the same to receive a cartridge, indicated at 15 in Figs. 4 and 5, filled with a suitable gas, such as carbon dioxide. The member 14 is shaped to receive this cartridge 15, such cartridge being provided with a reduced internally threaded end 16, within which is arranged a valve insides 17. When the cartridge is inserted in the member 14, with the reduced end coincident with the reduced portion 17a of the passageway 18 in the member 14, the cartridge will roll down through the member 14 until it is stopped and properly positioned or straightened by a gate 18a, closing an opening 19 in the front wall of the base 10, which opening is arranged in communication with the passageway 18 through the member 14. The gate 18a is pivoted at 20, and has an extension 21 extending toward the left of the base, as viewed in Fig. 4, such extension lying in the path of an arm 22, carried at the inner end of a push rod 23 extending through a member 24 secured upon the outside of the base. This push rod 23 is provided with a handle 25 at its outer end, and is normally maintained in its outward

position by means of a spring 26. When the rod 23 is pushed inwardly the arm 22 engages the extension 21 of the gate 18a and moves such gate on its pivot 20, so as to allow the cartridge 15 to pass into the base of the apparatus upon an apron 27 which is an extension of the passage 18 through the member 14.

A pair of spaced inwardly extending brackets 28 are secured upon the inside of the base and pivotally support at their inner end a swinging plate 29 normally held in position by a spring 30, to hold the cartridge 15 upon the inner end of the apron 27. A U-shaped bracket 31 is secured upon the inside of the base to the left of the pair of brackets 28, as viewed in Fig. 5, the arms of such U-shaped bracket 31 slidably supporting a rod 32. Connected to this rod is a link member 33, the connection between the rod and link member being so arranged as to provide a lost motion and including a slot 34 in the link member through which extends a pin 35 carried by the rod. The link member 33 has an offset semicircular end 36, which is pivotally connected at 37 to a crank arm 38 fixed upon a shaft 39 extending transversely through the base of the apparatus and carrying on one of its ends a lever 40 arranged externally of the base. When the lever 40 is moved to the right, as viewed in Fig. 3, the crank arm 38 is rotated to the right, as viewed in Fig. 4, the link 33 being likewise moved to the right, which movement of the link, as soon as the pin 35 engages the end of the slot 34, will cause the rod 32 to move to the right into engagement with the end of the cartridge 15 to push the latter toward the cylinder fitting 41, arranged upon the inside of the right hand end wall of the base, as viewed in Fig. 4. This fitting is provided with a horizontally extending opening, within which is arranged a suitable bushing 42, and which has its outer end restricted by a packing 43, having a central opening through which extends the reduced end of a pin 44.

When the rod 32 has moved the cartridge sufficiently toward the fitting 41, the reduced end 16 of the cartridge engages the packing 43, while the reduced end of the pin 44 depresses the valve pin of the valve insides 17, and thus unseats the valve to allow the gas within the cartridge to pass into the bushing 42.

The right hand end of the rod 32, as viewed in Fig. 4, is provided with an upstanding bracket 45, having a bifurcated upper end, between the arms of which a pivoted dog 46 is arranged. A spring 47 is located between the underside of the dog and the upper side of the rod 32, to normally swing the dog in a clockwise direction, while the right hand end of the dog, as viewed in Fig. 4, is provided with a hook 48, tapered

so as to have two cam surfaces 49 and 50. When the rod 32 is moved to the right, the hook 48 passes into a bayonet slot 51, formed in the plate 29, the cam surface 50 riding upon a curved edge 52 of the slot, until the hook is in line with the offset portion of the slot, whereupon the spring 47 swings the dog to move the hook into holding engagement with the plate. When the rod 32 moves in the reverse direction the shape of the cam surface 49 of the hook is such that the plate 29 is swung outwardly against the tension of the spring 30, thereby allowing the cartridge to roll off the apron 27 and into the base of the apparatus.

The fitting 41 is provided with a recess extending vertically into the fitting, and communicating with the interior of the bushing 42 by means of a reduced opening 53 formed therein. The recess is threaded to receive a cylindrical fitting 54 passing through the top of the base and screwed into the recess and forming a cylinder. A piston 55 is arranged in the fitting 54, and has its lower end provided with packing, providing a relatively tight fit between such end of the piston and the walls of the fitting, this packed end of the piston normally lying over the opening 53 in the bushing 42.

It is clear that when the cartridge has been moved into engagement with the packing 43 and the valve within the cartridge unseated, that the confined gas will enter the bushing 42 and cause the piston 55 to be moved upwardly within the fitting 54. The fitting 54 is provided, adjacent its outer end, with aligned slots 56, in order to permit an arm 57 arranged in the fitting with its lower end engaging the upper end of the piston, to have slight lateral movement, the purpose of which will be readily apparent hereinafter.

The arm 57 is pivotally connected at its outer end to the end of a bell crank 58, fixedly associated with a shaft 59 extending across the end of the magazine and rotatably mounted in brackets 60, secured upon the end wall of the magazine. This wall of the magazine is provided with openings 61, through which project arms 62 carried by the shaft 59, such arms 62 being normally maintained in the horizontal position by means of a spring 63, secured at one of its ends to the top of the base and at its other end to a portion 64, formed on the shaft 59.

The end of the shaft 59, adjacent the rear of the apparatus, has fixed thereto an arm 65 extending partly across the rear of the magazine, and pivotally connected at its end to one end of a link 66, the other end of such link being pivotally connected to an arm 67 in turn carried by a shaft 68 extending across the other side of the magazine and rotatably supported in brackets 69 secured to the wall of such side.

It should be noted that the shaft 68 is in the same horizontal plane with the shaft 59, and is provided with arms 70, extending through openings in the side wall of the magazine, corresponding to the openings 61 and aligning with the arms 62, so that the arms 62 and 70 form a support for an article 71.

From the foregoing it will be seen that when the cartridge 15 is moved into engagement with the packing 43 and the gas released from such cartridge, that the pressure of the gas will cause the piston 55 to move upwardly, and in turn, will move the arm 57, thereby rocking the shaft 59 against the tension of the spring 63, and through the operating connections just described the shaft 68, thus causing the arms 62 and 70 to move downwardly to allow the article 71 supported thereby, to drop into the lower part of the magazine opposite the openings formed therein.

Having thus described the manner in which an article may be obtained upon placing the proper cartridge in the apparatus, I will now proceed to point out the mechanism whereby the articles may be successively moved into position upon the supporting arms 62 and 70.

The left hand end of the shaft 39, as viewed in Figs. 1 and 6, is provided with a disc 72, to which the lower end of a link 73 is pivotally and eccentrically connected at 74. A spring 75, arranged within the base of the apparatus, is also connected to the disc 72 and to the rear wall of the base, the purpose of such spring being to maintain the shaft 39 in its normal position. The link 73 extends upwardly through the top of the base and has its upper end passing through a member 76, secured upon the rear wall of the magazine. This member 76 is provided with what may be termed an eye portion 77, having an inclined wall cooperating with a similarly formed edge 78 of the link 73, whereby, when the disc 72 rotates in the proper direction to move the link 73 upwardly, the lower end of such link will also be moved laterally, while the upper end will rock upon the inclined wall and thus cause the hook 79, arranged at the upper end of the link 73, to engage an arm 80 associated with a shaft 81 rotatably supported in brackets 82, secured upon the side wall of the magazine. The shaft 81 is provided with an arm 83, pivotally connected at its outer end to one end of a link 84, the opposite end of such link being pivotally connected to an arm 85 associated with a shaft 86, extending transversely of the opposite side wall of the magazine, and rotatably supported thereon in brackets 87.

The shafts 81 and 86 are in the same horizontal plane, and are each provided with downwardly extending hook members 88, the

ends 89 of which project through openings formed in the side walls, so as to normally lie within the magazine and to support a number of the articles 71. A spring 90 is connected to the arm 85 and to the magazine, for the purpose of returning the hooks 88 to their normal position after the shafts 81 and 86 have been rotated to release an article from the hooks. A spring 91 is connected to the link 73, adjacent the lower end thereof and to the top of the base 10, in order to facilitate the disengagement of the hook 79 of the link 73 from the arm 80.

When the cartridge is deposited in the apparatus and moved in upon the apron 27, the lever 40 is swung to the right, as viewed in Fig. 3, until it abuts a stop pin 92, such movement of the lever causing the rod 32 to push the cartridge into position for the gas to be released therefrom, and also causing rotation of the disc 72, so as to move the link 73 upwardly and laterally until the hook 79 thereof is in engagement with the arm 80. The release of the gas in the cartridge moves the piston 55 upwardly, and in turn, the arm 57, to swing the arms 62 and 70 downwardly to release the article 71.

After the article has dropped from the arms 62 and 70 the lever 40 is released, whereupon the spring 63 returns the arms 62 and 70 to their horizontal position and the spring 75 returns the disc 72 and shaft 39 to normal position, at which time the lever 40 is in engagement with the stop pin 93. This return movement of the disc 72 pulls the link 73 downwardly, and the hook 79 of the link being in engagement with the arm 80, the shafts 81 and 86 are rotated to cause the hooks 88 to move outwardly and to allow an article 71 to fall upon the arms 62 and 70, at which time the apparatus is in condition to be used by another customer.

It should be observed that once the cartridge has been used that it cannot be profitably refilled by unauthorized persons, since compressing apparatus must be used for this purpose and unless a great number of the cartridges are to be filled or charged, the cost of the apparatus would be prohibitive.

Although a preferred embodiment of the invention has been disclosed and described herein, it should be understood that the invention is susceptible of various modifications and adaptations within the scope of the appended claims.

Having thus described my invention what I claim is:

1. In a vending apparatus, a magazine for the articles to be vended, mechanism for releasing an article from said magazine, a cylinder, a fluid actuated piston in said cylinder and operatively associated with said mechanism, means for receiving a cartridge containing the fluid for actuating said piston, and means associated with said cylinder

and said last named means for releasing the fluid in the cartridge to actuate said piston.

2. In a vending apparatus, a magazine for the articles to be vended, mechanism for releasing an article from said magazine, a cylinder, a fluid actuated piston in said cylinder and operatively associated with said mechanism, means for receiving a cartridge containing the fluid for actuating said piston, means communicating with said cylinder, and means for moving the cartridge into communication with said last named means, whereby the fluid released from the cartridge will pass into said cylinder and actuate said piston.

3. In a vending apparatus, a magazine for the articles to be vended, releasable means for supporting a column of the articles in said magazine, mechanism for releasing a single article from said magazine, a cylinder, a fluid actuated piston in said cylinder and operatively associated with said magazine, means for receiving a cartridge containing pressure fluid for actuating said piston, means associated with said cylinder and said last named means for releasing the fluid in said cartridge, and means operatively connecting said last named means and said releasable means whereby an article will be positioned upon said mechanism.

4. In a vending apparatus, a magazine for the articles to be vended, releasable means for supporting a column of the articles in said magazine, mechanism for releasing a single article therefrom, a cylinder, a fluid actuated piston in said cylinder and operatively associated with said mechanism, means for receiving a cartridge containing the pressure fluid for actuating said piston, means communicating with said cylinder, means for moving the cartridge into communication with said last named means whereby the fluid released from the cartridge will pass into said cylinder and actuate said piston, and means operatively connecting said last named means and said releasable means for allowing an article to be deposited upon said mechanism.

5. In a vending apparatus, a magazine for the articles to be vended, releasable means for supporting a column of the articles therein, mechanism for releasing a single article from said magazine, a cylinder, a fluid actuated piston in said cylinder and operatively associated with said mechanism, means for receiving a cartridge containing pressure fluid, means communicating with said cylinder, a rotatable shaft, a rod operatively connected to said shaft and adapted to move said cartridge into communication with said last named means, and an operative connection between said shaft and said releasable means for releasing an

article from the column and depositing the same upon said mechanism.

6. In a vending apparatus, a magazine for the articles to be vended, mechanism for releasing an article from said magazine, fluid actuated means operatively associated with said mechanism, means for receiving a cartridge containing the fluid for actuating said fluid actuated means, and means associated with said fluid actuated means and said cartridge receiving means for releasing the fluid in the cartridge.

In testimony whereof, I hereunto affix my signature.

WILLIAM K. SCHAUWEKER. 80

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