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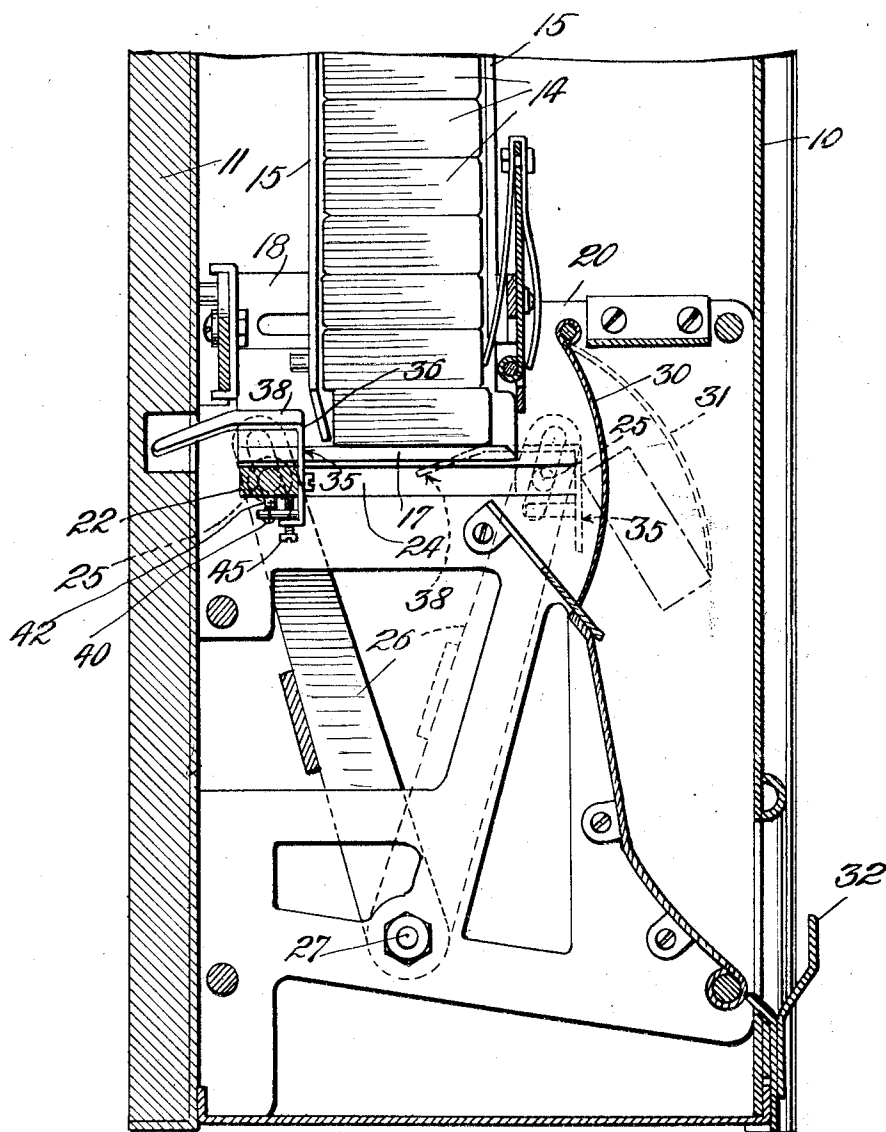
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1,887,197

VENDING MACHINE

Original Filed Aug. 30, 1929 3 Sheets-Sheet 1

Fig. 1.



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Original Filed Aug. 30, 1929 3 Sheets-Sheet 2

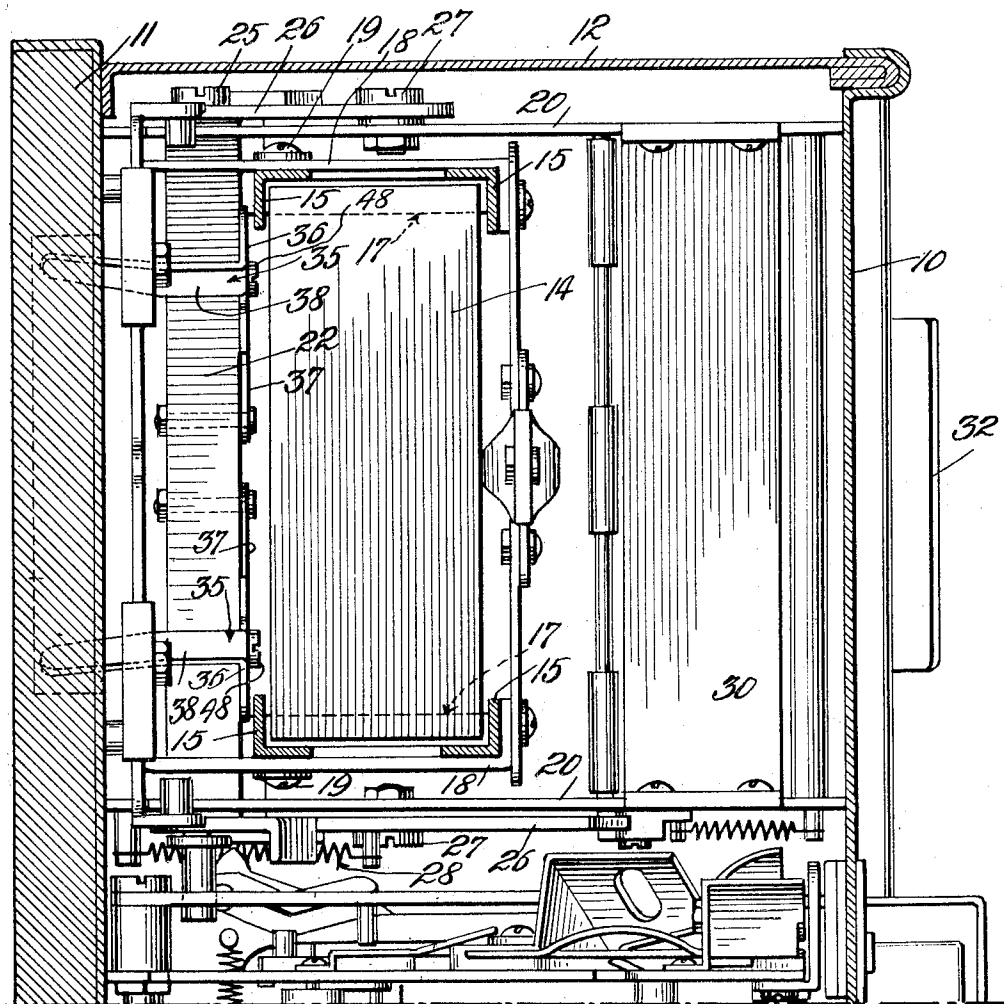


Fig. 2.

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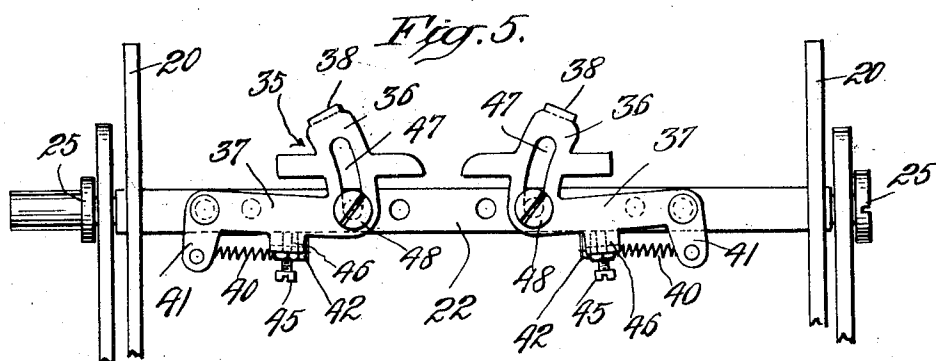
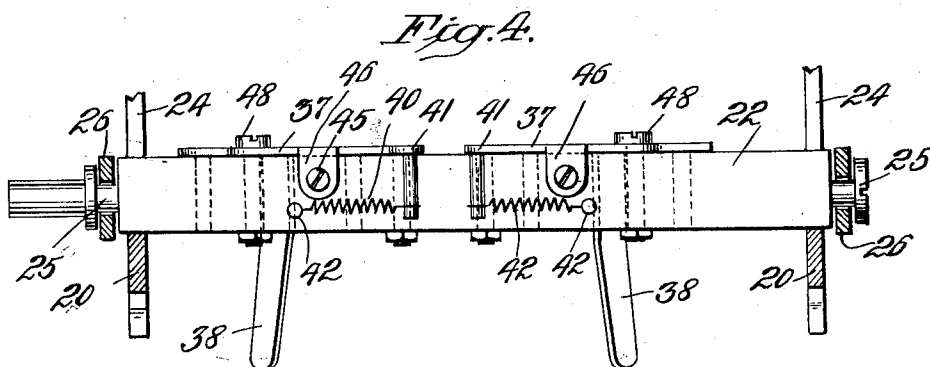
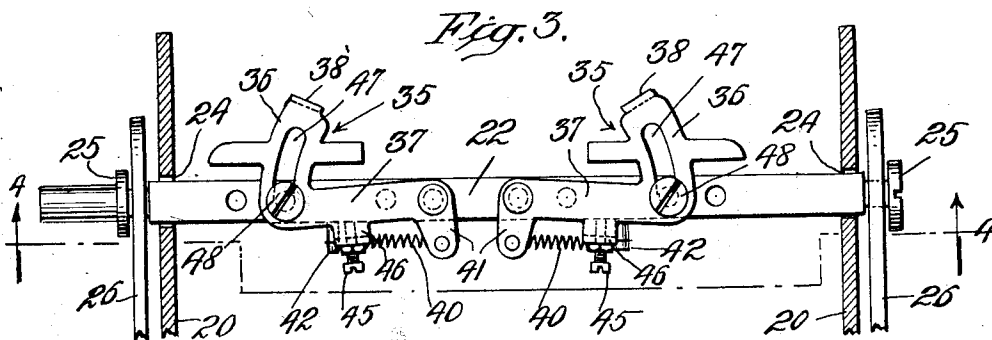
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VENDING MACHINE

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VENDING MACHINE

Original application filed August 30, 1929, Serial No. 389,357, now Patent No. 1,861,212, dated May 31, 1932.
Divided and this application filed March 25, 1931. Serial No. 525,076.

The invention relates to an improvement in vending machines of the type in which the manipulation of a plunger or handle serves to deliver an article when a coin of proper denomination is deposited in the machine, and is more particularly concerned with an improvement in the means for engaging and delivering the articles. The present application is a division of my copending application Serial No. 389,357, filed August 30, 1929, which has matured into Patent No. 1,861,212 dated May 31, 1932.

One object of the invention is to provide an improved article delivery means having article engaging fingers which can be arranged to engage with articles of different sizes at substantially the same relative points of engagement, thereby assuring even and proper delivery irrespective of the sizes of the articles. Another object of the invention is to provide the article delivery means of a vending machine in which the articles are held in vertical hoppers with article engaging and delivery fingers which are constructed and arranged to have a minimum of frictional contact with the articles to be delivered, thereby assuring delivery of the articles in undamaged condition. To the accomplishment of these objects the invention consists in the improved vending machine parts herein-after fully described and then particularly pointed out in the appended claims.

In the accompanying drawings illustrating the preferred form of the invention only so much of the complete coin-controlled vending machine illustrated and described in said application is herein shown as is necessary to an understanding of the location and function of the parts constituting the present invention in a vending machine. Figure 1 is a vertical longitudinal section through the hopper of the vending machine and showing the associated parts of the article delivery means; Fig. 2 is a top plan of the parts shown in Fig. 1, and in addition a top plan of certain parts of the coin-controlled actuating mechanism shown in said application; Fig. 3 is a front elevation of the improved article engaging and delivery fingers; Fig. 4 is a bottom plan of the parts shown in Fig. 3, the view

being taken on the line 4—4 of Fig. 3; and Fig. 5 is a view similar to Fig. 3, but showing the fingers in a different position to accommodate articles of another size.

The improved delivery means is shown applied to a vending machine which comprises, for the purposes of the present disclosure, a casing having a front wall 10, a rear wall 11, and two end walls 12 (only one of which is shown). Within the casing is located an upright hopper for containing the articles 14 to be vended. The hopper comprises four corner uprights 15 consisting of angle irons the flanges of which are of sufficient width to confine the articles and guide them downwardly into position to be acted on by the article delivery means. The lowermost article is supported at its ends on the internal ledges 17 of the plates 18 to which the lower ends of the rear pair of uprights 15 are adjustably secured by the screws 19. The plates 18 are mounted on the two end walls 20 of a frame which supports the parts of the article delivery means as well as the hopper and its contained articles. The front pair of uprights 15 are secured at their lower ends to the int-turned front ends of the plates 18.

The articles are delivered one by one from the hopper by pushing forwardly on the lowermost article and thus ejecting it from the machine. For this purpose the improved article delivery means comprises a slide 22 arranged to reciprocate forwardly and backwardly under the hopper. The ends of the slide project through horizontal slots 24 in the walls 20 and the slide is thus guided in its reciprocatory movements. The extremities of the slide extend beyond the walls 20 and each extremity carries a pin 25 which is loosely received in the slotted upper end of an arm 26 pivoted at 27 on its respective wall 20. When the arms 26 are swung forward—by any appropriate coin-controlled actuating means—the slide 22 is carried forward under the hopper to deliver the lowermost article. The slide and its associated parts are returned to normal, retracted position by means of a spring 28 connected with the inner arm 26. As the lowermost article is pushed forward it encounters a pivoted

guard 30 which it swings upwardly, as shown at 31, and then drops down into the receptacle 32 in position to be removed by the purchaser.

5 The article engaging means comprises two spring-pressed fingers of novel construction mounted on the slide 22. The fingers, indicated generally at 35 are alike in mode of operation, but are of reverse construction so that they may be accommodated to relatively long articles or to relatively short articles. When long articles are in the machine the fingers 35 occupy the positions shown in Fig. 3 with the upright portions 36 of the fingers spaced relatively far apart; and when short articles are in the machine, the fingers occupy the position shown in Fig. 5 with the upright portions 36 relatively close together. Each finger 35 consists of the upright, curved portion 36 rising from a horizontally disposed portion or arm 37 pivoted at one end on the front of the slide, and of a tail portion 38 extending rearwardly from the upper end of the upright portion 36. The fingers are pivotally mounted at the end of the horizontal portion 37 opposite to the upright portion 36 and tail portion 38. A spring 40 fastened at one end to a pin fixed in the depending lug portion 41 of each finger and to a pin 42 fixed in the slide 22 tends to hold the fingers in elevated, article engaging position, that is to say, with the upright portions 36 in the position shown in Figs. 3 and 5. An adjustment screw 45 threaded into the lug 46 turned inwardly from the lower edge of the horizontal portion 37 of each finger cooperates with the bottom of the slide to regulate the height of the upright portions 36 relatively to the thickness of the articles. To guide the fingers in their pivotal movements on the slide, each upright portion 36 is provided with an arcuate slot 47 which receives loosely a cap screw 48 secured in the front of the slide.

45 Assuming that parts of the article delivery means are in normal, retracted position, as shown in Figs. 1 and 2, the upright portions 36 of the fingers will be to the rear of the lowermost article in position to engage and push it forward from under the superincumbent pile of articles in the hopper on the next forward movement of the slide which will take place when a coin has been deposited in the machine and the arms 26 swung forward.

55 Inasmuch as the slide 22 is located fully below the hopper, the work of ejecting the lowermost article from the hopper is entirely performed by the fingers 35. The article ejecting movement of the slide and the fingers is such that the upright portions 36 of the fingers remain in contact with the rear face of the article being ejected until it has been pushed off the forward ends of the ledges 17. Until the lowermost article is pushed

from under the pile of articles in the hopper the upright portions of the fingers remain raised. Immediately the ejected article passes from beneath the pile, the now lowest article descends onto the tail portions 38 of the fingers and depresses them against the action of the springs 40. This arrangement permits the slide to move rearwardly into retracted position, under the action of the spring 28, inasmuch as the tail portions of the fingers are easily carried from under the now lowermost article without disturbing or injuring it. When the slide 22 is again in retracted position with the fingers freed from the article, the springs 40 return the upright portions 36 of the fingers into raised, article engaging position.

Having thus described the invention, what I claim as new is:—

1. A vending machine of the character described having in combination, a vertically arranged hopper for containing a pile of the articles to be vended, and an article delivery means comprising, a reciprocating slide mounted to reciprocate forward and backward under the hopper, means for reciprocating the slide, two fingers pivotally mounted on the slide and consisting of an upright portion adapted to be positioned to the rear of the lowermost article of the hopper when the slide is in its rearmost position and a tail portion extending rearwardly from the upright portion and adapted to contact with the lowermost article in the hopper on the rearward movement of the slide after delivering an article, and means for raising the fingers when the slide is in its rearmost position, said slide having provision whereby the positions of the fingers may be interchanged.

2. In a vending machine of the character described having a hopper for containing the articles to be vended and an article delivery means including a slide arranged to reciprocate forward and backward under the articles, means for reciprocating the slide, an article engaging means consisting of a finger pivotally mounted on the front of said slide, an upright portion projecting upwardly from the finger and having an arcuate slot adapted to receive loosely a pin secured in the slide, the front face of said upright portion of the article engaging means being adapted to engage and deliver an article on the forward movement of the slide, a tail portion consisting of a horizontally extending part bent rearwardly from the upright portion and adapted to engage with and be depressed by the lowermost article on the rearward movement of the slide after an article has been delivered, and a spring for raising the article engaging means into article engaging position when the slide is in its rearmost position.

3. In a vending machine of the character described having an upright hopper for containing the articles to be vended and an ar-

article delivery means including a slide arranged to reciprocate forward and backward under the articles, means for reciprocating the slide, a pair of article engaging fingers mounted on the front side of the slide, each
5 finger consisting of a longitudinal portion pivoted at one end to the slide, an upright portion rising from the unpivoted end of the longitudinal portion, and a tail portion projecting rearwardly from the upright portion,
10 a spring for holding the upright portion raised when the slide is in normal position to the rear of the articles, and said slide having provision whereby the positions of the fingers on the slide may be changed.

15 4. A vending machine of the character described having in combination, a vertically arranged hopper for containing a pile of articles to be vended, and an article delivery means comprising, a frame located under and
20 adapted to support the hopper, two vertically arranged arms pivoted at their lower ends in the frame and adapted to be swung forwardly and backwardly, means for swinging the arms, a slide mounted to reciprocate
25 forward and backward in the upper part of the frame and under the hopper, said slide being loosely connected with the upper ends of the arms to be actuated thereby, a finger
30 pivotally mounted on the front face of the slide for engaging an article on the forward movement of the slide to deliver the article from the machine, said finger having a horizontal portion extending parallel to the front
35 of the slide and provided with a slotted vertical portion, a pin projecting from the slide and entering the slot in the vertical portion of the finger, and a tail piece on the finger comprising a rearwardly bent part located at
40 the upper end of the vertically extending portion of the finger.

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