

H. O. BROWN.
VENDING MACHINE.
APPLICATION FILED SEPT. 1, 1909.

993,021.

Patented May 23, 1911.

2 SHEETS—SHEET 1.

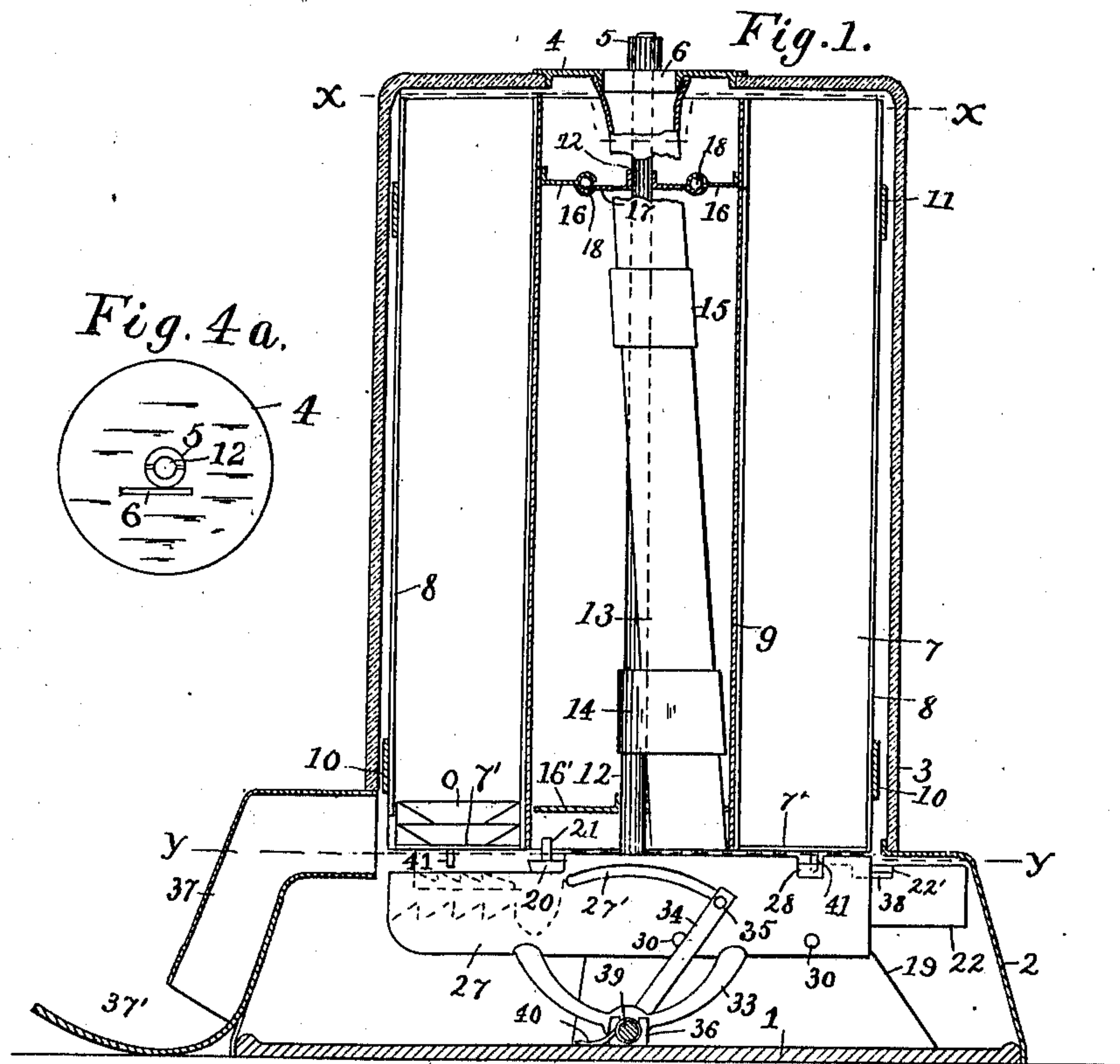
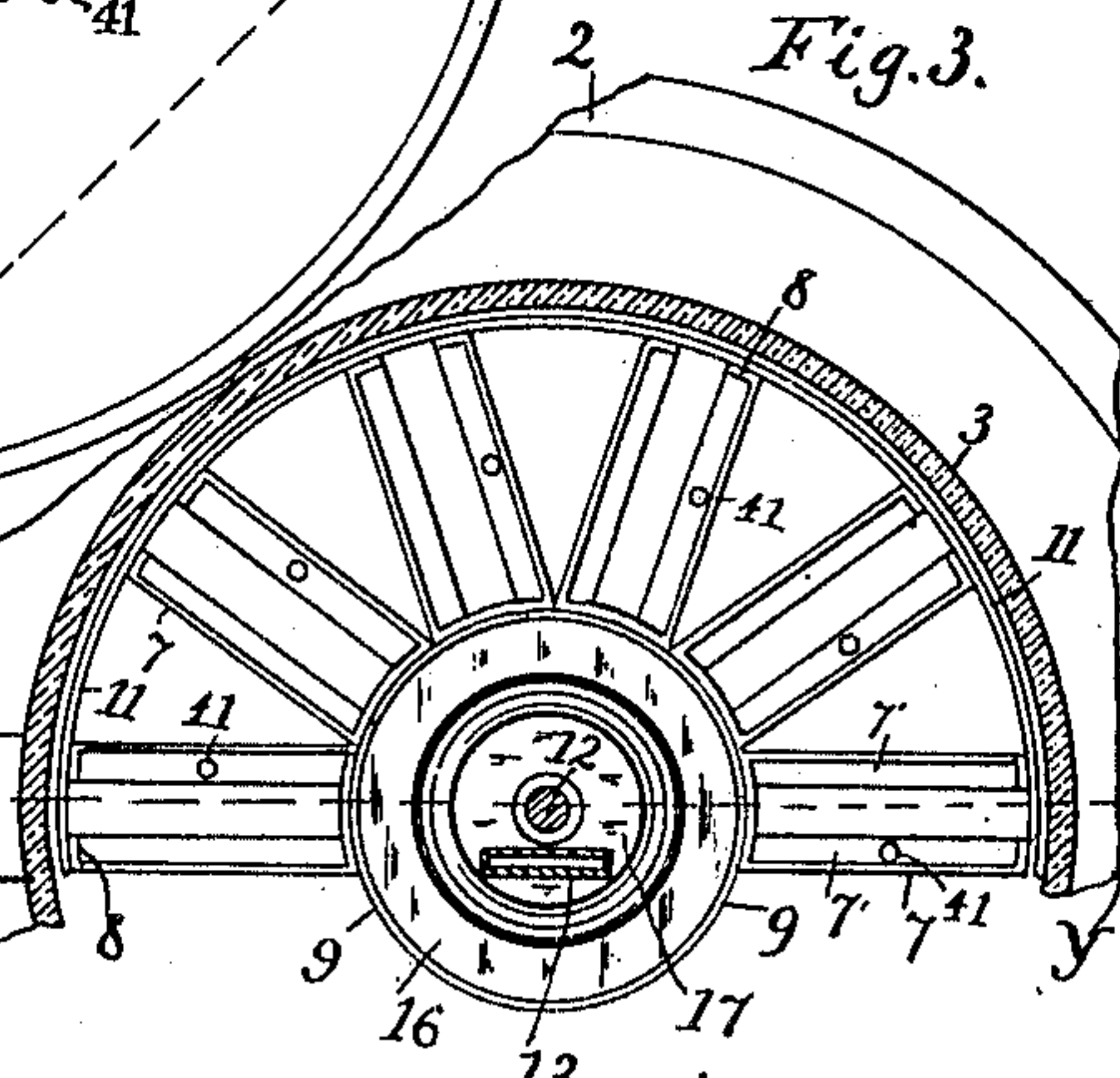
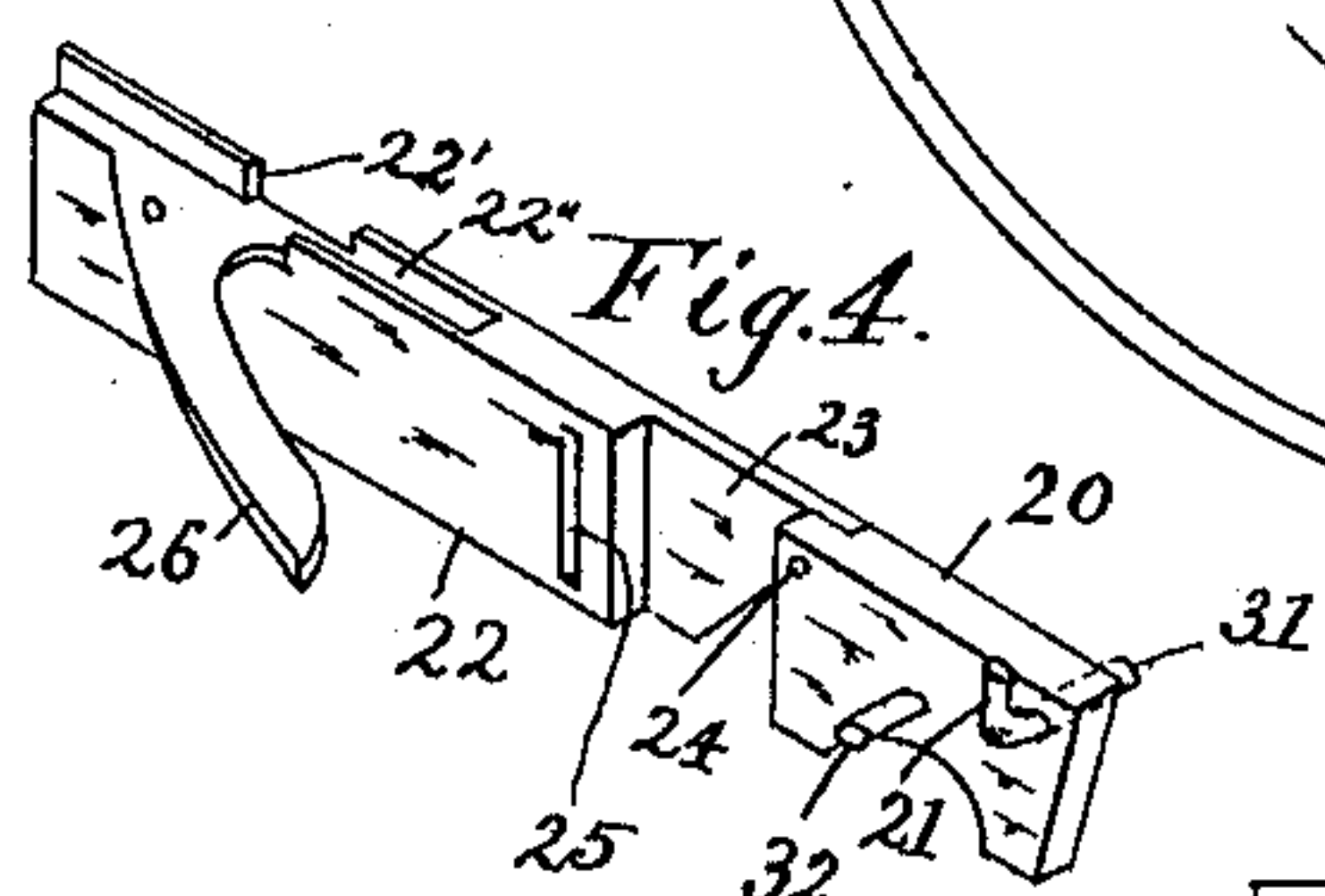
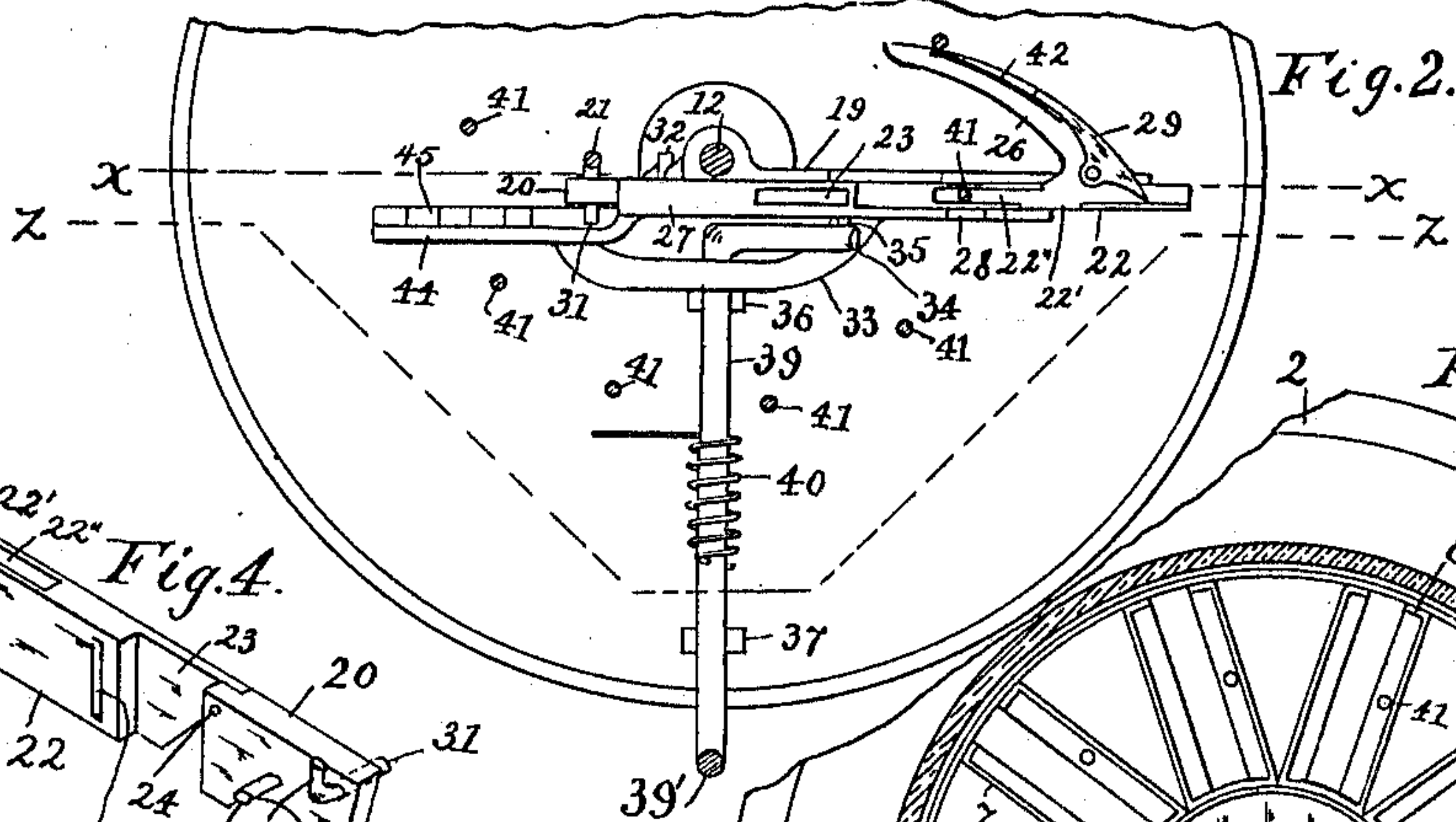
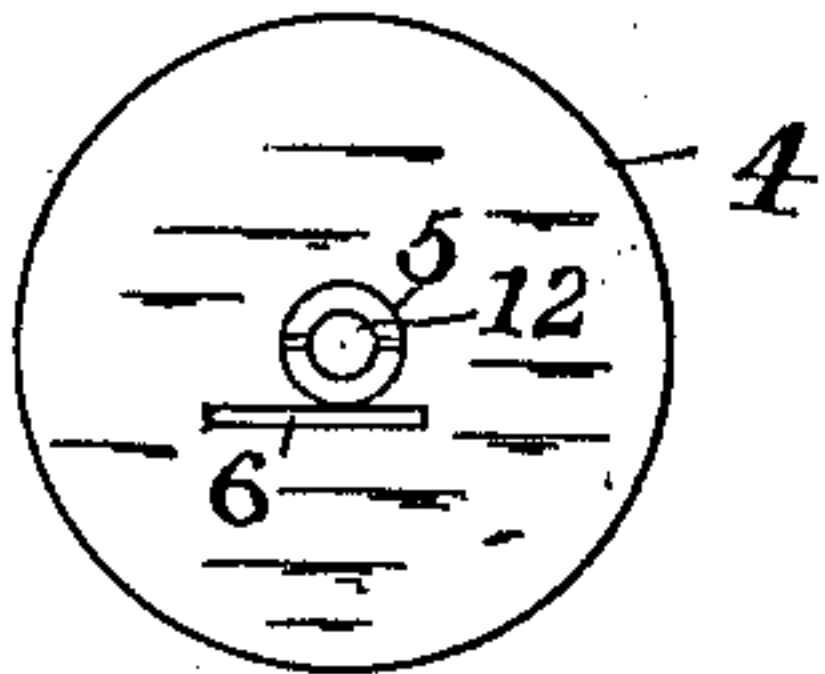


Fig. 4a.



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2 SHEETS-SHEET 2.

Fig. 5.

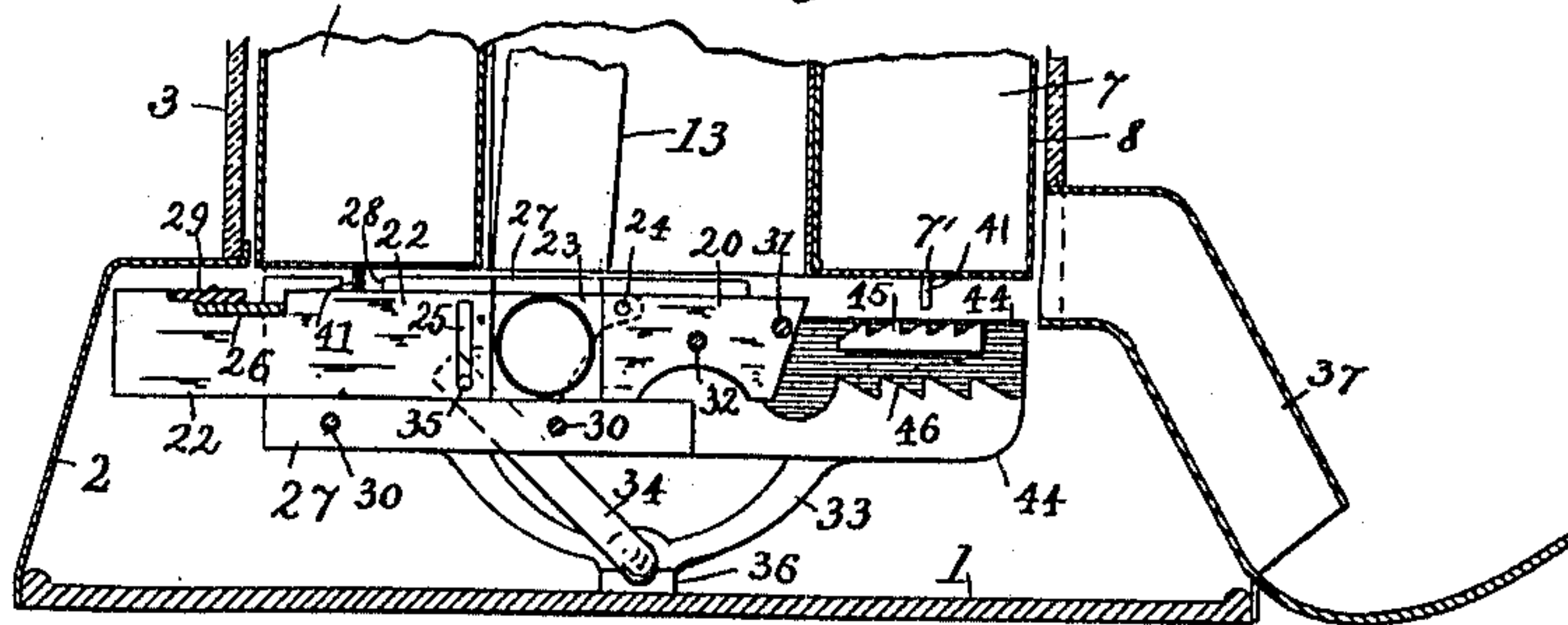
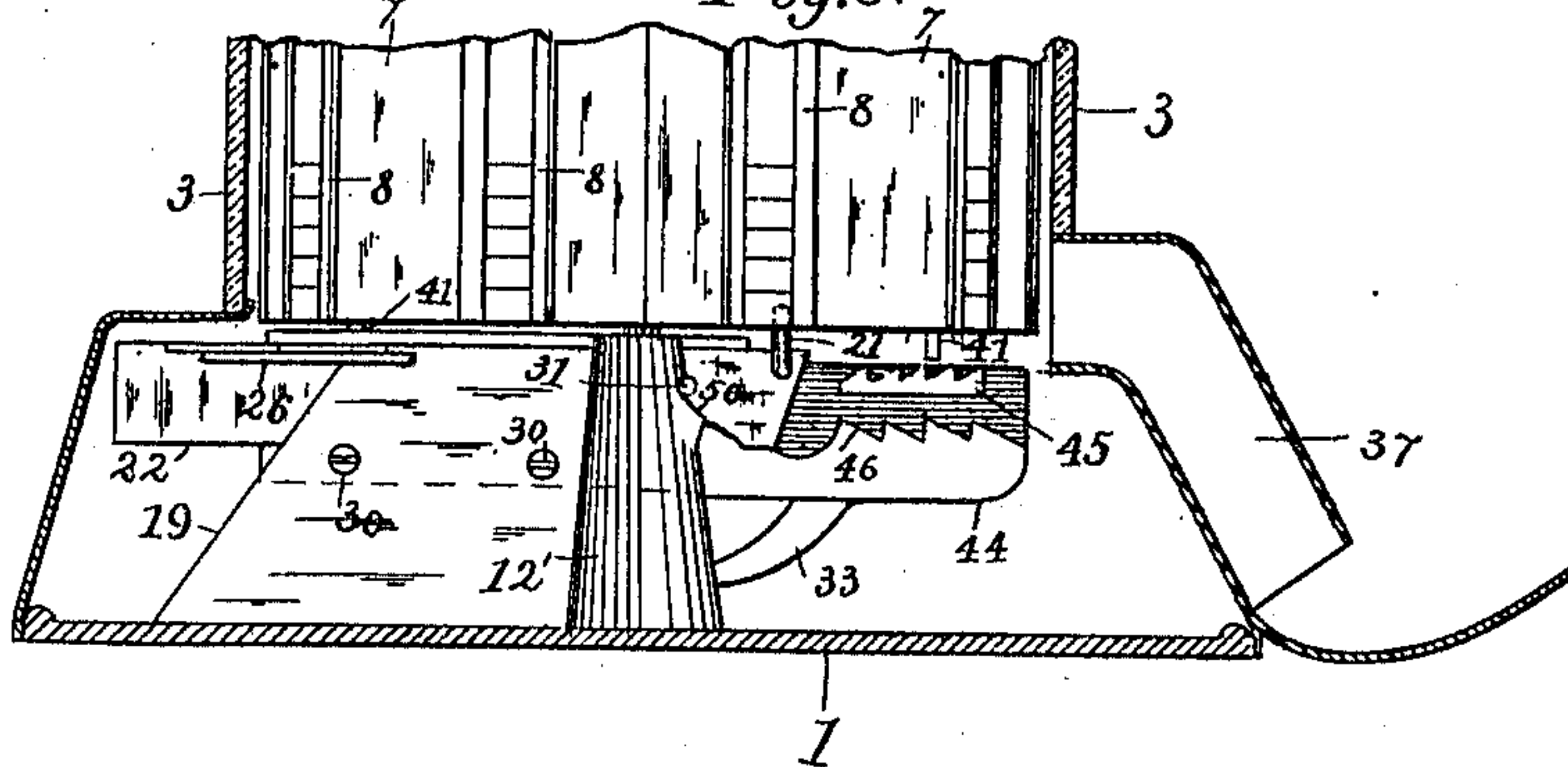


Fig. 6.



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UNITED STATES PATENT OFFICE.

HERBERT O. BROWN, OF FAIRFIELD, MAINE.

VENDING-MACHINE.

993,021.

Specification of Letters Patent.

Patented May 23, 1911.

Application filed September 1, 1909. Serial No. 515,618.

To all whom it may concern:

Be it known that I, HERBERT O. BROWN, a citizen of the United States of America, and a resident of Fairfield, county of Somerset, State of Maine, have invented certain new and useful Improvements in Vending-Machines, of which the following is a specification.

My invention relates to a vending machine adapted to vend chocolates or other small articles or packages and it relates more particularly to that class of machines wherein a series of vertical magazines are arranged around a common axis forming a rotatable cylinder with coin controlled means for ejecting one article at a time from the bottom of each magazine and means for turning the cylinder at intervals to bring all of the magazines successively into operative position.

The object of my invention is to construct a vending machine of this class in which the ejecting apparatus shall be simple and positive in its action, the machine cheaply constructed and generally to improve and simplify the construction of such machines.

I illustrate my invention in the accompanying drawing in which is shown an apparatus embodying the several features of my invention although it is to be understood that the essential features of the invention may be embodied in numerous forms differing from those herein shown.

In the drawing, Figure 1 is a vertical section taken through the machine on the line *y y* of Fig. 3 with the operating mechanism in the base and the coin guideway shown in elevation. Fig. 2 is a section on the line *y y* of Fig. 1 omitting the casing, Fig. 3 is a section on the line *x x* of Fig. 1, Fig. 4 is a detail of the ejecting mechanism, Fig. 4^a is a detail plan of the top plate and adjacent parts, Fig. 5 is a section on the line *x x* of Fig. 2, and Fig. 6 is an elevation of the operating parts from the side opposite to that shown in Fig. 1 and with the casing shown in section.

Referring to the drawings, the machine is supported on a base 1 in the form of a circular disk upon which rests a casing composed of a lower portion 2 approximately of the same diameter as the disk 1 and the

main casing 3 which is preferably a glass cylinder resting on the portion 2. The cylinder 3 has a top which is provided with a central opening adapted to receive a top plate 4 having a central perforation through which passes the upper end of a spindle 12, the lower end of the spindle being held in a standard 12' on the base 1. The plate 4 and the casing 3 are held in place by a nut 5 on the upper end of the spindle.

A coin receiving slot 6 is formed in the plate 4 this slot connecting with a coin guide way 13 which is secured by bands 14 and 15 to the spindle 12 whereby the coin is conveyed to the controlling mechanism.

The base 1 and standard 12' are preferably made in one casting and connecting with the standard 12' and forming a portion thereof there is formed a vertical wing or flange 19 which with the standard serves as a support for the operating parts.

The articles to be vended are contained in a series of vertical magazines arranged around a common vertical axis forming a rotatable magazine cylinder.

As here shown, the magazines are made up of a plurality of sheet metal plates 7 formed into vertically elongated magazines secured radially to a central tube 9 which incloses the spindle and guide way. The outer edges of each magazine are turned inward at right angles to form vertical flanges 8 to retain the articles in the magazine. In the present instance, I have shown a cylinder made up of ten magazines, the cylinder being centrally pivoted to the spindle 12 by means hereinafter shown. Each of the magazines is adapted to hold a definite number of rectangular shaped packages *o* to be ejected one at a time as hereinafter shown. At the bottom of each magazine there is a flange 7' turned in from each side forming two ledges for supporting the articles *o* and having a radial slot in which the ejector works as hereinafter shown.

Means are provided for turning the cylinder one position each time an article is ejected and as one of the features of the turning mechanism a projection is formed on the under side of each magazine. As here shown, I secure on one of the flanges 7 a pin 41 which projects below the lower end

of the cylinder and is acted upon by cam as hereinafter shown.

The cylinder is strengthened and stiffened as here shown by two rings 10 and 11 which surround the magazines one near the top and the other near the bottom each being secured to the outer edge of each magazine preferably by soldering.

The magazine cylinder is supported on the spindle 12 in such a manner as to turn easily. As here shown, the cylinder is supported on a ball bearing preferably at or near the top of the tube 9.

In the present instance the ball bearing is made up of an annular plate 16 secured to the inner surface of the tube 9 near the top and having on its under side an annular race way for the balls 18. A corresponding disk 17 having a ball race way at its outer edge is secured to the spindle and the weight of the cylinder is supported by the balls 18 through the annular plate 16 which thus forms an effective and simple ball bearing. The lower end of the cylinder is steadied as here shown by means of a disk 16' secured to the spindle 12 near the lower end of the tube 9 and bearing loosely against the inner surface of the tube. Thus the magazine cylinder hangs freely on the ball bearings and is capable of being easily turned.

The articles *o* are ejected by means of an upright arm or pin 21 (Fig. 4) contained in a horizontally disposed dog 20 which is horizontally reciprocated by a slide 22 to the forward end of which it is pivoted by a pivot 24. The slide is held in a guide plate 27 secured to the sides of the flange 19 and as the slide reciprocates the ejector 21 traverses horizontally the radial slot in the lower end of the magazine, its inner position being in rear of the slot and within the lower end of the tube 9. Thus when the ejector moves forward the lowest piece in the magazine is forced out and the remaining articles drop down.

A spout 37 is secured to the casing 2 in line with the ejector and occupies a position where it will catch each article as it is forced out guiding it to an apron 37' where it can be reached by the purchaser. An opening in the lower edge of the glass casing admits the inner end of the spout 37.

Means are provided by which the presence of a coin will hold the ejector up to its normal height and allow it to push out the article as described and when the coin is absent will permit it to fall down to a point where it will not act. With this end in view I form a coin space between the rear portion of the dog and the slide so that the presence of the coin will act to support the dog in its normal position.

As here shown, the rear upper corner of the dog is pivoted to front upper corner of

the slide and the forward end of the slide is formed into a shallow recess 23 into which the coins will enter with a loose fit. The rear edge of the dog forms the front wall of the coin space so that when the coin is absent the rear edge of the dog is free to swing back into the coin space and the front end of the dog is free to drop down below its normal position.

The bottom of the coin space when the slide is in its rear position is formed by the guide plate 27 but this guide plate terminates at the forward edge of the standard 12'. Thus when the slide reaches its forward position the coin space passes beyond the end of the guide and the coin is free to drop through the bottom onto the base 1. At the same time the dog is allowed to drop down out of its operative position. The lower end of the coin guide way 13 already described terminates immediately above the coin space 23 and serves to guide the coins as they are dropped through the slot 6 into the coin space.

Means are provided to assist the coin in holding the dog at its upper position after the slide starts to move forward and to allow the dog to drop at the end of its forward motion. For this purpose as herein shown, I make use of a pin 31 on the forward end of the dog, this pin extending at right angles to the dog and resting normally on a rack 45 (Fig. 5). The rack 45 is formed on an extension 44 which is secured to the flange guide plate 27 and it is provided with inclined teeth which will allow the dog to move out but will not permit its being returned until the dog reaches its outer position. When the outer position is reached the pin falls down over the outer end of the rack onto a rack 46 located below the rack 45 and having teeth which point in the opposite direction.

The teeth of the rack 46 constitute stops to check the outward movement of the dog when the coin is absent and the dog falls down below its normal position. The pin 31 may be independent of the ejector but I have here shown these two parts composed of a single piece of wire bent at right angles and extending horizontally through the dog the upright portion of the wire forming the ejector and the horizontal portion the pin 31. If desired both parts may be made as integral portions of the dog. Means are provided to hold the dog normally in its upper position when the slide is drawn back and the coin is absent.

As here shown I insert a pin 32 (Fig. 4) in the side of the dog below its pivoting point and in the forward portion of the standard 12' I form a recess on the same level as the pin 31 with an inclined surface 50 below the recess so that as the dog is re-

tracted the pin 31 will strike the inclined surface and be drawn upward and held in said recess thus maintaining the dog at its upper or horizontal position.

5 Means controlled from the outside of the casing are provided for reciprocating the slide 22 longitudinally to operate the ejector.

As here shown I provide a horizontal shaft 39 which is supported in bearings 37 and 36 here shown as formed in the base 1. An extension arm 33, here shown as formed integral with the guide plate 27, fits over the shaft adjacent to the bearing 36 and serves to hold the shaft down and to form the upper portion of the bearing. The outer end of the shaft extends out through the casing 2 which holds it in the bearing 37 and the end is turned up to form an operating handle 39'. A helical spring surrounds the shaft 39, bears on the base 1 and tends to turn the shaft backward to retract the slide 22. Connection is made between the shaft 39 and the slide 22 as here shown by turning up the inner end of the shaft to form an offset 39'' and inserting therein a pin 35 (Figs. 2 and 5.) The pin 35 plays in a vertical slot 25 formed in the slide 22 just in rear of the coin space and a slot 27' is formed in the guide plate 27 to allow for the movement of the pin as the slide reciprocates. Thus it will be seen that when the handle 39' is depressed, the slide is moved forward carrying the dog with its ejector.

If the coin has been dropped into the coin space, the pin 31 is sustained until it reaches the ratchet 45 and the ejector consequently pushes an article from the lower end of the magazine.

If the coin is absent when the lever is depressed the dog drops down and the pin 31 strikes the stop or ratchet 46.

The magazine cylinder is turned one position each time the slide is worked to eject an article and this movement is effected by the slide on its rearward motion acting on the pins 41 in succession. To accomplish this purpose, I pivot to the top of the slide, a cam 29, a lateral wing 26 being formed on the slide to support the cam. The cam 29 is made in the form of a pivoted latch and it has a rear edge which is so formed as to force the pin 41 laterally one position and to turn the cylinder one tenth of a revolution. A longitudinal groove 22'' is formed in the top of the slide to receive and hold the pins in succession and a lateral opening 22' admits each pin into the groove as the next forward pin is being forced over by the cam. The point of the cam extends across the groove 22'' with an outward inclination so as to allow the confined pin to escape toward the rear end of the slide and said point as shown rests against one of the walls of the groove 22''. A spring 42 holds

the cam normally across the groove and 65 when the slide moves forward the pin escapes to the rear against the action of the spring 42, the cam immediately closing the groove as soon as the pin passes out. At the forward position of the slide the cam slips by 70 the pin 41 which is at that time in the groove and on the backward movement of the slide the pin, following the outer inclined edge of the cam, is moved along to its next position. At the same time the approaching pin passing through a notch 28 75 formed in the upper edge of the guide plate enters the groove 22'' through the opening 22' which is at that time opposite the notch 28. As the slide comes back to its rear position, the pin is confined in the inner end of the groove and serves to hold the magazine cylinder from turning until the next movement of the slide. This movement does not take place unless the slide is forced out 85 to the extreme forward position so that the point of the cam will engage the pin 41. It will thus be seen that each time an article is ejected from one of the magazines, the cylinder is turned one position and this successive turning of the cylinder continues as long as the machine continues to be used.

I claim:—

1. In a vending machine, an ejector, a slide for actuating said ejector, a handle extending 95 outside of the casing for operating said slide, a dog pivoted to said slide, a stop for engaging said dog when the latter drops below its normal position, a coin space being formed in rear of said dog adapted to hold the coin 100 in a position to support the dog, and a guide way for guiding the coin to said space from the top of the casing.

2. In a vending machine, a slide, a handle outside of said casing to reciprocate said 105 slide, a dog pivoted to said slide, an ejector on said dog, a coin space being formed between the slide and dog to enable the coin to support said dog, a stop adapted to engage the dog when below its normal position, and 110 a guideway for guiding the coin from the top of the casing to the coin space.

3. In a vending machine, a slide, a handle outside of said casing to reciprocate said 115 slide, a dog pivoted to said slide, an ejector on said dog adapted to move radially to force said articles from the lower end of each magazine, a coin space being formed between the slide and dog, a stop adapted to engage the dog when it falls and a guide way for guiding 120 the coin from the top of the casing to the coin space.

4. In a vending machine, a dog pivoted to said slide, an ejector on said dog, a stop adapted to engage said dog when the latter 125 falls below its normal position, a coin space being formed between the dog and the slide whereby the coin is enabled to hold up the

dog and a guide way for guiding the coin to said coin space.

5. In a vending machine, a slide, horizontally movable means for reciprocating said slide, a dog pivoted to the forward end of said slide, an ejector on said dog, a coin space being formed between the dog and the slide to contain the coin and enable it to support the dog, a stop adapted to engage the dog when the latter falls below its normal position, and a guide way for guiding the coin to the coin space.

6. In a vending machine, a slide, means outside the casing for reciprocating said slide, a dog pivoted to said slide, an ejector on said dog, a coin space being formed between the dog and the slide to receive the coin and enable it to support the dog, a stop adapted to engage said dog when the latter drops below its normal position and a guide way for guiding the coins to said coin space.

7. In a vending machine, a slide, means for reciprocating said slide, a shallow coin space being formed on the forward portion of the slide, a dog pivoted to the forward upper portion of said slide having a vertical edge which forms the forward wall of said coin space and which is adapted to bear normally against the coin, an ejector on said dog adapted to extend upward through said opening and to eject the contents of the machine, a stop adapted to engage the dog when the latter is below its normal position, and a guide way to guide the coin to said coin space.

8. In a vending machine, a slide, means for reciprocating said slide, a dog pivoted to the slide, a coin space being formed between the dog and the slide whereby the coin acts to support the dog, an ejector on said dog adapted to project upward through said opening, a stop adapted to engage said dog when the latter is below its normal position, a ratchet adapted to engage said dog when at its normal level to prevent its return, and a guide way for guiding the coin to said coin space.

9. In a vending machine, a slide, means for reciprocating said slide, a dog pivoted to said slide, a coin space being formed between the dog and slide, the rear edge of the dog constituting the forward wall of the coin space, an ejector on said dog extending through said opening and adapted to eject articles from the machine one at a time, a horizontal pin on said dog, a stop adapted to engage said pin when the coin space is empty and the dog falls below its normal level and a ratchet sustaining said pin when the coin space is filled and having teeth to prevent the return of the dog but terminating to allow the dog to drop at the end of its forward motion.

10. In a vending machine, a slide having a coin space formed adjacent to its forward edge, means for reciprocating said slide, a dog pivoted to said slide at its upper forward portion, its rear edge forming the forward wall of said coin space, an ejector on said dog extending through said opening and adapted to eject articles from the machine one at a time, a horizontally disposed pin on said dog, a ratchet having outward pointing teeth on which said pin rests when in its upper position, a ratchet with inward pointing teeth on which it rests in its lower position, the former ratchet terminating before the pin reaches its outer position to enable it to drop down.

11. In a vending machine, a slide having its forward end recessed laterally to form a coin space, means for reciprocating said slide, a dog pivoted to the upper forward end of the slide and having its rear edge constituting the forward wall of said coin space, an ejector on said dog, a stop to engage the dog when at its lower position and a ratchet to prevent its return from a partial forward stroke when at its upper position.

12. In a vending machine, a slide, means for reciprocating said slide, a horizontally disposed dog pivoted to the forward end of the slide, having a vertically movable outer end, a coin space being formed between said slide and said dog whereby the coin is enabled to hold the dog at its upper position, an ejector on the forward end of said dog, a stop to engage the dog at its lower position, a ratchet with outward pointing teeth to sustain the dog when at its normal position and to prevent its retraction.

13. In a vending machine, the combination of a slide, means for reciprocating said slide, a spring for retracting the same, a dog pivoted to said slide, a coin space being formed between the slide and the dog for enabling the coin to support the dog, a ratchet for sustaining said dog in its normal position, and a stop for engaging said dog when it falls below its normal position.

14. In a vending machine, the combination of a slide, means for reciprocating the slide, a spring for retracting the same, a dog pivoted to said slide, an ejector on said dog, a coin space being formed between the dog and the slide to enable the coin to sustain the dog, a projection on said dog forming a stop to limit its rearward motion, a recess with an inclined lower surface in which said projection engages for lifting said dog and holding it in its normal position.

15. Coin controlled apparatus comprising a slide, means for reciprocating said slide, a spring for retracting the same, a dog pivoted to said slide, coin controlled means for holding said dog in operative position, an

ejector on said dog, a lateral projection on
said slide forming a stop to limit its rear-
ward motion, a recess with an inclined lower
surface in which said projection engages for
5 lifting said dog and holding it in its normal
position, a rack with outward pointing
teeth for sustaining the dog in its normal
position and preventing its retraction and a

stop for engaging the dog when it falls be-
low its normal position.

10

In witness whereof I have hereunto set my
hand this 9th day of August, 1909.

HERBERT O. BROWN.

Witnesses:

A. A. MERRILL,
S. W. BEETES.

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