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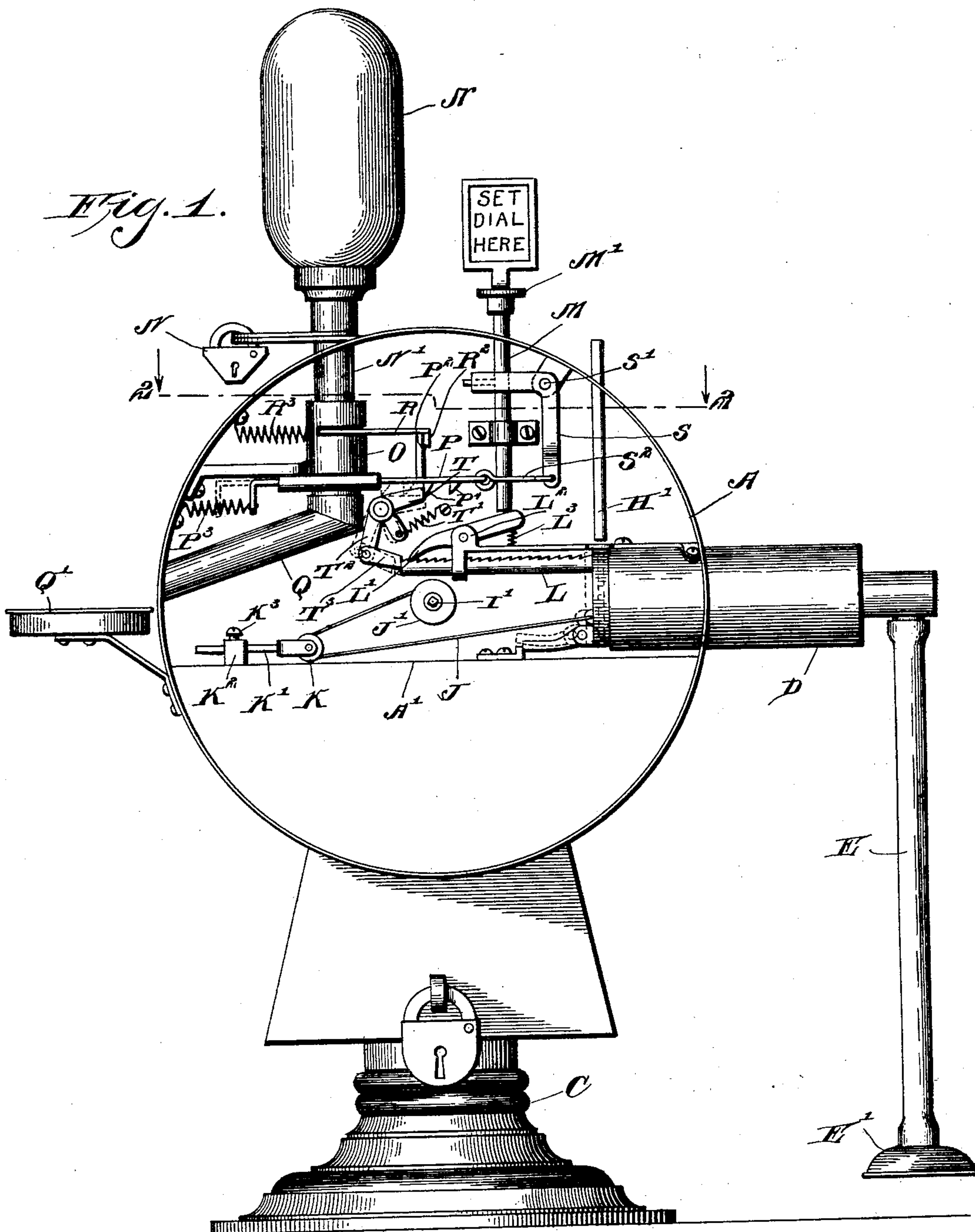
Patented Oct. 14, 1902.

A. STEWART.  
COIN CONTROLLED TESTING AND VENDING MACHINE.

(Application filed Dec. 11, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

*Louis D. Heinrichs*  
*L. H. Morrison*

*Alexander Stewart*

*By*

*W. Preston Williamson*  
*Atty*

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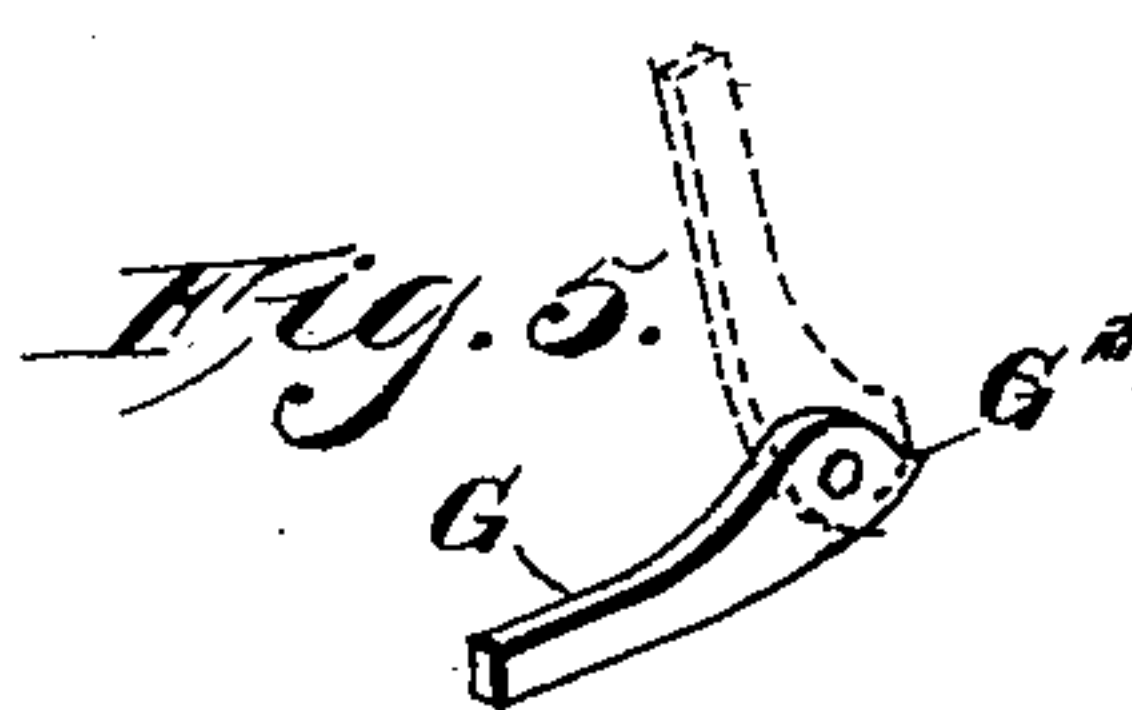
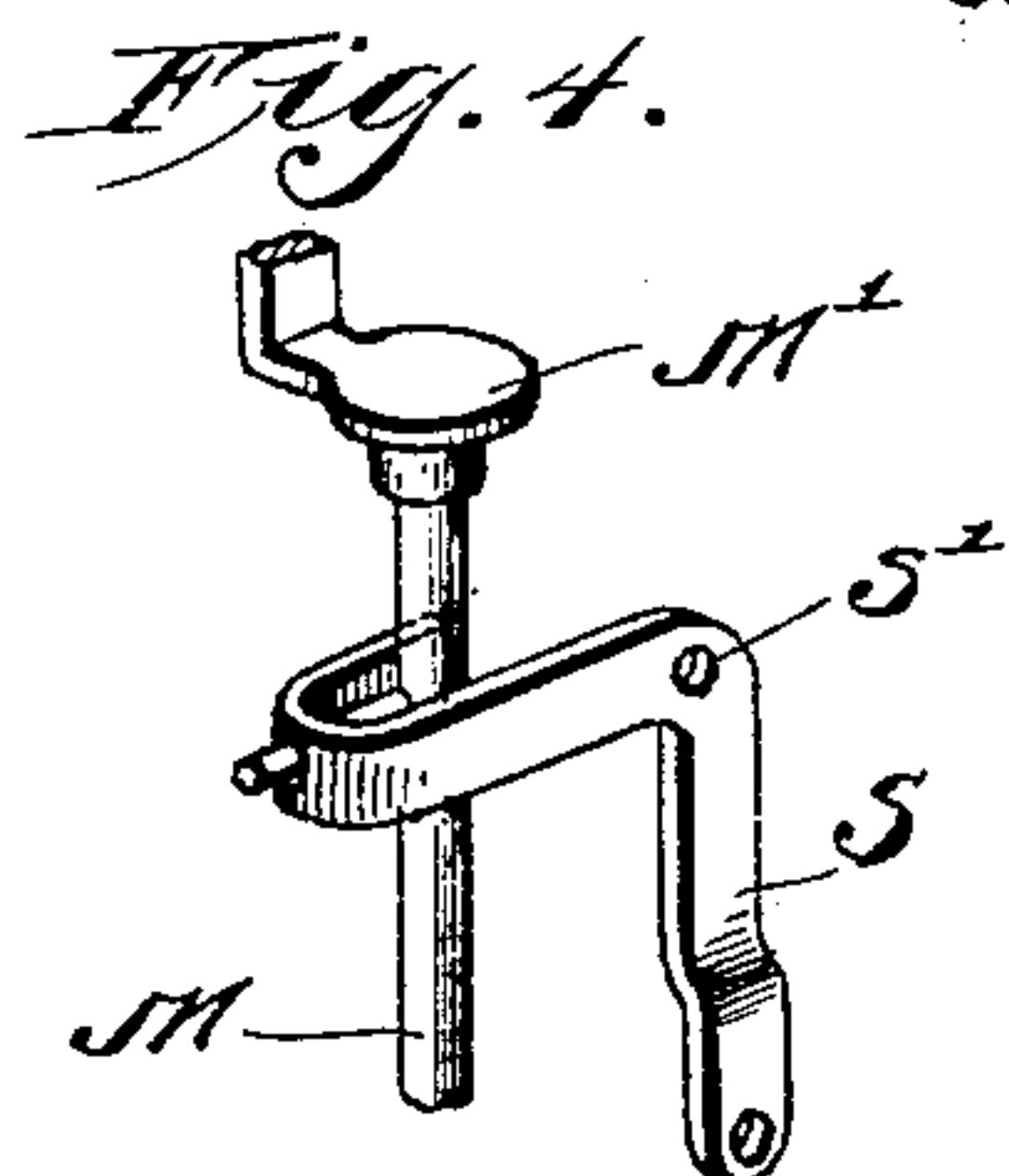
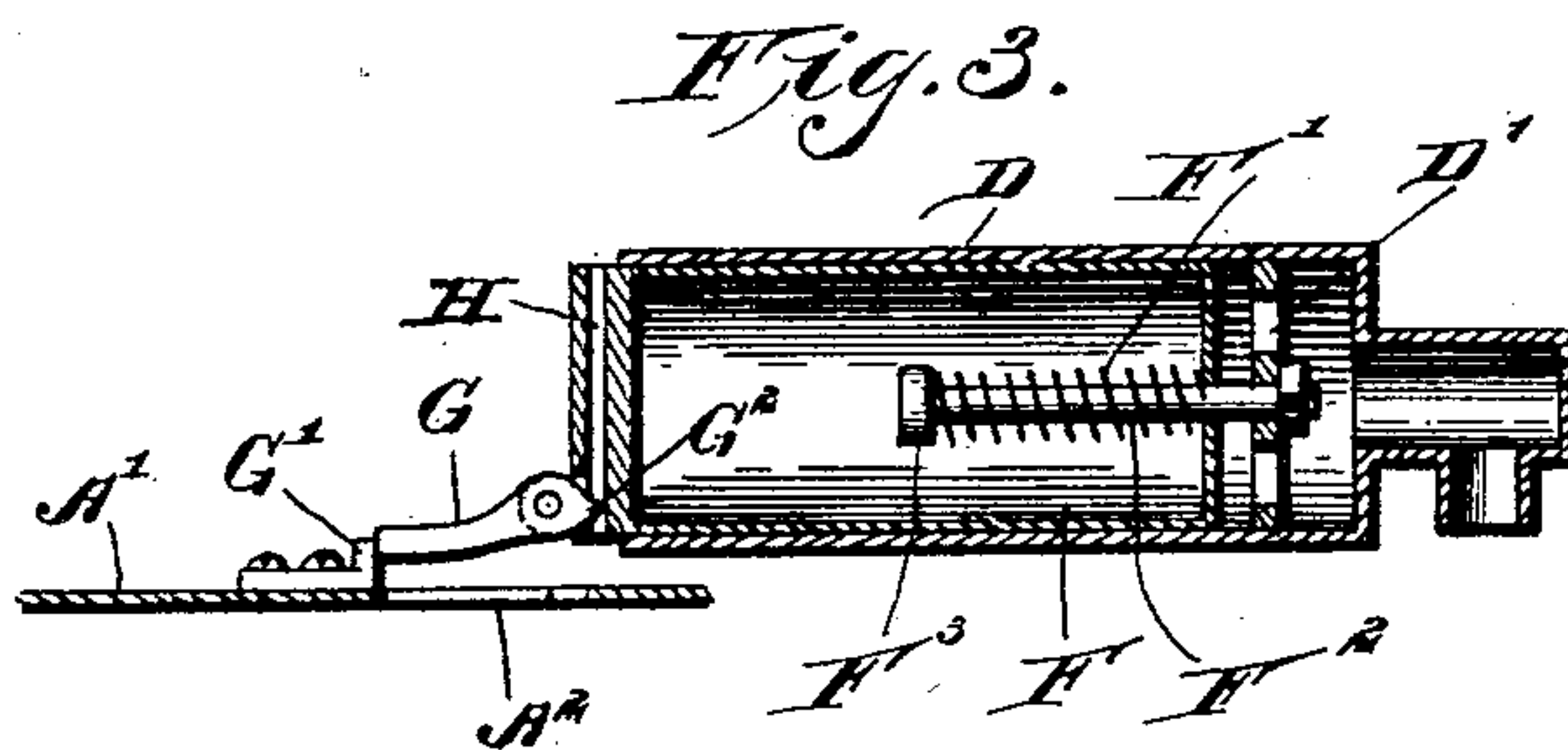
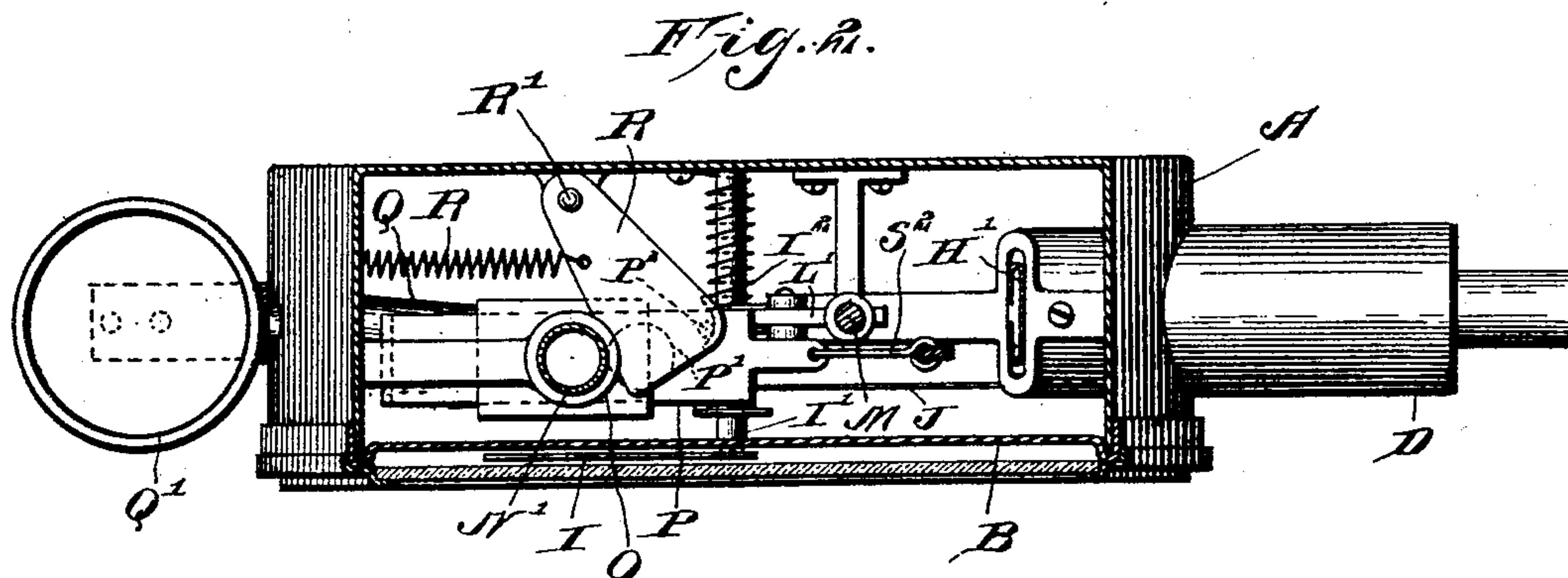
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# UNITED STATES PATENT OFFICE.

ALEXANDER STEWART, OF PHILADELPHIA, PENNSYLVANIA.

## COIN-CONTROLLED TESTING AND VENDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 711,017, dated October 14, 1902.

Application filed December 11, 1901. Serial No. 85,487. (No model.)

*To all whom it may concern:*

Be it known that I, ALEXANDER STEWART, a citizen of the United States, residing at Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a certain new and useful Improvement in Coin-Controlled Lung-Testing and Goods-Delivery Mechanism, of which the following is a specification.

My invention relates to a new and useful improvement in coin-controlled testing and vending machines, and has for its object to provide a machine of this description by which the dropping of a coin of predetermined value within a slot will release the mechanism and allow the customer to test his lung-power and at the same time will deliver in a receptacle at one side of the machine a predetermined amount of small articles, such as candies, &c.

With these ends in view this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, the construction and operation will now be described in detail, referring to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a front elevation of my machine, the dial being removed so as to show the interior mechanism; Fig. 2, a section on the line 2 2 of Fig. 1; Fig. 3, a longitudinal section through the air-chamber containing the piston; Fig. 4, a detail perspective view of the plunger and bell-crank lever which are utilized to set the dial and mechanism; Fig. 5, a perspective view of the pawl upon which the coin falls to release the mechanism.

In the drawings, A represents the casing, which may be of any suitable shape or design, but preferably circular in the body portion, and has a dial B fitted upon the front thereof. This body portion is supported by any suitable pedestal C.

D is an air-chamber projecting outward from the side of the casing A, and to the outer end of this air-chamber is connected the flexible tube E, having the mouthpiece E' upon the end thereof. Upon the interior of the

air-chamber D is located a piston F, which is fitted to slide within the chamber and be forced outward by any air-pressure forced through the tube E; but this piston F is normally held within the air-chamber by means of the spring F', which is coiled about the bolt F<sup>2</sup>, which bolt is held stationary with the air-chamber by being secured in the perforated disk D'. The other end of the bolt extends within the plunger or piston F and is there provided with an enlarged head F<sup>3</sup>, between which head and the end of the piston is interposed the spring F'. Thus when the piston F is forced out of the air-chamber the spring F' will be compressed. The piston F cannot be forced outward until a coin is inserted in the machine, because of the fact that a pawl G, pivoted to the inner end of the piston, is normally in contact with a stop G', secured to a partition A', extending across the interior of the body A. The solid inner end of the piston is provided with a vertical slot H, in which the coin is adapted to drop from a chute H', extending up and out of the body A. The heel end G<sup>2</sup> of the pawl G lies within the slot H, and as the coin drops the weight of the coin will raise the pawl from out of contact with the stop G'. Then by blowing in the tube E the piston may be forced out of the air-chamber D a distance determined by the strength of the operator's lungs.

For the purpose of registering upon the dial the distance the piston is forced outward I provide an indicating-hand I, which is rigidly secured to the central shaft I'. This shaft I' is continually under spring-pressure by means of a coil-spring I<sup>2</sup>, coiled about the shaft, to which one end of the same is secured, the other end of the spring being secured to the casing. A flexible cord J is connected at one end to the piston F and passing around an idle pulley K, and the other end is then secured to a drum J', secured upon the shaft I. Thus as the piston F is forced out of the air-chamber the flexible cord J will be shortened, and thereby allow the spring I<sup>2</sup> to act, so as to revolve the shaft I and at the same time coil the flexible cord J upon the drum J'. Thus the farther the piston is forced out of the air-chamber the farther the hand I may travel around the dial, and when the piston is forced back to its normal position the flexible cord J will be un-



wound from the drum, thereby rotating the shaft I', winding up the spring, and returning the hand to zero. For the purpose of taking up any stretch in the cord J or lost motion in the mechanism and also for setting the hand so that the same will register correctly I journal the idle tightening-pulley K in the end of a rod K', which rod passes through a lug K<sup>2</sup>, secured to the partition A', and this rod may be set at any point by means of the set-screw K<sup>3</sup>.

For the purpose of holding the piston in the position it has been forced to by the operator and also holding the indicating-hand at the highest number reached I provide a rack-bar L, which extends inward from the inner end of the piston F and which has rack-teeth formed upon its upper edge.

L' is a pawl pivoted to a stationary bracket L<sup>2</sup>, extending inward from the casing, and this pawl L' is normally held in contact with the ratchet-teeth by means of the spring L<sup>3</sup>, so that as the piston is forced out of the air-chamber the ratchet-teeth will slide underneath the pawl; but as soon as the air-pressure is released the pawl will engage the teeth and prevent any retrograde movement. Before the machine can be used again the pawl must be released, so as to allow the spring F' to act upon the piston to return it to its normal position, and when it has reached this normal position the pawl G will fall behind the stop G' and prevent any further movement of the piston until a new coin is inserted. The manner in which I accomplish the release of the pawl L' is by means of a plunger M, which extends upward through the casing and is provided upon its upper end with a push-button M'. This plunger M is normally held upward by spring mechanism, hereinafter to be described, and when pushed downward the lower end of the plunger will come in contact with the heel of the pawl L' and raise the nose of the pawl out of contact with the ratchet-teeth, and thus allow the piston to resume its normal position.

In this machine I purpose not only to allow the customer to test the power of his lungs, but also to deliver a predetermined amount of small articles, such as candies, &c. These articles are held in a suitable glass bulb N, the open end of which fits over a tube N', which extends downward to the interior of the casing, and the bulb N is held against removal from the tube N' by means of a padlock N<sup>2</sup>, which secures together a flange extending outward from the tube N' and also a flange extending outward from the neck of the bulb N. The lower end of the tube N' enters a housing O, which is provided with a compartment which is adapted to measure articles to be delivered. Through the lower end of the housing O is provided a sliding plate P, which is provided with an opening P', which when brought in register with the compartment of the housing O will allow any articles contained within the compartment to

fall into a chute Q and be conveyed to the outside of the casing and there deposited in a suitable receptacle Q'.

R is a plate hinged at the point R' to the casing, and this plate is adapted to act as a cut-off valve above the compartment in the housing O and operates through a slot provided in the housing above the compartment. This plate R and slide P are adapted to act together in the well-known principle utilized in the shot-pouches—that is, when the plate or valve closes the upper opening of the compartment the hole P' in the slide P will then be in register with the lower end of the compartment and allow any of the articles previously deposited in the compartment to fall downward into the chute Q.

When the plunger M is depressed for the purpose of releasing the piston, it will also actuate a bell-crank lever S, pivoted to the casing at S', and this bell-crank lever is connected by the link S<sup>2</sup> to the slide P, so that the slide will be pulled outward when the plunger is depressed, so as to cause the opening P' to pass out of register with the compartment within the housing O, and after the slide P has moved a sufficient distance to bring the opening P' from underneath the compartment the pin P<sup>2</sup>, secured to the slide, will then come in contact with the lug R<sup>2</sup>, depending from the plate R, and then in the continued movement of the slide this plate R will then be swung from over the compartment, and thus allow a portion of the contents of the bulb N to pass downward in the compartment and rest upon the slide P. The slide P is pulled outward against the action of the spring P<sup>3</sup>, and the plate R is swung against the action of the spring R<sup>3</sup> for the purpose of holding these parts in this position. A latch or pawl T is pivoted underneath the slide P, and the nose of the latch or pawl is held against the under side of the slide P by means of the spring T'. P<sup>4</sup> represents two teeth depending from the slide P, and these teeth are adapted to be engaged by the pawl T to prevent the retrograde movement of the slide. Two teeth are employed for the purpose of preventing the slide P from being pulled part way out and then allowing the same to return, so as to manipulate the two valves for the purpose of abstracting an undue quantity of the articles from the bulb or reservoir. The pawl or latch T has an arm T<sup>2</sup> upon the other side of the pivotal point, and to the end of this arm is pivoted the dog T<sup>3</sup>, the end of which lies normally against the end of the rack-bar L. Thus after the slide P has been pulled outward and the piston allowed to return to its normal position the pawl or latch T will engage the last tooth P<sup>4</sup> and the dog T<sup>3</sup> will fall behind the end of the rack-bar L and the articles within the reservoir will have dropped within the compartment upon the plate P. Then when the air-pressure is applied behind the piston by means of blowing through the tube E the piston will be forced



out from the air-chamber, and thus the rack-bar will press against the dog T and rock the pawl upon its pivot, so as to bring said pawl out of engagement with the teeth of the plate, and then the plate P will be returned to its normal position by the spring P<sup>3</sup>, which will bring the opening P' into register with the compartment and allow the contents of the compartment to fall within the chute Q; but before the opening P' has been brought in register with the compartment the plate or valve R has been returned to its normal position by the spring R<sup>3</sup>, so as to cut off communication from the reservoir with the compartment, and thus only the articles which have been previously deposited within the compartment are delivered. The mechanism then can be reset at any time, but after being reset cannot be released until a coin of the proper dimension is deposited within the slot.

The coin is carried a slight distance with the piston just sufficient to allow the end of the pawl G to pass the stop G', and then as it passes over the opening A<sup>2</sup>, made through the partition A', it will drop down in the lower portion of the body of the machine and may be removed therefrom through a suitable door at the front, closed by lock and key.

Of course I do not wish to be limited to the exact construction here shown, as slight modifications could be made without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and useful is—

1. In a vending-machine, a suitable casing, an air-chamber, a plunger or piston adapted to slide within said air-chamber, a tube and mouthpiece connected to the air-chamber at the outer end, a spring interposed between the air-chamber and the piston, a pawl pivoted to the inner end of the piston, a stationary stop against which the pawl normally abuts, a chute extending from the outside of the machine for the conveyance of the coin, a heel end formed upon the pawl upon which the coin is adapted to drop so as to raise the pawl, a dial, an indicating-hand, means for revolving said hand as the piston is forced out of the air-chamber, a rack-bar secured to the piston, a pawl engaging the teeth of the rack-bar, a push-rod adapted to release the pawl from the teeth, a reservoir, a measuring-compartment located below the reservoir, valve mechanism consisting of two valves adapted to alternately close the upper end of the reservoir and open the lower, and vice versa, means whereby the push-rod will operate to actuate the valve so as to fill the compartment, and means operated by the piston for releasing the valves and allowing the contents of the compartment to fall from out of the same, a chute for receiving said contents and conveying the same to the outside of the machine, as and for the purpose specified.

2. In a device of the character described, a suitable casing, an air-chamber, a piston lo-

cated within said air-chamber, a tube or mouthpiece connected to the outer end of said chamber, a spring interposed between the air-chamber and the piston adapted to exert tension against the air-pressure, mechanism for normally preventing the piston from being forced out of the air-chamber, a coin-chute extending from the outside of the casing to the inside thereof, the coin adapted to release said mechanism, a dial, an indicating-hand secured rigidly to a central shaft, a spring coiled about said shaft, having one end fastened to the casing and the other to the shaft, a drum located upon the shaft, a flexible cord secured at one end to the piston and at the other end to the drum, an arm extending inward from the piston, ratchet-teeth formed upon said arm, a pawl held normally in contact with said ratchet-teeth, a push-rod extending to the outside of the casing adapted to release the pawl from the teeth when pushed, a reservoir, a measuring-compartment located below the reservoir, a chute connecting the lower end of the measuring-compartment with the exterior of the machine, two valves so arranged and operated that when one valve cuts off the supply from the reservoir to the measuring-compartment the other valve will open the compartment to the chute, and vice versa, a spring adapted to actuate the valves in one direction, a bell-crank lever, one member of said bell-crank lever attached to the push-rod, the other member connected to the valves and adapted to actuate the valves against the action of the spring when the push-rod is depressed, teeth depending from one of the valves, a suitable latch or pawl adapted to engage the teeth and hold it against the action of the spring, the heel end of said pawl or latch adapted to be contacted by the latch-bar when pressure is exerted upon the piston, and thereby disengage the pawl or latch from the teeth and allow the spring to actuate the valve, as and for the purpose specified.

3. In combination with an apparatus of the character described, a reservoir, a tube extending downward from said reservoir, a measuring-compartment with which said tube connects, a chute communicating with the lower end of the measuring-compartment and extending to the outside of the machine, a slide adapted to slide below the measuring-compartment and between the same and the chute, said slide having an opening formed therethrough, a plate pivoted to the casing, said plate adapted to act as a valve to cut off communication between the reservoir and the measuring-compartment, a push-rod, connections between the push-rod and the slide whereby the slide is pulled outward when the push-rod is depressed, a pin extending upward from the slide, a lug depending from the upper valve adapted to be engaged by said pin at the proper time, springs for returning the upper valve and the slide when



allowed to do so, teeth formed upon the lower side of the slide, a latch or pawl adapted to engage said teeth, a spring for holding said pawl in engagement with the teeth, an arm  
5 extending outward from the pawl, mechanism adapted to be operated upon the insertion of the coin to contact said arm and thus release the slide and the upper valve and allow the springs to return them to their nor-

mal position, substantially as and for the purpose specified. 10

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

ALEXANDER STEWART.

Witnesses:

H. B. HALLOCK,  
L. W. MORRISON.