

No. 667,613.

Patented Feb. 5, 1901.

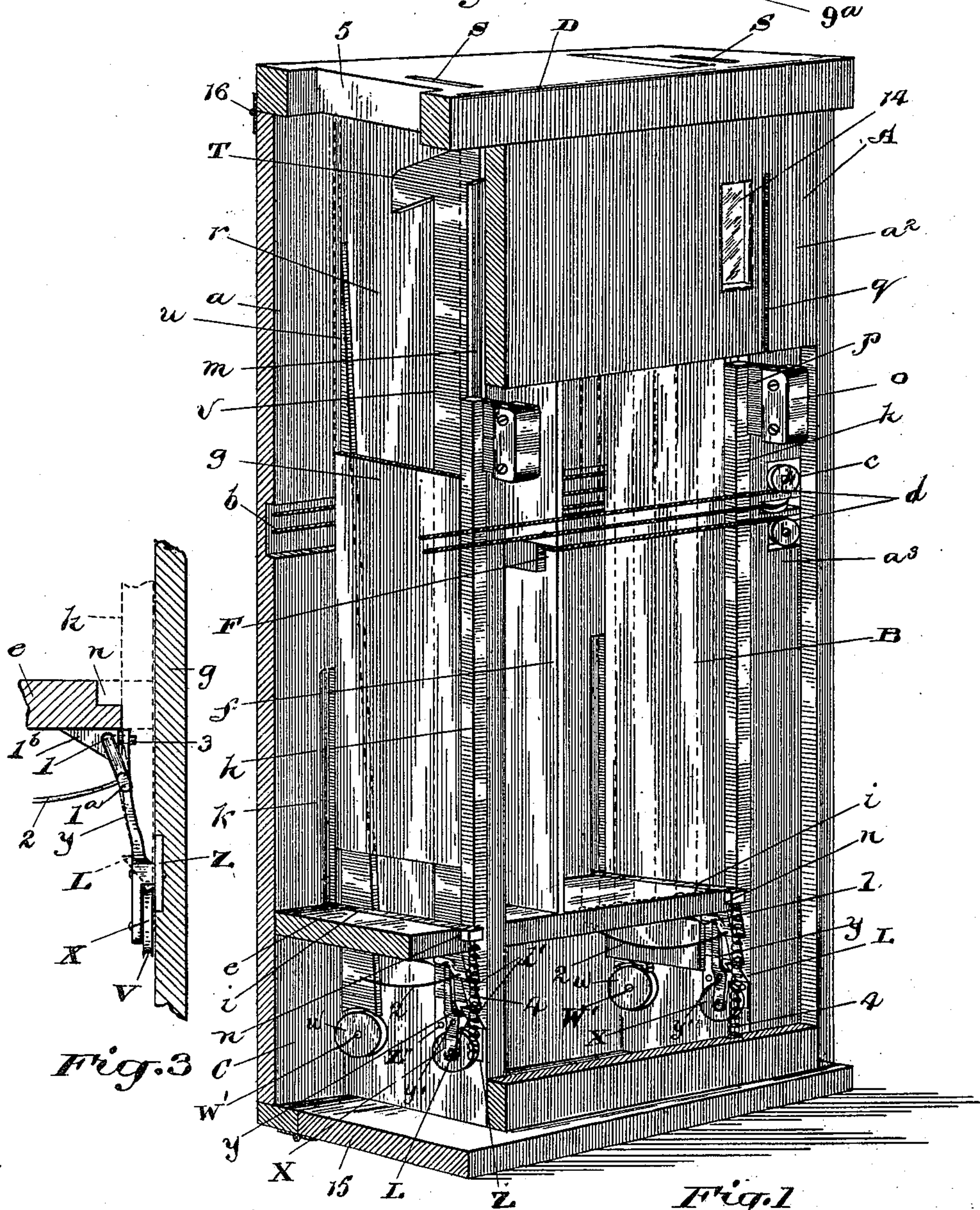
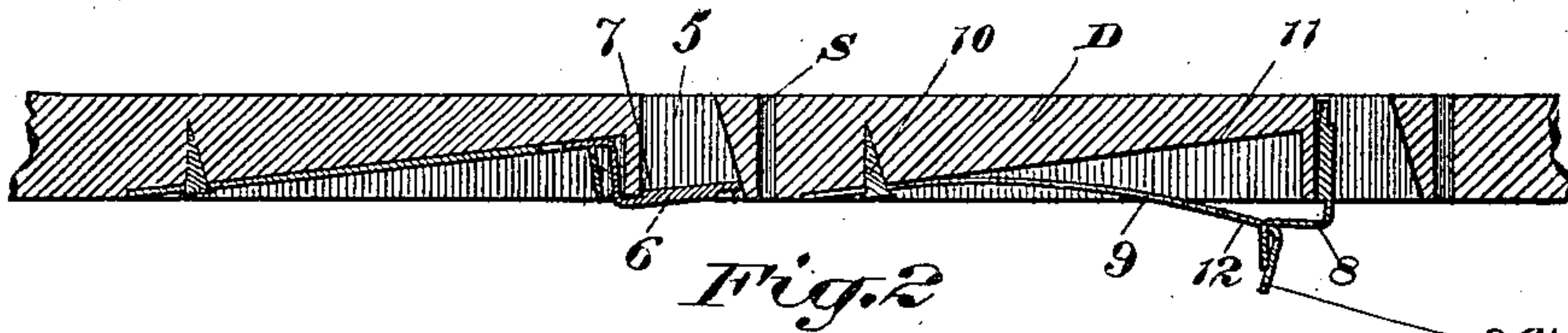
W. K. BOWERMAN.

VENDING MACHINE.

(Application filed Jan. 2, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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Fig. 1  
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2 Sheets—Sheet 2.

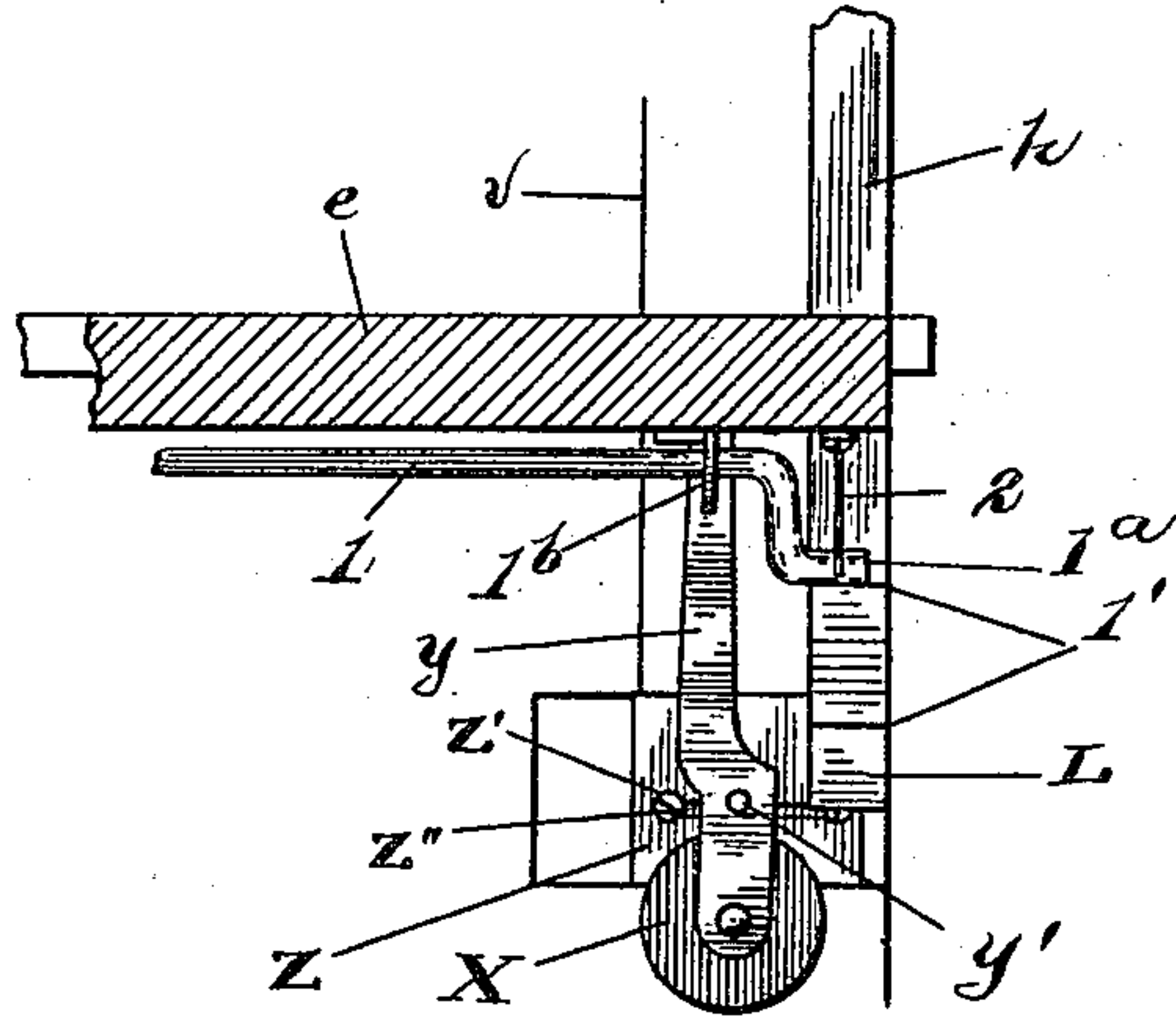


Fig. 6

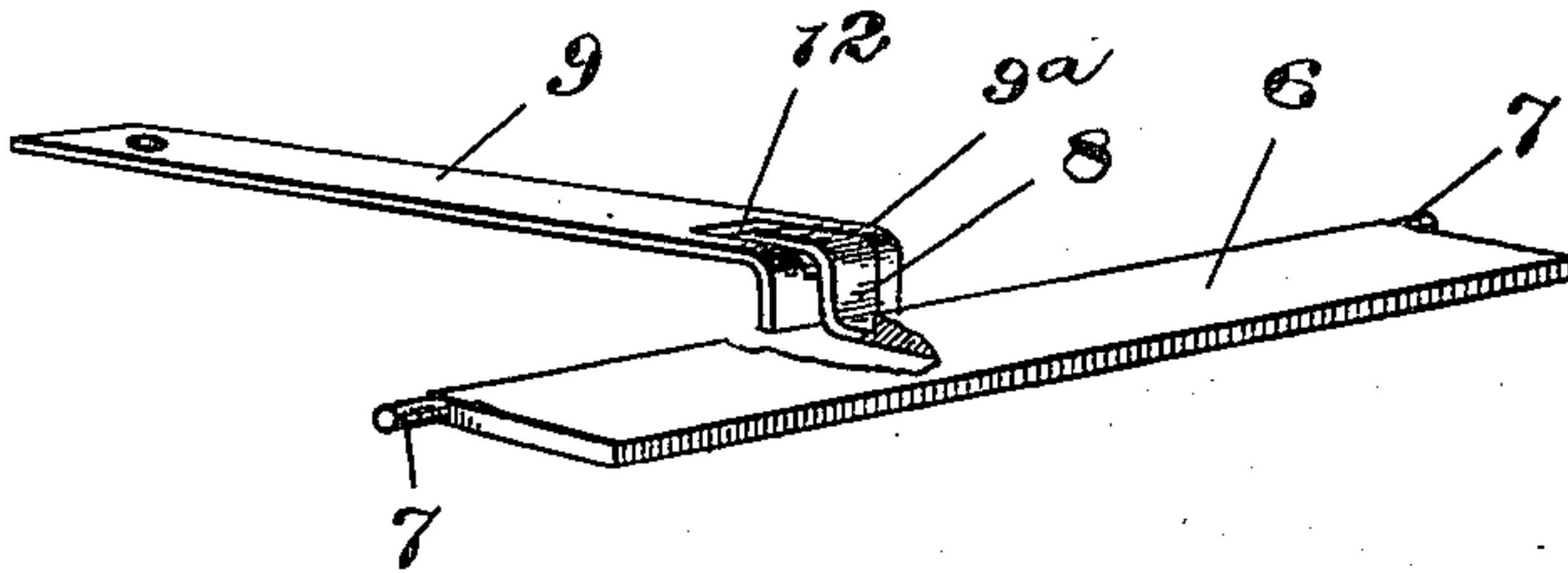


Fig. 5

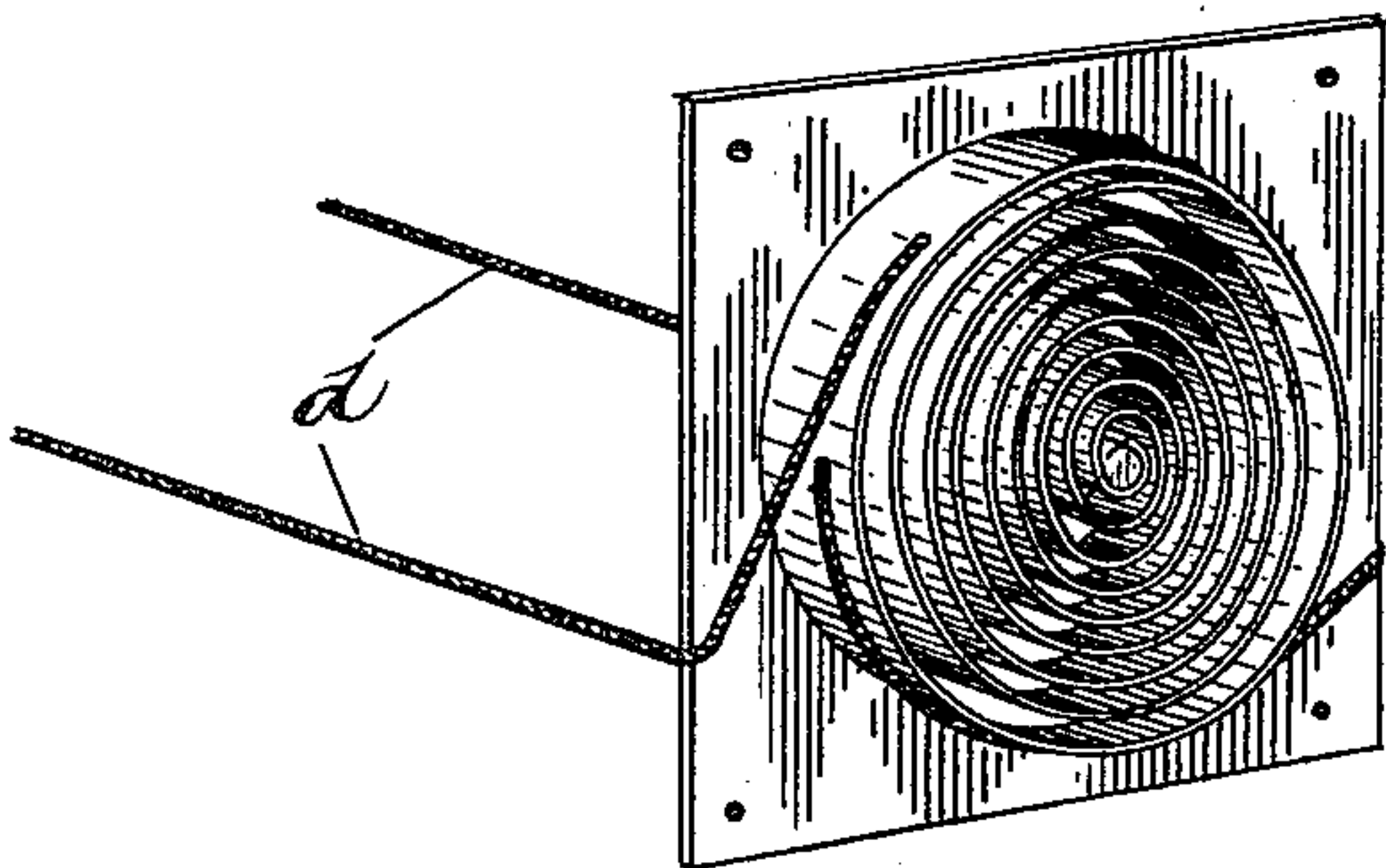


Fig. 4

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# UNITED STATES PATENT OFFICE.

WILLIAM KING BOWERMAN, OF BLOOMFIELD, CANADA.

## VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 667,613, dated February 5, 1901.

Application filed January 2, 1900. Serial No. 161. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM KING BOWERMAN, miller, a citizen of the Dominion of Canada, residing at the village of Bloomfield, in the county of Prince Edward and Province of Ontario, Canada, have invented a new and useful Vending-Machine, of which the following is a specification.

My invention relates to certain new and useful improvements in vending-machines; and it relates more particularly to the peculiar construction of the coin-actuated mechanism for controlling the delivery of the contents of the magazine; and the object of the invention is to provide the magazine with a movable partition actuated by a series of spring-wound cords to compress the contents of the magazine toward the delivery-slot and to provide the magazine with a delivery-slide for the purpose of delivering a predetermined portion of the contents of the magazine through the delivery-slot on each successive operation of the machine and to control the movement of the delivery-slide by a coin-actuated mechanism so arranged as to allow of one complete operation only of the delivery-slide on the insertion of a coin of the requisite denomination; and the invention consists, essentially, of the apparatus hereinafter more fully set forth, and more particularly pointed out in the claims.

Figure 1 is a perspective view of the vending-machine, partly in section, showing the internal construction of the magazine and the coin-actuated mechanism. Fig. 2 is a longitudinal sectional view of a portion of the lid covering two compartments, showing the slot through which the article is obtained open in one case and closed in the other. Fig. 3 is a sectional view of the coin-controlled mechanism. Fig. 4 is a sectional view of one of the winding-springs and case. Fig. 5 is a perspective view of the cover and spring for closing the delivery-slot. Fig. 6 is a detail view showing the adjustment of the coin-testing mechanism.

Like characters of reference refer to like parts throughout the specification and drawings.

A represents the case, which is of any suitable size, shape, and design and made of any suitable material.

$a$  and  $a^2$  represent the back and front of the case, respectively, the inner side of each of which is provided with a horizontal groove or recess  $b$  to contain the cords  $d$ .

$a^3$  represents one end of the case fitted with a series of winding-springs, there being one spring for each compartment of the magazine. Each spring is inclosed in a revolving circular case, upon which is wound the cords  $d$ , guided by the pulley  $c$  to run in the grooves  $b$  from the spring-case to the movable partition  $f$ .

$e$  represents the false bottom separating the magazine B from the coin-receptacle C.

$f$  represents a partition movable within the magazine B and around the back of which one of the cords  $d$  passes, the cord being supported in its position by the block F.

$g$  is a casing separating the magazine B from the coinway, of which it forms one side.

The purpose of the partition  $f$  is to compress the contents of the magazine toward the casing  $g$  in order that when one of the articles is delivered the next adjacent article will be in a position for delivery on the next operation of the machine. The delivery-slide consists of a movable rod  $h$ , having a cross-bar  $i$  a little longer than the inside width of the receptacle B, so that the ends of the bar are contained in vertical grooves  $k$ , formed in the inner sides of the back and front  $a$  and  $a^2$ , respectively, of the case. Connected to the lower end of the rod  $h$  is a ratchet-bar L, having either one or a series of teeth  $l'$ . I find it advisable to employ only two teeth  $l'$ , one to engage the bolt when the ratchet-bar is in its lowest position and the other as a safety-catch in the event of the rod not descending all the way.

$m$  is a rectangular groove in which the rod  $h$  slides up and down and of sufficient depth to contain the rod, so that the face of the rod is flush with the face of the casing  $g$ .

In the top of the false bottom  $e$ , adjacent to the casing  $g$ , is a rectangular groove  $n$ , permitting the cross-bar  $i$  to drop into it, so that when the delivery-slide is in its lowermost position the top of the cross-bar will not be above the level of the top of the false bottom  $e$ . Projecting outwardly through a vertical slot  $q$  in the front of the case is a plate  $p$ , fastened to the upper end of the rod  $h$ , and con-



nected to the outer end of the plate *p* is a knob or handle *o* for the purpose of moving the rod *h* vertically in the case.

*r* represents a coinway located between the casing *g* and the end piece or outer casing of the compartment or the casing *g* and the stationary partition between two adjacent compartments. The upper end of the coinway is in communication with the slot *S* in the lid *D*, and directly beneath the slot *S* is a downwardly-inclined cross-bar *T*. The coin after entering the slot *S* rolls down the cross-bar *T*, to the end of the same, and then passes between the inclined side *u* and the perpendicular side *v* of the coinway to the two wheels *w* *X*, between which it passes. The wheel *w* is stationary and is mounted on a pin *W'*, projecting from the end of the coin-receptacle. The wheel *X* is fastened to a pivoted lever *y*, which oscillates on a pin *y'*, projecting from the plate *Z*, which plate is adjustably fastened to the end of the compartment by means of clamping-screws *Z'*, passing through the slots *Z''* in the plate *Z* and entering the adjacent partition of the coin-receptacle.

1 represents a bolt or crank-shaft longitudinally movable in bearings *1<sup>b</sup>*, connected to the under side of the false bottom *e*, having its front end *1<sup>a</sup>* crank-shaped.

2 represents a curved spring one end of which is fastened to the under side of the false bottom *e* and the other end of which rests in a hole in the end of the bolt or crank-shaft 1 to normally hold the bolt or crank-shaft in its most forward position and at the same time to press the crank firmly into engagement with the teeth of the ratchet-bar *L*.

Projecting through the bolt 1 is a pin 3, horizontal to and at a suitable distance from the elbow of the crank to be engaged by the end of the lever *y*.

The perimeter of each of the wheels *w* *X* contains a V-shaped groove *V*. The plate *Z* can be so adjusted by means of the clamping-screw *Z'* that the distance between the two wheels when in their normal position will be a little less than the diameter of the operating-coin.

4 represents a spring fastened to the end of the cross-bar *i* and to the bottom of the front side *a<sup>2</sup>* to return the rod *h* to its lowest position after being raised by the handle *o*.

5 represents a slot in the lid *D* for the delivery of the contents of the magazine, and 6 represents a cover to close the opening 5, provided with pintles 7, journaled in the lid *D*.

8 represents a bent arm fastened to the cover 6, and 9 represents a flat spring one end of which is fastened by a screw 10 to the under side of the lid *D*, the other end of which, *9<sup>b</sup>*, is bent at right angles to the body of the spring. The spring 9 is contained in a recess 11 in the under side of the lid, and the bent end *9<sup>a</sup>* is of such a length that it does not project below the under surface of the lid when in its normal position. Near the end of the spring 9 is a rectangular slot 12,

through which the end of the arm 8 passes as the cover 6 opens. The end of the arm 8 normally rests on the top of the spring 9, and when the cover 6 is forced open by the delivery of the contents of the magazine it presses downwardly the spring into the open position shown in the drawings in order that the bent arm of the spring can engage the remaining portion of the contents of the magazine.

14 represents an opening in the front of the case to allow the contents of the magazine to be seen.

15 represents a door at the bottom of the coin-receptacle *C*, which may be fastened with a suitable lock. The lid *D* is attached to the back of the case by hinges 16 and may be fastened with a suitable lock.

The operation of the invention is as follows: By opening the lid *D* the compartments *B* of the magazine can be charged by placing the vendible articles between the movable partition and that end of the compartment toward which the partition is adapted to be drawn, the movable partition *f* being held back for that purpose. The lid *D* is then closed and fastened and the machine is ready to deliver the goods on each receipt of the operating-coins. When a coin is inserted in the slot *S*, it drops on the cross-bar *T*, rolls over its end, and down the inclined side *u* of the coin-chute until it reaches the testing-wheels *w* *X*. The momentum of the coin is such as to displace the oscillating wheel by forcing it outward from the stationary wheel and causing it to move the end of the lever *y* inward to engage the pin 3 and force the bolt or crank-shaft 1 back until its end is disengaged from the teeth of the ratchet-bar *L*. The spring 2 then causes the crank and bolt slightly to revolve and is kept from sliding forward by its end pressing against the inner side of the rod *h*, in which position it remains until the rod *h* is pulled up. After the coin is deposited the handle of the delivery-slide is pulled up and the one article resting on the cross-bar *i* is raised and delivered through the slot 5. As soon as the article is delivered through the slot 5 the cover 6 is closed by the spring 9. While the cover 6 remains open the bent end *9<sup>a</sup>* of the spring 9 is pressed into the article next adjacent to the one being taken out, thus rendering it impossible to rob the box by holding the cover 6 open and inserting a tool to withdraw the next adjacent article. The cover 6 must necessarily close again before the next article can be moved into a position to be delivered through the slot 5. Immediately the handle *o* is released the weight of the rod *h* and the spring 4 cause the rod to move into its lowest position, the teeth of the ratchet-bar *L* passing under the end of the bolt 1. The bolt 1 then revolves by means of the spring 2 until its end is engaged by one of the teeth of the ratchet-bar *L*. The bolt is held in this position by the spring 2 until another



coin is deposited, when the former action is repeated.

Disks of less diameter than the operating-coin will not operate the releasing mechanism, as they roll down along the inclined side and do not engage the wheel X with sufficient force and lateral pressure to move it so as to operate the mechanism, and thin disks of the same diameter as the operating-coin will not operate, as they drop through the grooves V in the perimeter of the wheels w and X.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In coin-controlled apparatus the combination of a bolt having both a sliding and a revolving motion, a spring to hold the bolt in its normal position and a push-rod to be engaged or locked by the bolt, substantially as described.

2. In coin-controlled apparatus the combination of a pivoted lever one end of which projects slightly within the coinway and operated by the momentum of a falling coin pressing it outward and a bolt with one end crank-shaped having both a sliding and a revolving motion to be engaged by the said lever, substantially as described.

3. In coin-controlled apparatus the combination of a push-rod, a bolt with one end crank-shaped having both a sliding and a revolving motion to engage the push-rod and a pivoted lever to engage the bolt, substantially as described.

4. In coin-controlled apparatus the combination of a push-rod, a ratchet on the push-rod, and a bolt with one end crank-shaped having both a sliding and a revolving motion to engage the ratchet, substantially as described.

5. In coin-controlled apparatus the combination of a push-rod, a bolt with one end crank-shaped having both a sliding and a revolving motion, a spring having tension in two planes to hold the bolt in its normal position and a lever to engage the bolt, substantially as described.

6. In coin-controlled apparatus the combination of a bolt with one end crank-shaped, having both a sliding and a revolving motion and a spring having a tension in two different planes to hold the bolt in its normal position, substantially as described.

7. In coin-controlled apparatus the combination of a coinway, a pivoted lever having one end projecting slightly within the coinway, and actuated by the momentum of the operating-coin, a bolt having both a sliding and a revolving motion actuated by the movement of the pivoted lever and a push-rod adapted to be engaged by the bolt, substantially as described.

8. In coin-controlled apparatus the combination of a coinway, a pivoted lever having one end mounted with a freely-turning wheel which projects slightly within the coinway, a V-shaped notch or groove in the perimeter of the wheel, and a bolt operated by the pivoted lever, substantially as described.

9. In coin-controlled apparatus the combination of a coinway, a pivoted lever with one end slightly projecting within the coinway, a notch or groove in the said end of the lever, and a bolt having both a sliding and a revolving motion to be engaged by the other end of the said lever, substantially as described.

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