

No. 881,089.

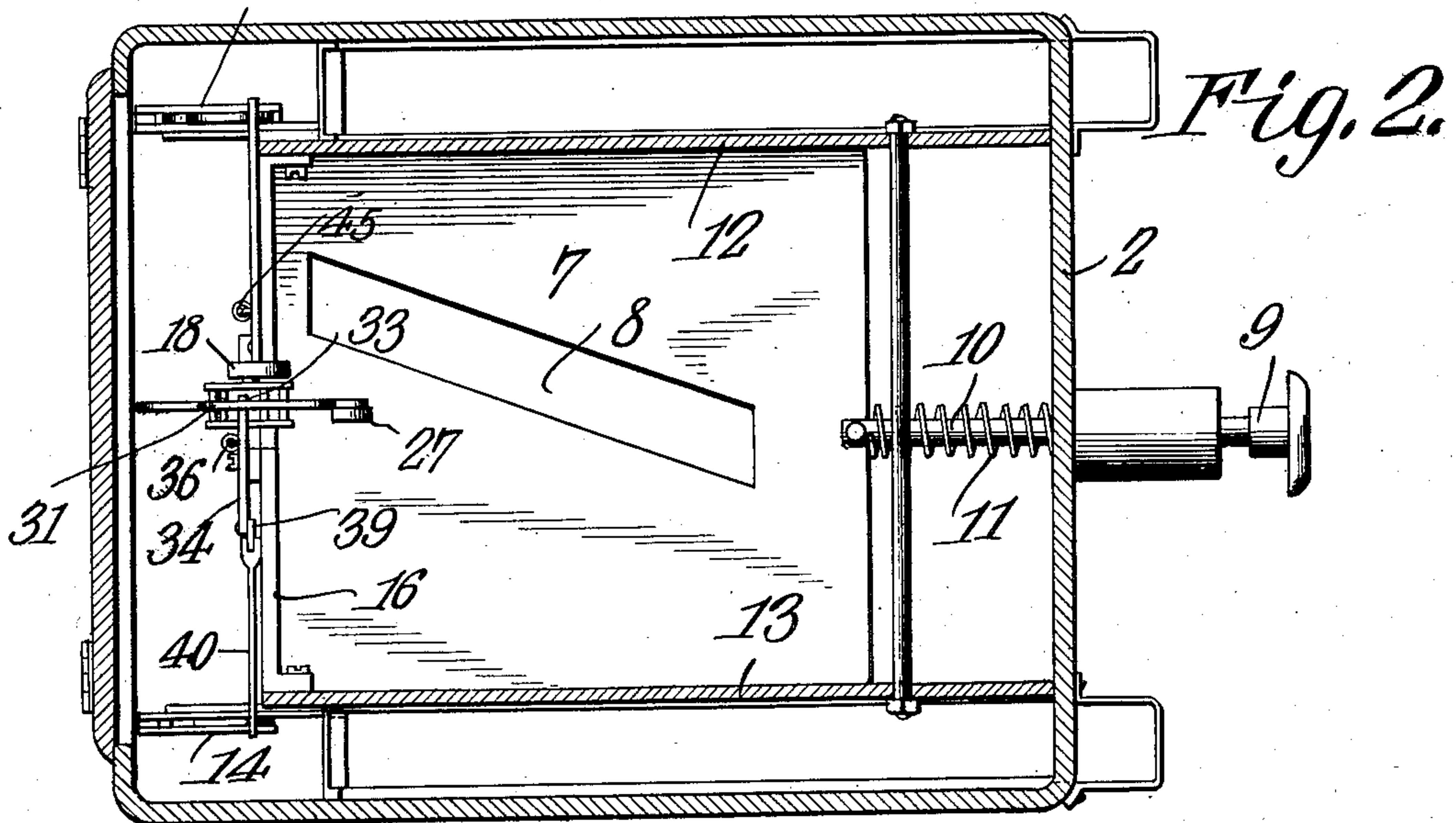
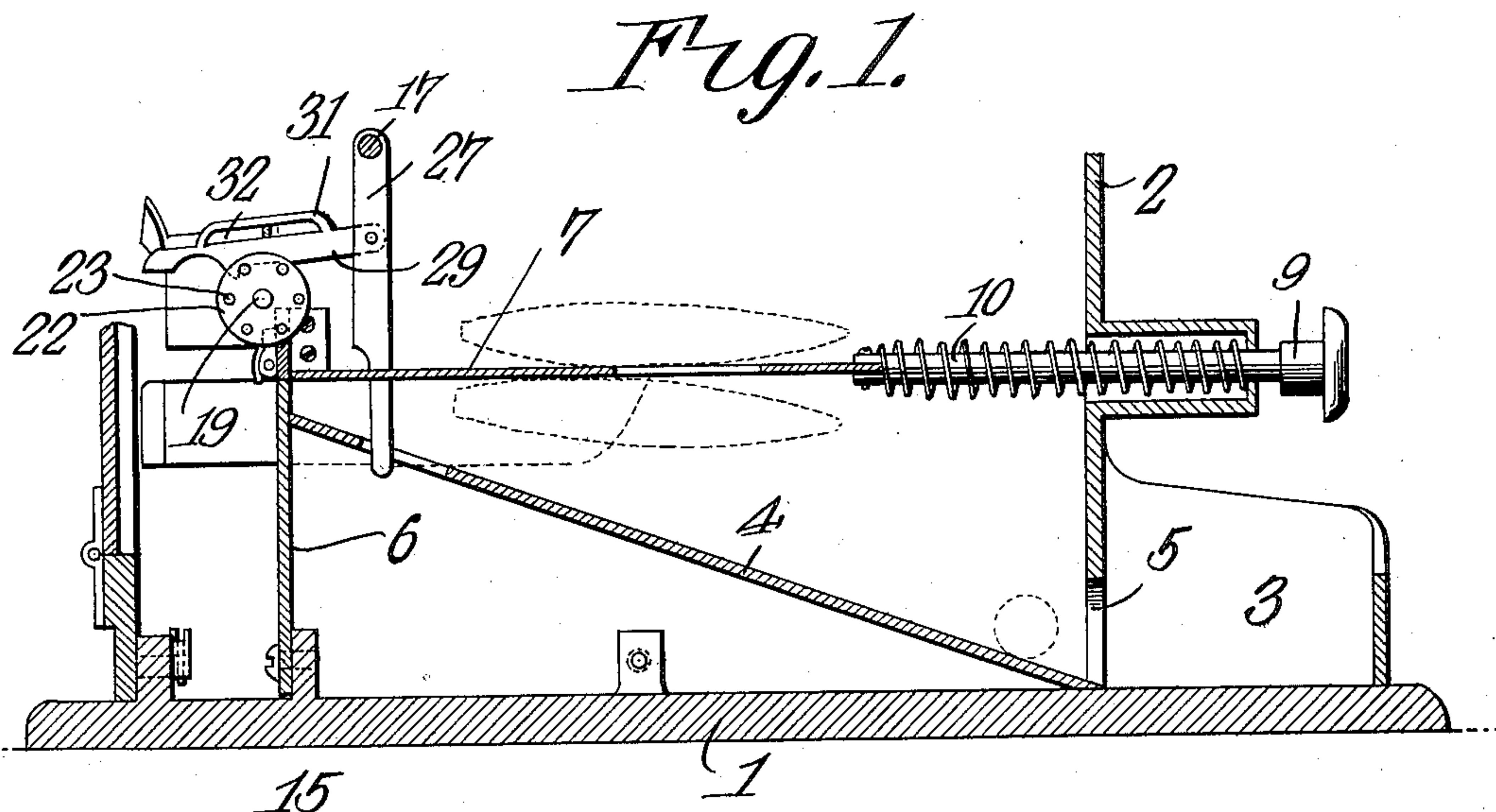
PATENTED MAR. 3, 1908.

L. A. VANDIVER.

COIN OPERATED MECHANISM FOR VENDING MACHINES.

APPLICATION FILED MAR. 1, 1907.

2 SHEETS—SHEET 1.



WITNESSES:

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2 SHEETS—SHEET 2.

Fig. 3.

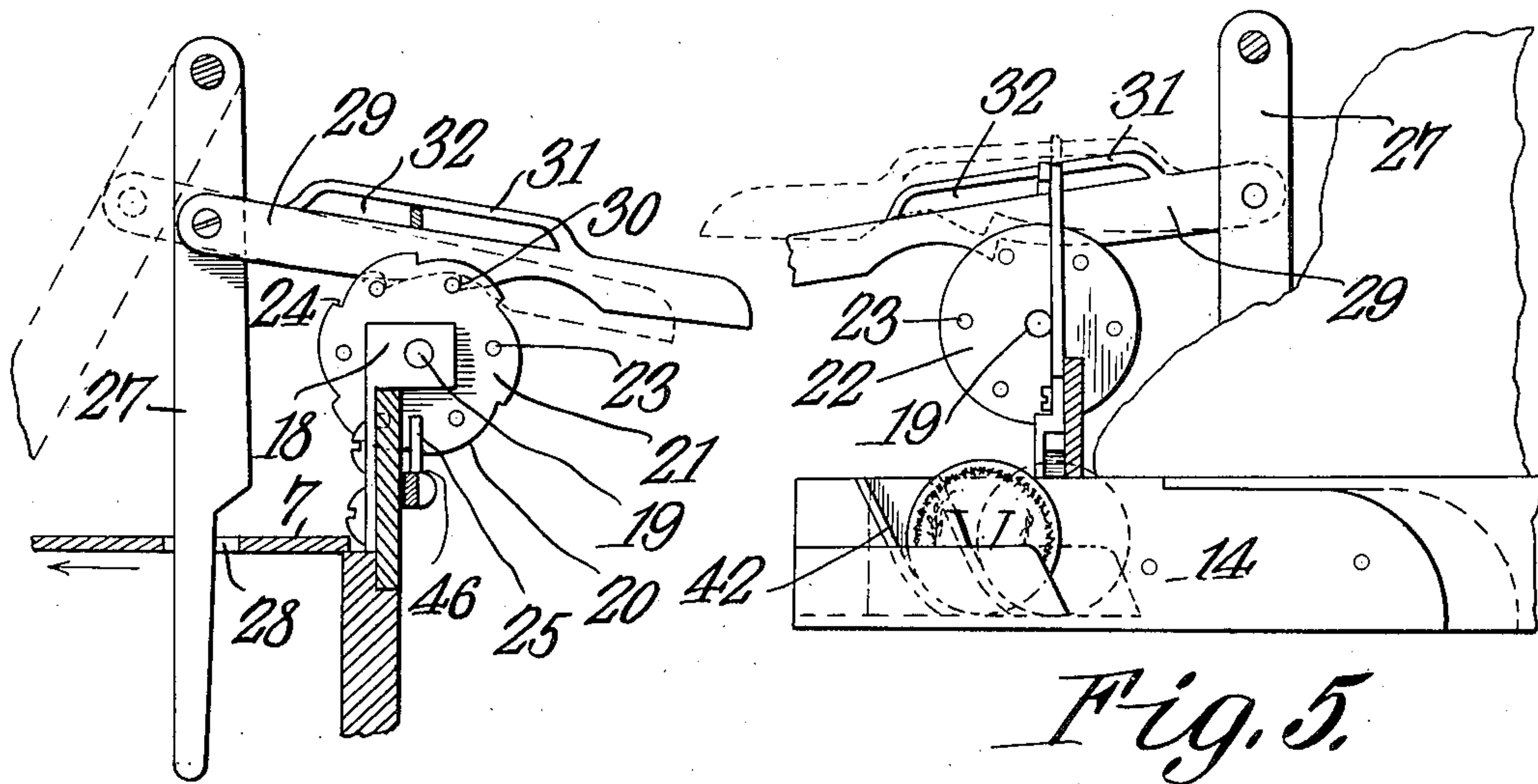
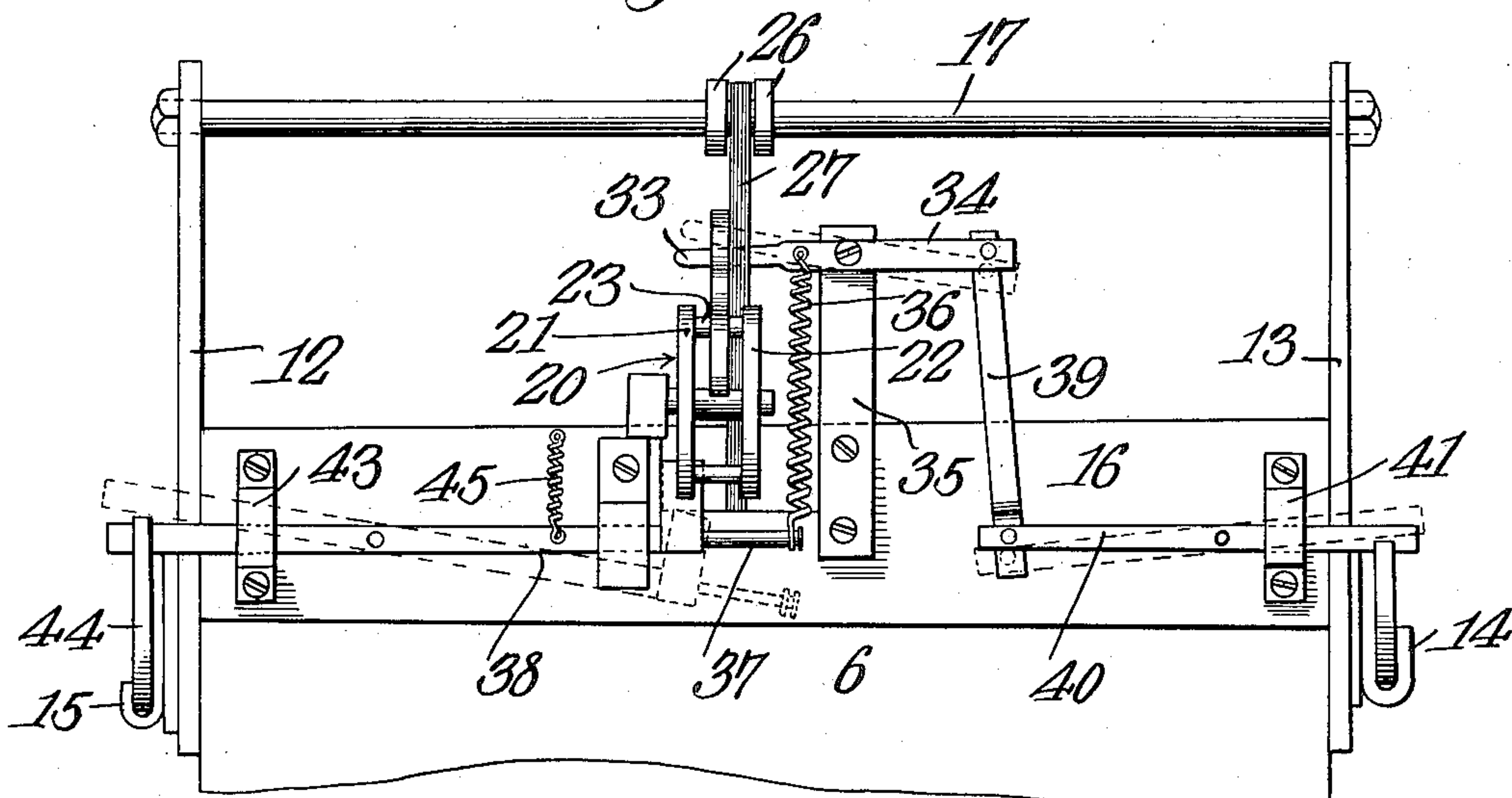


Fig. 4

Fig. 5.

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UNITED STATES PATENT OFFICE.

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COIN-OPERATED MECHANISM FOR VENDING-MACHINES.

No. 881,089.

Specification of Letters Patent.

Patented March 3, 1908.

Original application filed August 4, 1905, Serial No. 272,736. Divided and this application filed March 1, 1907. Serial No. 360,020.

To all whom it may concern:

Be it known that I, LESLIE A. VANDIVER, a citizen of the United States, residing at Hannibal, in the county of Marion and State of Missouri, have invented a new and useful Coin-Operated Mechanism for Vending-Machines, of which the following is a specification.

This invention has reference to improvements in coin-operated vending machines, and its object is to provide a simple and efficient means for causing a coin of proper predetermined value to unlock the article-delivery mechanism, and also to provide means whereby a coin of larger value will permit the delivery mechanism to be operated for a number of times in succession without the introduction of a coin for each operation.

The structure is intended more particularly for use with vending machines delivering, say one article for five cents and six articles for twenty-five cents, although any other combination of coins may be used and the coin-controlled mechanism may be adjusted for such other combinations.

To this end the invention consists of a lock for the delivery portion of a coin-controlled mechanism which is unlocked by the passage of a coin of proper value to permit the delivery mechanism to work once and then lock the same against further movement, and to also provide mechanism whereby the locking mechanism operated by the first-mentioned coin is itself released by a coin of larger denomination so that this lock will permit the delivery mechanism to be operated a predetermined number of times in succession before the lock again becomes active to prevent further manipulation of the delivery mechanism. All this will be apparent from the following description taken in connection with the accompanying drawings forming part of this specification, in which,—

Figure 1 is a longitudinal section through a portion of a vending machine provided with the improved locking mechanism and with all parts of the vending machine omitted except those immediately coacting with the coin-operated mechanism; Fig. 2 is a sectional plan of the same; Fig. 3 is a rear elevation of the coin-controlled mechanism; Fig. 4 is a side view, partly in section, of the

latch mechanism; and Fig. 5 is a similar view from the other side of the latch mechanism to that shown in Fig. 4.

The article-delivery mechanism has been omitted from the drawings since it forms no part of the present invention and is clearly shown in my Patent No. 853194, May 7, 1907, for improvements in vending machines, of which this application is a division, but I have shown in the drawings such parts of the article-delivery mechanism as coact directly with the coin-controlled lock for the same.

Referring to the drawings, and especially to Figs. 1 and 2, there is shown a base 1 on the front of which is secured a front plate 2 for the machine having formed at its lower end an article-delivery receptacle 3 into which the article delivered gravitates after falling upon an inclined partition 4 extending from an opening 5 leading into the receptacle 3 upward and backward to a partition 6 near the back of the machine. The inclined partition 4 is below a horizontal slide plate 7 in which is formed a diagonal slot 8 for the passage of the articles to be delivered, and this slide is capable of being moved toward the front of the machine by a handle 9 exterior to the machine and fast on a rod 10 connected to the front of said slide 7. This slide 7 is moved forward against the action of a spring 11 and when the handle 9 is released is returned by this spring to the initial position toward the back of the machine. This slide is mounted to move between two parallel partitions 12—13 near the two sides of the casing and outside of these partitions 12—13 are two coin slides or pockets 14—15 secured to and movable with the slide 7.

The mechanism thus far described is shown in my aforesaid patent and forms in itself no part of the present invention and is only described in order that the operation of the coin-controlled mechanism may be made evident. In fact, the coin-controlled mechanism *per se* may be used in connection with any suitable article-delivery mechanism although it is especially adapted for use with the article-delivery mechanism described in my aforesaid patent.

The coin-controlled mechanism which forms the subject of the present application

is best shown in Figs. 3, 4 and 5, and in the following description reference will be had more particularly to these figures, although the mechanism is also shown on a smaller scale in Figs. 1 and 2.

The partition 6 extends upward to a point about coincident with the slide 7 and there carries a laterally extending plate 16.

The side partitions 12—13 extend above this plate 16 and between them, and secured to them, extends a rod 17 the purpose of which will hereinafter appear. Secured to the plate 16 there is a bracket 18 carrying a pin 19 constituting a journal bearing for a barrel pinion 20 consisting of two end-plates 21—22 connected near their peripheries by a circular series of rods 23.

In the particular structure shown the coin-controlled mechanism is designed to be used for the delivery of articles, say cigars, where a single article will be delivered on the deposition in the machine of a five-cent piece and where six articles will be delivered in succession on the deposition of twenty-five cents, this being the customary manner of selling cigars.

The end-plate 21 of the barrel pinion has its periphery notched to form teeth 24 except that coincident with the location of one tooth there is formed a deep groove or notch 25, much deeper than the depth of any of the other teeth, for a purpose which will hereinafter appear.

Hung about midway of the bar 17 and confined from lateral movement by fixed washers 26 is a pendent locking arm 27, the lower end of which enters and passes through a slot 28 at the lower end of the plate 7, so that when this locking arm is held against movement the plate 7 is also held against movement and when the locking arm is released the plate 7 will be moved in the proper direction to cause the delivery of articles. Pivotally secured to this locking arm 27 is a pawl-bar 29 having formed on its lower edge a tooth 30 arranged to engage one of the rods 23 on the barrel pinion 20. This tooth 30 is located about midway of the length of the pawl-arm 29, so that a portion of the arm extends beyond the tooth, and to the rear of this tooth this arm is cut away for a purpose which will hereinafter appear.

The top of the pawl-arm 29 is formed with an offset 31 through which is a longitudinal slot 32 and this slot is provided for the reception of the end 33 of an operating lever 34 for the pawl-arm, this operating lever being of the first order and pivotally supported on the upper end of an upright 35 fast on the bar 16. The lever 34 is constrained to hold the pawl 29 normally in engagement with one of the rods 23 on the barrel pinion 20 by means of a spring 36 fast to said lever 32 between its pivotal point and the end 33 passing through the slot 32 on the pawl-arm.

The other end of this spring is secured to a pin 37 projecting from one end of a lever 38 to be hereinafter described.

The lever 34 has its outer end connected by a link 39 to one end of a pivoted bar 40, the other end of which overhangs the coin pocket 14 which is designed to receive the coin of smaller denomination, say in value equal to five cents. Since this bar 40 is liable to lateral strain it is held to the bar 16 by a bracket 41 which permits movement of the bar 40 around its pivot but prevents any lateral movement thereof such as would put the pivot under strain. Now, assuming that a five-cent piece has been dropped into the machine and deposited in the pocket 14 so as to engage the rear wall 42 of the same, a forward movement of this pocket will bring the upper edge of the coin under the end of the bar 40 in the path of said coin and the bar 40 will be turned on its pivot by the forward movement of the coin.

As seen from Fig. 4, the slot 28 is made sufficiently long to permit of a movement of the slide 7 to an extent which will permit the engagement of the upper edge of the coin with the said bar 40. The other end of the bar 40 will be depressed and through the link 39 depresses the corresponding end of the lever 34 and the end 33 of the latter will therefore be lifted and, in turn, will lift the pawl 29 so that its tooth 30 is out of the path of the rod 23 with which it was in engagement. The rear wall of the slot 28 in the slide 7 will now engage the lock lever 27 and pull the same inward with it. This carries the tooth 30 beyond the rod 23 with which it was in engagement. By this time the coin has passed from under the end of the bar 40 so that the parts are free to return under the action of the spring 36 to the normal position, but the portion of the pawl 29 to the rear of the tooth 30 resting on the rod 23 from which the tooth has just been released will prevent this return movement. For this purpose the pawl 29 is cut away just to the rear of the tooth 30, as before described, so that during the forward progress of the slide 7, lock lever 27 and pawl 29 the latter will be drawn downward by the spring 36 acting through the lever 34 and the tooth 30 will be brought into engagement with the next rod 23 of the barrel pinion 20, and the continued forward movement of the slide 7 is arrested.

The position the parts assume as the coin passes under the end of the bar 40 is shown in dotted lines in Figs. 3 and 5, while the position of the parts when the tooth 30 of the pawl 29 has reached the next successive rod 23 of the barrel pinion is indicated in dotted lines in Fig. 4.

It is to be assumed that the forward movement of the slide 7 has been sufficient to deliver the article for which the inserted coin paid, and when the knob or handle 9 is re-

leased the spring 10 will return all parts to the normal position and the pawl 29 will again engage behind the rod 23 with which it first engaged, thus locking the parts against movement until another coin has been inserted in the machine and the parts are again manipulated to unlock the slide and cause the delivery of another article.

Coming, now, to the other side of the locking mechanism where provision is made for the introduction of a coin of larger denomination so that a number of articles may be delivered in succession by the introduction of one coin, it will be observed that the lever or bar 38 is, like the bar 40, pivotally supported upon the plate 16 and is confined thereto by a yoke or bracket 43, while its outer end projects into the path of a coin 44 in the coin receptacle 15 located on the side of the machine opposite to that containing the coin receptacle 14. This lever 38 is held normally raised so that its outer end is in the path of the coin by a spring 45. The end of the lever 38 remote from the end engaged by the coin 44 carries a dog 46 so located as to engage in the deep groove or notch 25 constituting one of the teeth on the periphery of the end-plate 21. This dog 46 holds the barrel pinion from rotation in either direction when it is seated in the notch 25, so that any manipulation of the pawl 29 permitted by a coin in the coin receptacle 14 cannot turn this barrel pinion upon its axis. However, when a coin 44 of sufficiently large denomination is inserted in the coin receptacle 15, the lever 38 is moved on its pivot by the engagement of the upper edge of the coin under the said lever to such an extent that the dog 46 is withdrawn from the notch 25 and the continued forward movement of the slide 7 causes the tooth 30 of the pawl 19 to rotate the barrel pinion through an arc corresponding to the distance between the rods 23. The dog 46 now rides upon the periphery of the end-plate 21 and by the rotation of the barrel pinion has been brought into engagement with the next tooth 24 to the notch 25. The barrel pinion is thus held from reverse movement when the pawl 29 is returned to its initial position, so that the tooth 30 will then fall behind and engage the next rod 23 in order. The slide 7 is thus free to be manipulated a number of times in succession corresponding to the number of rods 23 in the barrel pinion until the notch 25 is again brought into the path of the dog 46, when the latter will be forced into said notch by the action of the spring 45 and the barrel pinion is locked against further rotation until another coin has been dropped into the machine.

From the foregoing it will be seen that by this invention I am able to provide a coin-operated mechanism whereby as many single articles as desired may be delivered by the

machine on the insertion of a coin of some predetermined value, or but one article at a time will be delivered on the insertion of a coin of another predetermined value, so that the machine is particularly adapted for use for the delivery of articles that are commonly sold for a certain sum per article and are usually sold in larger stated numbers for a less aggregate sum; for instance, articles that are sold for five cents apiece or six for twenty-five cents, or one cent apiece and six for five cents, or, if desired, one dozen for ten cents, and so on.

I claim:—

1. In a coin-operated vending machine, a rotatable plate having spaced peripheral notches or teeth, one of which is deeper than the others, and a lever having one end located in the path of a coin and at the other end provided with a dog arranged to engage in the deep notch on the plate and to be engaged by the peripheral teeth thereon, the construction being such that a suitable coin engaging the lever will move the dog out of the notch and the succeeding peripheral tooth will move the lever away from and release the coin.

2. In a coin-operated vending machine, a rotatable plate having spaced peripheral notches or teeth, one of which is deeper than the others, pins projecting from one face of the plate, a longitudinally movable pawl having a tooth constructed to engage the pins, means for delivering the articles, controlled by said pawl, and a lever having one end located in the path of a coin and at the other end provided with a dog arranged to engage in the deep notch on the plate and to be engaged by the peripheral teeth thereon, the construction being such that a suitable coin engaging the lever will move the dog out of the notch and the succeeding peripheral tooth will move the lever away from and release the coin.

3. In a coin-operated vending machine, a rotatable member provided with peripheral teeth and a radial notch coincident with one of the teeth, projecting pins on said rotatable member, a sliding pawl provided with a tooth in operative relation to the pins and connected to the article-delivery mechanism, a link-and-lever system under the control of an inserted coin engaging said pawl for lifting the same out of the path of the pins on the insertion of a coin of suitable size, and a lever having one end located in the path of a coin and at the other end provided with a dog arranged to engage in the deep notch on the rotatable member and to be engaged by the peripheral teeth thereon, the construction being such that a suitable coin engaging the lever will move the dog out of the notch and the succeeding peripheral tooth will move the lever away from and release the coin.

4. In a coin-operated vending machine, a

rotatable member provided with peripheral teeth and a radial notch coincident with one of the teeth, projecting pins on said rotatable member, a sliding pawl provided with a 5 tooth in operative relation to the pins and connected to the article-delivery mechanism, a link-and-lever system under the control of an inserted coin engaging said pawl for lifting the same out of the path of the pins on the in- 10 sertion of a coin of suitable size, a lever having one end located in the path of a coin and at the other end provided with a dog arranged to engage in the notch on the rotatable member and to be engaged by the peripheral teeth thereon, the construction being 15 such that a suitable coin engaging the lever will move the dog out of the notch and the succeeding peripheral tooth will move the lever away from and release the coin, and a 20 spring connecting the lever system controlled by one coin with the lever controlled by the

other coin for normally maintaining both coin-operated mechanisms in the locked or inactive position.

5. In a coin-operated vending machine, a 25 coin-controlled mechanism comprising a locking lever engaging the article-delivery mechanism, a pawl carried by said lever and movable longitudinally with the locking lever, a rotatable member engaged by and holding 30 said pawl, and a lever system under the control of an inserted coin for lifting said pawl out of engagement with the rotatable member.

In testimony that I claim the foregoing as 35 my own, I have hereto affixed my signature in the presence of two witnesses.

LESLIE A. VANDIVER.

Witnesses:

ANDREW ROSS,
TOM D. WILSON.