

No. 755,648.

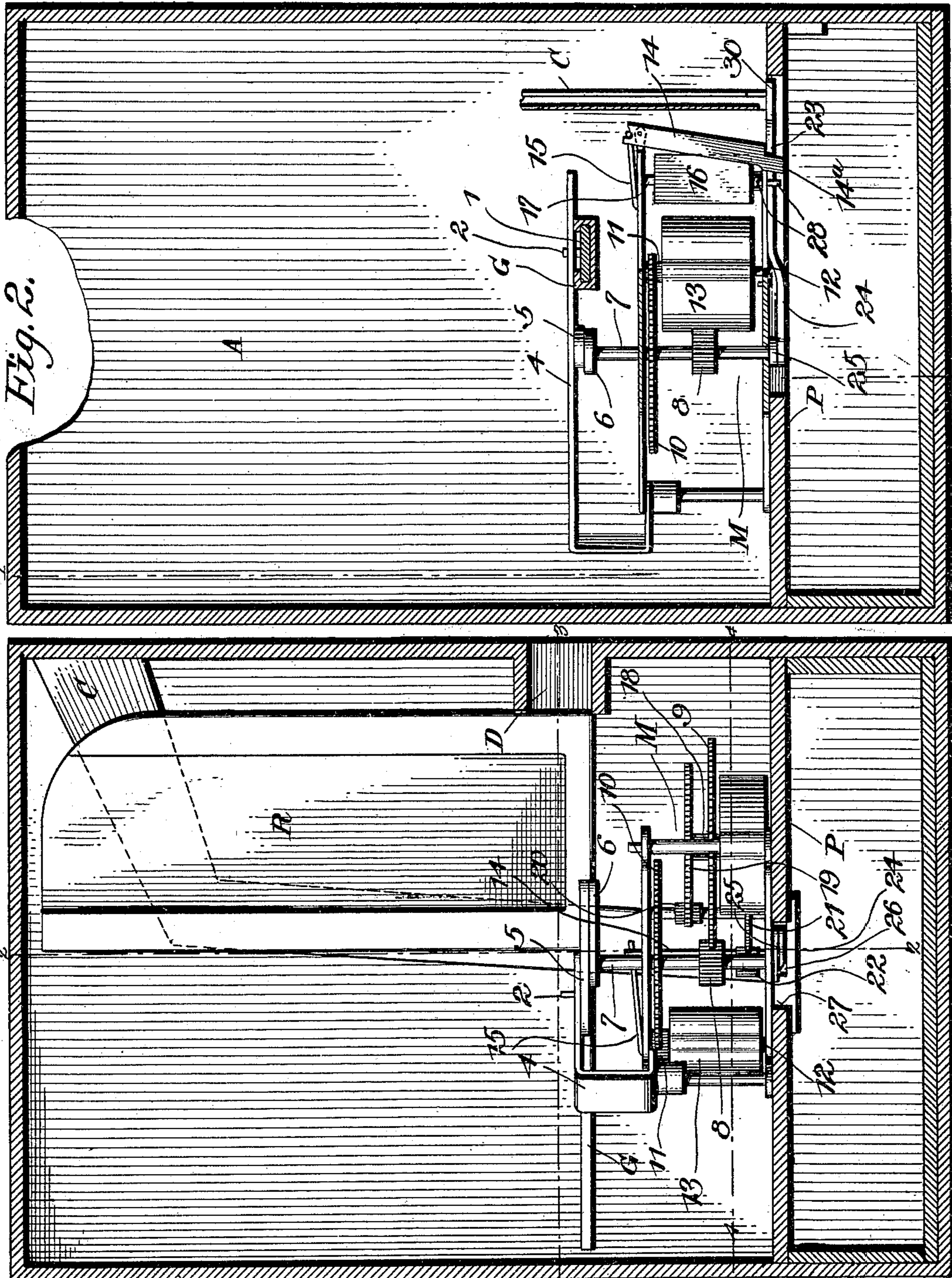
PATENTED MAR. 29, 1904.

G. W. GATES.
VENDING MACHINE.

APPLICATION FILED JUNE 15, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
E. J. Hewitt
Baxter Norton
Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 4.

A

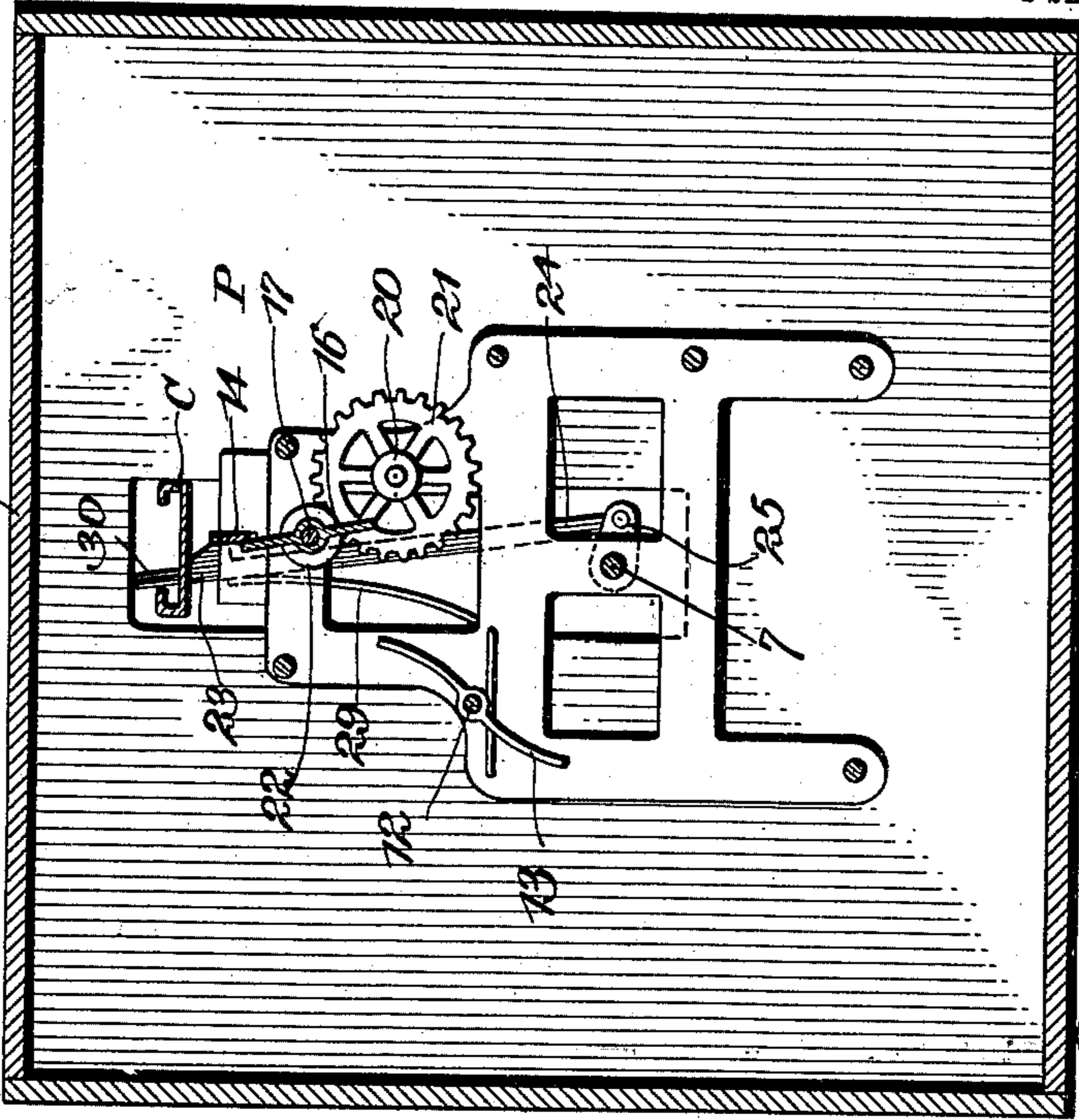


Fig. 3.

A

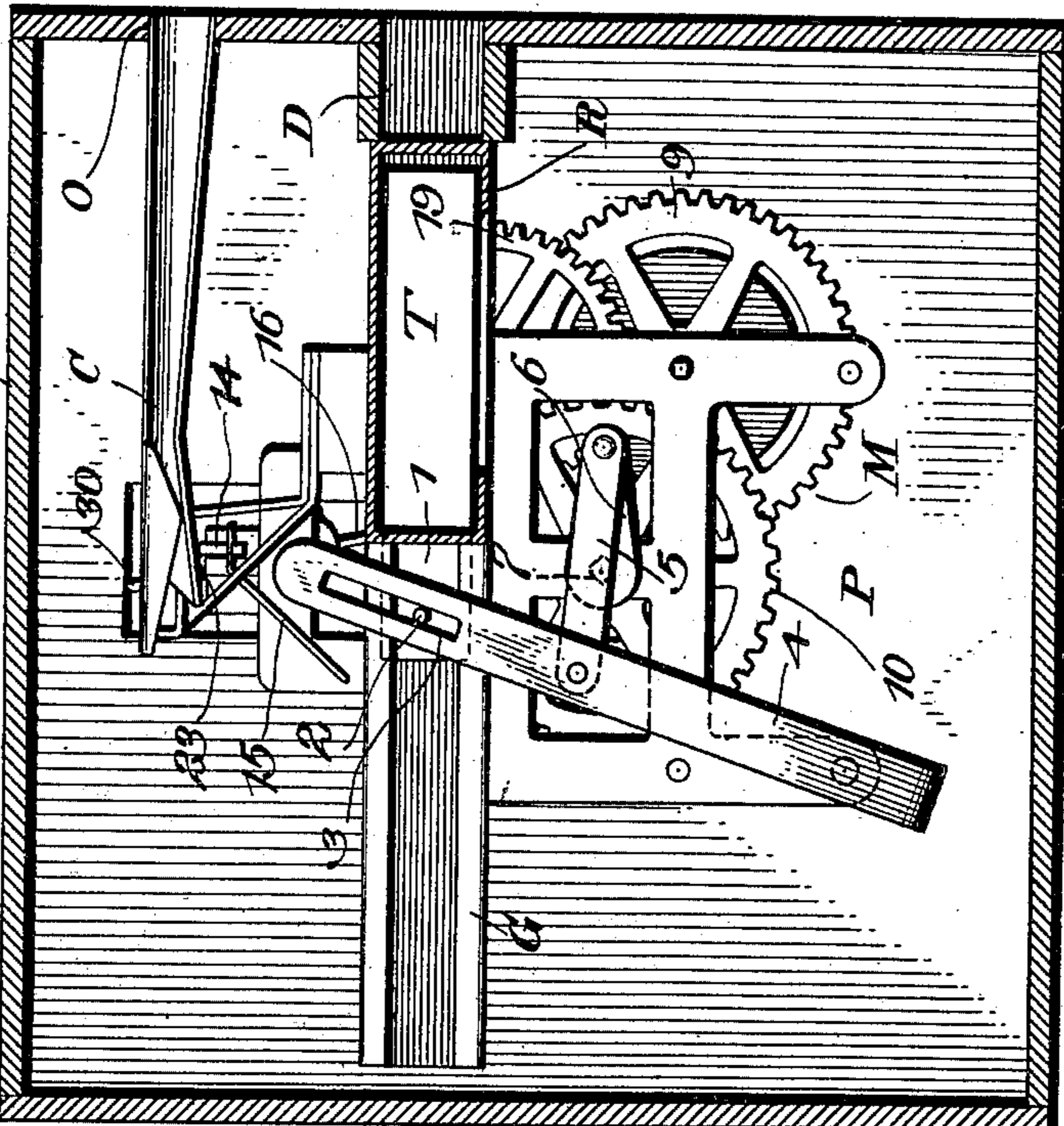
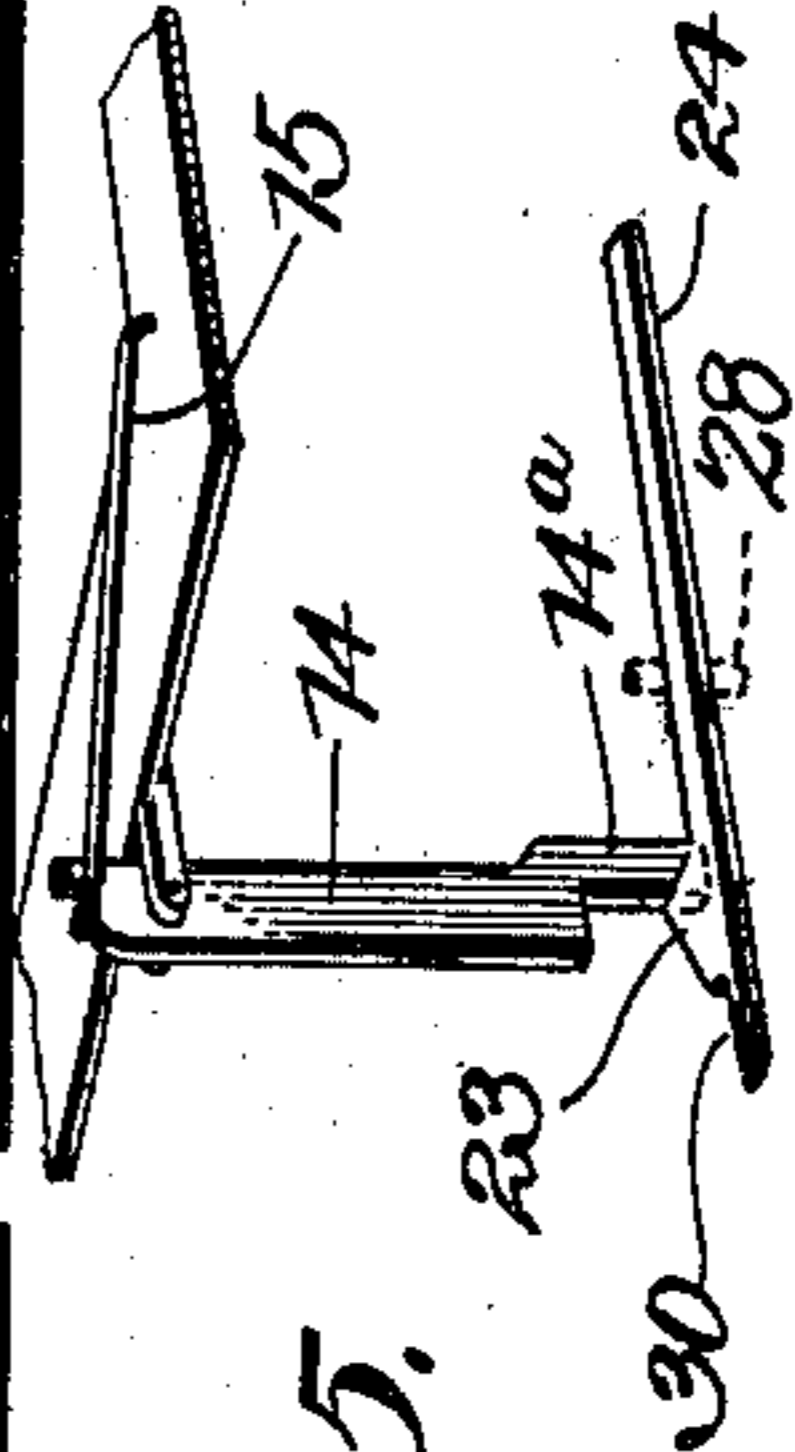


Fig. 5.



Witnesses

E. C. Stewart

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UNITED STATES PATENT OFFICE.

GIDEON W. GATES, OF DAVID CITY, NEBRASKA.

VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 755,648, dated March 29, 1904.

Application filed June 15, 1903. Serial No. 161,578. (No model.)

To all whom it may concern:

Be it known that I, GIDEON W. GATES, a citizen of the United States, residing at David City, in the county of Butler and State of Nebraska, have invented a new and useful Vending-Machine, of which the following is a specification.

This invention relates to vending-machines of the type in which the vending is effected by means of a motor which is normally kept stationary by means of a latch and which is set in operation by the release of the latch by dropping a coin or check into the machine.

The object of the invention is to provide a convenient machine of simple and durable construction and positive and efficient operation in which the susceptibility of the machine to operation by a shock or jar is reduced to a minimum and in which the mechanism for delivering the articles from the machine is so constructed as to positively prevent the removal of articles from the machine by means of a bent wire or other implement introduced thereinto.

With the objects above stated and others in view, which will appear as the invention is more fully disclosed, the same consists in the construction and combination of parts of a vending-machine hereinafter described and claimed, and illustrated in the accompanying drawings, forming a part of this specification, in which corresponding parts are designated by the same characters of reference throughout, it being understood that various changes in the form and proportions of the elements and their mode of assemblage and in other minor details may be made without departing from the spirit of the invention or sacrificing any of its advantages.

In the drawings, Figure 1 is a view in vertical section on the line 1 1 of Fig. 2. Fig. 2 is a view in vertical section on the line 2 2 of Fig. 1. Fig. 3 is a view in horizontal section on the line 3 3 of Fig. 1. Fig. 4 is a view in horizontal section on the line 4 4 of Fig. 1. Fig. 5 is a detail view in perspective of the trip and the latch controlled thereby.

Referring to the drawings by reference characters, A designates a suitable casing for the

vending mechanism of the machine, O indicating the opening leading into the coin-chute, and D the delivery-opening through which the articles vended by the machine are delivered by the mechanism presently to be described.

The machine is supported upon a horizontal partition P within the casing A, and comprises a motor, designated generally as M, a coin-chute C, and a receptacle R for the articles to be vended by the machine. At the bottom of the receptacle R is provided a horizontal guideway G, in which reciprocates a slide 1. The slide 1 is normally held in that portion of the guideway G which lies at the bottom of the receptacle R, so that the articles to be vended by the machine, which are preferably in the form of thin flat tablets T, rest upon the slide 1, which is of approximately the same width and thickness as one of the tablets T. At the rear of the slide 1 is provided a vertically-disposed stud 2, which extends through a longitudinal slot 3 in an arm 4, which is pivotally mounted upon the frame of the motor M. The arm 4 has pivotally connected therewith near its free end a link 5, which is also pivotally connected with an arm 6, rigidly secured upon the shaft 7 of the motor. The shaft 7 has fixed thereon a small gear 8, in mesh with a larger gear 9 on the main driving-shaft of the motor, and there is also mounted on the shaft 7 a large gear 10, which meshes with a small gear 11 upon a shaft 12, bearing a fly 13, which serves to retard the rotation of the shaft upon which it is mounted, and hence acts as a brake to limit the speed of operation of the motor. To hold the motor normally stationary, a latch 14, pivotally mounted at one side of the frame of the motor and having a spring 15, which tends to hold the latch in inoperative position, is held in the path of a fly 16, mounted on a shaft 17, to which motion is imparted from the gear 9 through a train of gears 18, 19, 20, 21, and 22, the last-named gear being fixed upon the shaft 17 beneath the fly 16. The latch 14 is provided at the lower end with a lug 14^a, which is adapted to be engaged by a lug 23 on a trip 24, which is carried by an arm 25, fixed to the shaft 7, at the lower end thereof. The lug 23 has one side thereof disposed

at right angles to the side of the trip, and the other side thereof is disposed at an oblique angle to the side of the trip for reasons which will hereinafter appear. The trip 24 is supported at the free end thereof in a slot 26 in a guide-plate 27, which is mounted on the under side of the motor-frame, and the lateral movement of the trip in the slot 26 is limited in one direction by the end of the slot and in the other direction by a downwardly-extending pin 28, which is fixed on the under surface of the guide-plate 27. The trip is normally held in contact with the pin 28 by a spring 29, mounted on the frame of the motor and pressing upon the trip near the free end thereof, as shown. The free end of the trip 24 projects through a slot in the coin-chute C and lies in the path of a coin descending the chute. When the coin passes down the chute, it engages the side of the trip, which projects into the chute and which is formed with an inclined surface 30, as shown, and forces the trip laterally a sufficient distance to disengage the lug 14^a, at the lower end of the latch 14, from the lug 23 on the trip-lever. When the lug 14^a is released, the latch 14 is swung on its pivot by the spring 15 and the fly 16 is released, so that motion may be imparted thereto through the train of gears 18, 19, 20, 21, and 22 from the main driving-gear 9. As soon as the fly-wheel 16 is set in motion movement is also imparted to the shaft 7 through the gear 8, in mesh with the main driving-gear 9, and also to the fly 12 through gears 10 and 11. The movement of the shaft 7 causes the arm 6 to revolve, carrying the arm 4 outward, and the arm 4 carries with it the slide 1, which moves outward far enough to permit the descent of the articles contained in the receptacle R until their further downward movement is stopped by the guideway G. The continued movement of the arm 6 then carries the arm 4 inward, taking with it the slide 1, which travels along the guideway G and forces the lowermost tablet T through the delivery-opening D. Along with the movement of the arm 5 and the consequent movement of the slide 1 in the guideway G to deliver an article through the opening D there is a revolution of the arm 25 at the lower end of the shaft 7, which causes the trip 24 to travel first inward, drawing the lug 23 along the side of the lug at the bottom of latch 14, and then outward until the lug 23 slides across the lug at the bottom of latch 14, and then inward again until the lug 23 contacts with the lug at the bottom of latch 14 and its inward movement is stopped. When the lug 23 engages with the lug at the lower end of latch 14 at the end of its second inward movement, the latch 14 will be swung on its pivot against the action of spring 15 and will be brought into the path of the fly 16, so stopping the movement of the fly, and consequently stopping the train of gears 18, 19, 20, 21, and 22 and also

stopping the main driving-gear 9, from which motion was imparted to the said train of gears. At the end of the movement of the motor the arm 4 will be in such position that the slide 1, actuated thereby, lies at the bottom of the receptacle R and the articles in said receptacle will rest upon the slide 1 and lie in a plane above the delivery-opening D. By so arranging the slide 1 and controlling its movement so that after the delivery of an article the slide returns to the position under the articles remaining in the receptacle the possibility of removing any of the articles by means of an implement inserted through the delivery-opening D is prevented, for no movement of the slide rearward along the guideway G can be brought about until the trip 24 is released and the motor is set in operation.

The motor, it will be observed, has its spring under greatest tension at the time when the delivery of articles from the vending-machine begins, and consequently is then best adapted to overcome the friction resulting from the pressure downward upon the slide 1 of the articles T in the receptacle R. As the motor gradually runs down and the tension of its spring diminishes, the weight of the articles resting upon the slide 1 will diminish correspondingly, so that less power from the motor is necessary to effect the delivery of articles from the machine.

The coin-chute C is made tortuous, as shown, to prevent the operation of the machine by passing a wire down the coin-chute to engage the trip, and the possibility of operating the machine by means of a coin of improper denomination is prevented by placing the trip-lever at the side of the coin-chute, where it will not be engaged by a coin of smaller size than that which is intended to be used in operating the machine.

The machine is intended primarily for the delivery of small articles, such as tablets of candy or chewing-gum, and when constructed in sizes suitable for handling such articles pennies will be the coins used in operating the machine. When so used, the prevention of the operation of the machine by means of coins of improper denomination is unnecessary; but as the machine may also be used to deliver other articles—such, for example, as cigars—by merely changing the form of the slide and the delivery-opening it is desirable to construct the machine in such manner that the operation thereof by means of coins of improper denomination may be effectively prevented.

By placing the trip near the base of the machine, where it is most solidly supported and best adapted to resist shocks or jars, and by using a spring to hold the trip in contact with the pin 28 to limit the lateral movement thereof the possibility of operating the machine by blows and causing it to deliver articles therefrom without the introduction of a coin into the slot is reduced to a minimum.

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

1. The combination of a motor, a latch adapted to engage a member of said motor, a spring adapted to hold said latch out of operative position, and a trip operatively connected with said motor and adapted to engage said latch to draw it into operative position.

2. The combination of a motor, a latch pivotally mounted on the frame of said motor and adapted to engage an element of said motor to stop its movement, a spring adapted to hold said latch out of operative position, and a trip connected with said motor and adapted to engage said latch to draw it into operative position.

3. The combination of a motor, a latch adapted to engage an element of said motor to stop its movement, a spring engaging said latch and adapted to hold it out of operative position, a trip mounted for lateral and longitudinal movement and connected with said motor, and a spring engaging said trip and holding it normally in position to engage said latch and draw it into operative position.

4. The combination of a motor, a latch adapted to engage an element of said motor to stop its movement, a spring engaging said latch and adapted to hold it out of operative position, a trip operatively connected with said motor and mounted for lateral and longitudinal movement, a spring engaging said trip and holding it normally in position to engage said latch to draw it into operative position, and a stop to limit the lateral movement of said trip under the action of said spring.

5. The combination of a motor, a latch adapted to engage an element of said motor to stop its movement, a spring engaging said latch and adapted to hold it out of operative position, a trip having on one side thereof a lug one face of which is inclined so as to slide over said latch and another face of which is disposed at right angles to the side of the lug to engage said latch, said trip being mounted for longitudinal and lateral movement, and a

spring engaging said trip and holding it normally in position to cause the lug thereon to engage said latch and draw it into operative position.

6. The combination of a motor, a latch adapted to engage an element of said motor and stop its movement, a spring engaging said latch and adapted to hold it normally in inoperative position, a trip operatively connected with said motor and having a lateral lug adapted to engage said latch, a spring engaging said trip and holding it normally in position for the lug thereon to engage said latch, and a coin-chute so placed that the trip extends across one side thereof in position to be engaged by a coin passing down the chute and thrown out of engagement with said latch by the action of the coin.

7. The combination of a motor, a latch adapted to engage an element of said motor to stop its movement, a spring engaging said latch and adapted to hold it normally out of operative position, a coin-chute having a notch in one side thereof, a trip operatively connected with said motor and provided with an extension having a cam-surface which lies in the notch of said coin-chute and having a lug for engagement with said latch to draw it into operative position, and a spring engaging said trip to hold it normally in position for the lug thereon to engage said latch.

8. The combination of a motor, a latch to engage an element of said motor to stop its movement, a spring adapted to hold said latch normally in inoperative position, a revolving arm on said motor, a trip carried by said arm, and a spring engaging said trip and holding it normally in position to engage said latch and draw it into operative position.

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

GIDEON W. GATES.

Witnesses:

ELDON R. LONG,
E. J. DWORAK.