(No Model.) 3 Sheets—Sheet 1.

E. T. GILLILAND.

VENDING MACHINE.

No. 443,254. Patented Dec. 23, 1890.

FIG. 1.

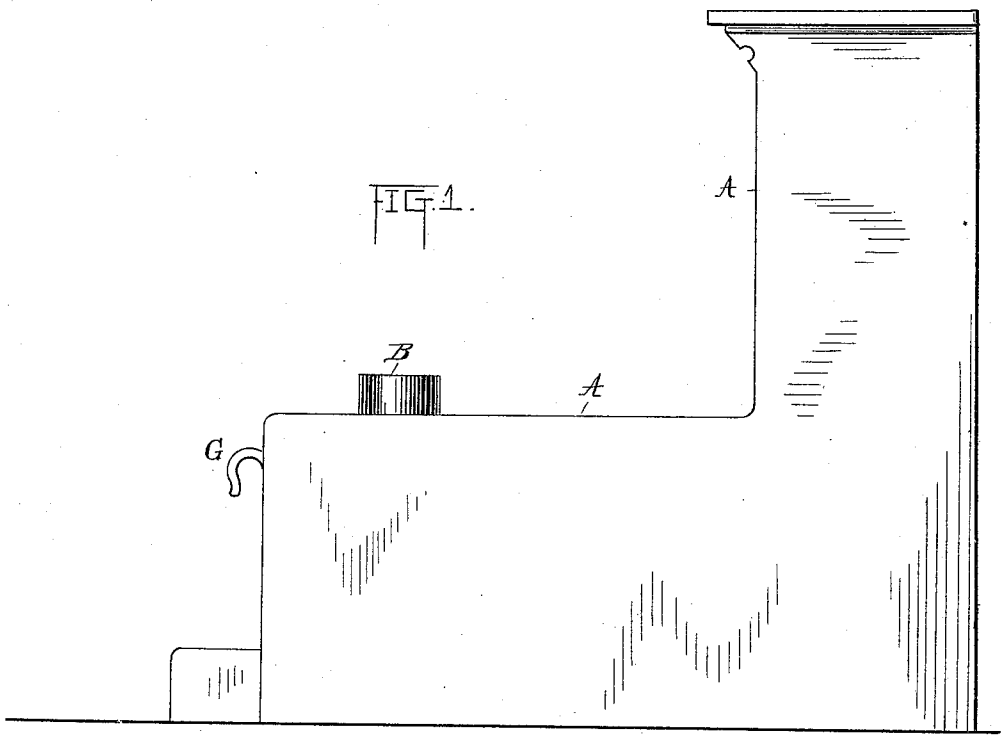
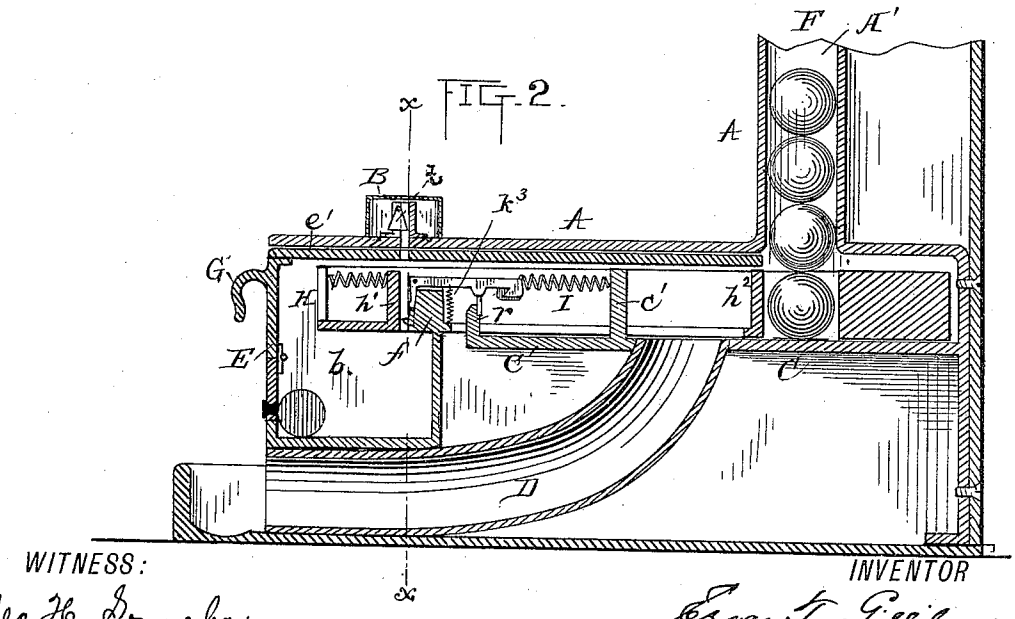


FIG. 2.



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(No Model.) 3 Sheets—Sheet 2.

E. T. GILLILAND.

VENDING MACHINE.

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FIG. 3.

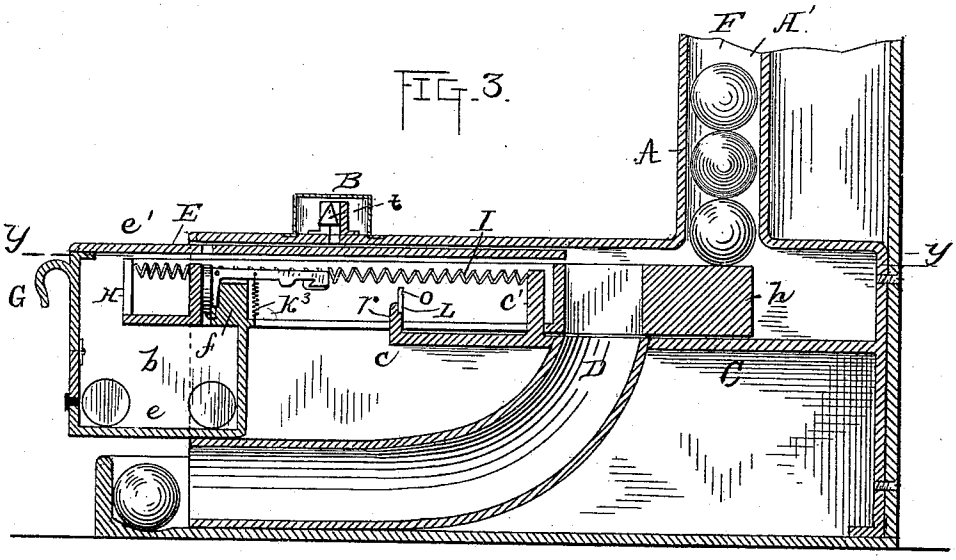


FIG. 6

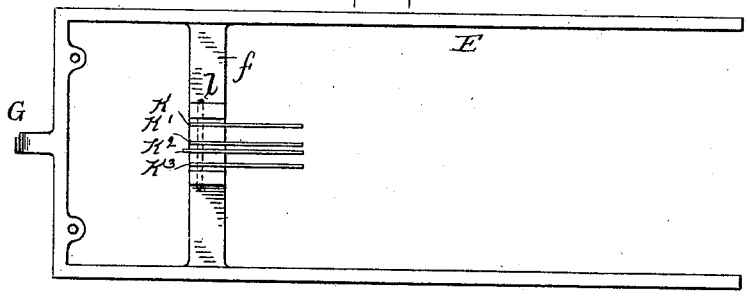
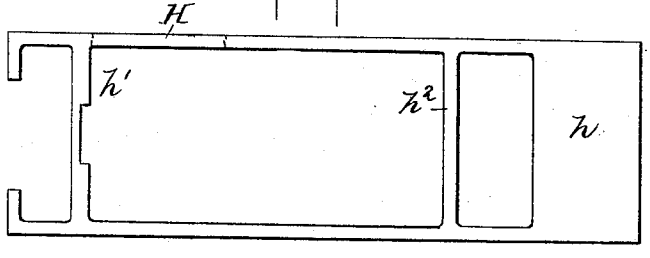


FIG. 7.



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3 Sheets—Sheet 3.

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VENDING MACHINE.

No. 443,254. Patented Dec. 23, 1890.

FIG. 4.

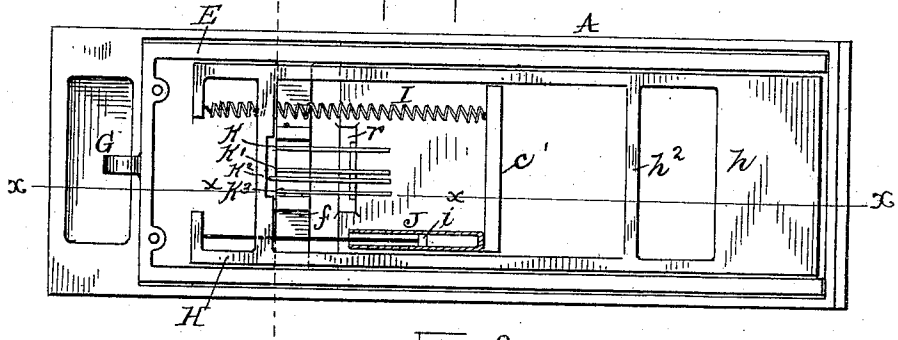


FIG. 8

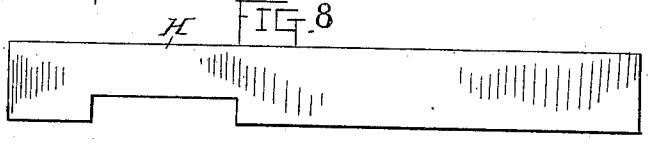


FIG. 9.

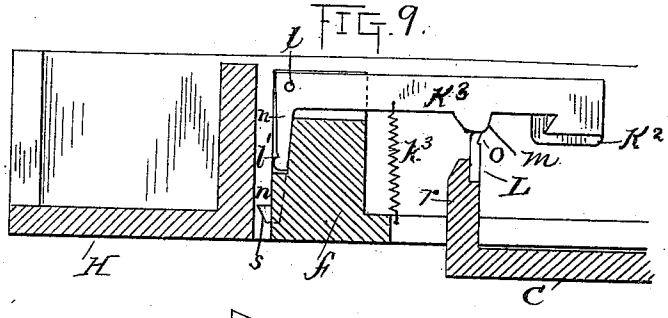
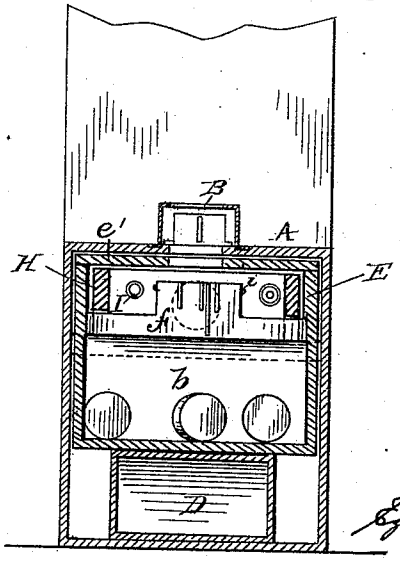


FIG. 5.



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UNITED STATES PATENT OFFICE.

EZRA T. GILLILAND, OF NEW YORK, N. Y., ASSIGNOR TO THE AUTOMATIC PHONOGRAPH EXHIBITION COMPANY, OF NEW YORK.

VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 413,254, dated December 23, 1890.

Application filed February 17, 1890. Serial No. 340,775. (No model.)

To all whom it may concern:

Be it known that I, EZRA T. GILLILAND, of New York city, in the county and State of New York, have invented certain new and useful Improvements in Vending-Machines, of which the following is a specification.

The object of my invention is to produce a vending-machine which will remain normally locked and adapted to be released by the insertion into it of a piece of money, so that an article may be delivered by it to the operator or purchaser; and it is particularly the object of my invention to produce a locking and releasing device, forming part of the machine, which shall only be capable of being released by the insertion into the machine of the proper desired coin; and my invention consists of the novel devices and combination of parts shown and described.

In the accompanying drawings, forming part hereof, Figure 1 is a side view in elevation of my vending-machine. Fig. 2 is a vertical section taken through the center of the machine or through line X X of Fig. 4, showing the position of the parts when the machine is locked. Fig. 3 is a view similar to Fig. 2, but showing the position of the parts when the machine is unlocked. Fig. 4 is a top view through line Y Y of Fig. 3. Fig. 5 is a cross-section taken through line X X of Fig. 2, looking from the front of the machine. Fig. 6 is a top view of the tray for holding the money, showing the connection therewith of the locking device. Fig. 7 is a plan view of the tray into which the articles to be delivered fall. Fig. 8 is a view of one side, both sides being the same, of the tray shown in Fig. 7. Fig. 9 is a sectional view of the locking and releasing device.

A is a case which incloses the parts of the machine. A′ is the reservoir which contains the article to be delivered, and B is a cylindrical receptacle into which the coin is inserted and through which it passes in contact with the locking device. From the back of the case extends a partition or bottom C, which supports the trays, and this bottom extends from one side of the case to the other, but not the entire length of the case, and carries the lug r, extending about half-way up and also about half-way across on each side of the center, as shown in Fig. 4, and there is also on this bottom C, forming part of it, another lug or partition c', which rises nearly to the top of the trays and extends from side to side thereof. There is also a slot or opening in this bottom or partition C, which may extend from side to side, or about the dimensions of the chute D, through which the article to be delivered—for instance, a piece of chewing-gum—passes.

E is the box or tray shown in Fig. 6, which has a bottom e, extending only a portion of its length, as shown in Fig. 3, forming the compartment b, into which the money drops. This tray has a cover e', which extends over about two-thirds of its length, or to the delivering-chamber F of the machine. (See Fig. 2.) To the front of this compartment b is connected a hook or handle G, which is intended to be grasped by the hand to draw the tray E out. From side to side of this tray and cast with it extends a cross-bar f, which is of the shape shown in Fig. 5, and to this cross-bar are attached the locking-levers, which are pivoted thereon, as shown. This tray is held in position between the top of the case A and the top of the chute D, upon which chute the bottom of the compartment b rests, and between these two surfaces the tray slides in and out.

H is a box or tray cast as shown in Fig. 7, and this tray rests or slides within the tray E. Its inner end h is made solid, as shown in Figs. 2 and 3, and when the machine is locked one of the articles to be delivered rests upon it, and there are two partitions h' h^2, which extend from side to side of this tray, (shown in Fig. 7,) the partition h' being cut out or mortised the exact size of the predetermined coin desired to release the machine, as will be hereinafter explained, and the extreme outer ends of the sides of the tray are bent inwardly, as shown, to which other parts of the machine are connected. To the partition c' of the bottom C is attached one end of a spring I, and the other end of this spring is attached to the outer bent end of one of the sides of the tray H, and this spring passes through an opening in the partition h of this

tray. To the other side of the partition c' is rigidly connected a compression air-chamber J, in which slides a piston rod and head i, the other end of which rod being connected to the outer bent end of the other side of tray H, and this piston-rod also passes through an opening in the partition h' in this tray. (See Fig. 4.) In order that the tray H may slide unimpeded within the tray E, its sides are cut out, as shown in Fig. 8, so that they may pass over the cross-bar f, which extends from side to side of the tray E, but, as before stated, does not extend to the top of the tray, and is, besides, cut away on each side, as shown in Fig. 5. Thus, as will be seen, the two trays rest upon the partition or bottom C in the case A, and although each of these trays has a number of parts or partitions cast with it they are so constructed and arranged that one may slide within and without the other unimpeded.

The mechanism which I have invented for locking the machine, and which is to be released by the insertion into the machine of a suitable coin in contact therewith, is shown in section in Fig. 9, and consists of three or more elbow-levers K K′ K^2 K^3, (four being shown in the drawings,) which are pivoted at their elbows on a spindle or shaft l on the cross-bar f on the tray E, as before stated. The levers K K′ K^3 are exactly alike, and each of the arms on each one of them has a rounded lug or projection l' on its lower end. The arm n of the lever K^2 is a little longer than the arms on the other levers and terminates in the projection or stop s at its lower end, on which the coin that has been dropped into the machine falls. To each of the levers between the pivotal point and their outer ends is attached a spring similar to the spring k^3, shown in the drawings, (see Fig. 9,) attached to the lever K^3, and the tension of these springs is downward, the lower ends thereof being connected to the cross-bar f of the tray E.

L is a plate or fixed stop connected with the partition c on the bottom or partition C, against which one of the free ends of each of these levers strikes and is held thereby, and this stop has its upper edge notched at one side at o and the other side made rounded, and this stop is in length or extends at least the distance between the extreme side edges of the levers K K′ K^2 K^3, or some other kind of a fixed stop could be used. As will be seen by the drawings, Fig. 9, each of said levers has a projection m notched out on its under side, the lower edges of these projections being slightly rounded, and these projections normally rest upon the top of the stop L, and Fig. 9 shows the position of the levers resting on the stop L before the tray is moved. The extreme outer ends of these levers are notched, so that when they fall or are drawn down by the springs and drawn over to the left or to the front of the machine they will strike against the stop L and lock the machine, which is thereby prevented from being operated or used. The lever K^2 also has a projection m on its under side, the same as the other levers, near its outer end, as before stated; but the extreme outer end is not cut out, as the other levers are, but is a little longer or wider than the other levers and extends slightly below them and has both its inner and outer edges rounded. To the case A directly above these levers is attached the cylindrical receptacle B, into which the coin is first dropped and through which it passes, and this receptacle is so placed that the coin will pass through it on a straight line, so as to fall directly upon the stop or lug s on the bottom of lever K^2.

The operation of the machine is as follows: A coin—for instance, a five-cent nickel piece—is inserted into the slot in the top of the cylinder B, and will pass therethrough down in front of the levers K K′ K^2 K^3, between them and the partition h' of the tray H, which, as before stated, has been cut out the exact size of the coin desired to operate the machine, (see Figs. 3 and 7,) and the coin will fall directly upon the lug s on the bottom of lever K^2, and will also come in contact with the lugs l' on the arms n of the levers K K′ K^3. The hook or handle G is then grasped by the hand and pulled out, which draws out the tray E, and the cross-bar f on this tray will strike against the partition h' on the tray H, drawing it out with the tray E, and the solid back portion h of the tray H will strike against the article to be delivered, which is resting upon the partition C, as shown in Fig. 2, carrying it over, so that it will drop down into and through the chute D, as shown in Fig. 3, and may then be taken out by the operator. The tray E and also the tray H, which is moved by it, are prevented from being drawn out entirely from the case A by the partition c' on the partition C, against which the partition h^2 of the tray H strikes, (see Fig. 3;) but of course these trays cannot be moved unless the coin which has been inserted into the machine is the proper coin, for the reasons to be hereinafter explained, for, as will readily be seen, all three of the levers K K′ K^3 must be held in the position shown in Fig. 2, else the machine will lock, and in which position the levers normally are as before stated—that is, when the coin is resting on the stop s, in contact with the lugs l', the coin will be held in the space between these lugs and the partition h', and the arms n cannot therefore move forward or upward, thus preventing the outer ends of these levers from dropping down behind the fixed stop L; but the projections m on these levers will ride over this stop, as will also the extreme outer ends of these levers. If for any reason one of the levers did not ride over the fixed stop L, the machine would be locked—that is, the coin must be a solid coin, for even though it be of the requisite thickness and diameter if it had a hole in the center, like a washer, it would

not come in contact with one of the lugs on the bottom of one of the arms *n;* but this lug would pass through the hole of the coin, permitting the arm *n* of this particular lever to move forward and upward, which would enable the outer end of this lever to drop down behind the fixed stop L, since, although by a slight forward movement of the levers the projections *m* on their under side would slide over this stop, it would fall by its own weight, and also be drawn down by the spring *k*, connected to it, and its outer end would strike against the fixed stop, as explained, thereby locking the machine. As will be noticed, the arm *n* of the lever K^2 upon the stop *s*, on which the coin strikes, is placed one side of the center. Hence if the coin inserted be of too small diameter, even though a solid coin, when it strikes upon the stop *s* on lever K^2 it will be thrown to the opposite side, and therefore will not come in contact with the outer lever on the other side, which would still lock the machine, or if the coin were too thin it would not prevent the outer ends of the levers K K′ K^3 from dropping down behind the stop L, and thereby lock the machine—that is, when no coin or a too thin coin is dropped into the machine a slight movement of these levers will cause the projections *m* on their under sides to slide off the stop L, and the spring connected with them will draw these arms down, and instead of their extreme ends riding over the stop L they will drop down behind it and lock the machine. Thus it will be seen that it will be almost impossible with my locking device to operate the machine and procure the article which it delivers with a counterfeit coin of any kind; and Fig. 9, as before stated, shows the position of the locking-levers resting upon the stop before the tray E is moved, and this would also be the position of the levers if the proper coin were in the machine, and thereby enabling these levers to ride over the fixed stop. The coin that has been dropped into the machine and resting upon the stop *s* of the lever K^2 will subsequently be thrown into the money-box, since, as before stated, the outer end of lever K^2 extends slightly below and in advance of the other levers and will first strike the stop L, thereby elevating that end of the lever and moving the arm *n* thereof backward and upward, thereby throwing or permitting the coin to drop into the money-box, and in case a counterfeit coin has been dropped into the machine upon the stop *s* on lever K^2 it will also be thrown into the money-box, without, however, releasing the machine, in the same manner just explained, since the projection on the outer end of the lever K^2 will strike the fixed stop and in attempting to ride over it will tilt the inner end and throw off the coin into the money-box. When the tray E has been pulled out to its desired length, it must be returned, and this, preferably, before the article to be delivered can be procured, and this is accomplished by means of the spring I, which is connected with it at one end and at the other end to the partition *c′* on the bottom C, which spring has been extended in drawing out the tray E, so that as soon as the hook or handle G is let go or released this tray will be returned, as well as all the other parts of the attachment, to their original position, the extending of the spring in drawing out the tray storing up power to return it; but in order to prevent the tray E and the other parts connected with it and operated by it from being returned too quickly or too forcibly by the spring I the air-compression chamber J and piston-rod *i* (shown in Fig. 4) are employed—that is, when the tray E has been pulled out one end of rod *i*, being connected with it, is also pulled out within the chamber J, and when the handle G is let go, as just explained, and the spring I starts back, carrying the tray E, the piston-rod will also return within the chamber J against the pressure of the compressed air within it, and the tension of the spring will therefore be against this pressure, and the tray E will therefore be returned with a regular and uniform speed to its starting or original position. I do not, however, limit myself to the particular device shown and described for storing up power with which to return the tray and the locking mechanism, or the particular device shown and described for regulating the speed of the return of these parts; but any other devices which will accomplish these results I can employ without departing from my invention.

In order to prevent a person from operating the machine by a coin and receiving the article which it delivers and withdrawing the coin from the machine by attaching a string to it and pulling it out, I employ a device shown in Fig. 2, which consists of a triangular piece of metal *t*, which is pivoted at one of its corners or angles within the cylinder B at any desired point, so that one of its other corners or angles will extend across the path which the coin takes in traveling through this cylinder, but which piece of metal is pushed to one side by the falling coin; but as soon as it has passed through the cylinder the piece of metal *t* will return to its former position across the path of the coin, and should an attempt be made to pull the coin out the coin will strike against this metal plate and thereby be prevented from being withdrawn, as will be readily understood.

What I claim as my invention is—

1. In a vending-machine which remains normally locked and adapted to be released by a coin, a locking and releasing device which consists of one or more levers and a fixed stop, one of the ends of said lever or levers being adapted to engage with said fixed stop to lock the machine, but over which fixed stop said lever or levers ride when drawn out after a suitable coin has been inserted into the machine in contact with the other end of said lever or levers, substantially as set forth.

2. In a vending-machine which remains

normally locked and adapted to be released by a coin, a locking and releasing device which consists of one or more levers carried by a sliding tray and a fixed stop, on which stop said lever or levers normally rest, and with which fixed stop one of the ends of said lever or levers is adapted to engage to lock the machine, but over which stop said lever or levers ride when said tray is drawn out after a suitable coin has been inserted into the machine in contact with the other end of said lever or levers, substantially as and for the purpose set forth.

3. In a vending-machine which remains normally locked and adapted to be released by a coin, a locking and releasing device which consists of one or more levers carried by a sliding tray and a fixed stop, one of the free ends of which lever or levers being adapted to engage with said fixed stop to lock the machine, but over which fixed stop said lever or levers ride when said tray is drawn out after a suitable coin has been inserted into the machine in contact with the other end of said lever or levers, substantially as and for the purpose set forth.

4. In a vending-machine which remains normally locked and adapted to be released by a coin, a locking and releasing device which consists of a lever and a fixed stop, one of the ends of which lever being adapted to engage with said fixed stop to lock the machine, but over which fixed stop said lever rides when drawn out after a suitable coin has been inserted into the machine in contact with the other end of said lever, and a stop or projection on said lever upon which the coin drops and rests and from which it is stripped or thrown by the riding of the other end of said lever over the fixed stop, substantially as set forth.

5. In a vending-machine which remains normally locked and adapted to be released by a coin, a locking and releasing device which consists of one or more levers and a fixed stop, one of the free ends of said lever or levers being adapted to engage with said fixed stop to lock the machine, but over which fixed stop said lever or levers ride when drawn out after a suitable coin has been inserted into the machine in contact with the other end of said lever or levers to release the machine, and a stop on one of said levers upon which the coin drops and rests and from which it is tripped or thrown by the riding of the other end of said lever over the fixed stop, substantially as set forth.

6. In a vending-machine which remains normally locked and adapted to be released by a coin, a locking and releasing device which consists of the levers K K′ K^2 K^3 and a fixed stop L, with which stop one of the free ends of said levers is adapted to engage to lock the machine, but over which stop they ride when drawn out after a suitable coin has been inserted into the machine in contact with the other end of said lever or levers to release the machine, substantially as set forth.

7. In a vending-machine which remains normally locked and adapted to be released by a coin, the combination, with the trays E and H, constructed as shown and described, of the locking and releasing device, which consists of the levers K K′ K^2 K^3, carried by said tray E, and a fixed stop L, with which stop one of the free ends of said levers is adapted to engage to lock the machine, but over which stop they ride when drawn out after a suitable coin has been inserted into the machine in contact with the other end of said lever or levers to release the machine, substantially as set forth.

8. In a vending-machine which remains normally locked and adapted to be released by a coin, the combination, with the trays E and H, constructed as shown and described, of the locking and releasing device, which consists of the levers K K′ K^2 K^3, carried by said tray E, and a fixed stop L, with which stop one of the free ends of said levers is adapted to engage to lock the machine, but over which stop they ride when drawn out after a suitable coin has been inserted into the machine in contact with the other end of said lever or levers to release the machine, and a device to return the parts of the machine to their original normal position after they have been moved, substantially as set forth.

9. A vending-machine which consists of the case A, bottom C thereof, the chute D, the trays E and H, and the cylinder B, arranged to operate substantially as described, in combination with a locking and releasing device, which consists of one or more levers carried by said tray E and a fixed stop, said lever or levers being so arranged that one of their free ends will engage with said fixed stop to lock the machine, and so that their other free ends will come in contact with a suitable coin when the same is dropped into the machine, and thereby enable the machine to be released, substantially as set forth.

10. A vending-machine which consists of the case A, bottom C thereof, the chute D, the trays E and H, the cylinder B, plate *t* thereof, and the locking and releasing device, which consists of the four levers K K′ K^2 K^3, having springs connected therewith, said levers being constructed and arranged to operate as described, fixed stop L, spring I, a compression-chamber J, and piston-rod *i*, all arranged and constructed to operate substantially as described.

11. In a vending-machine which remains normally locked and adapted to be released by a coin, the combination, with the case A and reservoir A′, of receptacle B, trays E and H, constructed and operating substantially as shown and described, the locking and releasing levers K K′ K^2 K^3, connected with tray E,

and each of said levers being constructed and arranged to operate substantially as described, having springs connected therewith, fixed stop L, with which said levers engage to lock the machine, but over which stop they ride when drawn out after a suitable coin has been inserted into the machine to release the machine, spring I, and chute D, all arranged and conducted to operate substantially as described.

This specification signed and witnessed this 31st day of January, 1890.

EZRA T. GILLILAND.

In presence of—
E. L. WYMAN,
K. K. JENKINS.