

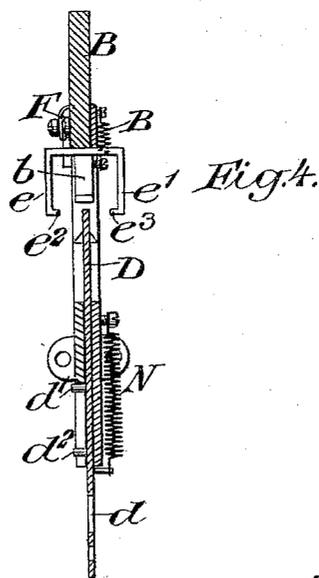
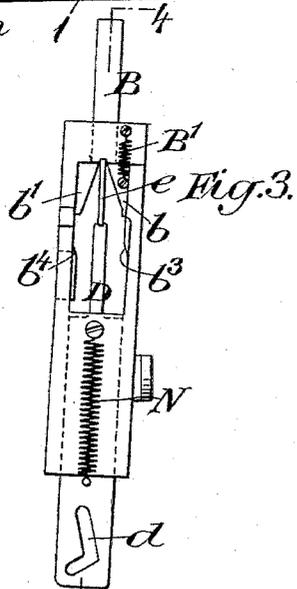
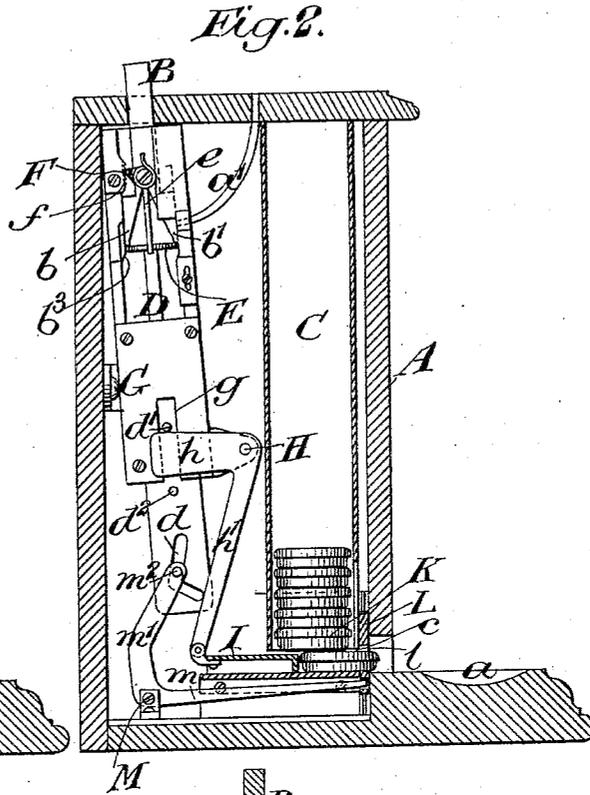
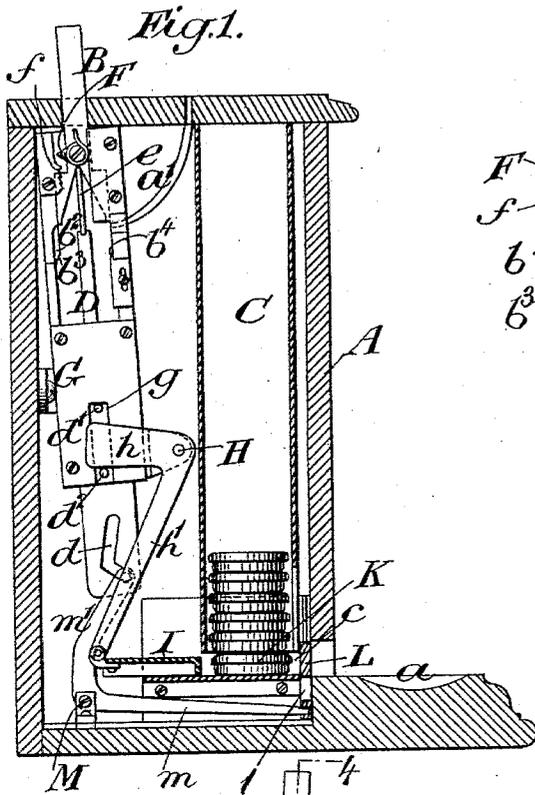
(No Model.)

2 Sheets—Sheet 1.

S. VAIL.
COIN CONTROLLED VENDING MACHINE.

No. 569,775.

Patented Oct. 20, 1896.



Witnesses:
George Barry, Jr. 4
R. S. Howard.

Inventor:
Stephen Vail
by attorneys
Brown & Howard

(No Model.)

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Fig. 6.

Fig. 1.

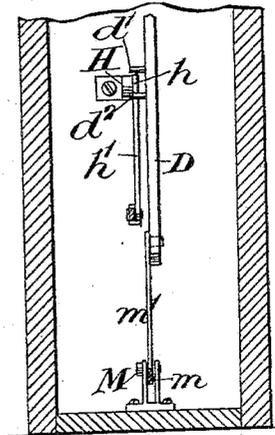
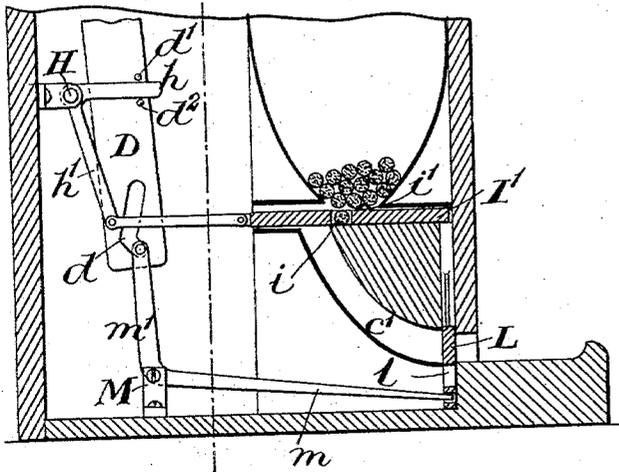
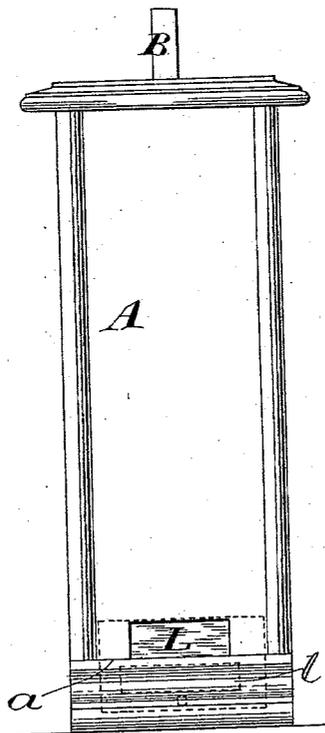


Fig. 5.



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UNITED STATES PATENT OFFICE.

STEPHEN VAIL, OF NEW YORK, N. Y.

COIN-CONTROLLED VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 569,775, dated October 20, 1896.

Application filed January 25, 1896. Serial No. 576,811. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN VAIL, of New York, in the county and State of New York, have invented a new and useful Improvement in Coin - Controlled Vending - Machines, of which the following is a specification.

My invention relates to an improvement in coin-controlled vending-machines in which the coin is utilized to lock the plunger to the push-rod for the purpose of operating the discharge mechanism, the object being to provide a simple and effective machine in which the coin will be permanently removed from its operative position the moment the plunger reaches the end of a predetermined movement and in which disks, other than the coin intended to be used, will be to a great extent prevented from operating the machine.

A further object is to provide means for closing the mouth of the discharge-chute intermediate of successive operations of the plunger to prevent unintentional interference with the operation of the machine.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 is a vertical section through the casing from front to rear, showing the operating parts in elevation and in normal position. Fig. 2 is a similar view showing the operating parts in the position which they assume when the article is about to be discharged. Fig. 3 is a view in detail, showing the operating parts exclusive of the discharge mechanism in elevation on the opposite side from that shown in Figs. 1 and 2. Fig. 4 is a view in detail, showing a transverse section through the parts represented in Fig. 3 along the plane of the line 4 4 of Fig. 3. Fig. 5 is a front view of the machine shown in Figs. 1 and 2. Fig. 6 is a vertical section from front to rear through the lower portion of the casing, showing the form and arrangement of the parts when the machine is adapted to dispense cigarettes or other similar packages in the shape of small cylinders; and Fig. 7 is a transverse section through the plane of line 7 7 of Fig. 6.

The casing (denoted by A) may be of any

desired form suitable for the housing of the operating mechanism and the articles to be dispensed, the object being to make the casing as small as consistent with the desired capacity of the machine for economizing space and expense.

In the present instance I have shown the operating-plunger B as projecting from the top of the machine, while the receptacle C, for holding the articles to be dispensed, is located at the front of the machine between the plunger and push-rod and the front of the casing, the discharge-chute *c*, leading from the said receptacle to the table *a*, projecting forwardly from the base of the machine.

The coin-chute *a'* leads from the top of the machine downwardly and finally curves in a direction to land a coin horizontally between the plunger B and the push-bar D.

The plunger B is developed at its inner end, where it engages the coin, into a pair of fingers *b b'*, separated from each other at such a distance that their ends will engage the coin of proper dimensions in proximity to its periphery, as clearly shown in Fig. 2. The coin (represented by E) is held in a position to be engaged by the fingers *b b'* by side guides *e e'*, having their free ends turned toward one another, as shown at *e² e²*, to prevent the coin from tilting either edgewise or forwardly out of position to be engaged, as aforesaid, by the ends of the fingers *b b'*. The coin is further held in position by a narrow ridge *b²*, fixed to the casing and having its lower end beveled, as shown at *b²*, to correspond with the bevel *b⁴* on the opposite side of the passage-way of the coin for the purpose of slipping the coin bodily edgewise out of engagement with one of the fingers *b b'* when the plunger has been moved a distance sufficient to perform the necessary operations. A spring-actuated dog F is pivoted to the plunger B in position to cause its nose to travel along a series of ratchet-teeth *f*, fixed to the casing, and prevent the return movement of the plunger B until the dog F has been carried past the series of ratchet-teeth *f*, which distance is so determined with respect to the coin-discharging bevels *b² b⁴* that the coin will be dis-

charged before the dog F has been carried past the lowermost tooth of the series *f*. When the dog F has been carried past the series of teeth *f*, it will be free to trail back over the series as the plunger is returned by its actuating-spring B'.

The push-bar D is so located with respect to the position which the coin is to occupy when engaged by the fingers *b b'* that the coin will bear centrally against the end of the push-bar D, and so long as the coin is engaged by the fingers *b b'* it will lock the push-bar to the plunger and cause the former to move, together with the plunger, to effect the discharge of the article, and in the present instance the additional operation of opening the gate to permit the article to be discharged, as follows:

The push-bar D is mounted in sliding bearings in a suitable plate G, fixed to the casing, and at its lower end is widened to permit the formation of an angular slot *d* therein for operating the gate. The plate G is provided with a recess *g* at its lower end for the reception of a pair of studs or pins *d' d''*, projecting laterally from the push-bar D in position to engage the short arm *h* of an angle-lever pivoted at H to the casing and having its longer arm *h'* connected loosely with a discharge-plate I, which normally occupies a position back of the lowermost of a column of articles K to be dispensed. The discharge-chute *c* is normally closed by a gate L, which has an opening *l* therein sufficiently large for the passage through the gate of one of the articles K. The gate L is loosely connected with the long arm *m* of an angle-lever pivoted at M and having its short arm *m'* provided with a stud or pin *m''*, which enters the angular slot *d* in the push-bar. The angular slot *d* is so formed with respect to the gate-operating lever that at the beginning of the downward movement of the push-bar the short arm *m'* of the lever will be thrown rearwardly and the long arm *m* thereby be lifted, carrying with it the gate L, so as to bring the opening *l* in the gate opposite the discharge-chute *c* to permit the article to be discharged. There is a little lost motion provided for between the pins or studs *d' d''* and the short arm *h* of the discharge-lever, so that the gate may be opened before the discharge-lever is operated by the continued downward movement of the push-bar. As soon as the gate is opened the lever which operates it will be held in position to hold the gate open by the upright portion of the angular slot *d*, while the long arm *h'* of the discharge-lever will be forced forwardly, carrying with it the discharge-plate I, to push the article K through the opening *l* in the gate onto the table *a*. The parts are so timed that this discharge of the article will take place just before the coin is crowded from in front of the plunger, which promptly (by the tilting of the coin when unsupported by one of the fingers *b b'*)

releases the push-bar from the plunger and permits the push-bar to return under the tension of its spring N, which return movement also withdraws the discharge-plate I to its normal position (shown in Fig. 1) and the gage to its normal closed position.

If the disk inserted be of less diameter than the coin which is intended to operate the machine, it will not be engaged by the ends of the fingers of the plunger and hence will fail to lock the plunger to the push-bar. If it be of soft metal, such, for example, as lead or tin, it will be bent by the pressure of the ends of the fingers against its margin before it operates the push-bar and will fail to lock the plunger to the push-bar. If it have a hollow center, it will be pushed by the plunger idly over the upper end of the push-bar without locking the two together and hence will not work the machine.

I have shown the plunger and push-bar arranged slanting in order that the coin may have no tendency to rebound out of its operating position. It is obvious, however, that the said plunger and push-bar might be arranged in a substantially horizontal position and the coin dropped directly into position between them, if so desired.

Where the form of package to be vended is that of a small cylinder, such, for example, as a cigarette, the arrangement of the parts may be slightly modified from that shown in Figs. 1 and 2, the form shown in Fig. 6 being an arrangement suitable for the purpose. In this structure the discharge-plate (denoted by I') is provided with a pocket *i* for the reception of one of the articles to be vended, and as the push-bar D is forced downwardly it will cause the discharge-plate I' to slide rearwardly and bring the pocket *i* over the discharge-chute *c'*, such reverse action of the plate I' being effected by simply reversing the lever *h h'* and by pivoting it upon the opposite side of the push-bar. The gate and its operating-lever will be opened and closed in this form in a manner quite similar to that already described.

The plate I' is provided with a rib or ridge *i'* on its upper side in proximity to the pocket *i* for the purpose of agitating the articles within the supply-receptacle and insuring the passage of one of them into the pocket *i*.

What I claim is—

1. The combination with a plunger, a discharge mechanism and a push-bar connected with the discharge mechanism, the plunger and the push-bar having their adjacent ends, the one forked and the other centrally located with respect to the said forked end, means for directing a coin into position between the said adjacent ends of the plunger and push-bar, and inclines in position to shift the coin edgewise out of engagement with one of the branches of the forked end, substantially as set forth.

2. The combination with a suitable casing

provided with a receptacle for the articles to be dispensed and a discharge-chute, of a reciprocating push-bar, a plunger adapted to be locked to and released from the push-bar
5 by a coin, a reciprocating discharge-plate, a gate for opening and closing the discharge-chute, and angle-levers connecting the gate

and the discharge-plate with the reciprocating push-bar controlled by the plunger and coin, substantially as set forth.

STEPHEN VAIL.

Witnesses:

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