

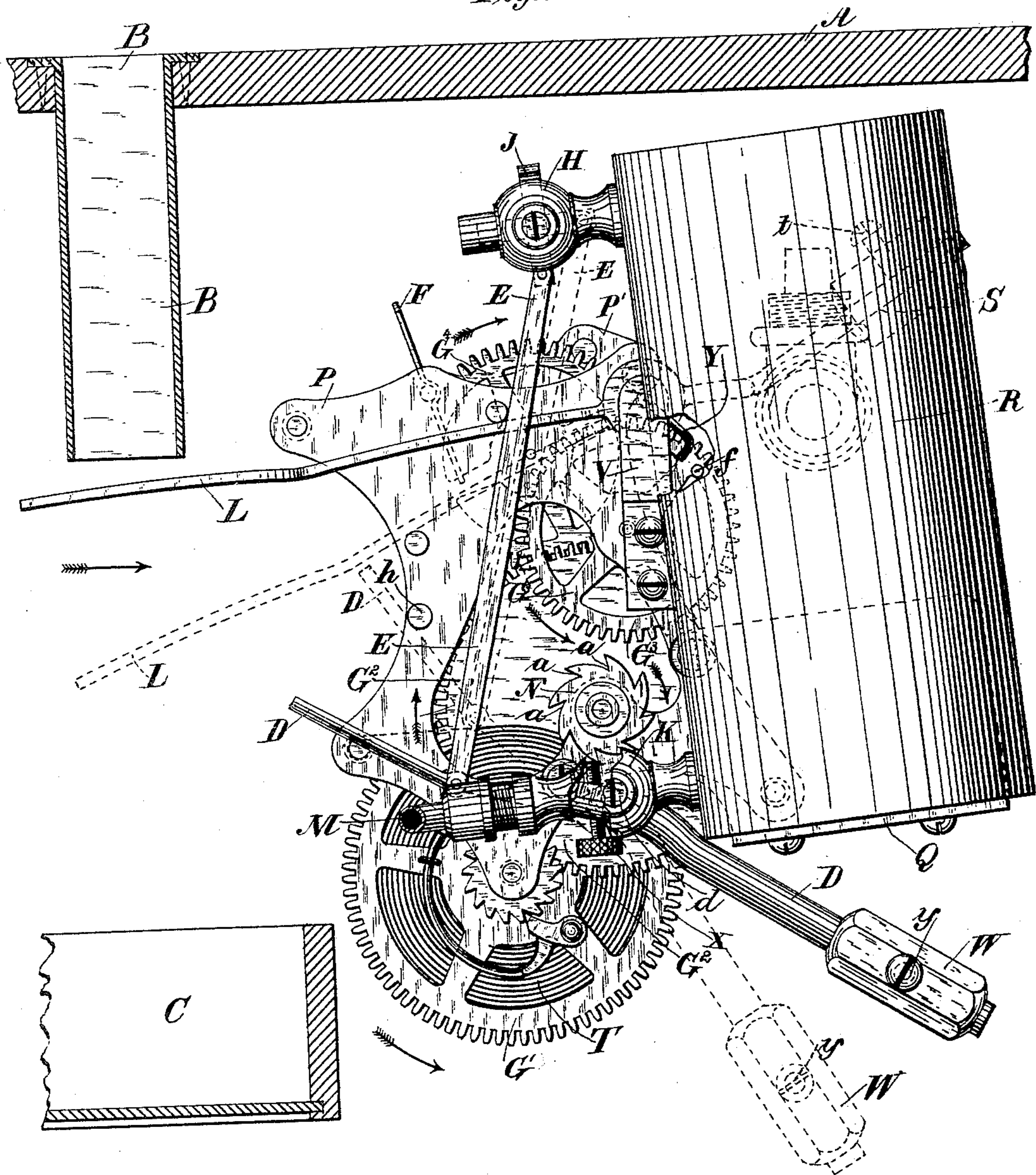
3 Sheets—Sheet 1.

F. W. SILKMAN.
VENDING MACHINE.

No. 454,407.

Patented June 16, 1891.

Fig. 1.



WITNESSES:

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(No Model.)

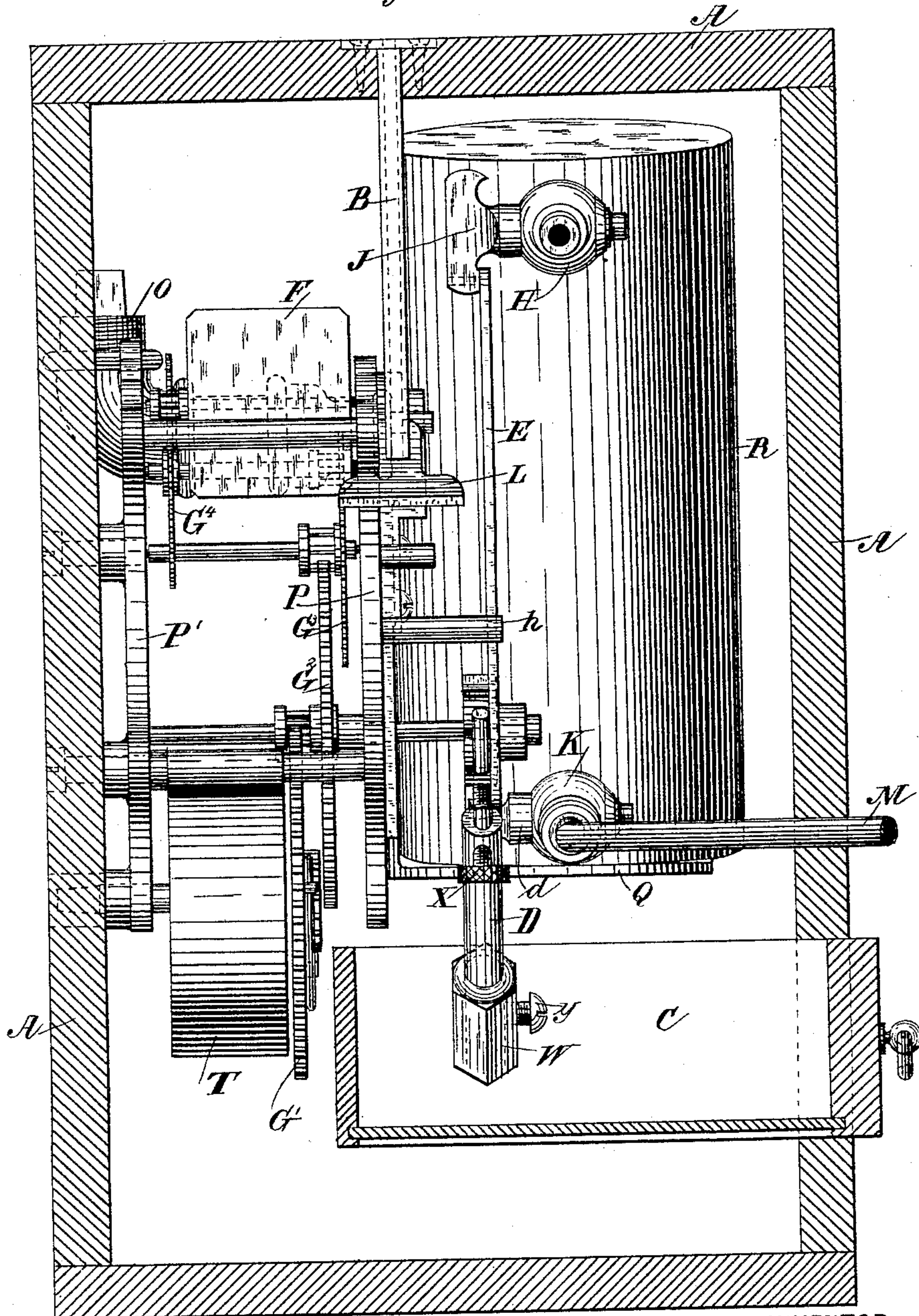
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F. W. SILKMAN.
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Fig. 2.



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3 Sheets—Sheet 3.

F. W. SILKMAN.
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Fig. 3.

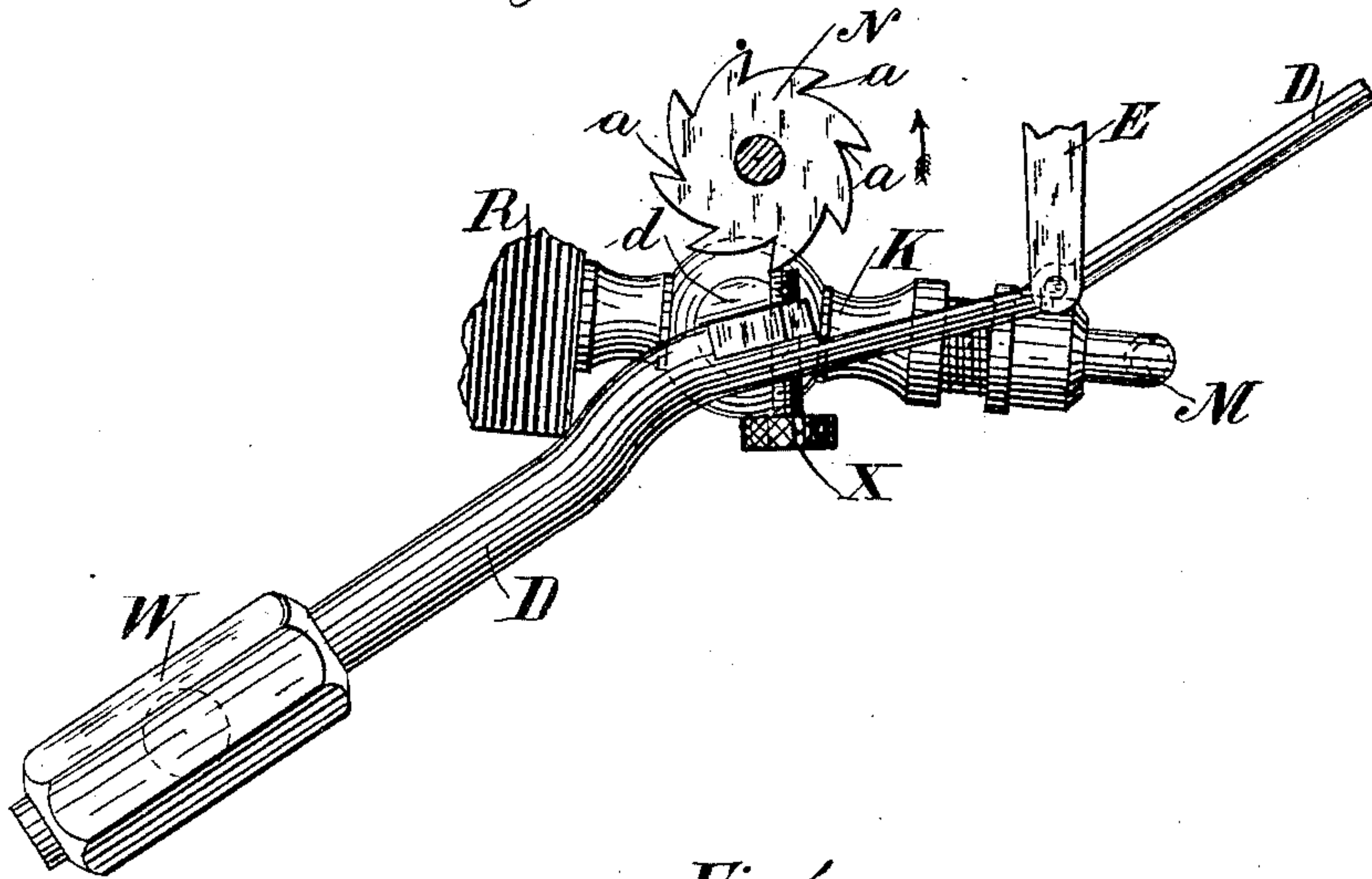


Fig. 4.

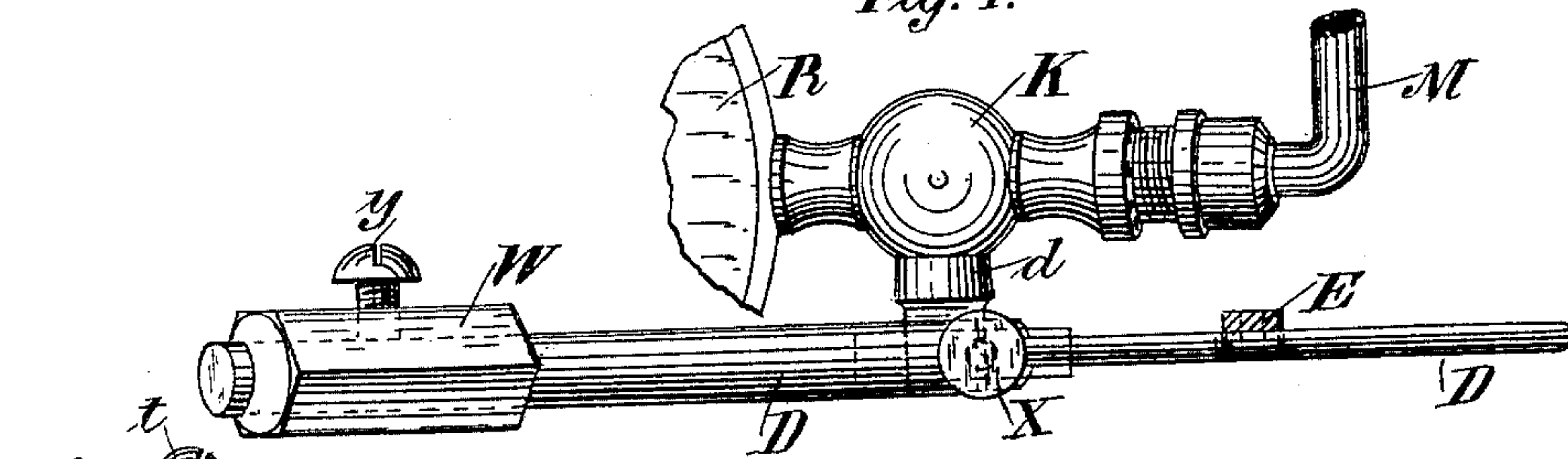
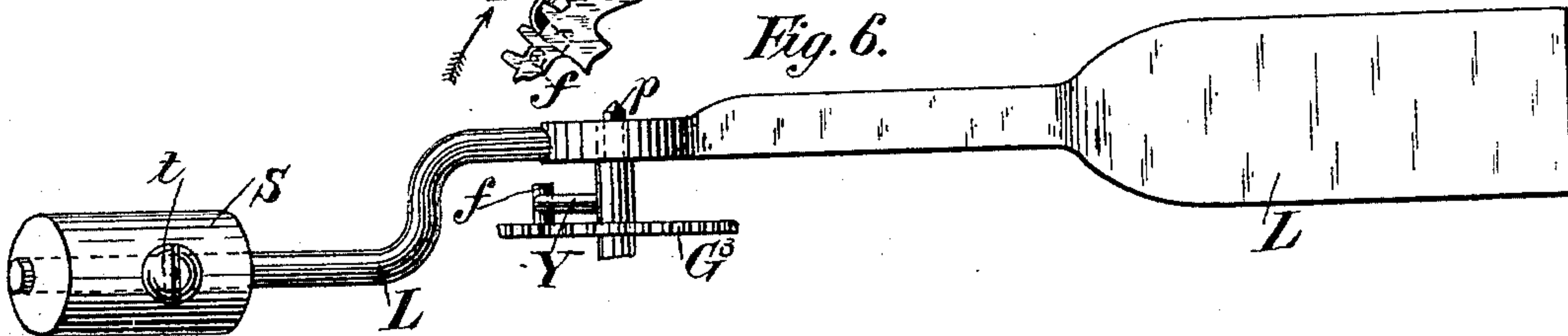


Fig. 5.



Fig. 6.



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UNITED STATES PATENT OFFICE.

FRANK W. SILKMAN, OF NEW YORK, N. Y., ASSIGNOR TO ELIZA SILKMAN,
OF SAME PLACE.

VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 454,407, dated June 16, 1891.

Application filed March 5, 1891. Serial No. 383,898. (No model.)

To all whom it may concern:

Be it known that I, FRANK W. SILKMAN, a citizen of the United States, residing at New York, in the county and State of New York, have invented a new and useful Improvement in Vending-Machines, of which the following is a specification.

My invention relates to what are known as "coin-operated vending-machines," and particularly to those in which the article to be vended is a liquid.

The object of my invention is to provide a machine which shall act automatically, and one which can be readily adjusted to emit any desired quantity of the liquid, and also adjusted to require coins of different weights to operate the machine.

My improved apparatus consists, essentially, of a reservoir, which may be conveniently filled from the rear of the case inclosing the apparatus, which reservoir is provided with two valves or faucets, one at the top of the reservoir for the admission of air and the other at the bottom for the discharge of the contents of the reservoir. These valves are opened and closed automatically and simultaneously, and the duration and extent of the opening is regulated by a suitable cam and an adjustable lever, as hereinafter described. The apparatus is operated by means of ordinary clock-work, which latter is alternately set in motion and checked by means of a lever, which in turn is operated by a suitable coin falling upon its free end through a chute in the inclosing case or box, as is usual in this class of machines.

The invention will more clearly appear from the accompanying drawings, in which—

Figure 1 is a front elevation of my improved machine, a portion being broken away to expose the parts behind, the case inclosing the machine being in section. Fig. 2 is a side view of Fig. 1, looking in the direction of the arrow. Fig. 3 is an elevation of the device which regulates the flow of the liquid, as seen from behind. Fig. 4 is a plan of Fig. 3. Fig. 5 is an elevation of the operating-lever. Fig. 6 is a plan of Fig. 5.

A is the case or box inclosing the apparatus.

B is the coin-chute.

C is the cash-drawer.

D is a lever pivoted at *d*, which serves as a key to open and close the faucet or valve K.

E is a bar connecting the lever D with the key J of the faucet or valve H.

G¹, G², G³, and G⁴ are the gear-wheels; T, the spring, and F the fan of the clock-work.

L is a lever pivoted at *p* on the bracket V, which is operated by a suitable coin falling upon its free end through the coin-chute B, and acts to unlock and lock the clock-work.

M is a tube or other suitable conduit, through which the liquid passes from the reservoir R when the valve K is open.

N is a cam wheel or disk mounted on the outer end of the axis or shaft of the gear-wheel G², and operates the lever D.

O is the tube through which the reservoir R is filled.

P P' are the front and back plates, respectively, which hold the clock-work.

Q is the platform upon which stands the reservoir R.

S and W are counter-weights, and *t y* their retaining-screws on the levers L and D, respectively.

X is a thumb-screw by means of which the opening of the faucet or valve K is regulated, thereby determining the quantity of liquid allowed to escape from the reservoir R into the tube M.

Y is an arm rigidly secured to the lever L, moving with the latter and acting, in connection with the stop *f* on the gear G³, to set in motion and stop the clock-work, as hereinafter described.

h is a post or stop against which the end of the lever D rests when the valve K is closed.

The operation of my improved apparatus is as follows, referring particularly to Fig. 1: The spring T having been previously wound up, a suitable coin is dropped into the coin-chute B. The coin strikes the free end of the lever L, depressing it to the position shown by the dotted lines. This movement of the lever L lifts the arm Y from its contact with the stud *f* on the gear-wheel G³, and the latter immediately begins to revolve in the direction of the arrow. The counter-weight S on the other end of the lever L causes the latter at once to assume its normal position, thereby interposing the arm Y in the path of the stud *f* and stopping the action of the clock-work after

one revolution of the gear G^3 . Upon the release of the gear G^3 , as above described, the entire clock-work is set in motion, and of course the cam-disk N also revolves while the gear G^3 is in motion. In the drawings I have shown the relation between the gear G^3 and the cam-disk N to be such that the former will revolve eight times while the latter makes but one revolution. I have accordingly shown a series of eight cams upon the cam-disk N. Any other proportions, however, may be used. As the cam-disk N revolves in the direction of the arrow the end of the screw X, which passes through the lever D, is depressed, and in turn carries downward the free end of said lever D, to which is attached the bar E. This movement of the lever D opens the valve K, and at the same time, through the intervention of the bar E, the valve H, the former permitting the liquid to escape from the reservoir and the latter admitting air into the upper part of the same. The valves K and H open wider and wider while the cam is passing the end of the screw X. Thus in Fig. 1 the valves are shown as open to their widest extent and at the moment just before the closing of the same. In the drawings the position of the key J of the valve H would ordinarily indicate that the valve is closed; but owing to the peculiar location of the several parts of the apparatus, and in order to give an easy action to the bar E, the opening through the key J is at right angles to the plane of the handle of the key and the valve H, as shown in Fig. 1, is open. When the highest point of the cam passes the end of the screw X, the counter-weight W causes the end of the said screw to drop back into the notch a on the cam-disk and the lever D to assume the position shown by the dotted lines in Fig. 1, thereby closing the valve K. Simultaneously with this movement of the lever D the bar E, which is attached to the lever D, is thrust upward to the position shown by the dotted lines in the same figure, thereby closing the upper valve H. At the same time, the gear G^3 having made one revolution, the stud f is again brought into contact with the arm Y, the clock-work is thereby locked and the apparatus becomes inoperative only to be set in motion again by the dropping of another suitable coin upon the lever L, when the operation above described will be repeated. After the coin has performed its function of depressing the end of the lever L it slides off into a cash-drawer or other suitable receptacle C. The weight of the coin necessary to operate the machine is regulated by shifting the counter-weight S along the other arm of the lever L.

It will be seen that by screwing the thumb-screw X out or in the length of time during which the valves H and K remain open and the extent of that opening may readily be regulated and adjusted.

The reservoir R is tilted slightly, as shown in Fig. 1, in order to allow the contents to drain toward the faucet K. The reservoir may be of any suitable shape and material. The actuating mechanism is the ordinary clock-work gearing.

The case or box, the coin-chute, and cash-drawer may be of any suitable form and construction.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a vending apparatus, the combination of a reservoir provided with a valve for the discharge of its contents, a lever adapted to open and close said valve, a cam to operate said lever, suitable clock-work to actuate said cam, and a screw secured to said lever and adapted to engage with said cam for the purpose of regulating the movement of said lever, substantially as shown and described.

2. In a vending apparatus, the combination of a reservoir provided with two valves, one for the admission of air into the reservoir and the other for the discharge of the contents of the same, a lever adapted to open and close said valves simultaneously, a cam adapted to operate said lever, and suitable clock-work for actuating said cam, substantially as shown and described.

3. In a vending apparatus, the combination of a reservoir provided with two valves, one for the admission of air into the reservoir and the other for the discharge of the contents of the same, a lever adapted to open and close the latter valve, a cam adapted to operate said lever, suitable clock-work to actuate said cam, and a rod connecting said lever with the former valve and adapted to open and close the same simultaneously with the opening and closing of the discharge-valve, substantially as shown and described.

4. In a vending apparatus, the combination of a reservoir provided with two valves, one for the admission of air into the reservoir and the other for the discharge of its contents, a lever adapted to open and close said valves simultaneously, a cam adapted to operate said lever, suitable clock-work to actuate said cam, and a coin-operated lever to control said clock-work, substantially as shown and described.

5. A vending apparatus consisting of the reservoir R, provided with the valves K and H, lever D, provided with the screw X, connecting-bar E, cam-disk N, and lever L, provided with the arm Y, in combination with suitable clock-work, arranged substantially as shown and described.

FRANK W. SILKMAN.

Witnesses:

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E. H. HAWKINS.