

H. M. WILSON.

COIN OPERATED PERFUMING APPARATUS.

No. 397,574.

Patented Feb. 12, 1889.

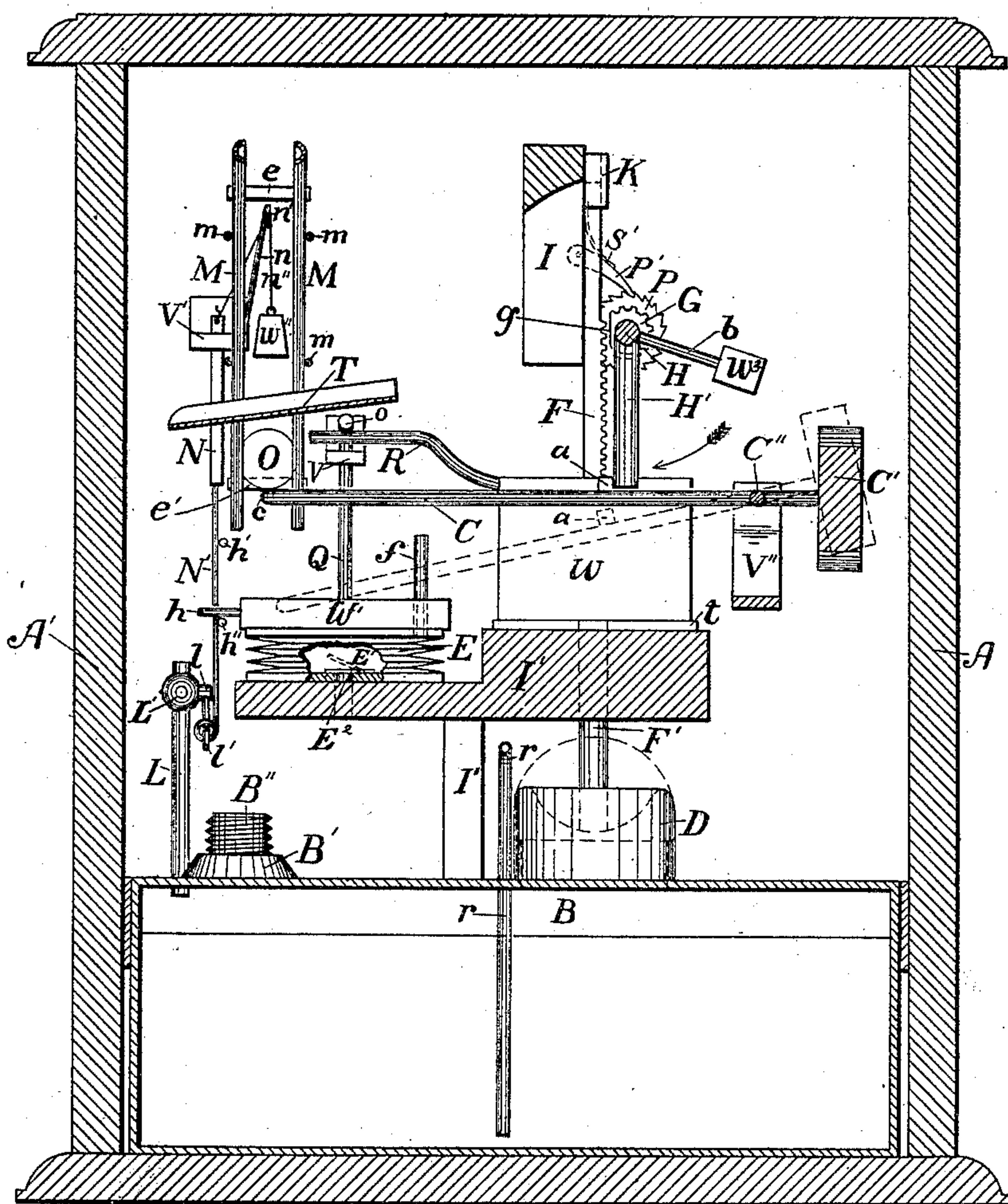


Fig. 1.

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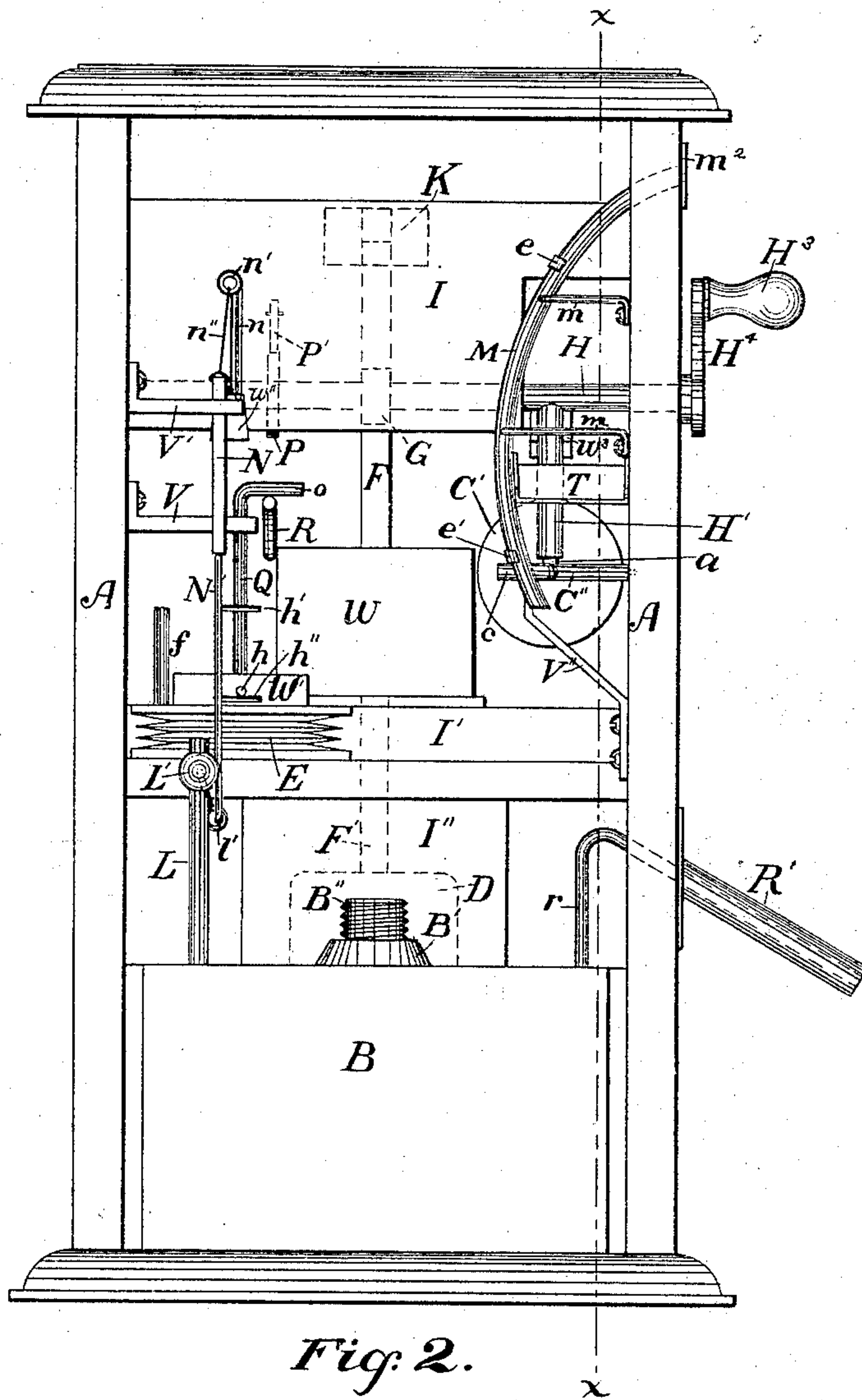


Fig. 2.

Witnesses

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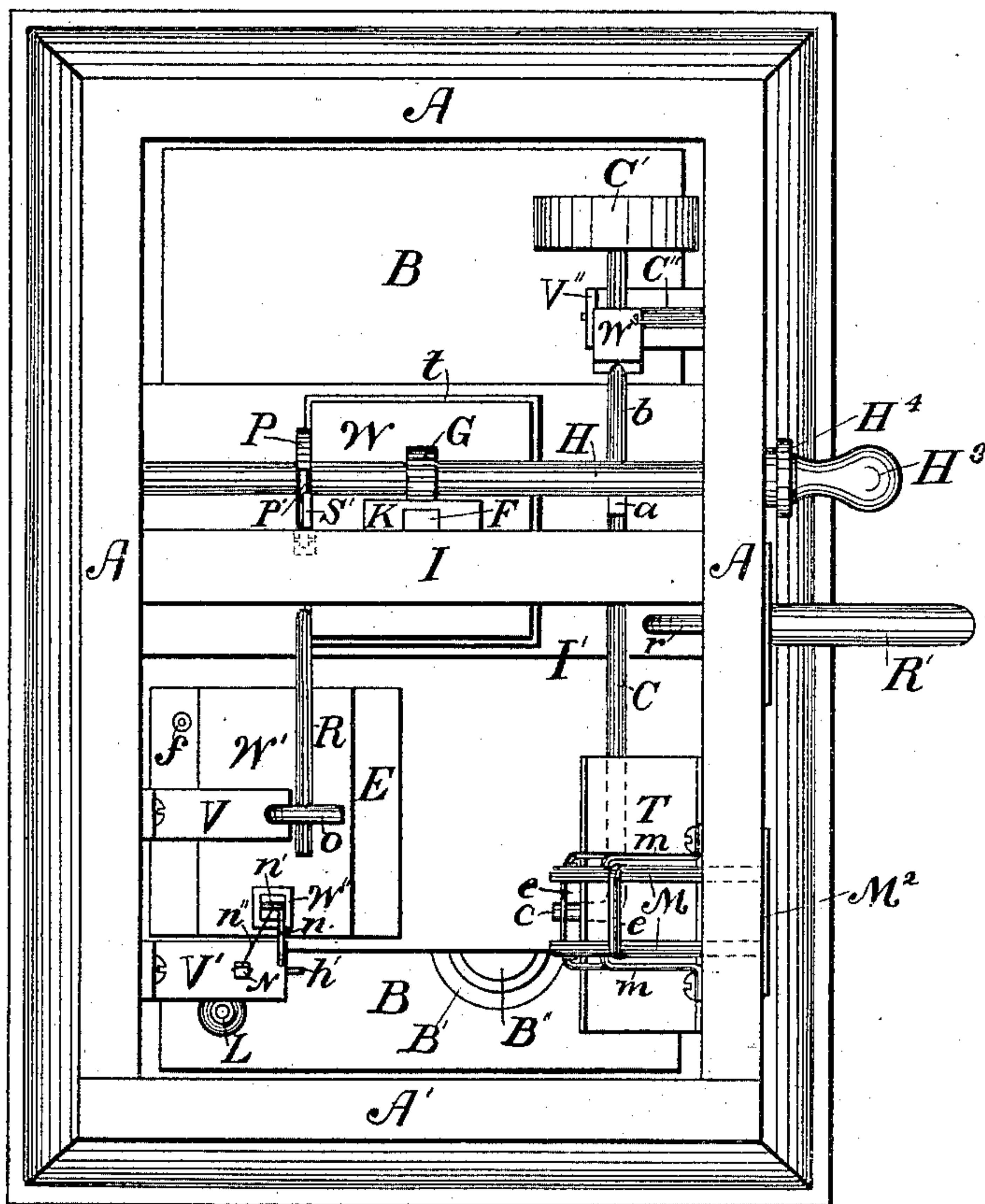


Fig. 3.

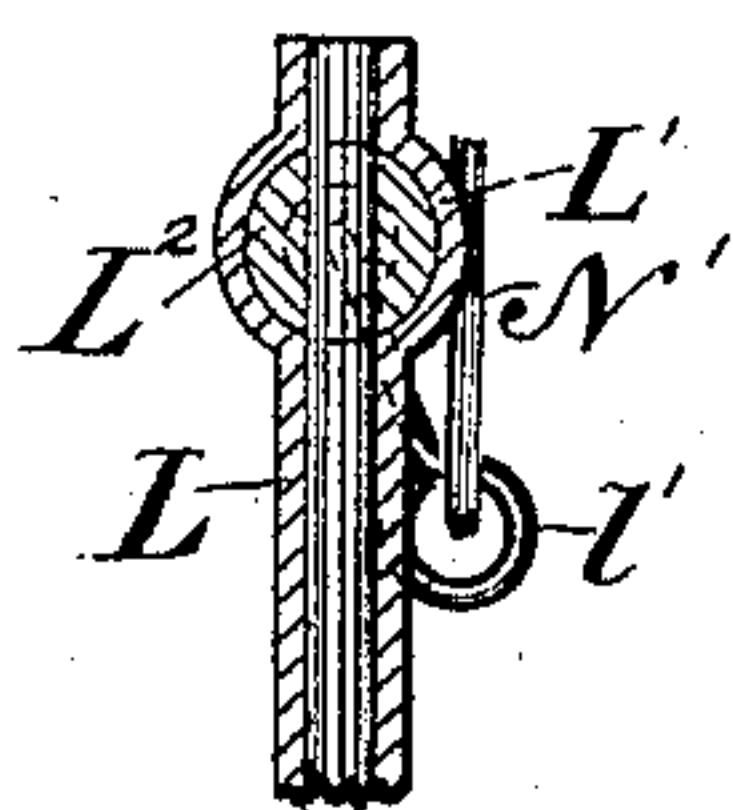


Fig. 4.

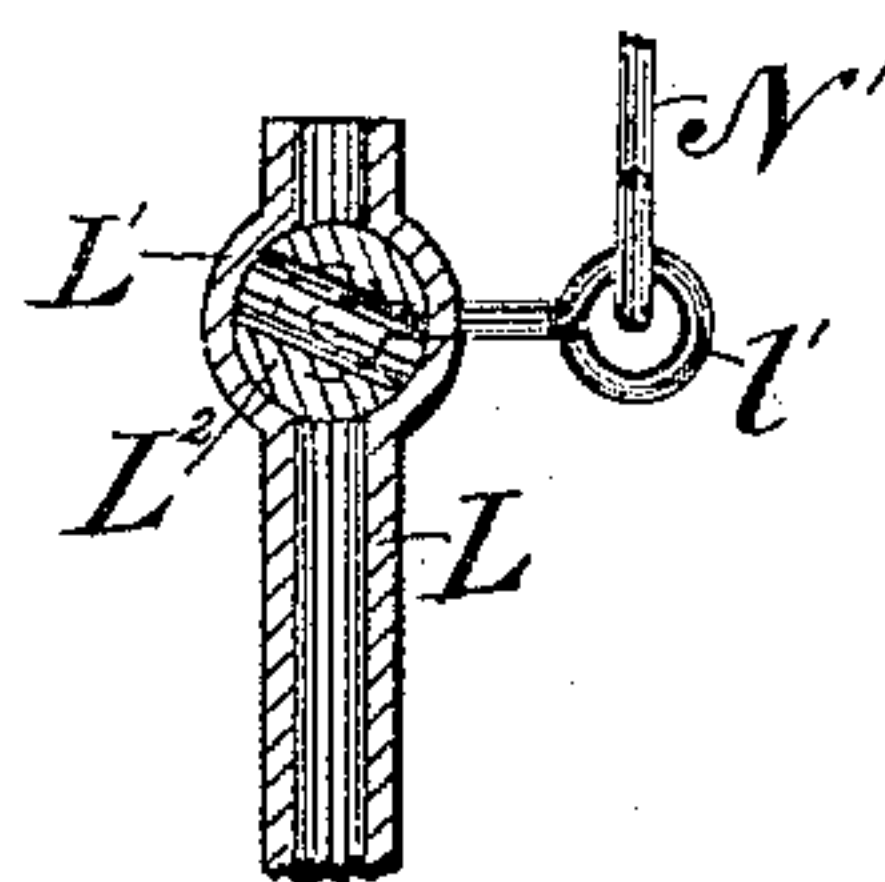


Fig. 5.

Witnesses

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UNITED STATES PATENT OFFICE.

HORACE M. WILSON, OF CAMBRIDGE, MASSACHUSETTS.

COIN-OPERATED PERFUMING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 397,574, dated February 12, 1889.

Application filed September 24, 1888. Serial No. 286,173. (No model.)

To all whom it may concern:

Be it known that I, HORACE M. WILSON, a citizen of the United States, residing at Cambridge, in the county of Middlesex and Commonwealth of Massachusetts, have invented a certain new and Improved Coin-Operated Perfuming Apparatus, of which the following is a specification.

My invention consists of an improved apparatus for delivering a spray or small stream of perfuming or other liquid upon dropping a coin into a slot, the coin acting upon suitable mechanism, whereby a handle may be turned, which effects the delivery of the perfuming or other liquid in a manner herein-after described.

Of the accompanying drawings, Figure 1 is a sectional view of an apparatus involving the principle of my invention, the section being taken on xx , Fig. 2. Fig. 2 is an elevation of the same, one end of the box forming the door being removed to show the interior mechanism. Fig. 3 is a plan view of the apparatus with the cover removed, and Figs. 4 and 5 show sectional views of the air-admitting tube and valve.

The working parts of the apparatus are preferably inclosed in a box, A, one end of which, A', is for convenience hinged (not shown) to open as a door, thereby giving access to the interior of the box.

B is a tank or other suitable vessel for containing the perfuming-liquid, and is provided with a screw-cap, B'', upon removing which the said vessel may be conveniently filled.

D is a bulb tightly secured to the top of the vessel B to communicate with the interior, this bulb being made of rubber or any suitable flexible material. To the top of the bulb D is attached the rod F', which passes through a guiding-hole in the partition I', and is attached at its top to the weight W, which normally rests either directly upon the top of the partition I' or upon the interposing cushion t , of any soft material. The rack F is secured to the upper surface of the weight W, preferably in line with the rod F', the upper plain portion of the rack F running in the guide K, secured to the wall or partition I.

H is a spindle passing across the interior of the box A, and terminating on the outside of the said box in the crank H⁴, provided with

the handle H³. Securely fixed on the spindle H is the mutilated gear-wheel or pinion G, which meshes with the rack F, being faced off on one side, g , in such a manner that when, by means of the crank and handle on the outside of the box, the spindle H is turned in the direction of the arrow the gear G will raise the rack F, and with it the weight W, during nearly a complete revolution of the said spindle, or as long as the teeth on the pinion G engage with the said rack; but when the plain portion g has arrived opposite the teeth of the rack F the latter drops immediately under the action of the weight W, its teeth being freed from the gear G.

C is a lever, pivoted at C'' between the bracket V'' and the side of the box A. This lever is provided with a stop, a , against which bears, when the machine is at rest, the rod H', secured to the spindle H. One end of the lever C is bent at right angles, forming the arm c , which passes between the two guides M M. These guides M M, which form the track wherein the coin slides, pass through an opening in the side of the box A and terminate in a slot made preferably in the plate m^2 , secured on the outside of the box. This open track formed by the guides M M is of such a size and shape as to easily permit a coin, O, of determined size and value to enter and slide therein; but were a coin of smaller size and weight to be introduced it would immediately drop out between the guides and not pass through the entire length of the track. The two guides M M are held at suitable distance apart by means of a number of connecting-pieces, e , at intervals along the track, and the track is secured in any suitable manner to the box A, as by means of the braces m . The lever C is kept normally in substantially a horizontal position, with the arm c bearing against the lower of the connecting-pieces e' , or against any suitable stop, by means of the counter-weight C' on the opposite end of the lever from said arm. When the said lever is in such normal position, the stop a , secured thereto, prevents the turning of the spindle H by the handle H³. The weight C' is such that when the coin O drops down along the track and strikes the arm c that end of the lever, by the weight and momentum of the coin, will be quickly depressed, as indi-

cated by the dotted lines, thereby allowing the said coin to drop out of the track and off the lever, and at the same time releasing the stop *a* from the rod *H'*.

5 *W*³ is a counter-weight connected by means of the rod *b* with the spindle *II* in such a manner that when the lever *C* is depressed by the coin and the stop *a* passes below the end of the rod *H'* the latter, under the influence of
10 the weight *W*, turns in the direction of the arrow, and with it the spindle *II*, through a short angle, so that when the lever *C* again returns to its horizontal position, which it immediately does through the influence of the
15 weight *C'* after the coin is dropped, the stop *a* will be on the other side of the rod *H'*. The handle *H*³ may then be turned in the direction of the arrow through one revolution, which raises the rack *F*, the weight *W*, and
20 the rod *F'*, thus expanding the bulb *D*, as indicated by the upper curved dotted lines shown thereon. When, however, the end of a revolution is reached and the weight *W* has
25 dropped, the handle can be turned no farther on account of the rod *H'*, which again comes in contact with the stop *a*.

The size and position of the counter-weight *C'* on the lever *C* is so adjusted that the depression of the lever *C* to the required extent
30 takes place only by a coin of particular weight, so that if a lighter coin or a disk of any material of the right size, but of lighter weight than the required coin, should be introduced into the slot and drop down along
35 the track *M* it would fail to depress the lever *C* sufficiently to allow the turning of the handle *H*³. If, moreover, a coin or any disk of smaller size than the particular coin for which
40 the machine is adjusted should be introduced into the slot, instead of following the track *M* it would drop immediately between the two guides and fall into a suitable tray, *T*, placed to receive it, and thus be prevented from coming in contact with the lever *C*.

45 *L* is a tube which enters the top of the vessel *B*, and is provided at its upper end with an ordinary rotary valve, *L*², contained in the bulb *L'*. The stem *l* of the valve is connected
50 with a small rod or wire terminating in the ring *l'*, which engages with a ring at the bottom of the rod *N'*, so that by the raising and lowering of the rod *N'* the valve is closed and
55 opened, respectively. The upper portion, *N*, of the rod *N'* is guided in its up-and-down motion by passing through a hole in the support or bracket *V'*, and the counter-weight *w''*, which is secured by means of a cord, *n''*,
60 passing through a ring in the support *n* to the upper part of the rod *N*, serves to counterbalance the weight of the rods and the friction of the valve contained in the bulb *L'*.

When the machine is at rest in the position shown in the drawings, the valve *L*² in the tube *L* is open, as shown in Fig. 4. This
65 valve remains open during the rising of the rack *F*, and thus permits air to pass through the tube *L* into the vessel *B*, containing the

perfuming-liquid, during the expanding of the bulb *D*. Just before the weight and rack
70 have reached their highest position the valve *L*² in the bulb *L'* is closed, by means presently to be described, and when the weight *W* falls the air in the vessel *B*, having no
75 outlet, is immediately compressed, owing to the depression of the bulb *D*. The force of the compressed air thus confined in the vessel *B* causes the liquid contained therein to
80 flow out in a fine stream through a tube, *r*, which passes nearly to the bottom of the vessel and out through the nozzle *R'*, which may be of any desired shape or form. Should the
85 valve *L*² in the bulb *L'* remain closed, the stream would continue to flow out, gradually diminishing in force, and finally be reduced to a mere dripping as the force of the confined air became slowly spent.

By means of a suitable regulating device the valve within the bulb is kept closed during sufficient time to allow the outflow to continue a few seconds, when the said valve is
90 quickly opened, as shown in Fig. 5, thereby forming an outlet for the confined air in the vessel *B*, and causing the outflow through the tube *r* to stop immediately without any dripping. The form of regulating device herein
95 shown consists of a bellows, *E*, having in the bottom the ordinary flap-valve, *E'*, opening upward and covering the air-admitting aperture *E*². Upon the top of the bellows rests
100 the weight *W'*, which tends to keep the same closed together.

Q is a rod secured to the top of the bellows or weight and passing upward through a guiding-hole in the support or bracket *V*. This
105 rod *Q* is bent at right angles at its upper end to form an arm, *o*, under which passes the rod *R*, secured to the weight *W*. During the upward movement of the weight *W*, by means of the gear *G* working in the rack *F*, the rod
110 *R*, rising therewith, lifts with it the rod *Q* by its upward bearing against the arm *o*, and thus expands the bellows *E*, air being admitted within the bellows during its rapid upward movement through the aperture *E*² in
115 its under side.

h is a rod or wire connected with the top of the bellows, which rises therewith, and when
120 the weight *W'* has reached nearly the end of its upward motion the wire *h* comes in contact with the stop *h'* on the rod *N'*, thereby lifting the said rod and closing the valve *L*² in the bulb *L'*. This cuts off all communication
125 of the outside air with the interior of the vessel *B*. While the weight *W* falls quite rapidly and depresses the bulb *D*, the descent of the weight *W'* is gradual, being cushioned by the air within the bellows *E*, which escapes
130 quite slowly through the fine open tube *f*, communicating with the interior of the bellows. Just before the weight *W'* has reached its lowest point, and at the same time the bellows *E* has become nearly closed, the wire
135 *h* comes in contact with the stop *h''* on the rod *N'* and quickly opens the valve *L*² in the

top of the tube L, which at once causes the stream to cease flowing out of the tube *r*, as previously explained. The length of time during which the stream of perfumed liquid continues to flow out of the tube *r* is thus determined by the time consumed in the falling of the weight *W'* and the closing of the bellows E, and this in turn depends on the size of the outlet for the air through the tube *f*. The larger the outlet the smaller the quantity of perfuming-liquid discharged, and vice versa.

In operating the apparatus the coin is first dropped into the slot before the handle *H*³ is touched, thus tripping the lever C and allowing the handle to be turned. As soon, of course, as the coin has dropped off the lever C, as previously stated, the latter returns to its horizontal position, and the stop *a* will prevent the turning of the handle *H*³ through more than one revolution until another coin is dropped into the slot. The spindle *H* is prevented from turning, except in the direction indicated by the arrow, by means of the ratchet P and the pawl P', pivoted to the wall or partition I and pressed downward by the spring S'.

I do not confine myself to the exact form of regulating device herein shown and described—as, for instance, I may employ, in place of the gradual closing together of the bellows E, an ordinary fan-wheel actuated by a train of gears and a rack secured to a weight, the fan-wheel revolving during the downward motion of the weight analogous to weight *W'*, thus retarding its descent and timing the discharge of the liquid.

I claim—

1. In an apparatus for delivering a stream of liquid, a spindle provided with a mutilated pinion fixed thereon, in combination with a rack gearing with said pinion, a weight secured to said rack, a vessel provided with a discharging-tube, and a flexible bulb connected with said vessel and with said weight, all arranged and operated substantially as and for the purposes described.

2. In an apparatus for delivering a stream of liquid, a spindle provided with a crank-handle and having a mutilated pinion secured to said spindle, in combination with a rack gearing with said pinion, a bulb-operating weight connected with said rack, and a locking device whereby the said crank-handle is prevented from turning, all constructed and arranged substantially as and for the purposes described.

3. In a coin-operated apparatus for delivering a stream of liquid, a spindle provided with a crank-handle and having an arm secured thereto, in combination with a mutilated pinion fixed on said spindle, a rack gearing with said pinion, a weight connected with said rack, and a pivoted coin-actuated lever provided with a counter-weight, and having a stop whereby the spindle is prevented from turning, all constructed, arranged, and operated substantially as described.

4. In a coin-operated apparatus, a spindle provided with a crank-handle, an arm, and a counter-weight, all rigidly secured to said spindle, in combination with a counterbalanced coin-operated pivoted lever provided with a stop, whereby, when the lever is depressed, the said handle may be turned through one revolution, substantially as and for the purposes described.

5. In an apparatus for delivering a stream of liquid, a spindle, *H*, having a ratchet-wheel, P, and a mutilated pinion, G, in combination with the rack F, engaging with said pinion, the weight W, secured to said rack, and the spring-actuated pawl P', engaging with said ratchet-wheel, all arranged and operated substantially as and for the purposes described.

6. In an apparatus for delivering a stream of liquid, a vessel provided with a weight-operated flexible bulb and having a liquid-discharge tube passing nearly to the bottom of the said vessel, in combination with an air-admitting tube provided with a valve and a suitable regulating device operating said valve, whereby the amount of discharged liquid is determined, substantially as described.

7. In an apparatus for delivering a stream of liquid, a closed vessel provided with a flexible bulb and a liquid-discharge tube, in combination with a weight operating said bulb, a weighted bellows provided with an air-discharge passage, and an air-admitting tube communicating with said vessel and provided with a valve operated by said bellows, in the manner and for the purpose substantially as described.

8. In an apparatus for delivering a stream of liquid, in combination with the weight W, provided with the rod R, the bellows E, provided with the rod Q, bent at right angles at its upper end and having an air-discharging tube, *f*, the weight *W'*, having the pin *h*, and the vertically-reciprocating valve-operating rod N', having stops *h'h''*, engaging with said pin, all constructed, arranged, and operated substantially as and for the purposes described.

In witness whereof I have hereunto set my hand.

HORACE M. WILSON.

Witnesses:

ALBERT E. LEACH,
WM. B. H. DOWSE.