

(No Model.)

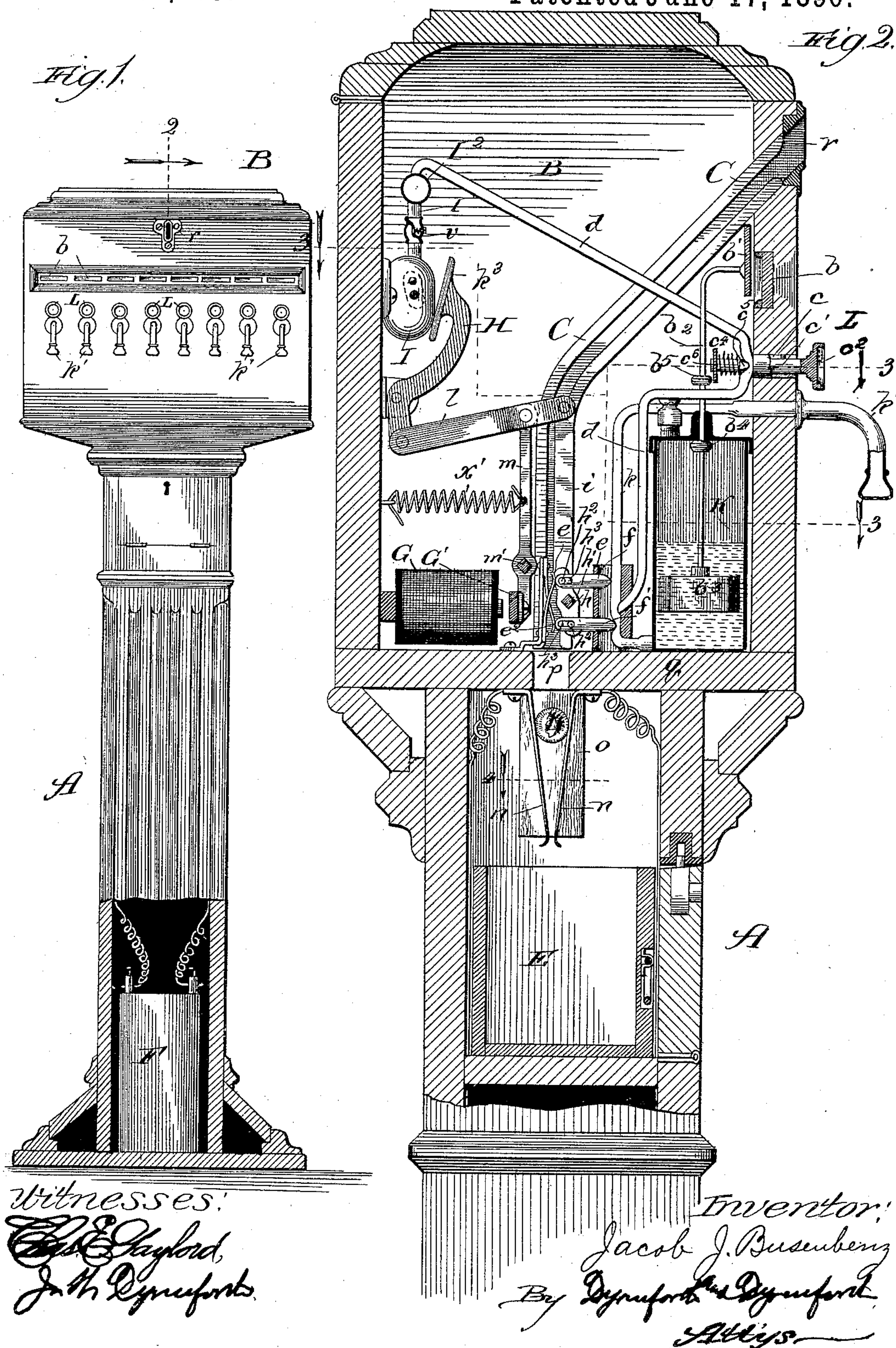
2 Sheets—Sheet 1.

J. J. BUSENBENZ.

VENDING APPARATUS.

No. 430,463.

Patented June 17, 1890.



(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

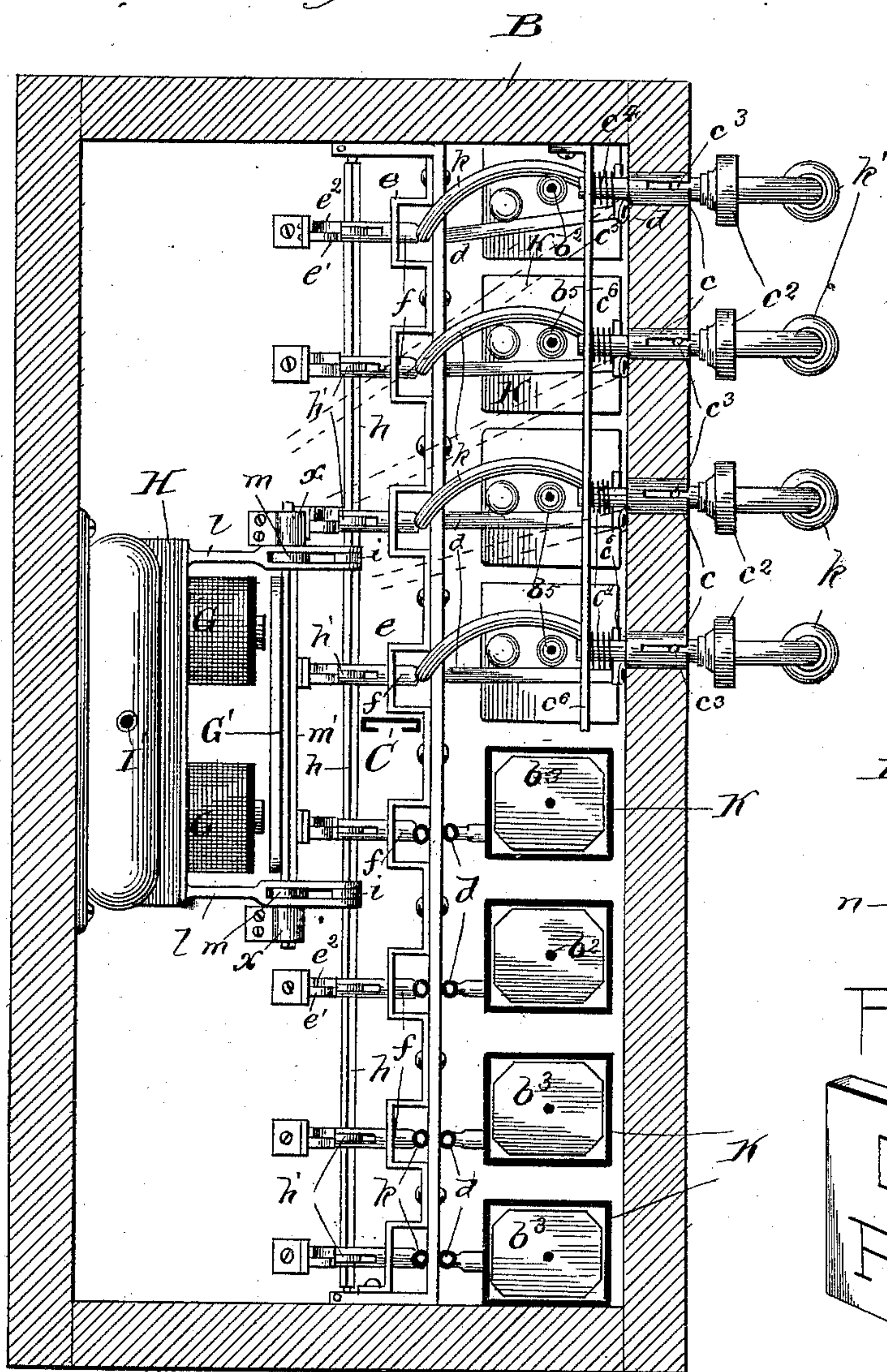


Fig. 4.

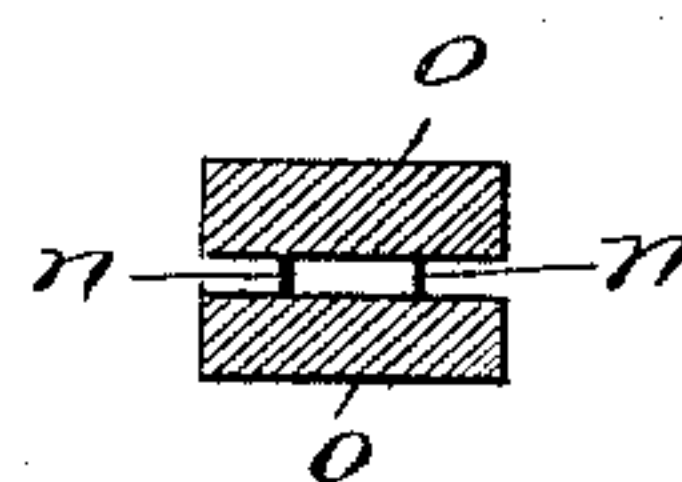
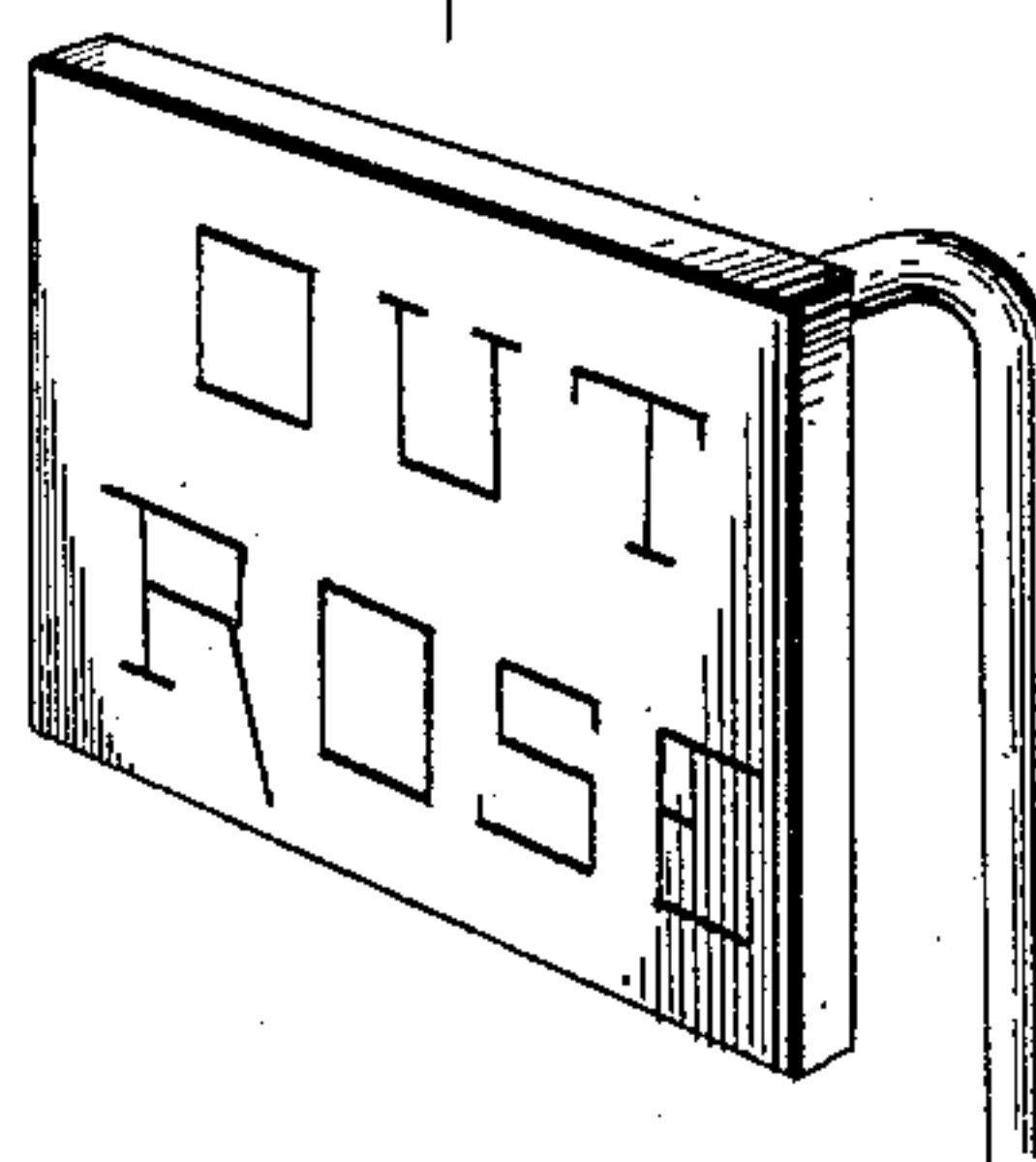


Fig. 5.



Witnesses:

J. H. Dyrenforth
J. H. Dyrenforth

Inventor:

Jacob J. Busenbenz
By Dyrenforth & Dyrenforth
Attys

UNITED STATES PATENT OFFICE.

JACOB J. BUSENBENZ, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE UNITED STATES AUTOMATIC PERFUMING COMPANY, OF SAME PLACE.

VENDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 430,463, dated June 17, 1890.

Application filed February 3, 1890. Serial No. 338,948. (No model.)

To all whom it may concern:

Be it known that I, JACOB J. BUSENBENZ, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Vending Apparatus, of which the following is a specification.

My invention relates to an improvement in the class of vending apparatus in which the mechanism for delivering the article is actuated by the insertion into the apparatus of the purchase-price in the form of a coin.

The object of my improvement is to provide a vending apparatus of novel and generally improved construction and manner of operation.

In its broadest sense my invention involves the employment of pneumatic pressure as the immediate force for effecting the delivery, and I desire to be understood as including the same as within my invention whatever the mechanism employed in conjunction with it in a vending apparatus and whatever the article for the delivery of which the apparatus is adapted. This principle of the operation I find to be advantageously applicable in connection with electrically-operated mechanism for controlling the pneumatic pressure, and which is actuated by closing the normally-open circuit through the medium of the coin inserted into the apparatus as the purchase-price for the article to be delivered. I have applied the said principle to an apparatus for the sale and delivery of a particular article—perfumery—having to that end invented an apparatus especially adapted for such sale and delivery, and which is shown in the accompanying drawings, in which—

Figure 1 is a view in elevation, partly broken, of my improvement in the form of a perfumery-vending apparatus; Fig. 2, an enlarged sectional view taken at the line 2 of Fig. 1 and viewed in the direction of the arrow; Fig. 3, a section taken on the lines 3 3 of Fig. 2 and viewed in the direction of the arrows; Fig. 4, a section taken on the line 4 of Fig. 2 and viewed in the direction of the arrow, and Fig. 5 a perspective view showing the sign detail.

A is a hollow standard of any suitable material, and preferably of the rectangular shape illustrated.

B is a chamber surmounting the standard and serving to contain the main portion of the delivery mechanism hereinafter described, and also the article to be delivered, in the present case perfumery, though I do not wish to be understood as limiting my invention to such particular use, or necessarily to the delivery of articles in liquid form.

In the chamber B, preferably in one side and near the center, as shown, is an opening *r*, which should be in the form of a slot, from which extends a chute C to an opening *p* in the base of the said chamber, the opening *p* being flanked on two of its sides by wooden or other strips *o*, (see Fig. 4,) extending downward and parallel with each other from the lower surface of the base *q*. Between the strips *o* are light flat metal springs *n*, one being secured at each of the two open sides of the aperture *p* upon the base *q*, the two springs converging toward their lower ends. The sides *o* and springs *n* form, practically, an extension of the chute C, sufficiently yielding at two opposite sides to permit the weight of the coin D, introduced into the chute at the slot *r*, readily to force its passage between the springs *n* on its way to a coin-receptacle E, while having contact with such springs throughout their length.

The springs *n* are in the circuit of an electric generator (battery) F, which for convenience may be housed in the standard A, as shown in Fig. 1, and owing to the normally-separated condition of the springs they maintain the circuit of the battery normally open.

G is an electro-magnet supported in the chamber B in the circuit of the battery F and having its poles in suitable relation to an armature G', fastened near each of its opposite ends to a vertically-disposed lever *m*, the said levers being secured between their extremities, thereby to afford a lower short arm and an upper long arm of each, to a rock-shaft *m'*, near the opposite ends thereof, where it is journaled in suitable bearings *x*. The upper end of each lever *m* is pivotally connected

with a cross bar or link l , near one end of the latter, toward which it is bifurcated to receive the upper end of such lever m , and at their non-bifurcated ends the links l are pivotally connected with the opposite ends and below the fulcrum of a bent lever II, fulcrumed to a suitable support, as at the inner rear side of the chamber B, and having its upper portion formed into a head k^3 , adapted to conform to the contour of a side of a collapsible and expansible air receiver or bag I, which should be provided with an inwardly-opening check-valve, as shown. From above the fulcrum one or both of the levers m should be controlled by a spring x' to draw the armature from the magnet whenever the latter is demagnetized, as hereinafter described.

The apparatus may be arranged with a single supply of one kind of perfume or other article to be delivered or with several sources of supply of the same, or of different kinds of perfumery or other articles, from any one of which the amount paid for by the coin may be caused to be delivered by the purchaser, the operation of the parts described being the same whether there be one source or many sources of the supply. For a perfumery-vending apparatus, however, and for which purpose the specific construction illustrated and involving my improvement is, as aforesaid, especially designed, I prefer to provide in the same apparatus a number of the sources of supply, each containing a different kind of perfume, in order that the purchaser in inserting a coin of proper denomination (say a copper cent) into the slot r may select according to his preference. Accordingly I provide in the chamber B one receptacle K for each of any desired number of different kinds of perfume, eight such receptacles being shown in Fig. 3. From near the bottom of each receptacle K extends a rubber outlet-tube k out of the chamber B in an upward direction and through the front side of the chamber, as shown, where it terminates in a spraying-nozzle k' .

To the bifurcated end of each arm or link l is pivotally secured, to extend vertically downward from the end of the link, a handle i , and the two handles i are connected together by a rock-shaft h , passing horizontally through them near their lower ends and suitably journaled in opposite ends of the chamber B, as shown in Fig. 3. At intervals along the shaft h , which should, as represented, be angular in cross-section between its journal ends, are provided, to extend transversely thereof, cross-heads h' , one being provided coincident with each outlet-tube k . Each cross-head h' is provided on one side near its opposite ends with studs h^2 , caused to extend through longitudinal slots h^3 in the rear ends of fingers f and f' , which should be tapered at their forward ends, where they coincide with the plane of an outlet-tube k and form valves, for a purpose hereinafter described, being supported in a suitable guide-bracket

e . A spring e' bears against the rear end of each valve f and a similar spring e^2 against that of each valve f' .

From the bag I extends a pipe I', containing an ordinary or any suitable form of inwardly-opening check-valve v and leading into a pipe or chamber I², which should be horizontally disposed, as shown, and from which proceed the air-tubes d , one for each receptacle K, and which should, like the tubes k , be formed of yielding material, such as rubber. Obviously, if but one receptacle K is employed in the apparatus only one tube d is required, which could lead directly from the bag I. Each tube d communicates with an outlet-tube k near the point of coincidence therewith of the valve-finger f' , being caused, in its course to the point of its said communication, to pass through a push-button device L, provided one for each air-tube d . I construct the device L with a sleeve c , extending in proper position through the front wall of the chamber B, and through which is passed a stem c' , having a head c^2 at its outer end, the sleeve being slotted laterally to receive a guide-pin c^3 on the stem, and on the inner end of the stem c' is a spring c^4 , confined between a cross-bar c^5 , V-shaped longitudinally on its outer side, and a bearing c^6 , common to all the stems c' .

Above each push-button device L the front side of the chamber B is provided with an opening b , behind which is supported a sign b' on the end of a rod b^2 , extending upward from a float b^3 in the respective receptacle K, and provided with stops b^4 and b^5 , respectively, inside and outside the receptacle. The stops are so relatively placed that while the float is sustained by the contents in the receptacle the lower part of the sign b' , having indicated the name of the perfume in the receptacle to which it belongs, is displayed at the opening b , but that when the contents are exhausted, or nearly so, causing the float to sink as far as the button b^5 will permit, the upper part of the sign b' , having indicated upon it the empty condition of the receptacle, as by the word "Out," will be so displayed.

The operation is as follows: The apparatus is intended to be located in a suitable place (store) accessible to the public. By dropping a coin D (penny) into the slot r it courses down the chute C and between the springs n and thence falls into the box E. On reaching the springs the coin closes the circuit of the battery F, thereby energizing the magnet G and causing it to attract its armature G'. The consequent movement of the armature turns the long arm of each lever m backward, causing it to draw against the lower end of the bent compressor-lever II and force its head k^3 against the air-bag I, thereby compressing its contents or a sufficient portion thereof through the pipe I' into the air-pipe or air-pipes d up to the closures of the latter produced by the normal spring-pressure against them of the push-button cross-bars c^5 . A further result

of the described movement of the levers *m* occasioned by the attraction of the armature is to turn the shaft *h* through the handles *i*, and with the latter the cross-heads *h'*. Owing to the longitudinal slots *h³* in the valve-fingers *f* and *f'*, (the lower of which are normally maintained against their respective tubes *k*,) there is some lost motion of the studs *h²* in the turning of the cross-heads *h'*, so that the lower valve-fingers *f'* remain for a brief period in their normal positions of closing the tubes *k*, while the upper valve-fingers are advance, against the tubes by the resilient action of the springs *e'*. When, however, the studs *h²* reach the rear ends of their slots *h³*, they effect withdrawal of the valve-fingers *f'*, the tubes *k* being then closed by the valve-fingers *f*. This permits the contents of the receptacles *K* to rise in the tubes *k* up to the closures of the upper valve-fingers *f*, and thus beyond the points of communication with the delivery-tubes of the air-tubes *d*. All this takes place while the coin *D* is passing between the spring-contacts *n*. As soon as the coin has cleared the springs, whereby the circuit is opened, the parts are all returned to their normal relative positions in which they are shown in Fig. 2, the spring or springs *x'* operating to that end; but the consequent re-expansion of the air-bag *I* cannot withdraw the compressed air from the tubes *d*, owing to the check-valve *v* in the tube *I'*. Thus the compressed air remains confined in the tubes *d* between their stoppages at the push-button devices *L* and the check-valve in the tube *I'*, though the entire quantity of the compressed fluid so confined is only sufficient to effect delivery of the perfume from one receptacle, which is produced as follows: The purchaser, after inserting his coin into the slot *r*, selects from the exposed names of the different perfumes on the signs *b'* the kind he desires for perfuming his handkerchief or the like and pushes the button *c²*, to which the selected sign relates. This releases the tube *d* from the closing pressure of its push-button cross-head *c⁵* and permits the confined compressed air to pass the point of normal closure and enter the tube *k*, wherein it forces the small quantity of perfume above the valve *f'* out through the nozzle *k'*, to which the article to be perfumed is applied.

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

1. In a coin-operated vending apparatus, the combination of pneumatic-pressure mechanism, substantially as described, controllably communicating with the supply of the article to be delivered and automatically operated by the inserted coin to produce the pneumatic pressure required for effecting delivery of the article, and a yielding clamp accessible from without the said chamber and normally closing communication of the air-pressure mechanism with the supply of the said article, substantially as set forth.

2. In a coin-operated vending apparatus,

the combination, with the chamber containing a coin-chute *C*, of an air-receptacle *I*, controllably communicating with the supply of the article to be delivered, a yielding clamp accessible from without the said chamber and normally closing communication of the air-receptacle with the supply of the said article, and means, substantially as described, automatically operated by the coin inserted into the chute to produce and store until released by actuating the yielding clamp the air-pressure required for effecting delivery of the article, substantially as set forth.

3. In a coin-operated vending apparatus, the combination, with the chamber containing a coin-chute *C*, of an air-receptacle *I*, controllably communicating with the supply of the article to be delivered, air-pressure mechanism for controlling the supply and discharge of the air-receptacle *I*, a yielding clamp accessible from without the said chamber and normally closing communication of the air-pressure mechanism with the supply of the said article, and electrical mechanism, substantially as described, in normally-open circuit, closed by the coin inserted into the chute, and thereby automatically operated to actuate the air-pressure mechanism to compress air out of the receptacle *I* for effecting delivery of the article, substantially as set forth.

4. In a coin-operated vending apparatus, the combination of a receptacle *K*, having a delivery-tube *k* extending upward from near the base of the said receptacle to the point of delivery, an air-receptacle *I*, controllably communicating through a tube *d* with the tube *k*, a yielding clamp accessible from without the apparatus and normally closing communication of the air-receptacle with the receptacle *K*, and means, substantially as described, automatically operated by the inserted coin to compress the receptacle *I* and force therefrom air under pressure into the tube *d* and store it therein until released by actuating the yielding clamp, substantially as set forth.

5. In a coin-operated vending apparatus, the combination of a receptacle *K*, having a delivery-tube *k* extending upward from near the base of the said receptacle to the point of delivery, an air-receptacle *I*, controllably communicating through a tube *d* with the tube *k*, a yielding clamp accessible from without the apparatus and normally closing communication of the air-receptacle with the receptacle *K*, air-pressure mechanism for controlling the supply and discharge of the air-receptacle, and electrical mechanism, substantially as described, in normally-open circuit, closed by the inserted coin, and thereby automatically operated to actuate the said air-pressure mechanism to compress the receptacle *I* and force therefrom air under pressure into the tube *d*, substantially as set forth.

6. In a coin-operated vending apparatus, the combination, with the chamber *B*, containing a coin-chute *C*, of a receptacle *K*, having a delivery-tube *k* leading out of the

- chamber, an air-receptacle I, communicating through a tube *d* with the tube *k*, a push-button device L, normally closing the tube *d* between the air-receptacle and delivery-tube, and means, substantially as described, automatically operated by the coin inserted into the chute to compress the air-receptacle and force air under pressure into the tube *d*, substantially as set forth.
7. In a coin-operated vending apparatus, the combination, with the chamber B, containing a coin-chute C, of a receptacle K, having a delivery-tube *k* leading out of the chamber, an air-receptacle I, communicating through a tube *d* with the tube *k*, a push-button device L, normally closing the tube *d* between the air-receptacle and delivery-tube, and electrically-controlled mechanism, substantially as described, in normally-open circuit, closed by the coin inserted into the chute, and thereby automatically operated to compress the air-receptacle and force air under pressure into the tube *d*, substantially as set forth.
8. In a coin-operated vending apparatus, the combination, with the chamber B, of a chute C, extended at its lower end by confined springs *n*, forming terminals of a battery F, an electro-magnet G in the battery-circuit, a receptacle K, having a delivery-tube *k* leading out of the chamber, an air-receptacle I, communicating through a tube *d* with the tube *k*, a push-button device L, normally closing the tube *d* between the air-receptacle and delivery-tube, a lever H, connected with the armature G' of the magnet and actuated by the attraction thereof to compress the receptacle I, and valves *f* and *f'*, controlled by the movements of the armature to open and close the tube *k* alternately above and below the communication therewith of the tube *d*, substantially as described.
9. In a coin-operated vending apparatus, the combination, with the chamber B, of a chute C, extended at its lower end by confined springs *n*, forming terminals of a battery F, an electro-magnet G in the battery-circuit, a receptacle K, having a delivery-tube *k* leading out of the chamber, an air-

receptacle I, communicating through a tube *d* with the tube *k*, a push-button device L, normally closing the tube *d* between the air-receptacle and delivery-tube, a lever H, connected with the armature G' of the magnet and actuated by movement thereof to compress the receptacle I, a rock-shaft *h*, carrying a cross-head *h'* and connected with and turned by the movements of the armature, valve-fingers *f* and *f'*, slotted longitudinally toward their rear ends and connected through the slots with the cross-head near its opposite ends, and springs *e'* and *e''*, bearing against the rear ends of the valve-fingers, the whole being constructed and arranged to operate substantially as described.

10. In a coin-operated perfumery-vending apparatus, the combination of a chamber B, containing a chute C, extended at its lower end by confined springs *n*, forming terminals of a battery F, an electro-magnet G in the battery-circuit, a series of receptacles K, each having a delivery-tube *k* extending from near its base out of the front side of the chamber B and terminating in a spraying-nozzle *k'*, a float *b''* in each receptacle K, supporting a sign *b'* at an opening *b* in the front side of the chamber, an air-receptacle I, communicating through tubes *d* with the tubes *k*, push-button devices L, extending through the front side of the chamber B and normally closing the tubes *d* between the air-receptacle and delivery-tubes, a lever H, connected with the armature G' of the magnet and actuated by movement thereof to compress the receptacle I, a rock-shaft *h*, carrying at intervals cross-heads *h'* and connected with and turned by the movements of the armature, valve-fingers *f* and *f'* for each delivery-tube, slotted longitudinally toward their rear ends and connected through the slots with the cross-heads near their opposite ends, and springs *e'* and *e''*, bearing against the rear ends of the valve-fingers, the whole being constructed and arranged to operate substantially as described.

JACOB J. BUSENBENZ.

In presence of—

J. W. DYRENFORTH,

M. J. FROST.