No. 739,418. PATENTED SEPT. 22, 1903.

J. B. HURD.

VENDING APPARATUS.

APPLICATION FILED DEC. 24, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

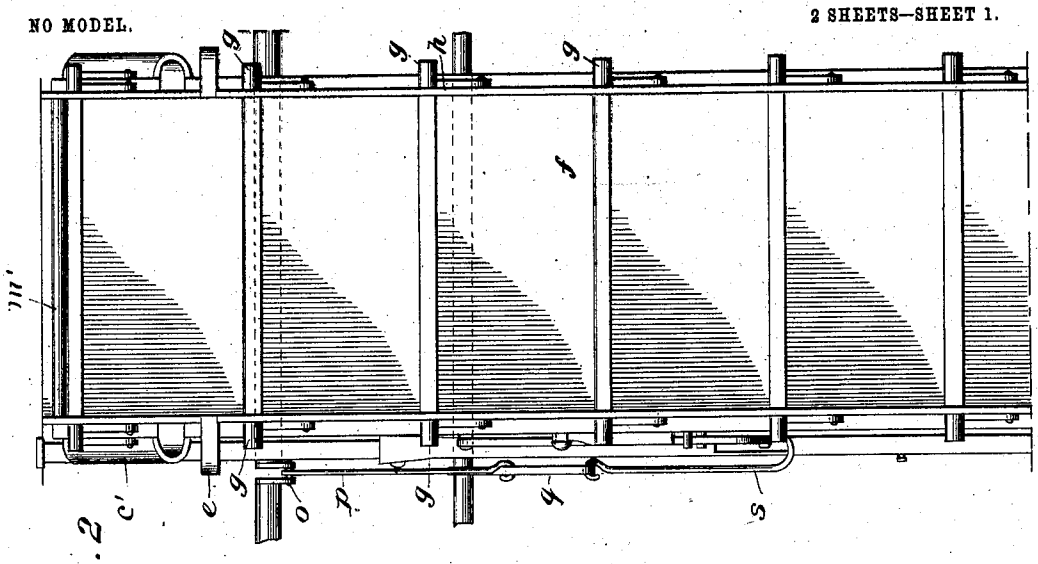


Fig. 2.

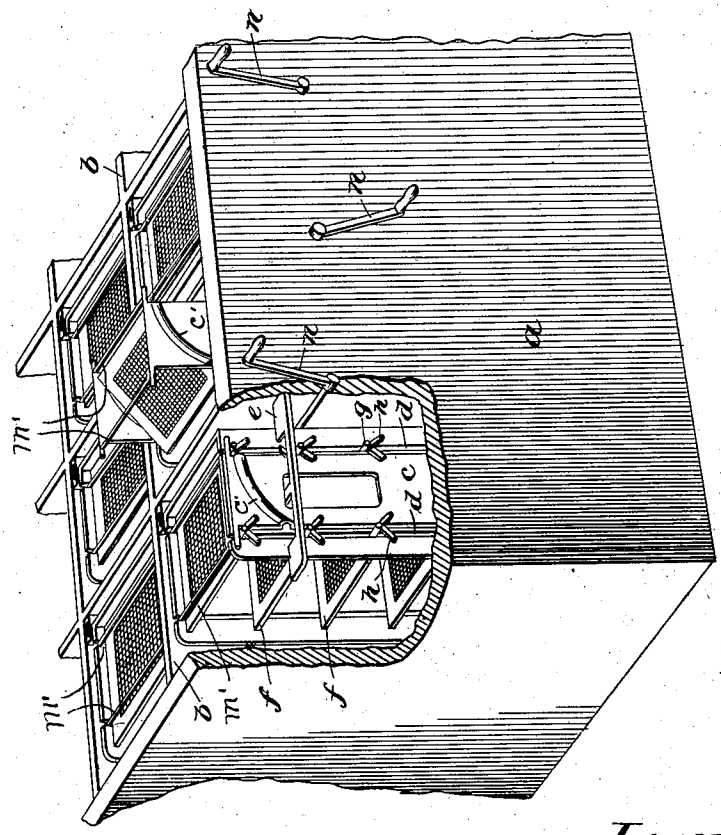


Fig. 1.

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3.

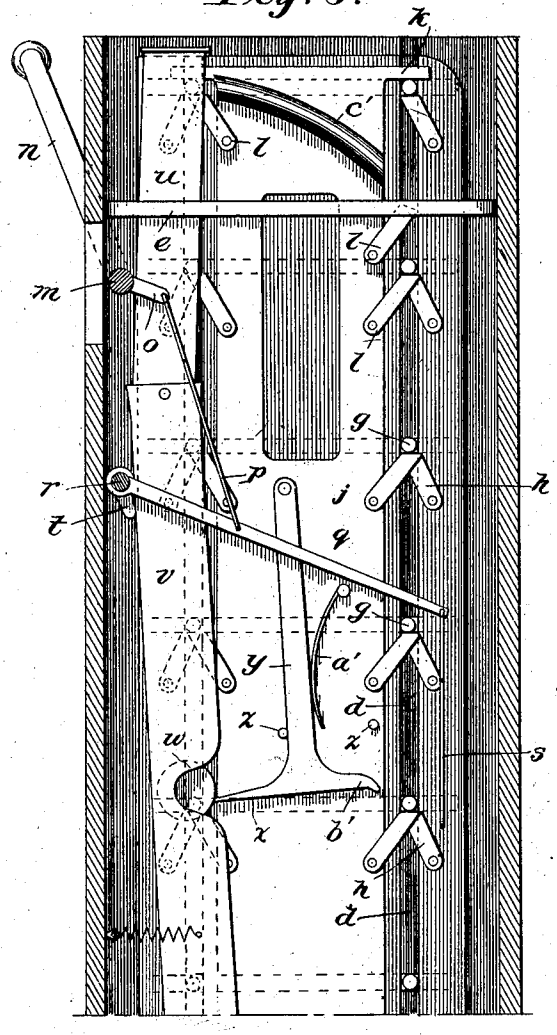
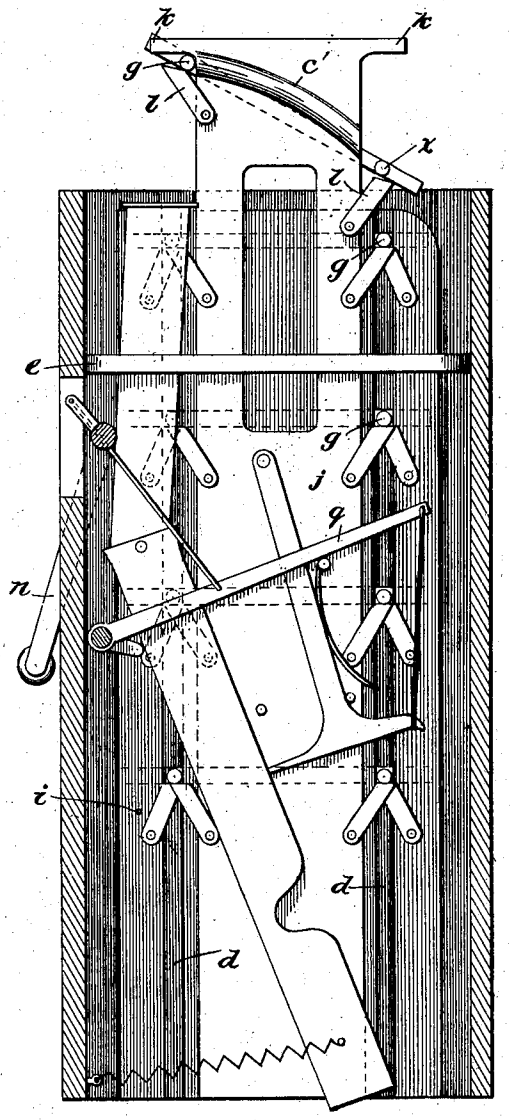


Fig. 4.



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No. 739,418. Patented September 22, 1903.

UNITED STATES PATENT OFFICE.

JUDSON B. HURD, OF BROOKLAND, DISTRICT OF COLUMBIA.

VENDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 739,418, dated September 22, 1903.

Application filed December 24, 1902. Serial No. 136,443. (No model.)

To all whom it may concern:

Be it known that I, JUDSON B. HURD, a citizen of the United States of America, and a resident of Brookland, District of Columbia, have invented a certain new and useful Vending Apparatus, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

Figure 1 is a perspective view, with the casing partly broken away, of a series or group of my magazine devices; Fig. 2, a front elevation of one of the magazines removed from its casing; Fig. 3, a side elevation of one of the magazines with the adjacent walls of its casing in section, a coin being shown in operative position in the coin-chute and the delivery device being in position ready for operation; and Fig. 4 is a view similar to Fig. 3, showing the delivery devices as having been just operated to expose or make accessible one of the articles on sale in the magazine.

This invention has for its object the provision of simple and inexpensive devices for selling articles of merchandise without the intervention of a salesman; and it consists in its preferred construction of a vertical casing open at its top and adapted to inclose a vertical magazine containing a series of shelves or other devices to form a vertical series of compartments in the magazine, these compartments being each adapted to hold one of the articles offered for sale, and mechanism, preferably coin-controlled, being employed for releasing or making accessible the article in the uppermost compartment and simultaneously therewith elevating the compartments below, so as to bring the compartment next below to the top of the magazine and in turn expose for sale the article therein, the shelves being made transparent by being provided with suitable glass or open-work in order that the articles may be inspected by the eye without permitting them to be handled until the proper coin is inserted and the uppermost article released.

Referring to the drawings by reference-letters, *a* designates a store-counter or similar casing, which is divided by suitable intersecting partitions *b* into a series or group of smaller casings which are open at the top and bottom. One or more of these casings may be employed, and in each one of them is arranged a magazine vending apparatus, preferably controlled by coin-operated devices, the parts being so constructed that upon the insertion into a receptacle or pocket of the proper coin suitable delivery devices will be brought into action, whereby the customer may by manipulating a crank or other suitable device gain access to the topmost or outermost article exhibited in the magazine and at the same time bring into convenient position for examination the next article in the magazine, as more fully hereinafter set forth.

Each magazine consists of a vertical casing *c*, open at its top and bottom and along its front side, its rear side being closed and its side walls being each provided with a pair of vertical slots *d*, running its full length. The parts of the side walls thus severed by the said slots are connected together and braced by means of suitable brackets *e*. Fitting loosely in this casing is a series of horizontal shelves or partitions *f*, two of whose side edges are each provided with a pair of pins *g*, working in slots *d*. These pins rest upon pawls *h*, pivoted on the outside of the side walls of the magazine-casing and normally swinging inward under the pins. These pawls incline inward across the slots *d* and are so supported that they freely swing outward to one side to permit the pins *g* to pass when the shelves are moved vertically in the magazine. These pawls are limited in their swinging movements by suitable stops *i*. Any suitable device may be employed to elevate these shelves in unison to bring the articles resting on them into view one after another at the top of the magazine. Each of the shelves is made transparent by being provided with suitable open-work, such as wire-netting, which will permit the articles to be inspected without being reached by the hand. Instead of wire open-work suitable glass may, of course, be employed. The mechanism I have shown for bringing the compartments formed by the shelves to the top of the magazine successively consists, essentially, of a pair of vertically-slidable plates *j*, one being arranged on the outside wall of each magazine and having a width less than or approximately equal to the distance between the slots *d*. Each of these plates at its upper end is provided with lateral projections *k*,

which extend out over the pins of the uppermost shelf, so as to prevent the pins being withdrawn vertically out of the slots without lifting the plate. At intervals along the vertical edges of this plate it is provided with pawls l, similar to pawls h, but which normally swing outward across the slots d, so as to engage under the pins g when the plate is lifted, and thereby raise all the shelves the same distance and in unison. Each of these plates j is raised by means of a shaft m, journaled in the casing at the rear of the magazine and provided on its outer end with a crank-handle n and at or near its inner end with a crank o, to which is connected a depending link p, which in turn is pivotally connected to a lever q, fixed to a shaft r, journaled in the casing below the shaft m. The forward end of the lever q is provided with a pivotal depending link s, and the shaft r is provided with a cam t.

The coin-chute is in two sections, the upper section u being movably attached to one of the side walls of the casing and the lower section v being pivotally hung to the upper section and having its rear edge adjacent to and in the path of cam t, so that when shaft r is rotated said cam t will impinge against the chute and swing it forward. The forward edge of the coin-chute is notched at w, and into this notch extends the point or lip x of a depending dog y, pivotally hung on a plate j and limited in its swinging movements by stops z and normally pressed toward the coin-chute by means of a spring a'. Opposite the lip x the dog y is provided with another projection b', which is slightly hook shape and lies adjacent to and above the hook s. Upon the introduction of a coin into the chute it falls until it rests upon lip x. Then by rotating crank m by means of its crank-handle n the shaft r will be rotated, so as to cause cam t to swing the hinged part of the chute forward. The coin being interposed between the chute and the lip i will cause the dog to be swung forward far enough to bring its hooked end b' into the path of the now ascending hooks s. As the shafts continue to turn and the hooks s to ascend the plates j will be raised, as shown in Fig. 4, thereby lifting all the partitions in unison and to the same distance. The raising of the plates j will lift off the uppermost partition and make accessible the article in the uppermost compartment.

In order to automatically dispose of the uppermost partition when it is elevated above the magazine, I employ the following devices: The uppermost one of the pawls l at the front edge of each of the plates j is located lower down than its companion pawl at the rear edge, so that when the plates j are raised the pawls at the rear edges thereof will engage the pins g of the uppermost partition first and tilt the partition, so that when the plates reach their uppermost limit of movement the partition will have been brought to an inclination beyond the angle of repose, as shown most clearly in Fig. 4, from which position it will automatically slide forward and downward into the space between the front edge of the magazine and the adjacent wall of the casing. In order to guide the rear set of pins g after they slide off their supporting-pawls l, suitable inclined grooved ways c' are formed in the inner faces of the plates j. When the pins g leave the rear set of pawls, the pins pass immediately into these grooved ways c', and are thereby supported until the board or partition drops off into the casing, as set forth. When the operator, which of course will usually be the purchaser of the article, releases the crank-handle n, which he will do as soon as the top partition slides off into the casing, the plates will descend by gravity and all the plates will assume their normal positions, as shown in Fig. 3, the pawls l being so hung as to readily pass over the pins g as they descend. It will be observed that as the partitions pass the pawls h in their ascent the said pawls automatically fall inward under the pins, so as to afford supports for the shelves or partitions. It will be noted also that after the removal of the topmost shelf and the slide-plates are allowed to descend the projections k rest over the pins g of the uppermost shelf, and thereby prevent the said shelf from being removed until another coin is inserted.

In order to prevent the elevating devices being operated without inserting the predetermined coin, the notch w in the coin-chute and the cam t on shaft r are so proportioned in size that in case the coin-chute is swung inward without a coin in it resting on lip x, the dog y will not be swung far enough over to have its hook b' engaged by the link s.

It will be observed from the foregoing that my invention is not confined to the construction shown and described, and I therefore wish it understood that I reserve the right to vary this construction without departing from the scope of my claims. For instance, any other suitable device for elevating the article supporting and protecting devices may be employed, and also any suitable coin-controlled devices may be used for putting the parts in position for operation.

It will be observed that one of the important features of this invention lies in the fact that the magazine is vertically arranged and the articles are delivered from its top, so that it is adapted to be employed with an open-top casing. This arrangement avoids the necessity of delivering the articles laterally from the magazine, and thereby secures a great saving in space, which desideratum is a very important thing, as it economizes much valuable floor-space in the store. This economy of space I still further secure because of the fact that my construction permits the magazines to be grouped—that is, arranged closely adjacent, as shown in Fig. 1, the walls of one casing serving also as the walls of the adjacent casings.

A machine intended to handle articles of merchandise on a large scale must not only make use of the space beneath the counter-top, but must also expose to view as many articles as possible at the surface of the counter, must afford the customer an opportunity to examine each article before he pays for it, and must provide independent means related to each article exhibited for releasing it or delivering it to the customer when it is paid for, thereby enabling him to choose from a large display and to receive the identical article he selects. Each of these requirements is very important, and I have for the first time combined in one apparatus the means for meeting all of them. The specific mechanism by which these different functions are performed, it will readily be seen, can be varied almost indefinitely, so I claim, broadly, the combination of means for effecting the objects mentioned.

It will be observed that a feature which contributes materially to the utility of my apparatus consists in employing a magazine which is open at both ends, whereby the partitions and the articles of merchandise may be inserted at one end continuously and discharged continuously at the other end, this arrangement being advantageous because it economizes space and permits the magazine to be quickly charged in busy seasons.

It will also be observed that my invention may be embodied in horizontally-arranged magazines as well as in the vertically-arranged magazines shown.

The vertically-movable plates *j* on opposite sides of the magazine are of course connected together, so as to rise and fall in unison. As one way of connecting them I show a pair of transverse rods *m'*, extending across the top of the magazine and adapted to assist lugs *k* in locking the top shelf in place.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an apparatus of the class described, the combination of a merchandise-magazine, a series of unconnected partitions extending across the magazine and thereby dividing it into a series of compartments adapted each to receive an article of merchandise, and devices for moving said partitions toward one end of the magazine, so as to render accessible the articles of merchandise in succession.

2. In an apparatus of the class described, a magazine having one end open, a series of devices in the magazine adapted to form a series of compartments, means for simultaneously moving all said compartment-forming devices in the same direction while in the magazine, so as to bring the compartments in succession to the open end of the magazine.

3. In an apparatus of the class described, a magazine-casing, open at its top, a series of slidable supports therein, each of which is made transparent, and mechanism for simultaneously elevating said slidable supports so as to bring the series of compartments formed thereby in succession to the top of the magazine.

4. In a vending apparatus of the class described, a magazine-casing open at one end, a series of independent slidable supports arranged in the magazine to form a series of compartments therein, each compartment being adapted to hold an article of merchandise, and mechanism for simultaneously sliding said slidable supports so as to bring the compartments they form singly and in succession to the open end of the magazine.

5. In a vending apparatus of the class described, a counter provided with a series of openings in its top, means for storing articles of merchandise beneath said top, means for exposing to view at the openings in the counter-top each article as it is offered for sale, in combination with means related to each of said openings for releasing the article to the purchaser, the point of delivery and the point of exposition being above the point of storage.

6. In an apparatus of the class described, a sales-counter, means for storing articles of merchandise beneath the upper surface of said sales-counter, a series of openings in the top of the counter, each opening being adapted to exhibit an article for sale, and means for delivering the article from the point of exhibition and for causing another to take its place, the point of delivery being directly above the point of exhibition.

7. In an apparatus of the class described, a magazine-casing open at both ends, one end being the charging end and the other end being the delivery end, a series of slidable partitions in said magazine, separated to form compartments, and mechanism for simultaneously sliding said slidable supports from the charging end toward the delivery end, so as to bring the compartments singly and in succession to the delivery end of the magazine.

8. A vending apparatus consisting of a sales-counter provided with openings in its top, in combination with means for storing articles of merchandise in the body of said counter, means for elevating the articles and for exhibiting them to view at said openings in the counter-top, means to prevent the articles being removed from the point of exhibition, and means for releasing each article for delivery.

9. In a vending apparatus of the class described, means for storing articles of merchandise in an upright column, means for exposing to view the topmost article in the column, means for securing the articles to prevent them being removed, in combination with means for releasing the topmost article in the column and elevating the others in succession to the point of exposition.

10. In an apparatus of the class described, the combination of a magazine-casing, a series of horizontal shelves forming compartments, means for elevating the shelves in unison, and means for locking the uppermost shelf.

11. In an apparatus of the class described, the combination of a magazine-casing, a series of horizontal partitions or shelves and means for elevating them in unison, so as to bring the compartments formed by the shelves in succession to the top of the magazine, means for locking the uppermost shelf in place, and means for releasing the uppermost shelf upon the elevation thereof.

12. In an apparatus of the class described, the combination of a magazine, a series of shelves therein and means for elevating them for the purpose described, and means for displacing the uppermost shelf when the shelves are elevated.

13. In an apparatus of the class described, the combination of a magazine, and a series of shelves therein adapted to form compartments, means for elevating the shelves, and means for automatically laterally removing from the magazine the uppermost shelf when the same is raised.

14. The combination of a magazine, a series of shelves therein and means for elevating the shelves for the purpose set forth, and means for tilting the uppermost shelf and automatically displacing it laterally when the same is raised.

15. In an apparatus of the class described, the combination of a magazine and a series of compartment-forming shelves, means for elevating the shelves consisting essentially of a pair of uprights carrying pawls adapted to engage said shelves, and means for raising and lowering these uprights.

16. In an apparatus of the class described, the combination of a magazine containing a series of vertically-movable shelves forming compartments, a series of devices on the magazine adapted to support the shelves and at the same time permit them to be elevated, and vertically-movable parts carrying pawls adapted to engage said shelves when elevated, and means for elevating the said parts.

17. In an apparatus of the class described, the combination of a magazine and a series of compartment-forming shelves, a series of pivotal pawls on the magazine adapted to support the shelves, vertically-movable parts carrying a series of pivotal pawls adapted to engage the shelves and raise them in unison, and means for elevating the said vertically-movable parts.

18. In an apparatus of the class described, the combination of a magazine containing a series of compartment-forming vertically-movable shelves, devices on the magazine adapted to support the shelves and properly space them, and means for elevating the shelves in unison and releasing the uppermost shelf.

19. In an apparatus of the class described, the combination of a magazine and a series of vertically-movable shelves, means on the magazine for supporting the shelves, vertically-movable plates carrying a series of pivotal pawls adapted to engage the shelves and lift them in unison when said plates are elevated, a lifting-dog on said plates, lifting devices adapted to engage said dog and lift the plates, and means for engaging said dog with said lifting means.

20. In an apparatus of the class described, the combination of a magazine, means thereon for supporting and spacing the shelves, vertically-movable plates carrying means for engaging and elevating the shelves, means for elevating these plates, and means carried by the plates for tilting the uppermost shelf beyond the angle of repose and thereby displacing it laterally.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 24th day of December, 1902.

JUDSON B. HURD.

Witnesses:

HERBERT C. EMERY,

R. W. BISHOP.