No. 747,414. PATENTED DEC. 22, 1903.

T. N. GOFFE.

VENDING MACHINE.

APPLICATION FILED JULY 13, 1903.

NO MODEL. 3 SHEETS—SHEET 1.

Fig. 1.

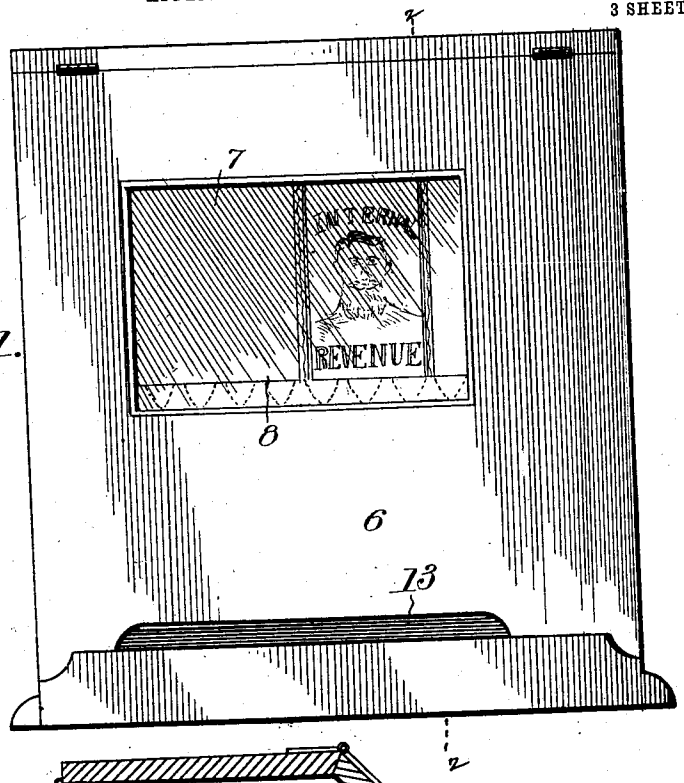
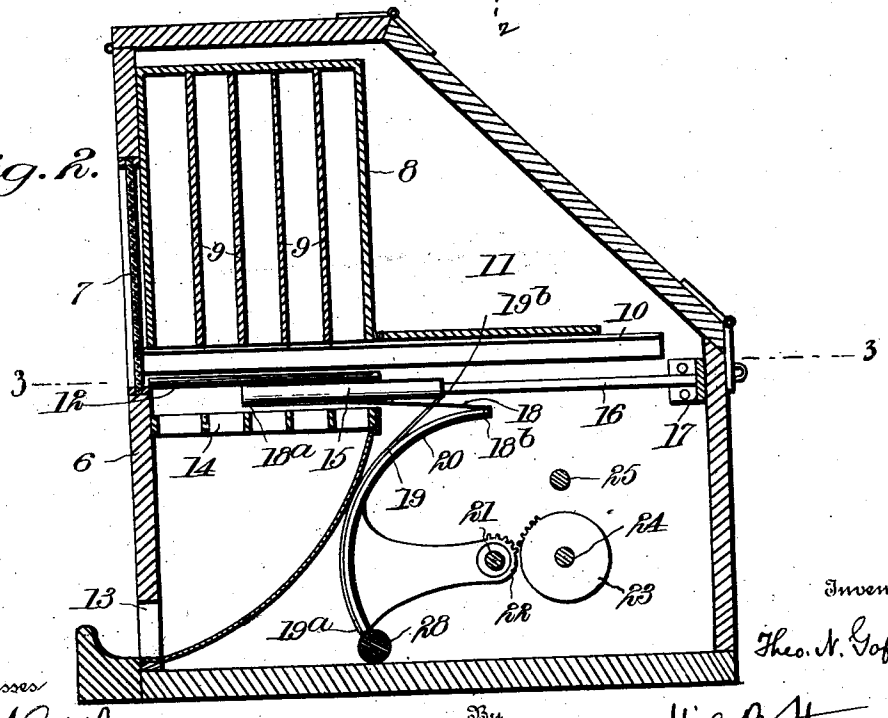


Fig. 2.



Witnesses

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NO MODEL. 3 SHEETS—SHEET 2.

Fig. 3.

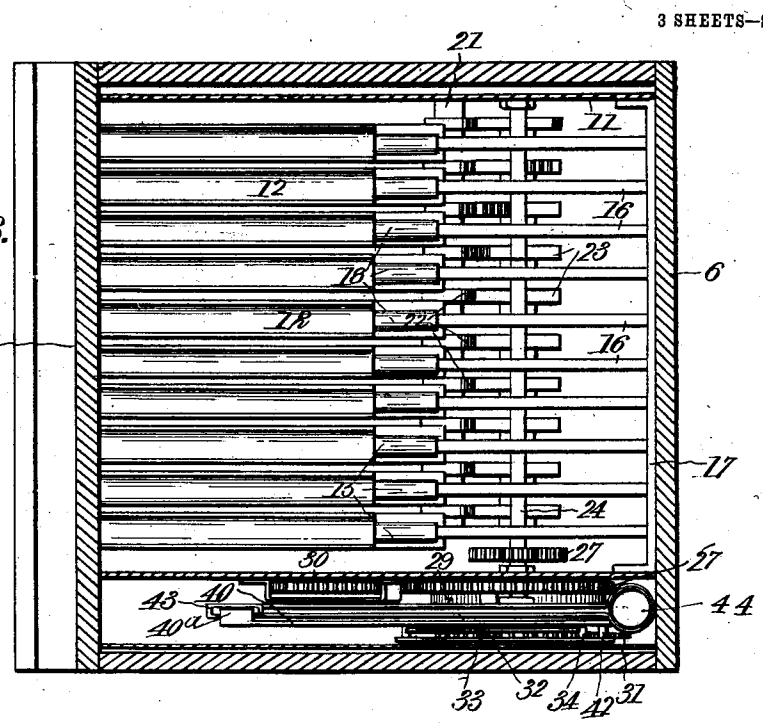
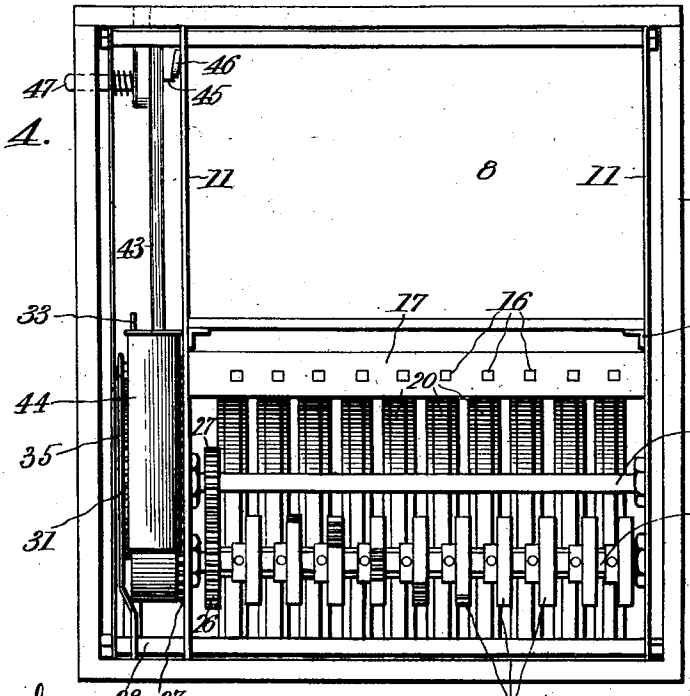


Fig. 4.



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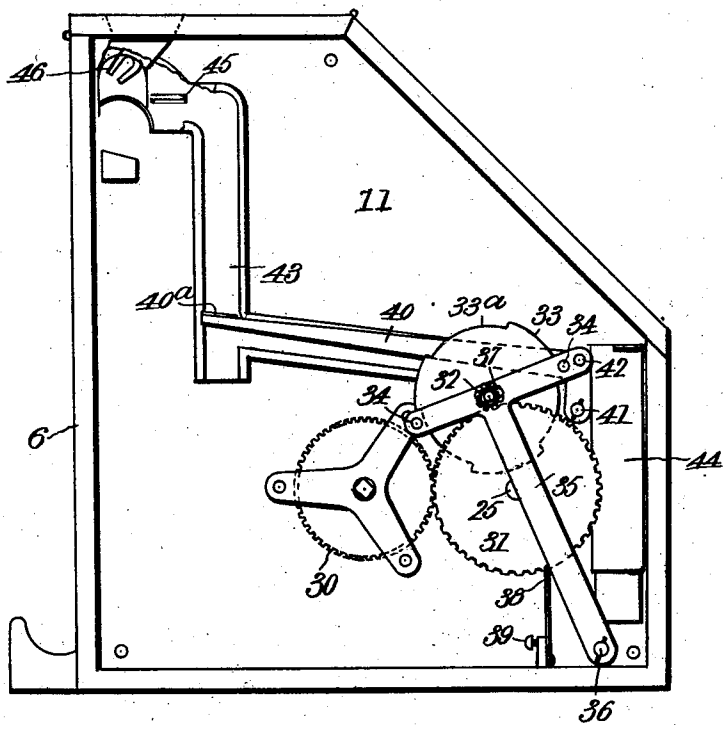
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VENDING MACHINE.

APPLICATION FILED JULY 13, 1903.

NO MODEL. 3 SHEETS—SHEET 3.

Fig. 5.



Witnesses

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No. 747,414. Patented December 22, 1903.

UNITED STATES PATENT OFFICE.

THEODORE N. GOFFE, OF SPRINGFIELD, MISSOURI.

VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 747,414, dated December 22, 1903.

Application filed July 13, 1903. Serial No. 165,314. (No model.)

To all whom it may concern:

Be it known that I, THEODORE N. GOFFE, a citizen of the United States, residing at Springfield, in the county of Greene and State of Missouri, have invented new and useful Improvements in Vending-Machines, of which the following is a specification.

This invention relates particularly to that class of vending-machines used for vending cigars actuated by the deposit of a coin in a check-controlled apparatus to permit and effect the delivery of the cigar. It is not, however, limited to the delivery of cigars, but may be used for the delivery of small packages or vials of merchandise.

The object of the invention is to provide an improved device of the kind stated which with respect to cigars will deliver the same from the original box, as required by the revenue law.

The invention embodies the use of a bottomless casing or box containing the cigars or other articles to be vended in a series of rows, the articles being supported upon a series of shelves corresponding in number to the series of rows of articles. These shelves are successively movable step by step, so that the support of the articles is withdrawn, and they drop to a delivery-opening, where they may be reached by the hand of the purchaser. The actuating mechanism is so constructed that each of the row of shelves will be successively taken up and moved until the cigar-box or other receptacle is empty.

The invention also comprises the provision of an improved coin-controlled spring-motor, which actuates the shelves.

The construction is also characterized by the fact that each shelf is automatically reset after the delivery of the row of articles which it supports.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of the casing. Fig. 2 is a longitudinal vertical section on the line 2 2 of Fig. 1. Fig. 3 is a horizontal cross-section on the line 3 3 of Fig. 2, showing the movable shelves in plan. Fig. 4 is a rear elevation, the back of the casing being removed. Fig. 5 is a side elevation, the side of the casing and the side supporting-plate being removed to show the spring-motor and its releasing mechanism.

Referring specifically to the drawings, the casing is indicated at 6, having a glazed window in the front, as indicated at 7, through which the box of cigars or other articles may be seen. The back and top of the casing are openable to place the goods in the machine. A box of cigars is shown in the drawings, as at 8, and contains partitions 9, forming a cell for each cigar, the number of such cells being equal to the number of cigars in the box. When inserted, the box is inverted and rests at its ends upon narrow flanges 10, projecting from the side plates 11, upon which the mechanism is supported. When so inserted, each row of cigars rests upon and is supported by a shelf 12, which is movable rearwardly step by step to successively allow the cigars to drop to the hand-hole 13 below. The shelves are drawn back by mechanism controlled by the coin, to be hereinafter described; but to prevent the shelves from being pushed back illegitimately, as by a wire inserted through the hand-hole, a grating 14 is provided under the shelves. This grating is formed of crossed slats and has openings equal to and directly under the cells in the box. Thus when the shelves are withdrawn the cigars will drop through the grating, and the grating will prevent the shelves being got at and pushed back from the outside. Each shelf has a guide-tube 15 fixed to the under side thereof, which slides upon a squared rod 16, supported by a cross-bar 17 at the back of the machine. The tubes 15 are each connected by tapes 18 and 19 to a segment 20, mounted loosely to turn on a pivot-rod 21. The tape 18 is connected to the front end of the tube, as at 18^a, and to the upper or rear end of the segment, as at 18^b, and the tape 19 is connected to the front or lower end of the segment, as at 19^a, and to the rear end of the tube, as at 19^b. When the segment is turned, the tape 18 pulls the tube and shelf back, or in one direction, and when the segment turns in the opposite direction the tape 19 pulls the tube and shelf forward, or in the other direction. The same movement could be produced by gear-teeth on the segment meshing with a rack on the under side of the tube; but the

construction shown is believed to be cheaper and just as good. Each segment is fixed to a mutilated pinion 22, the number of teeth of which is equal to the number of cigars or other articles in the row. This pinion is adapted to mesh with a mutilated gear 23, having the same number of teeth, fixed to the shaft 24.

There is a row of segments 20 equal in number to the number of shelves and a row of gears 23 equal in number to the segments. The gears 23 are so placed upon the shaft 24 that their segments form a whole wheel, being spirally arranged, so that as the teeth of one gear-wheel leave its pinion the teeth of the next gear-wheel take the next pinion, and except when the teeth are in contact no movement of the pinions or segments is produced. Thus the gears on the shaft 24 engage the pinions 22 successively and produce successive movement of the shelves. The shaft 24 is driven from a power-shaft 25 by a pinion 26 on the power-shaft and spur-wheel 27 on the shaft 24. The gears are so proportioned that the wheel 23 turns one tooth at each coin-actuated release, and the segment 20 is so proportioned that the resulting movement given the shelf 12 is equal to the width of a cell in the box. Thus a shelf slides back far enough each time to allow one cigar or other article to drop and be delivered, and when one row has been delivered the next segment is engaged to deliver the next row, and so on. The lower part of the segment is weighted, so that when its pinion disengages from the gear-wheel it drops by its own weight and thrusts the shelf forward to its original position, where it normally rests upon a rubber-covered supporting-bar 28.

As a motor for the apparatus a coiled spring 29 is used, mounted upon the power-shaft 25, the winding-gear being indicated at 30.

The coin-controlled escapement or release comprises a spur-wheel 31, fast on the shaft 25 and in mesh with a pinion 32, carried by the scape-wheel 33, having notches 33^a, in which engage the detents 34, carried by the escapement-lever 35. This lever is pivoted at 36 on a pin projecting from one of the supporting-plates, and its motion is conveniently guided and limited by a slot 37, (indicated in dotted lines in Fig. 5,) through which the arbor of the scape-wheel projects. The lever swings to allow one detent to engage and the other to disengage, which permits a movement of the scape-wheel equal to the distance between the notches. The proportions of the scape-wheel and its pinion and the spur-wheel 31 are such that proper movement is allowed the shaft 25 at each escape to give the requisite movement to the gearing which controls the shelves. Normally the detent on one side of the scape-wheel is held at engagement and the wheel stopped by the pressure of a spring 38, which bears against the lever, the pressure being adjustable by set-screw 39. The pressure of the spring is overcome and release of the wheel effected by a bent lever 40, pivoted at 41 and connected at its elbow to one arm of the escapement-lever by a pin 42. The other end of the lever extends to the vertical portion of the coin-chute 43 and has a strike-plate 40^a projecting in the chute in position to receive the impact of the coin when dropped in the slot. Under the weight of the coin the lever drops, acting as a trigger to release the detent and scape-wheel and permit consequent movement of the train. The pressure of the spring 38 is so regulated that it takes the weight of a predetermined coin to move the trigger. After depression of the trigger the coin rolls down the chute to a coin-receptacle 44. At the upper end of the chute is a cylindrical casing in which a push-button 47 works. When a coin is deposited in the slot, which enters one end of the casing, the push-button is shoved in, carrying the coin into the chute.

The boxes containing the cigars or other articles may be made with partitions therein, or an ordinary box may be used and a cell-case or set of partitions inserted in the box when it is put in the machine. In various other ways the parts may be adapted to the result to be produced, and the invention is not limited to the exact construction shown nor otherwise than is indicated in the following claims.

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

1. In a vending-machine, the combination of a case having a series of rows of cells for the articles, a series of sliding shelves thereunder, a shaft, a series of automatically-disengageable connections having intermittent engagement between the shaft and the several shelves, to withdrew the latter, and means to return the shelves when disengaged.

2. In a vending-machine, the combination with a receptacle having a series of rows of cells for the articles, of a support for the articles under each row, and normally disengaged mechanism having successive actuating engagement with the supports severally.

3. In a vending-machine; the combination of a case having a series of rows of cells for the articles; a series of sliding shelves yieldingly retained under the cells, to support the articles; a shaft, and successively-engageable connections between the shaft and the shelves, acting to withdraw the shelves successively from under the rows, as the shaft turns.

4. In a vending-machine; the combination of a case having a series of rows of cells for the articles; a series of sliding shelves under the cells, to support the articles; a shaft, a series of segment-gears on the shaft, corresponding to the shelves; connections between the gears and the shelves, engageable to withdraw the shelves from under the cells, the arrangement of the gears on the shaft being such that the connections are engaged suc-

cessively, and a weight connected to each shelf, acting to normally retain and return the same under the cells.

5. In a vending-machine; the combination of a cell-case for the articles, of a yieldingly-retained sliding shelf thereunder, a rocking segment connected to the shelf and acting to draw the same, a shaft, and a mutilated gear-wheel on the shaft, engageable intermittently with the segment to rock it in one direction and draw the shelf from under the cells.

6. In a vending-machine, the combination with a casing having a delivery-opening, of a case having a series of cells for the articles, above the opening, a removable support for the articles, between the cells and the opening, and a grating between the support and the opening, having a series of holes corresponding in number and position to the cells, through which holes the articles fall when the support is withdrawn.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THEODORE N. GOFFE.

Witnesses:
G. W. HACKNEY,
J. B. DODSON.