A. R. WETHERLY.

VENDING APPARATUS.

APPLICATION FILED OCT. 25, 1909.

986,664. **Patented Mar. 14, 1911.**

3 SHEETS—SHEET 1.

Fig. 1.

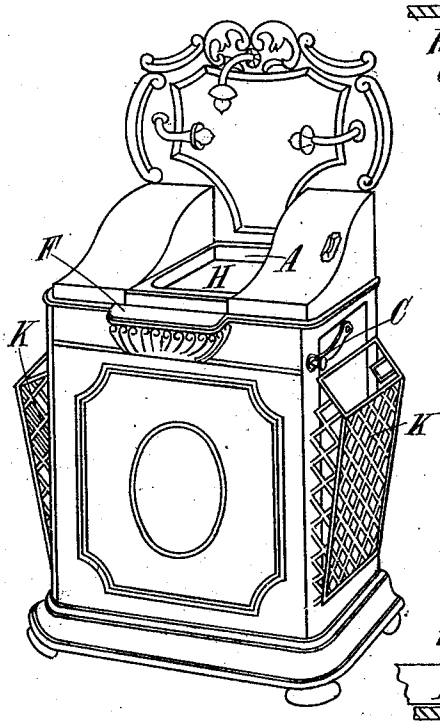


Fig. 5.

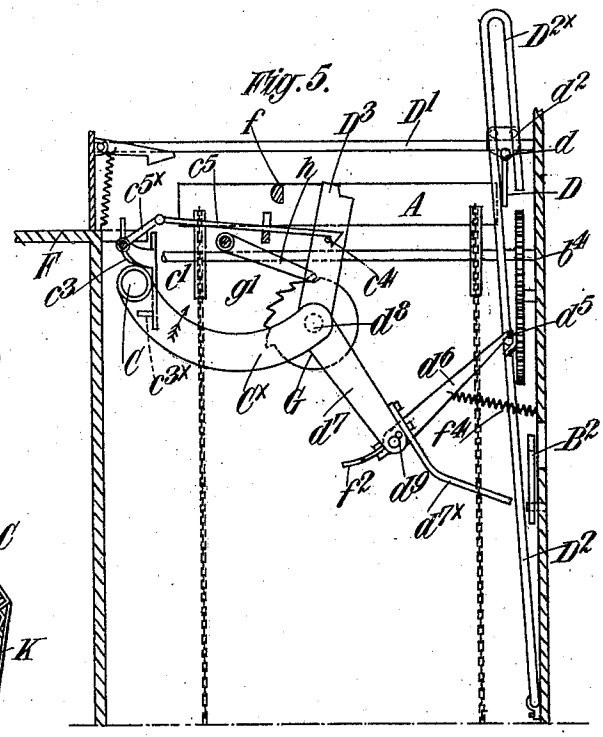
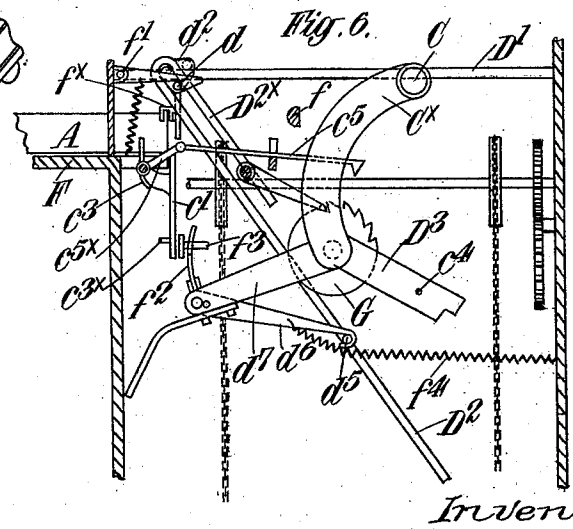


Fig. 6.



Witnesses:
H. L. Allen
E. Batchelder

Inventor:
A. R. Wetherly
by Wright Brown Quinby & May
Attys.

THE NORRIS PETERS CO., WASHINGTON, D. C.

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3 SHEETS—SHEET 2.

Fig. 2.

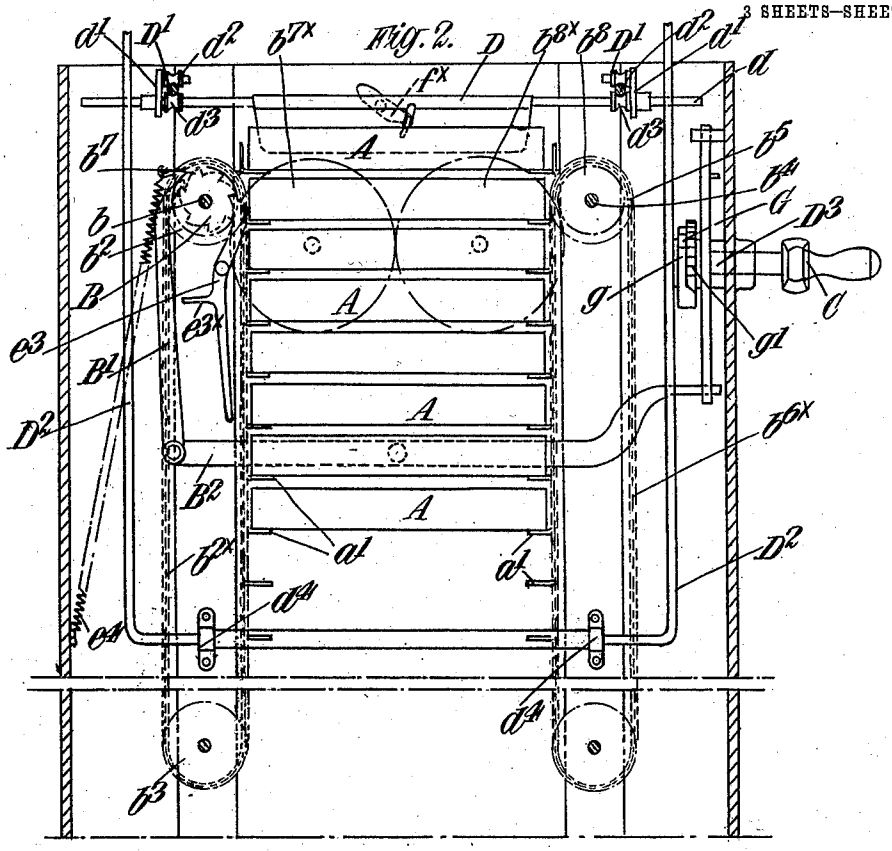
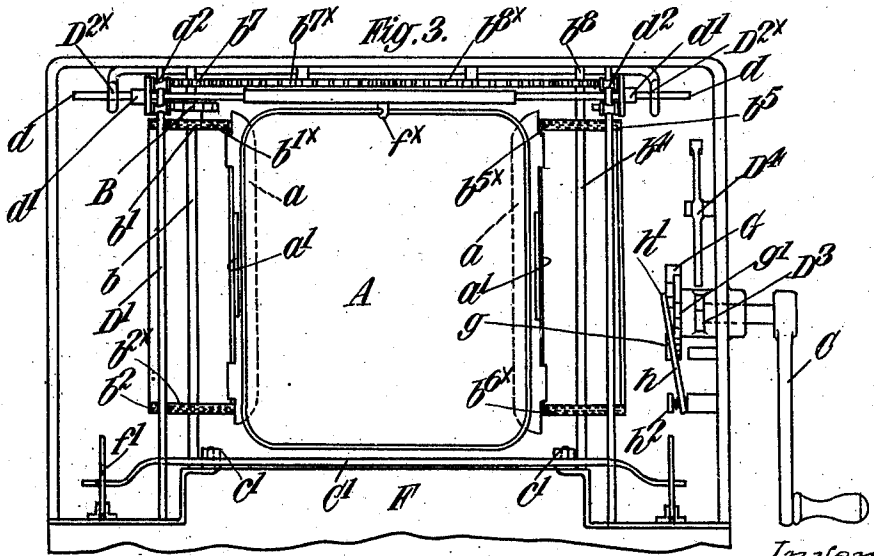


Fig. 3.



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3 SHEETS—SHEET 3.

Fig. 4.

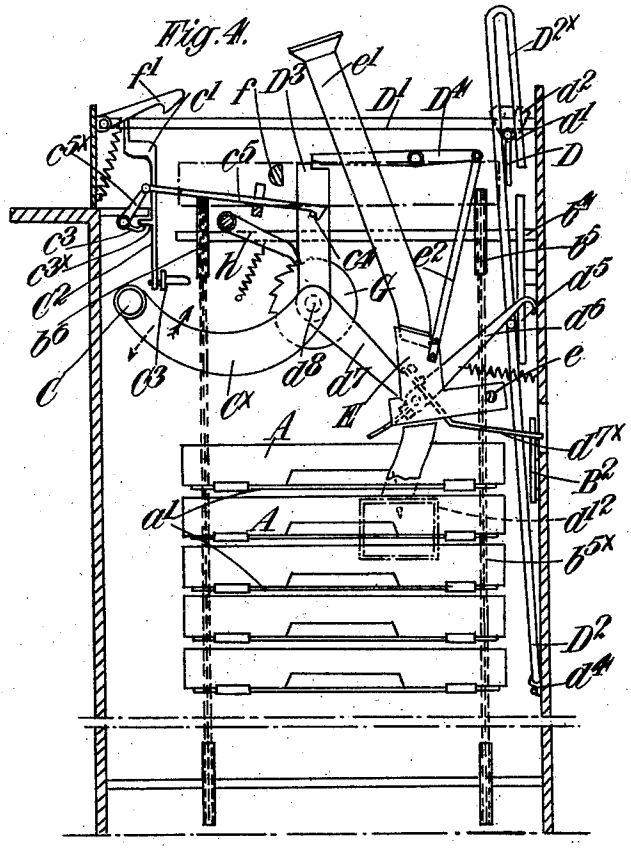


Fig. 9.

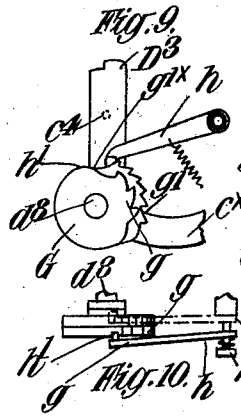


Fig. 11.

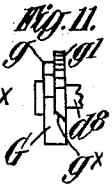


Fig. 10.

Fig. 7.

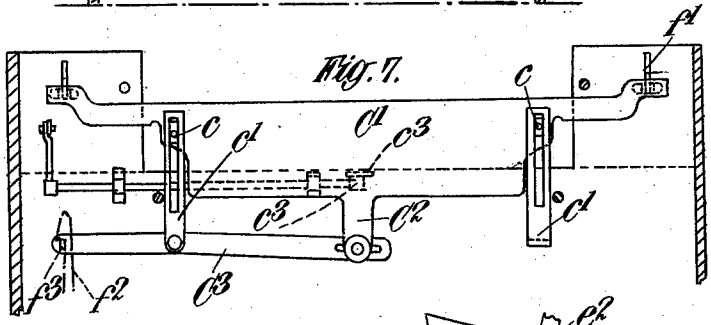
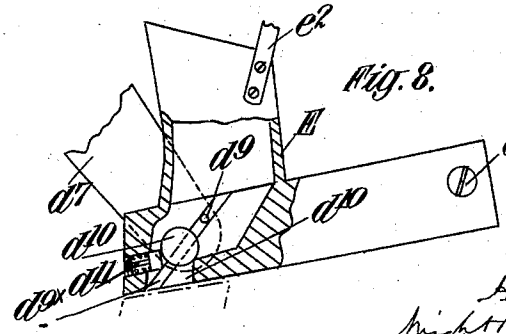


Fig. 8.



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Attys.

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ALBERT ROWDEN WETHERLY, OF CROYDON, ENGLAND.

VENDING APPARATUS.

986,664. Specification of Letters Patent. Patented Mar. 14, 1911.

Application filed October 25, 1909. Serial No. 524,333.

To all whom it may concern:

Be it known that I, ALBERT ROWDEN WETHERLY, a subject of the King of Great Britain, residing at "Penryn", Oval Road, Croydon, in the county of Surrey, England, and late of 26 Ash Grove, Hackney, in the county of London, England, have invented certain new and useful Improvements in Vending Apparatus, of which the following is a specification.

This invention relates to apparatus or machines for delivering articles in exchange for a coin and has for its object to so devise machines of this character that light luncheons composed of cold viands such as fish, fowl, fruit or the like can be contained in the machine in such manner as to be readily visible to a would-be purchaser and capable of being delivered after the insertion of the requisite coin or coins, the said luncheons being arranged in trays which can be taken away from the machine by the purchaser and which are composed of such inexpensive but attractive material that the same can be discarded after use.

According to this invention the trays or boxes containing the said luncheons are composed of papier mâché or other suitable light and inexpensive material which will not detrimentally affect the viands and these trays or boxes are arranged in the machine one above the other, the portion of the machine above the topmost tray or box being provided with a glazed opening through which the said tray or box and its contents can be inspected. The portion of the machine adjacent to the topmost tray, preferably the front portion, may be hinged or otherwise adapted to open by the movement of a handle after the inserted coin has moved a suitable detaining mechanism, to allow the said tray or box with its contents to be pushed forward onto a suitable shelf or the like by the continued movement of the handle. Upon releasing the aforesaid handle the movable portion of the casing returns to its initial closed and locked position. The elevating mechanism for raising the trays or boxes containing the luncheons can now again be brought into operation, thus bringing the top tray or box in a position to be withdrawn when a coin is again inserted and the handle actuated.

The said machine can obviously be used in connection with articles other than viands, and the outer surfaces of the machine may be used for advertisement or other purposes.

In order that my said invention may be clearly understood and readily carried into effect, I will describe the same more fully with reference to the accompanying drawings, in which:—

Figure 1 is a perspective view showing the general arrangement of the apparatus. Fig. 2 is a front elevation of the actuating mechanism with the front of the machine removed. Fig. 3 is a plan view of Fig. 2. Fig. 4 is a side elevation viewed from the right of Fig. 2 with the casing removed. Figs. 5 and 6 are similar views to Fig. 4 showing the mechanism in different positions. Fig. 7 is a front elevation of the rising and falling liberating plate and its actuating mechanism. Fig. 8 is a sectional view of the coin-freed mechanism. Fig. 9 is a perspective view. Fig. 10 a side elevation, and Fig. 11 a plan of the ratchet and pawl arrangement controlling the movements of the actuating handle.

A represents the trays which are arranged one above the other upon narrow steel plates a mounted on spindles a'. Upon a spindle b are arranged two sprocket wheels b', b^2, which bear, respectively, chains $b'^{\times}$, $b^{2\times}$, the said chains passing over sprocket wheels b^3 mounted upon a spindle at the lower part of the apparatus. In a similar manner a spindle b^4 has mounted thereon two sprocket wheels b^5, b^6 which receive chains $b^{5\times}$, and $b^{6\times}$. Mounted upon the spindle b is a pinion wheel b^7 which is geared with a pinion b^8 on the spindle b^4, by means of two equal wheels $b^{7\times}$, $b^{8\times}$. The aforesaid spindles a' are mounted upon the said chains, and the plates a are of such a character that they lie flat upon the chains when the same have passed over the top sprocket wheels. A ratchet wheel B, mounted on the spindle b is adapted to be rotated step by step to give the necessary upward movement to the trays A. For this purpose a hook member B', adapted to engage with the teeth of the ratchet wheel B, is provided, which is attached to a pivoted lever B^2 adapted to be rocked by mechanism attached to the operating handle C as will be hereinafter described.

The liberating front plate C' which protects the topmost tray from being tampered with is mounted to move vertically by the

engagement of pins c in slots formed in brackets c'. The said plate C′ is provided with a depending lug C^2 having a pin c^2 engaging in a slot in a pivoted bar C^3 which is rocked by the actuating mechanism hereinafter referred to, to elevate the plate C′. The said plate is retained in its raised position by the engagement of a pivoted finger c^3 with a lug $c^{3\times}$, the said finger c^3 being tripped at the correct moment by the actuating mechanism to allow the plate C′ to fall.

The mechanism for displacing the top tray comprises a plate D mounted on a bar d, in such a position that it is immediately behind the top tray when the same is raised. The said bar is provided with two brackets d' on which are mounted rollers d^2, corresponding rollers d^3 being mounted on the bar d, and the said rollers running upon a rod D′. Engaging with the ends of the bar d is a bent rod D^2 having forked ends $D^{2\times}$ to form a slot for the said bar to work in, the rod D^2 being pivoted in brackets d^4. One of the rods D^2 has a projecting pin d^5 with which a hook d^6 engages when the handle C is actuated after the mechanism has been released by the inserted coin. The hook d^6 is pivoted to an arm d^7, rigidly mounted on a shaft d^8 to which arm the operating handle C is connected by means of a crank $C^\times$. An arm D^3 is also mounted on said shaft d^8, and working in conjunction with the pivoted lever D^4 serves as a safety device to prevent the mechanism operating until a coin has been inserted.

The operation of the mechanism is as follows:—The normal position of the parts is as shown in Figs. 2, 3 and 4, with the top tray below the shelf F, and the liberating plate C′ in the raised or closed position. Movement of the handle C in the downward direction, that is in the direction of the dotted arrow in Fig. 4, will rotate the shaft d^8 and displace the members D^3 and d^7 mounted thereon. Attached to the lever d^7 is a member $d^{7\times}$ which engages with the aforesaid pivoted lever B^2 to rock the same and depress the hook member B′, thus rotating the ratchet wheel B and the spindle b, and consequently elevating the trays A mounted on chains as aforesaid. A pivoted pawl e^3 prevents the backward movement of the ratchet, and a tension spring e^4 is attached to the chains and to the casing to partly counterbalance the weight of the trays and their contents. The said pawl e^3 is provided with a projection $e^{3\times}$ which bears against the hook member B′, so that when the pawl is actuated by hand to disengage it from the teeth of the ratchet wheel B, the member B′ is also disengaged and the chains can then be operated manually to allow fresh trays to be inserted.

The operation of lifting the trays so that the topmost is brought into line with the shelf F, is not under the control of the coin freed mechanism, and can therefore be performed either before or after the insertion of the coin. The stop f limits the movement of the handle C in the downward direction.

When the coin d^{10} is inserted in the chute e' it drops into the lower part of the casing E (Fig. 8) and bears against the spring controlled plunger d^{11}. The arm d^7 has a pin d^9 projecting therefrom, which works in a slot $d^{9\times}$ formed in the said casing. The distance between this pin d^9 and the coin d^{10} is such that the pin reaches the coin before the member D^3 comes into contact with the shoulder of the pivoted lever D^4, so that the casing E is rocked about its pivot e thus displacing the arm e^2 attached thereto, and rocking the said lever D^4 about its pivot. This allows the handle C to be further displaced, which causes the spring plunger d^{11} to be actuated by the pressure of the pin d^9 on the coin d^{10}, which then passes through the aperture $d^{10\times}$ into a suitable box or the like d^{12}. The member D^3 is provided with a pin c^4 which engages with a hook member c^5 attached by means of a lever $c^{5\times}$ to a rod c^6 upon which the aforesaid finger c^3 is mounted. Continued rotation of the handle C in the direction of the arrow (shown in full line in Fig. 4) causes the parts to assume the position shown in Fig. 5 in which the finger c^3 is out of engagement with the lug $c^{3\times}$ and the liberating plate C′ has fallen to the open position. The hook member d^6 has now engaged with the pin d^5 of the rod D^2, and further rotation of the handle C in the direction of the arrow in Fig. 5, will cause the parts to assume the position shown in Fig. 6. The plate D has displaced the tray on to the shelf F and a pivoted finger $f^\times$ fixed to the plate D prevents the tray from being removed. A spring controlled hook f' is now in engagement with the rod d and a hook f^2 attached to the member d^7 has engaged with a pin f^3 on the aforesaid pivoted bar C^3. As soon as the handle C is released it returns under the influence of the spring f^4 to the position shown in Fig. 4. During this movement the pivoted lever C^3 is depressed and the liberating plate C′ moved upward as before described. This causes the plate C′ to raise the hook f'. At the same time the plate has come into contact with the finger $f^\times$ and has displaced the same, thus leaving the tray free to be removed from the shelf F.

Mounted upon the shaft d^8 is a wheel G which is formed with two sets of adjacent teeth g g', extending over a part of the periphery, the said teeth being inclined in opposite directions. Engaging with the said teeth is a spring controlled pawl h having a side projecting piece h'. At the end of

the toothed part g' is an inclined portion g^x which communicates with the teeth g. The pawl h is mounted upon a pin h^2 in such a manner that the end thereof can be displaced laterally, a spring h^x tending to keep it at right angles to the said pin h^2 that is with the pawl engaging with the teeth g'. The operation of this pawl and ratchet arrangement is as follows:—Assuming the parts to be in the position shown in Fig. 4, the depression of the handle to lift the trays, causes the pawl h to engage in the recess g'^x, and thus acts in conjunction with the stop f, to prevent further movement. When the handle C is actuated in the reverse direction, the pawl h rides upon the teeth g' but prevents any backward movement of the actuating handle. When the position shown in Fig. 6 is reached and the handle C is released, the pawl h is displaced laterally by the inclined surface g^x so that the teeth g are now in contact with the said projection h' of the pawl. The engagement of the said projection with the teeth g, effectively prevents the movement of the handle C in the reverse direction. When the plain portion of the ratchet wheel G comes beneath the pawl h, the latter under the influence of the spring h^x moves laterally to its normal position upon the teeth g'. This device thus insures the completion of the aforesaid cycle of operations being performed, after the movement of the handle C to open the liberating plate C′ has been effected.

The machine may be formed with suitably arranged receptacles to contain ice in hot weather to keep the contents cool and fresh. Receptacles K may also be provided in which the luncheon trays together with such other utensils as may be necessary for the consumption of the viands may be placed by the purchaser after use, it being understood that these receptacles are only provided for sake of tidiness and not with the object of collecting the trays for future use over again. The glass plate H is provided as aforesaid so that the tray and its contents can be viewed before purchase.

The machine is replenished by opening the front of the machine and inserting fresh trays of food upon the chains. A counting or recording device or the like may be arranged in conjunction with the said machine whereby the number of times the machine has been operated can be recorded, this device being preferably situated within the machine out of sight so that only the persons possessing the keys or other means of opening the machines will be able to gain access thereto.

If desired the aforesaid glazed opening of the machines may be protected by bars of metal or other means that will not interfere with the inspection of the viands but which in the event of the glass H becoming broken will not permit the viands to be removed from the machine without the insertion of the coin or coins.

What I claim and desire to secure by Letters Patent of the United States is:—

1. In a vending machine, the combination with a casing having a side opening, of a plate normally closing said opening, a vertical series of trays, means for raising said trays to bring the topmost one to the plane of said opening, mechanism within the casing to shift said plate and project the topmost tray through said opening, the top of the casing being open to permit inspection of the contents of the topmost tray, and for guarding said top opening to prevent removal of a tray through it.

2. In a vending machine, the combination with a casing having a side opening, of a plate normally closing said opening, opposing endless chains having projections, sprocket wheels over which said chains pass, a ratchet wheel connected with one of said sprocket wheels, a pawl in engagement with said ratchet wheel, means for actuating said pawl to rotate the sprocket wheels, trays removably supported on the projections of the chains, and mechanism within the case to shift said plate and project the topmost tray through said opening.

3. In a vending machine, the combination with the casing, of an actuating handle, a series of superimposed trays, means whereby rotation of said handle in one direction causes the trays to be elevated, and means whereby rotation of the handle in the reverse direction causes the topmost tray to be laterally displaced from the machine.

4. In a vending machine, the combination with the casing, of an actuating handle, a series of superimposed trays, a liberating plate controlling an opening in the casing, means whereby rotation of said handle in one direction causes the trays to be elevated, and means whereby rotation of the handle in the reverse direction causes the liberating plate to be displaced and the topmost tray to be laterally displaced from the machine.

5. In a vending machine, the combination with the casing, of an actuating handle, a series of superimposed trays, a liberating plate controlling an opening in the casing, means whereby rotation of said handle in one direction causes the trays to be elevated, means whereby rotation of the handle in the reverse direction causes the liberating plate to be displaced and the topmost tray to be laterally displaced from the machine, and means whereby the return movement of the said handle to the normal position causes the liberating plate to assume its closed position.

6. In a vending machine, the combination with the casing, of an actuating handle, a

series of superimposed trays, a liberating plate controlling an opening in the casing, means whereby rotation of said handle in one direction causes the trays to be elevated, means whereby rotation of the handle in the reverse direction causes the liberating plate to be displaced and the topmost tray to be laterally displaced from the machine, means whereby the return movement of the said handle to the normal position causes the liberating plate to assume its closed position and means for insuring that the completion of the aforesaid operations is effected after the handle has once been moved to displace the aforesaid liberating plate.

In testimony whereof I affix my signature in presence of two witnesses.

ALBERT ROWDEN WETHERLY.

Witnesses:
T. SELBY WARDLE,
WALTER J. SKERTEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."