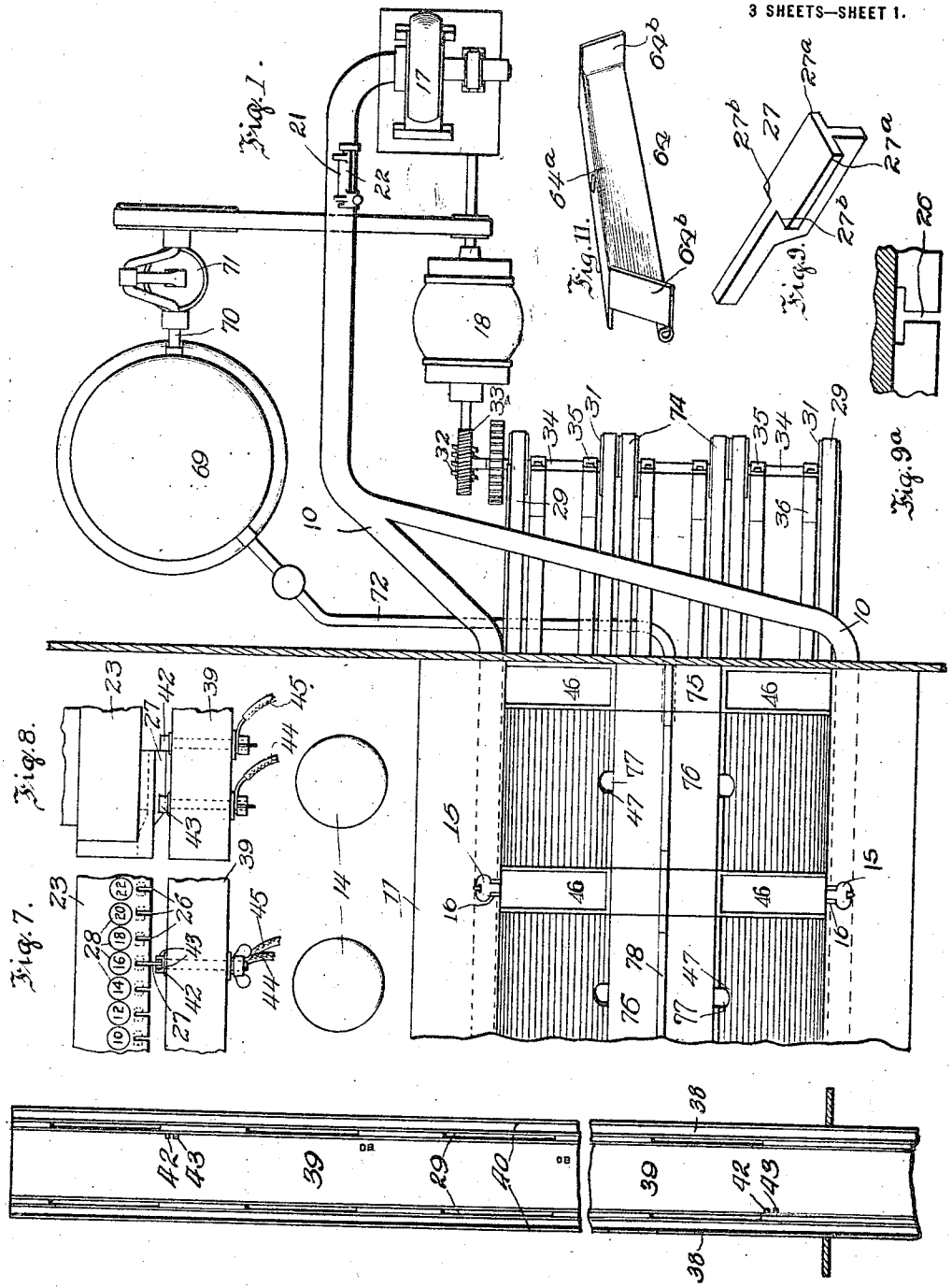
W. H. VARY & G. B. PARMENTER.
M. VARY, ADMINISTRATRIX OF W. H. VARY, DEC'D.
RESTAURANT EQUIPMENT.
APPLICATION FILED JUNE 24, 1912.

1,147,831.

Patented July 27, 1915.

3 SHEETS—SHEET 1.



Witnesses
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Fig. 2.

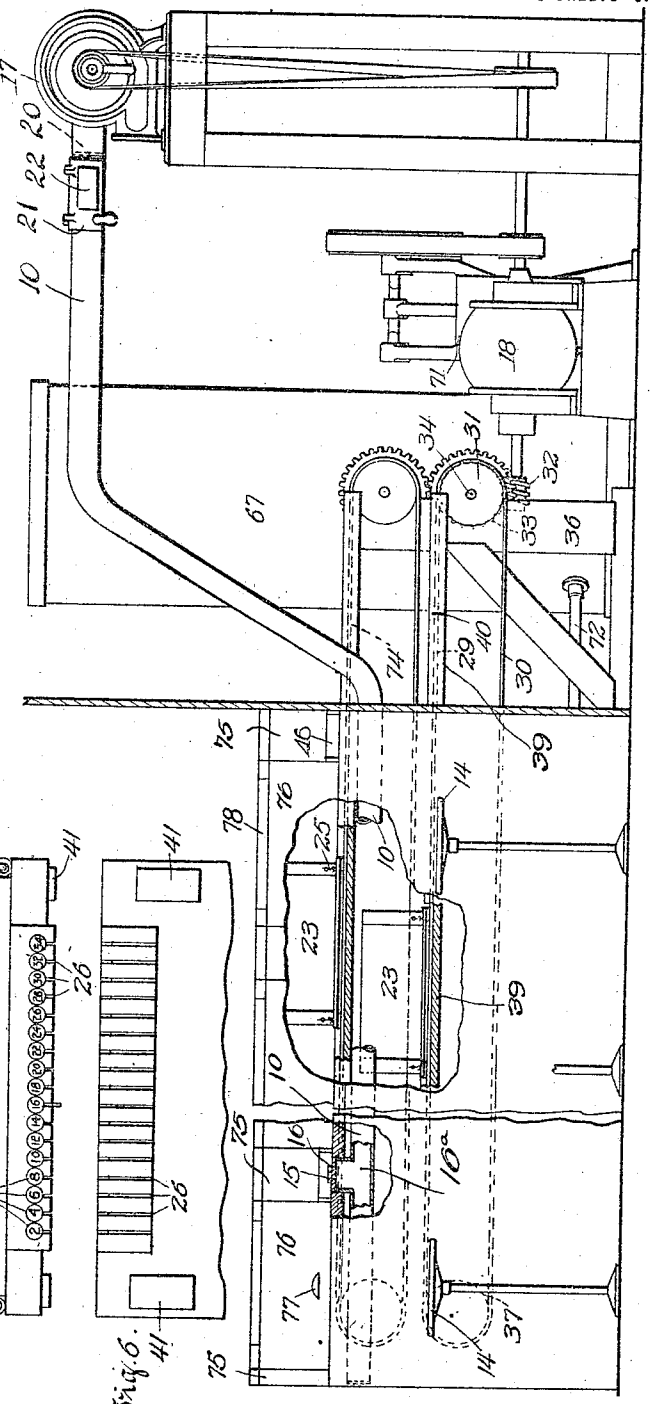


Fig. 5.

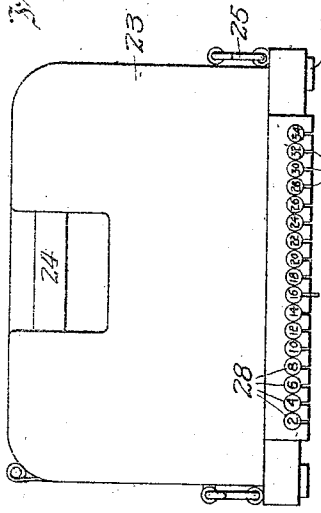


Fig. 6.

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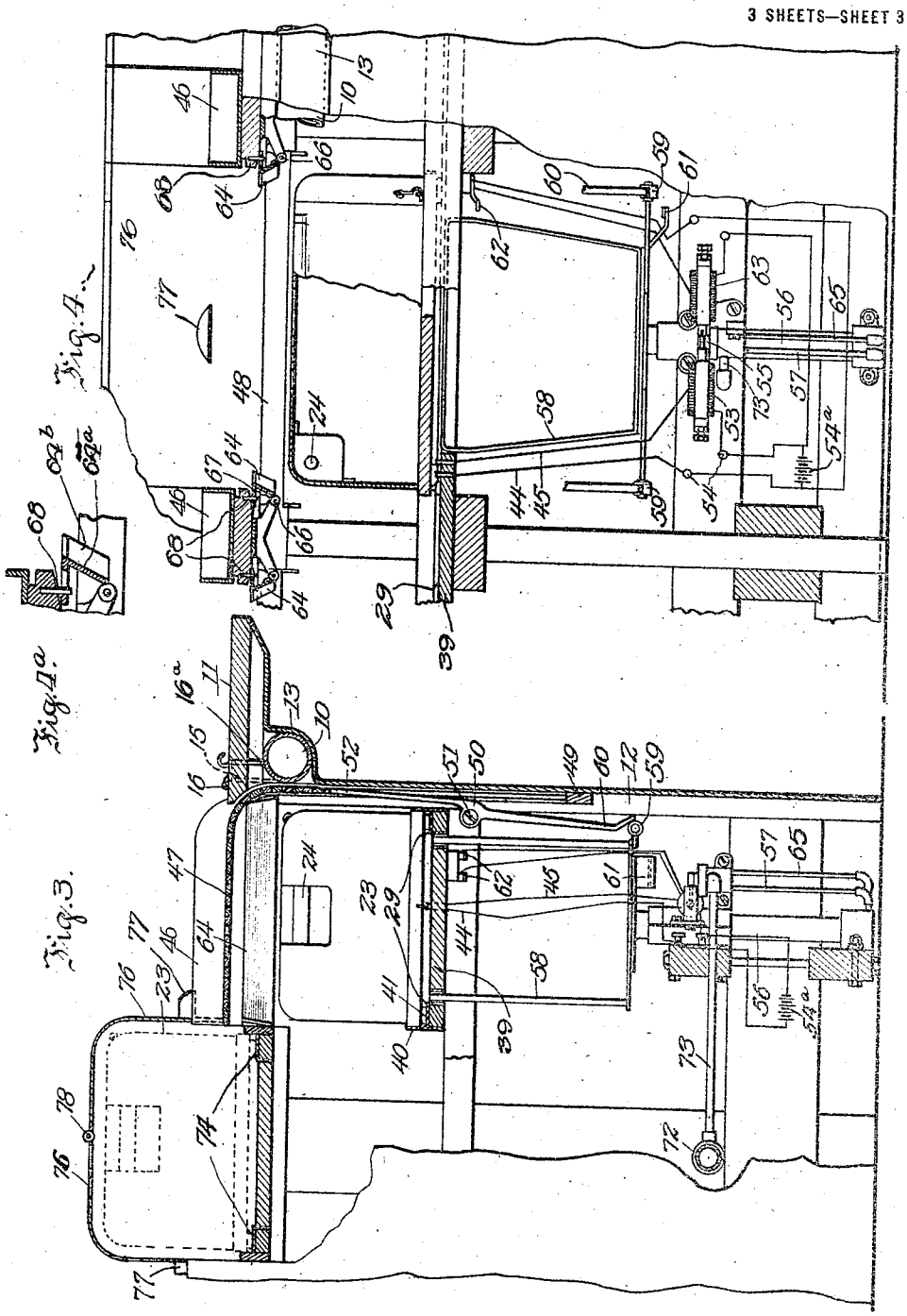
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

WILLIAM H. VARY, OF OAK PARK, AND GEORGE B. PARMENTER, OF CHICAGO, ILLINOIS; MARGARET VARY, ADMINISTRATRIX OF SAID WILLIAM H. VARY, DECEASED, ASSIGNOR TO SAID PARMENTER.

RESTAURANT EQUIPMENT.

1,147,831. Specification of Letters Patent. Patented July 27, 1915.

Application filed June 24, 1912. Serial No. 705,478.

To all whom it may concern:

Be it known that we, WILLIAM H. VARY and GEORGE B. PARMENTER, citizens of the United States, residing, respectively, at Oak Park, in the county of Cook and State of Illinois, and Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Restaurant Equipments, of which the following is a specification.

This invention relates to restaurant equipments with automatic mechanism connected therewith, and has for its object the production of such equipment to be used in connection with mechanism that relieves the attendants of much of the work ordinarily performed by them, and materially facilitates serving of customers, and that also requires much less space than is ordinarily used in restaurants of the same capacity.

In the accompanying drawings, I have indicated in Figure 1 a plan view of a portion of a lunch counter and mechanism connected therewith which embody certain features of our invention. Fig. 2 is a side elevation of the same. Fig. 3 is a partial cross-section of the same, and Fig. 4 is a fragmental vertical longitudinal section of a portion of the lunch counter. Fig. 4ª is a sectional detail of a combined stop and guide. Fig. 5 is an end view of one of the trays to be used in connection with the mechanism. Fig. 6 is a fragmental view of the bottom of one of the trays. Figs. 7 and 8 are detail views of the stops and electric contacts used in connection with the trays. Fig. 9 is a perspective of the stop plug. Fig. 9ª is an inner end view of the slot for said plug. Fig. 10 is a plan view of a platform carrying the stops and electric contacts and also the conveyer guide rails. Fig. 11 is a perspective view of a certain detail of the mechanism.

In the use of our invention, a customer takes a seat at one of the lunch counters and indicates his order on a slip of paper. He then passes the paper into a pneumatic tube and it is delivered by the tube to the attendant in the kitchen, or supply room. The attendant fills the order, places the food in a tray and deposits the tray on a conveyer. The conveyer delivers the tray to the customer; and, after the customer departs, the attendant in the lunch room places the tray and dishes on a return conveyer and they are delivered again to the supply room.

In order to illustrate one manner of carrying out our invention, we show by the drawings a pneumatic tube 10 which may be supported under the shelf 11 (Fig. 3) of a counter 12 in any suitable manner. We have shown herein the tube supported by the sheet metal wall 13 extending under the shelf and down the side of the lunch counter. Near the upper rear edge of the shelf, and adjacent each of the seats 14, is a lid 15 pivoted at 16 to the shelf. This lid covers a passageway 16ª opening into the pneumatic tube in which the customer may insert his order slip. A draft of air is generated in the tube 10 by means of the fan 17, which may be operated by any suitable means such as an electric motor 18. The air draft forces the order slip through the tube into the supply room 19 and against the screen 20 at the end of the tube. The order slip is then taken from the tube by an attendant through a pivoted door 21. A transparent window 22 in the door enables the attendant to see the paper on its arrival. The attendant after filling the order places the dishes in one of the covered trays 23. These trays may be lifted by means of the handles 24 (Fig. 5), and the cover may be fastened to the base by means of the hooks 25, or by any other suitable or desired means.

In order that the tray may be delivered to the proper place at the lunch counter we have provided the following means: The order slip, when it comes to the attendant in the supply room, is numbered according to the seat to which the tray is to be returned. The seats on one side of the counter have even numbers and those on the other side have odd numbers. In the bottom of each of the trays is a set of slots 26, each of which is adapted to receive a stop plug 27, (see Figs. 5 to 8).

The inner end of each slot 26 is T-shape in cross-section, in order that the slot may receive and support the flanges 27ª of the stop plug. The plug is inserted from beneath the tray and slid toward the leading edge of the tray until the shoulders 27ᵇ stop against the end wall of the T-shape portion of the slot 26.

Adjacent each of the slots 26 is a numeral 28. These trays have even or odd numbers according to the side of the counter to which

they are to be delivered. Each of these slots and numerals correspond to one of the seats in the lunch room, and the plug 27 is slipped by the attendant into the slot the number of which is the same as the number on the order slip. The tray is then placed by the attendant on a conveyer 29.

Each of these conveyers comprises two endless belts 30 passing around pulleys 31 and 37, and they may be operated by means of the motor 18, the worm 32 and the gear wheel 33, or in any other suitable manner. The gear wheel and pulleys 31 are mounted on a shaft 34 which is supported in bearings 35 attached to the framework 36. The pulley 37 at the other end of the conveyer may be supported by the framework, or in any other suitable manner. The belts 30 pass along slideways 38 formed in a platform 39, which extends under each of the counters. (See Fig. 10). These slideways extend throughout the zone of conveyance, whereby the conveyer belts are prevented from sagging. The trays simply rest upon the belts. Uprising flanges 40 on the edges of the platform prevent displacement of the trays as they move along the conveyer. Feet 41 on the bottom of the trays rest on the belts and elevate the bottom of the trays above the platforms 39.

A stop 42 is attached to each of the platforms 39 opposite each of the seats in the lunch room; and adjacent each stop are contact pieces 43. Each pair of adjacent stops and contact pieces forms a pair of electric terminals to which are connected electric wires 44 and 45. As shown in Fig. 10, each of these pairs of terminals is so positioned as to be in the path of motion of one of the slots 26 on the bottom of the trays, and hence in line with the plug 27 when it is slipped into one of the slots. And the pairs of terminals are so positioned as to be out of the line of motion of each of the other slots; so that when the plug 27 is inserted in one of the slots in its passage along the conveyer it will not be affected by any of the pairs of terminals except the one lying in its path of motion. The plug, however, will come in contact with this pair of terminals as it will pass between the contact pieces 43 and will strike against the stop 42 and thus bring the tray to rest. So that if the plug has been placed in the slot, the number of which corresponds to the number on the order, the tray will be stopped in front of the customer who made out the order. As the tray merely rests on the belts of the conveyer with no positive connection therewith, the stopping of the tray will in no way interfere with the conveyer; the belts will continue uninterrupted, and the tray will slip on the belts.

As indicated in the drawings, the tray, when on the serving conveyer, is located below the upper surface of the lunch counter. Above this conveyer are the stationary trays 46 which may be used for containing vessels with condiments and the like. And also above the conveyer, between these stationary trays, are the sliding curtains 47 which normally cover the openings 48 immediately above the positions where the portable trays are stopped. Any suitable means may be used tending to pull the curtains downward and across the openings 48. In this instance we have arranged the curtains so that the weight of each tends to pull it down until its lower edge rests against the beam 49. Each curtain, however, is maintained in its upward or closed positions by means of a cam lever 50, pivoted to the framework at 51, and having the end 52 of one of the arms of the lever projecting under the edge of the curtain.

When a tray is stopped before a customer in the manner described, the connection of the terminals 42 and 43 closes an electric circuit, including the wires 44 and 45, the solenoid 53 and the binding posts 54. A battery 54a or any other suitable source of current supply may be connected in the circuit to the terminals 54. The solenoid thus affected by the electric current operates a valve 55 which admits compressed air or other suitable fluid under pressure from some suitable source of supply into the lower end of the cylinder 56 through the pipe 57, and this, acting on a piston within the cylinder 56, forces upward the frame 58, which is immediately under the tray 23, and elevates the tray. As the conveyer consists merely of the two belts, the elevator merely rises between the belts and in no way interferes with their continued passage.

As the frame rises, a roller 59 pivoted to a portion of the frame, acts on the cam arm 60 of the lever 50, and thus pushes inward the arm 52 of the lever and releases the curtain 47. The curtain then sinks downward out of the way of the rising tray by virtue of its own weight until its lower edge rests on the beam 49. When the tray reaches the desired height a contact piece 61 connects the two electric terminals 62 and thus closes an electric circuit through the solenoid 63. This solenoid then closes the valve 55 and opens the exhaust port in the valve; and the frame 58 and the piston in the cylinder 56, by virtue of their weight, force the air out of the cylinder through the pipe 65 and out of the exhaust port in the valve 55. The frame thus sinks until it is again in its normal position. The tray, however, is prevented from sinking by means of the stops 64, (one of which is shown in perspective in Fig. 11) pivoted to the framework at 66. Torsion springs 67 hold the stops normally down but free to be forced upward by the tray; and pins 68 fixed in the stationary

framework and extending through slots in the stops prevent the stops from being pushed downward by the tray. The portions 64^a of the stops 64 constitute guides serving to move the tray into exact location in one horizontal direction, while the wings 64^b guide the tray into exact location in the opposite horizontal direction.

The means which we have provided herein for supplying fluid under pressure to the cylinder valve 55 comprises a compression tank 69 into which is pumped compressed air through the pipes 70 by means of the pump 71 operated by the motor 18.

Pipes 72 convey the compressed air along the counters of the lunch room, and pipes 73 convey the air from the main pipe 72 to the individual valve 55.

Between each lunch counter, and higher than the serving conveyers, is a return conveyer 74. This conveyer is operated in a manner similar to the other conveyers, but is adapted to return the trays with the dishes to the kitchen. A framework 75 forms a runway through which the conveyer 74 passes so that the used dishes may not be in view. In this runway opposite each seat is a lid 76 having a handle 77 and hinged at 78, by a rod attached to the framework. When the patron has finished eating, the attendant raises the adjacent lid 76 and pushes the tray into the opening thus formed onto the return conveyer, and the tray is transported to the kitchen. At the same time the attendant raises the curtain 47 to its normal position.

It will thus be seen that we have by our invention provided mechanism which may be used in connection with restaurants properly constructed whereby the order of the patron may be instantly conveyed to the supply room, the food ordered may be placed on a conveyer in the supply room and quickly delivered to the patron; and the used dishes may be returned out of view of the patrons. So that a large number of patrons may be expeditiously served in a quiet and inconspicuous manner, and so that much room ordinarily required for the use of attendants, and for storing food and dishes in the restaurant may be dispensed with. The use of the special form of conveyer and the manner of placing trays thereon allows the trays to be stopped and elevated without in any way interfering with the conveyer. And the use of solenoids for operating the compressed air valves is particularly desirable as the electric operating means allows a large number of valves to be operated with very little mechanism, and the solenoids, while very effective, require no oiling, adjusting or attention otherwise.

While we have herein described with some particularity the structure which illustrates the embodiment of our invention, it is to be understood that modifications therein may be made by those skilled in the art without departing from the scope of the invention.

We claim as our invention:

1. The combination of a counter; a conveyer adapted to transport trays from an adjacent supply room along said counter; means for stopping said trays at predetermined places; elevators for elevating said trays at such places; and electric circuits containing means for actuating said elevators, said circuits being controlled by said trays.

2. The combination of a counter; mechanism adapted to convey trays from a remote space along said counter; means for stopping said trays at predetermined places; means for elevating said trays in said places; and means for supporting said trays in elevated position independent of said elevating means.

3. The combination of a counter; a conveyer adapted to transport trays along said counter; and elevating means adapted to elevate trays from said conveyer, said means being set in operation by electric solenoids.

4. The combination of a counter; a conveyer adapted to convey trays along said counter; and elevating means adapted to elevate trays from said counter, said means comprising pneumatic tubes, the valves of said tubes adapted to be operated by solenoids actuated by said trays.

5. The combination of a lunch counter; a conveyer running along said counter; elevators beneath said conveyer, and adapted to raise objects from said conveyer; pneumatic cylinders operatively connected to said elevators; pipes connecting each of said cylinders with a source of compressed gas; a valve in each of said pipes; a solenoid operatively connected with each of said valves; and means for sending an electric current through each of said solenoids.

6. The combination of a counter; a plurality of trays; a conveyer adapted to convey said trays from a distant point along said counter; and means for stopping said trays at predetermined places adjacent said counter, said means comprising a series of slots in the bottom of each of said trays, a stop plug adapted to be inserted in any one of said slots, a second stop opposite each of said places, each of said second stops lying in the path of motion of one of said slots in any one of said trays moving on said conveyer, said stop plug and said projecting stop adapted to come in contact and close an electric circuit, and elevating means actuated by said circuit adapted to elevate said trays.

7. The combination of two adjacent counters; a conveyer adapted to convey trays from a distant point along each of said counters: means connected with each of said

conveyers adapted to stop trays thereon at predetermined places; and a third conveyer between said counters and adapted to convey trays from any one of said predetermined places to said distant point.

8. The combination of a counter, said counter having a plurality of openings therethrough; a conveyer adapted to deliver trays from a distant point to any one of said openings; an elevator adapted to elevate said trays through each of said openings; a curtain normally covering each of said openings; and means adapted to be set in motion by said elevator for removing said curtain.

9. The combination of a counter, said counter having a plurality of openings therethrough; a conveyer adapted to deliver trays from a distant point to any one of said openings; an elevator adapted to elevate said trays through each of said openings; a curtain normally locked in position to cover each of said openings, said curtain tending to be forced open by the action of gravity; and means connected with each of said elevators for releasing the corresponding curtain.

10. The combination of a counter, said counter having a plurality of openings therethrough; a curtain normally locked in position to cover each of said openings; means tending to remove each of said curtains from its corresponding opening; a conveyer adapted to deliver trays to any one of said openings; means for elevating said trays through said openings; and means operated by said elevating means for releasing said curtain.

11. The combination of a counter; said counter having a plurality of openings therethrough; a curtain normally covering each of said openings; means tending to remove each of said curtains; a plurality of cam levers, one end of each of said levers positioned under the edge of one of said curtains, whereby said curtain is held in closed position; means for elevating said trays through said openings; and a member attached to each of said elevators adapted to act on the cam of the corresponding lever and force the said lever end from under said curtain.

12. The combination of a counter; a conveyer adapted to convey trays from a distant point along said counter, said conveyer comprising two endless belts and a platform, said platform adapted to support said belts; trays adapted to be conveyed on said belts; means for stopping said trays at predetermined places, said platform having slots therein; and an elevator positioned at each of said places, said elevator comprising a framework adapted to pass through said slots between said belts and to elevate said trays.

13. The combination of a conveyer adapted to transport trays, means for stopping said trays at predetermined places, and electric means operated by said trays for elevating said trays at such places.

14. The combination of mechanism for conveying trays, means for stopping said trays at predetermined places, means for elevating said trays in said places, means for supporting said trays in elevated position, and additional means for returning said trays to their original position.

15. The combination of a conveyer adapted to convey trays, means for stopping said trays at a predetermined place, said means comprising a stop fixed to said tray and a second stop fixed at said place in the path of motion of said first stop, said stops adapted to come in contact and close an electric circuit, and elevating means actuated by said circuit adapted to elevate said trays.

16. The combination of tray conveying means, tray stopping means and tray elevating means, said elevating means comprising pneumatic cylinders, a pipe connected to each of said cylinders adapted to be connected to a source of supply of compressed air, a valve in said pipe, and a solenoid adapted to be operated by an electric current, and to open said valve, said electric circuit being closed by said tray stopping means.

17. The combination of tray conveying means, tray stopping means and tray elevating means, said conveying means comprising two endless belts and a platform, said platform having slots therein and being adapted to support said belts, and said elevator comprising a framework adapted to pass through said slots between said belts and to elevate said trays.

18. The combination of a tray conveyer, a fluid-pressure operated elevator adapted to lift a tray from said conveyer, means to supply fluid pressure to said elevator to operate the same, and means traveling with the conveyer to control said supply.

19. The combination of a tray conveyer, a plurality of fluid-pressure operated elevators adapted to lift trays from said conveyer, and selective means carried by the trays to govern the admission of fluid pressure to said elevators respectively, whereby a desired elevator is operated.

In testimony whereof we affix our signatures in the presence of two witnesses.

WILLIAM H. VARY.
GEORGE B. PARMENTER.

Witnesses:
E. Y. HORDER,
H. G. HORDER.