July 3, 1934. J. J. CODY 1,965,454

SEMIAUTOMATIC ORDERING AND SERVING EQUIPMENT FOR RESTAURANTS

Filed April 11, 1933 2 Sheets-Sheet 1

Fig. 1.

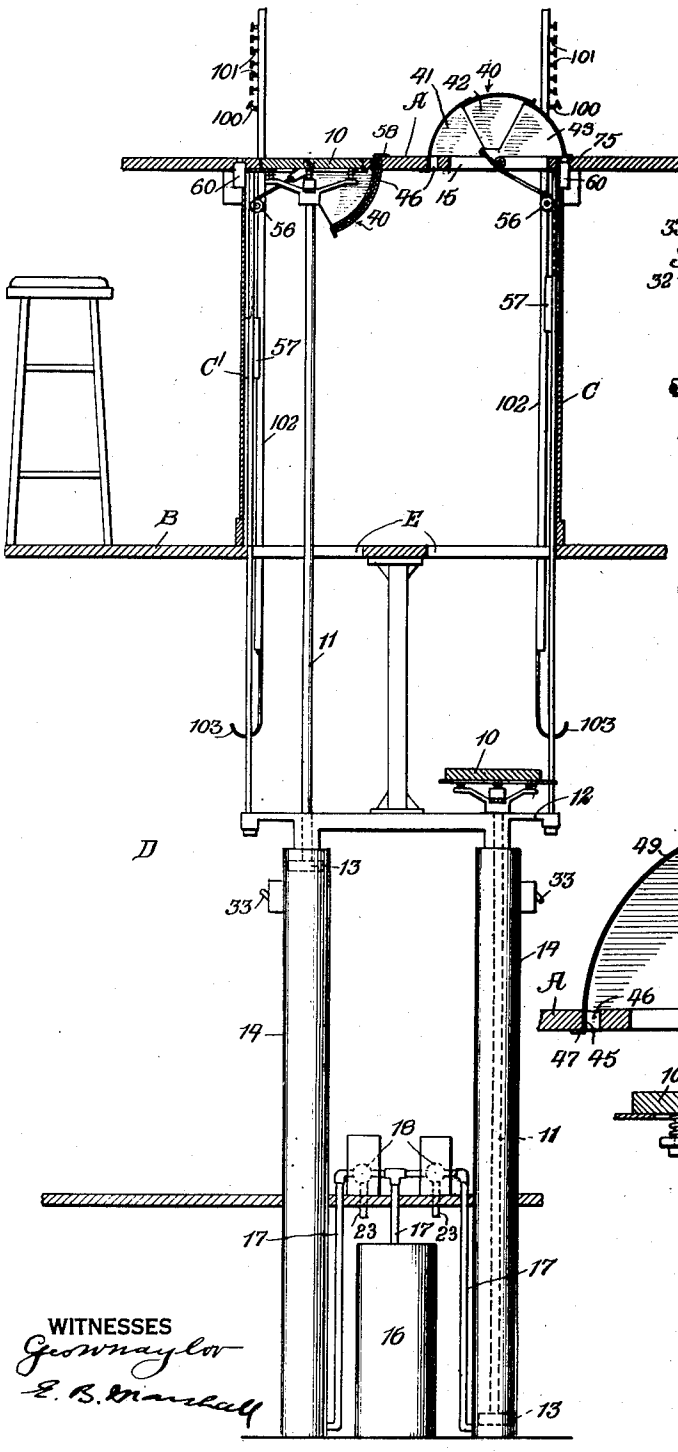


Fig. 3.

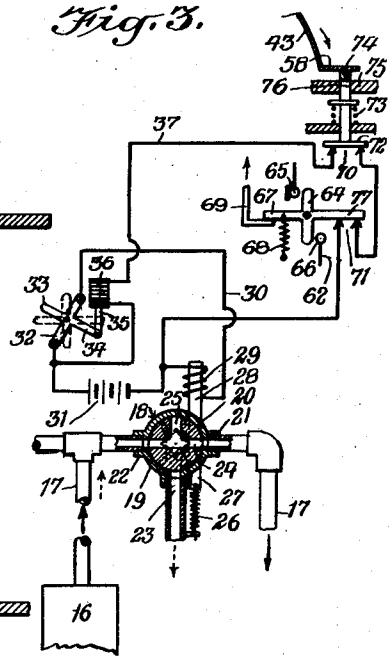
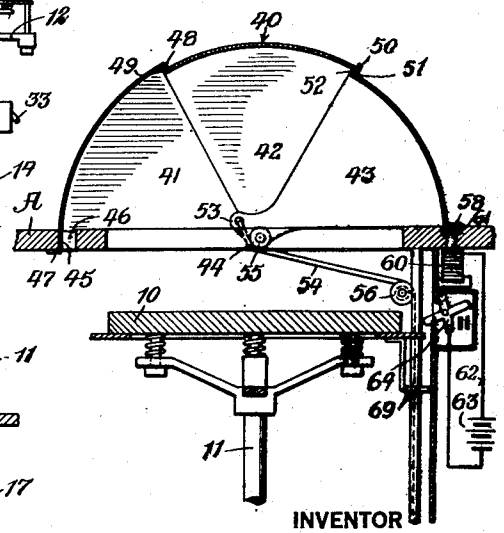


Fig. 2.



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SEMIAUTOMATIC ORDERING AND SERVING EQUIPMENT FOR RESTAURANTS

Filed April 11, 1933 2 Sheets-Sheet 2

Fig. 4.

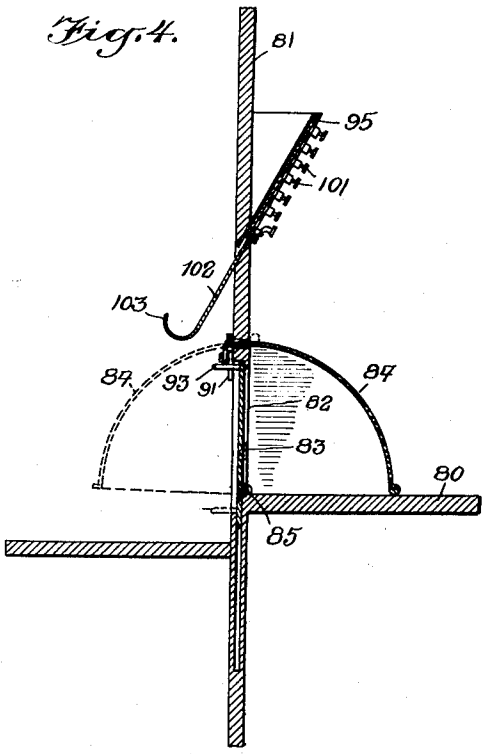


Fig. 5.

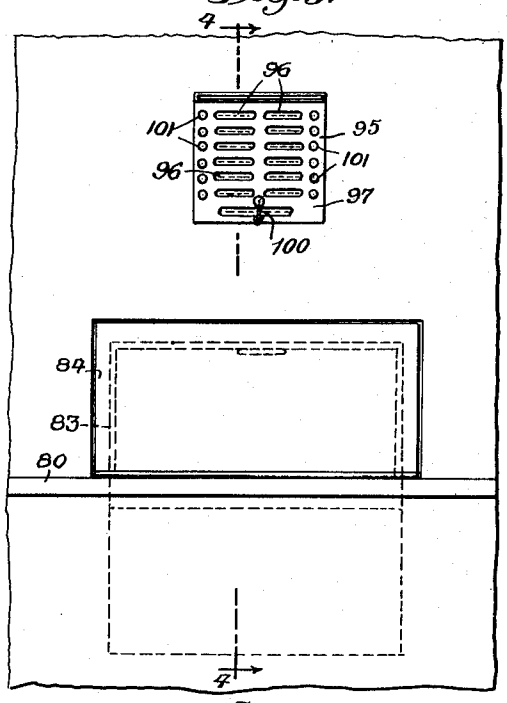


Fig. 6.

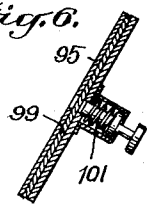


Fig. 7.

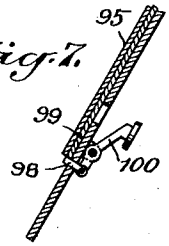


Fig. 8.

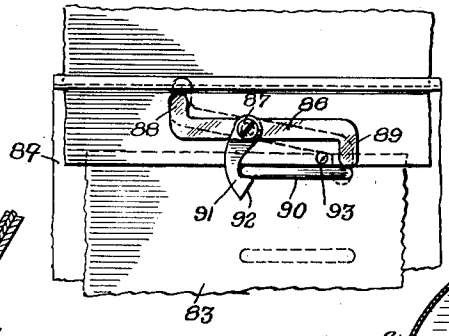
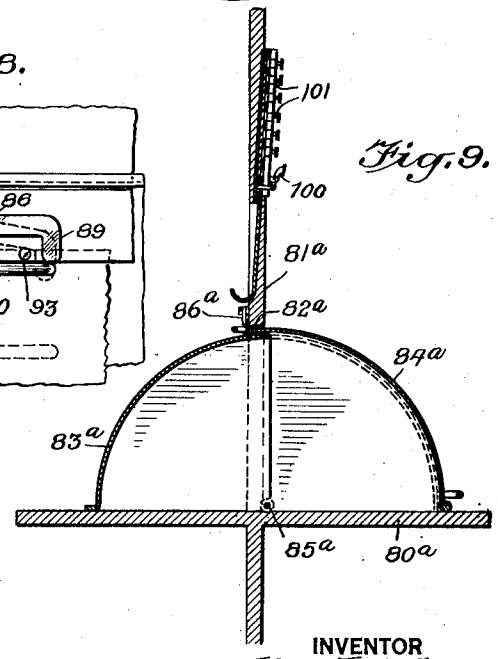


Fig. 9.



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UNITED STATES PATENT OFFICE

1,965,454

SEMIAUTOMATIC ORDERING AND SERVING EQUIPMENT FOR RESTAURANTS

John J. Cody, Brooklyn, N. Y.

Application April 11, 1933, Serial No. 665,606

9 Claims. (Cl. 186—1)

This invention relates to equipment for restaurants, and has particular reference to improved semi-automatic apparatus for facilitating the ordering and serving of meals to patrons.

The invention aims for one of its objects to provide a serving apparatus which includes as an element thereof, a covering hood adapted to be disposed in a position to shield from view of the patrons, the serving of the meal and the removal of the dishes.

The invention further contemplates a holder for displaying a card which initially serves as a bill of fare, which holder is provided with means operable by the patron for indicating thereon the foods selected, and which card is subsequently released by the patron and is conveyed to an attendant to serve as an order, the card being returned to the patron to subsequently function as a check when the meal is to be paid for.

More particularly, the invention comprehends a semi-automatic apparatus for serving meals which includes in combination with a table having an opening through which the meals are served, a lift movable into said opening with a manually closable hood automatically retained in covering relation to the opening when the lift is below the table, together with means to automatically open the hood when the lift is moved into the opening flush with the table. As a further feature, the invention embodies means to automatically lower the lift when the hood is closed.

Other objects of the invention reside in the provision of improved semi-automatic apparatus for ordering and serving meals in restaurants, which apparatus is comparatively simple in its construction and mode of operation, which may be inexpensively installed and maintained in working operation and which is highly efficient in its purpose.

With the above recited and other objects in view, reference is had to the following description and accompanying drawings, in which there are exhibited several examples or embodiments of the invention, while the claims define the actual scope of the same.

In the drawings:

Figure 1 is a fragmentary vertical sectional view illustrating the improved semi-automatic ordering and serving apparatus.

Figure 2 is an enlarged fragmentary vertical sectional view particularly illustrating the lift and covering hood just prior to the final movement of the lift to serving position and immediately prior to the opening of the covering hood.

Figure 3 is a diagrammatic view particularly illustrating the wiring diagram.

Figure 4 is a vertical sectional view of a modified form of the invention.

Figure 5 is a fragmentary front view thereof.

Figure 6 is an enlarged sectional view illustrating a card punch associated with the card holder.

Figure 7 is a similar enlarged view of the card releasing means.

Figure 8 is a fragmentary front view of the serving opening closure and hood latching means.

Figure 9 is a vertical fragmentary view of a further modification of the invention.

In the form of the invention illustrated in Figures 1 to 3, inclusive, A designates a table supported from the floor B, preferably by side panels C spaced from the marginal edges of the table so as to define leg room under the portions of the table which protrude beyond the panels C. As illustrated, the table is arranged in a room above a subterposed room D, from which room D the meals are to be delivered to the table by the apparatus for serving the same which constitutes the present invention. As illustrated, the table A is provided with one or more serving devices, which consists of lift platforms 10 supported at the upper end of a plunger shaft 11 guided in its vertical movement through a bracket 12, the plunger shaft having a plunger or piston 13 at its lower end movable in a cylinder 14. The floor B is provided with a lift passage or opening E through which the lift may pass in its vertical movement. The table A is formed with an opening 15 of a size to snugly receive the lift platform 10. The lift may be raised and lowered in any desired manner but, as illustrated, the raising is accomplished pneumatically by introducing air pressure to the bottom of the cylinder below the plunger or piston 13, the air under pressure being supplied from a storage tank 16 through a conduit 17 and controlled by a valve 18 arranged in the conduit. The valve 18 includes a casing 19 and a rotatable core 20, the casing being provided with inlets and outlets 22 and 21 respectively communicating with the conduit 17. The casing also includes an exhaust 23 while the core 20 is provided with a diametrically extending passage 24 and a radial passage 25 leading from the diametrical passage 24. The valve core 20 is normally turned to a position to exhaust the air from the cylinder 14 by means of a spring 26 act-

ing on a rack bar 27 which engages with a pinion keyed to the valve core 20, while said valve core is turned to a position to supply compressed air from the tank 16 to the lower end of the cylinder for lifting the plunger and lift platform by means of a solenoid core 28 connected to the rack bar 27 and influenced by the solenoid winding 29 when the same is energized. The solenoid winding 29 is included in a circuit 30 having a source of supply 31 and a controlling switch 32 having a manipulating stem 33. The switch is also provided with an arm 34 connected to a solenoid core 35 having a winding 36 included in a circuit 37. It is obvious that when the controlling switch 32 is moved to the full line position illustrated in Figure 3, the circuit 30 is closed and the solenoid winding 29 is energized to turn the valve core 20 to the position illustrated in Figure 3. This disposes the diametrically extending passage 24 in a position whereby it establishes communication through the conduit 17, between the compressed air tank 16 and the cylinder, causing the lift platform to be raised and moved upwardly through the opening E in the floor and eventually into the opening 15 in the table A.

In order to provide means for covering the opening 15 in the table when the lift is below the table, a hood is employed which is designated generally by the reference character 40. The hood is composed of three segments or sections 41, 42 and 43 which are journaled on a common fulcrum 44, the section 41 having a terminal 45 extending through a slot 46 in the table and provided with a stop element 47. The other edge of the section 41 is provided with an inturned stop element 48. The intermediate section 42 is formed with a stop element 49 designed to cooperate with the stop element 48 of the section 41, said stop element 49 being located at one edge of the intermediate section 42. The section 42 is formed with a second stop element 50 at its opposite edge which is designed to coact with the stop element 48 of the section 41 and is also provided with an oppositely inwardly projecting stop element 51 to cooperate with a stop element 52 on the remaining section 43. The section 43 adjacent its fulcrum point is provided with a radial projecting actuating arm 53, to which there is attached a cable 54 trained around a guide or sheave 55 mounted concentric to the fulcrum 44. The cable is then trained around a second guide or fulcrum 56 and leads downwardly therefrom and has attached thereto a weight 57. Normally, the weight gravitationally swings the section 43 on the fulcrum 44 until the outturned stop element 58 engages the stop element 51 of the intermediate section, which intermediate section is then picked up by the section 43 and moved therewith under the influence of the weight until the element 50 engages the element 48 of the section 41, which section 41 is picked up and moved, together with the sections 42 and 43, to the limit of the movement of the hood, as illustrated by the left-hand device in Figure 1 of the drawings. In this position, the several nested sections of the hood 40 are disposed below the upper surface of the table, the downward movement being arrested by the engagement of the stop element 58 with the upper surface of the table.

In order to provide means for holding the hood in covering relation to the table opening 15, an electro-magnet 60 is provided disposed underneath the table with its core 61 flush with the upper surface of the table and in a position to attract and maintain the stop element 59 in the position shown on the right-hand device in Figure 1 and also in the enlarged showing in Figure 2. The electro-magnet 60 is arranged in a circuit 62 which includes a source of supply 63 controlled by a switch 64 which bridges the spaced terminals 65 and 66. The switch 64 is formed with an actuating arm 67 normally acted upon by a spring 68 to move the switch 64 to bridging relation to the terminals 65 and 66 for closing the circuit 62 and energizing the electro-magnet.

In order to provide means which automatically breaks or opens the circuit 62 when the lift platform 10 reaches the table opening 15 and has its upper surface substantially flush with the upper surface of the table, a trip 69 is provided which is carried by the lift and which engages the switch arm 67, as clearly illustrated in Figure 3 of the drawings. As soon as the circuit 62 is broken or opened, the electro-magnet is deenergized. This releases the hood and permits the weight to telescope or fold the sections thereof and move the same to the uncovered position illustrated on the device at the left in Figure 1.

The circuit 37 is provided with two gaps 70 and 71. The gap 70 is controlled by a bridge element 72 which is normally moved by a spring 73 to an open position, and which bridge element 72 is moved to close the gap 70 when the hood section 43 is closed, by the engagement of a projection 74 on the element 58, which extends through an aperture 75 in the table surface and contacts with the shank 76 of the bridge element. The gap 71 in the circuit 37 is controlled by a bridge arm 77 which bridges the gap 71 when the switch 64 opens the circuit 62 of the electro-magnet 60.

In operation, the meal ordered by the patron is placed on the lift platform 10 when the lift is in its lowered position and the operator in the subterposed room D after placing the meal on the lift platform, moves the switch arm 33 upwardly, thereby closing the circuit 30 and energizing the solenoid winding 29. The energization causes the solenoid core 28 to move the rack 27 upwardly against the tension of the spring 26, turning the valve core 20 to the position illustrated in full lines in Figure 3. The compressed air or equivalent fluid pressure is thereby introduced from the tank 16 to the lower end of the lift cylinder 14 and acting against the piston 13, raises the lift 10. At this time, the switch 64 is bridging the terminals 65 and 66 of the circuit 62 so that the magnetic force of the electro-magnet 60 is holding the hood 40 in its closed condition illustrated in Figure 2. In this position of the switch 64, the bridge arm 77 is out of contact with the gap 71 and the circuit 37 to solenoid 36 is open at gap 71. It will, however, be noted that gap 70 is closed by bridge element 72, due to the fact that the projection 74 is pressing downwardly on shank 76 against the tension of spring 73. As soon as the lift platform 10 is elevated and disposed within the table opening 15, the trip 69 will have moved switch arm 64 to break circuit 62, thereby deenergizing electro-magnet 60 and the hood 40 will be opened under the influence of the weight 57. Simultaneously with the opening of the circuit 62 by the switch 64, the bridge element 72 will open circuit 37 at gap 70, while bridge arm 77 will close gap 71 in circuit 37. After the patron has consumed the meal, an attendant places the dishes on the lift platform and closes the hood 40. The closing

of the hood 40 causes the projection 74 on section 43 of the hood to press downwardly and complete the circuit 37 through the engagement of the bridge element 72 with gap 70. This completes the circuit 37, energizes solenoid 36, moves switch 32 to dotted line position in Figure 3 and opens circuit 30, deenergizing solenoid winding 29, and thereby permits spring 26 to turn the valve core 20 to a position where the cylinder exhausts to the atmosphere. As soon as the cylinder is vented to the atmosphere, the lift descends by gravity and permits the spring 68 to act on switch arm 67 and move switch 64 to contacting and bridging relation to terminals 65 and 66, again closing the circuit to electro-magnet 60 which functions to hold down the hood 40 in its closed position by electro-magnetic force. Obviously, as switch 64 is moved to closed position, bridge arm 77 is moved away from gap 71, again opening the circuit 37 of solenoid 36. From the foregoing, it will thus be seen that a semi-automatic serving apparatus has been devised, which requires only the actuation of switch 32 by the attendant who places the meal on the lift and the subsequent manual closing of hood 40 after the dishes have been replaced on the lift.

In the form of serving device illustrated in Figures 4 and 5, 80 designates a counter protruding outwardly from a partition 81. The partition is provided adjacent the counter with a serving opening 82 which may be closed by a vertically slidable closure 83 when the closure is moved to the full line position illustrated. A hood 84 is swingable on a fulcrum 85 to overlie a portion of the counter, and said hood slides through the serving opening 82 to a concealed inactive position, as illustrated in dotted lines in Figure 4. Suitable interlocking means is provided which serves to prevent the opening of the closure 83 and the hood 84 simultaneously, and which means limits the opening of the vertically slidable closure 83 to a time when the hood 84 is in the full line position illustrated in Figure 4. The interlocking means includes a latch element 86 pivoted as at 87 and having upwardly and downwardly directed terminals 88 and 89. The vertically sliding closure 83 is formed with a handle or bail 90 which when the closure 83 is moved to an upper closing position, as illustrated in full lines in Figures 4 and 8, contacts with the terminal 89 of the latch element 86, swinging the same on its pivot 87 from the broken line position illustrated in Figure 8 to the full line position, where the terminal 88 is retracted or moved downwardly below and out of the path of movement of the hood 84, permitting the opening of the hood and movement of the same to the dotted line position in Figure 4. A gravity catch 91 is provided to engage with the bail 90 and retain the closure 83 in the raised position. As illustrated, the catch is mounted to freely swing on the fulcrum 87, and said catch is provided with a beveled lower edge 92, by virtue of which the bail will automatically pass the catch by camming the same out of the way. In use, with the hood 84 shown in the closed covering relation to the counter 80, the attendant releases the catch 91 and lowers the closure 83. The meal is then served through the opening 82 onto the portion of the counter which is covered by the hood. While the closure 83 is in lowered position, the hood 84 cannot be raised, due to the fact that the latch element moves by gravity to the dotted line position, where it is arrested by a stop 93. In this position, the terminal 88 is elevated and is disposed in the path of movement of and obstructs the hood 84. After the meal has been placed on the counter under the hood, the attendant raises the closure element 83, and the engagement of the handle or bail 90 with the terminal 89 swings the latch element 86 so that the terminal 88 is out of the path of movement of the hood, the gravity catch 91 holding the closure element 83 in closed relation to the serving opening 82. The customer may then raise the hood 84 to uncover the meal which has been served on the counter 80.

In the form of the invention illustrated in Figure 9 of the drawings, 80*a* represents the counter which projects from the vertical partition 81*a*, which partition is provided with a serving opening 82*a*. In this instance, the outer closure or hood 84*a* is similar to the hood 84 in the previous form and is mounted to swing on a fulcrum 85*a*. In this instance, however, the inner closure 83*a* is of hood form and is substantially identical with the outer closure and is fulcrumed as at 85*a* so that the closures 83*a* and 84*a* may be swung with reference to each other to a nested position lying either inside or outside of the partition 81*a* or, as illustrated in full lines in Figure 9, the outer closure may be swung outside and the inner closure inside. In this form, the attendant swings the inner closure 83*a* to the dotted line position, where it is nested in the outer closure 84*a*, and the meal is served through the serving opening 82*a* onto the counter 80*a*. In order to prevent the opening of the outer hood 84*a* by the customer while the attendant is serving the meal, a gravity latch 86*a* is provided on the inner side of the partition 81*a*, which latch engages behind and is disposed in the path of movement of the outer closure 84*a*, and which latch is releasable by the attendant after the meal has been served and the inner closure moved to the full line position in Figure 9.

The device for displaying the menu and for ordering the meal is substantially the same in all forms of the invention and consists of a holder 95 in the form of a frame having a plurality of window openings 96 in its front wall 97, which front wall adjacent its lower end is formed with a detent 98 normally moved inwardly to retain a combined menu, order card and check 99 in the frame. The detent is provided with manually releasable trigger means 100, by virtue of which the detent 98 is retracted after the meal has been selected. Alongside of each window opening which displays therethrough the items on the menu card, a punch or equivalent device 101 is provided, by virtue of which the patron may designate on the menu card the items selected for the meal. After the items have been designated on the menu card, the patron actuates the trigger 100 to release the menu card, and a chute or guide 102 leads from the lower end of the frame and is provided with a receiving trough 103. The attendant fills the order designated on the card and returns the same to the patron when the meal is served. The punched menu card then serves as a check with which the patron pays for the meal and, if desired, the card may then be retained by the cashier as a record of the business transacted by the restaurant.

In the serving device as illustrated in Figures 1 to 3, inclusive, the chute 102 extends vertically downward through the floor B and has the trough 103 located adjacent the lowermost position of the lift platform 10.

While there have been illustrated and described several preferred embodiments of the invention, it is to be understood that variations

and modifications of the same which fall within the scope of the appended claims may be resorted to when found expedient.

What is claimed is:

1. In a restaurant serving apparatus, a partition having an opening through which a meal is served, a counter projecting laterally from the partition in line with said opening, a hood for concealing said opening and an adjacent portion of the counter while the meal is being introduced therethrough, a closure for closing said opening after the introduction of the meal therethrough and means for simultaneously releasing the hood and locking the closure.

2. In a restaurant serving apparatus, a partition having an opening through which a meal is served, a counter projecting laterally from the partition in line with said opening, a hood for concealing said opening and an adjacent portion of the counter while the meal is being introduced therethrough, a closure for closing said opening after the introduction of the meal therethrough and means functioning to respectively lock the closure and release the hood or lock the hood and release the closure.

3. A semi-automatic apparatus for serving meals in restaurants including in combination a table having an opening through which meals are served, a lift movable into said opening, a manually closable hood automatically retained in covering relation to the opening while the lift is below the table, means to automatically open the hood when the lift is moved into the opening flush with the table and means to automatically lower the lift when the hood is closed.

4. A semi-automatic restaurant serving apparatus including a table having an opening, a lift for conveying a meal to said table through the opening therein, a hood disposed over said opening when the lift is below the table, means for retaining the hood in covering relation to the opening, and means rendered operable by the lift, to operate said first means, to permit movement of the hood to an open position when the lift is disposed in the opening with its upper surface flush with the upper surface of the table.

5. A semi-automatic restaurant serving apparatus including a table having an opening, a lift for conveying a meal to said table through the opening therein, a hood adapted to be disposed over the lift opening when the lift is below the table, electro-magnetic means for retaining the hood in covering relation to the opening, means to move the hood to open position when the electro-magnetic means is deenergized, and means operable by the lift when disposed in the opening to deenergize the electro-magnetic means.

6. A semi-automatic restaurant serving apparatus including a table having an opening, a lift for conveying a meal to said table through the opening therein, a hood adapted to be disposed over the lift opening when the lift is below the table, electro-magnetic means for retaining the hood in covering relation to the opening, means to move the hood to open position when the electro-magnetic means is deenergized, means operable by the lift when disposed in the opening to deenergize the electro-magnetic means, means rendered active manually to raise the lift, and means rendered active by manual closing of the hood for automatic lowering of the lift and for causing re-energizing of the electro-magnetic means which retains the hood in covering relation to the opening.

7. In a restaurant, a partition behind which the meals are prepared, said partition having a serving opening through which the meals are served and a counter protruding outwardly from the partition below said serving opening to be used as a table, a hood movable to a position between the partition and counter to cover a portion of the counter adjacent the serving opening, a closure for the serving opening and means for locking the hood in concealing relation to the counter when the closure for the serving opening is open and for locking the closure in closed relation to the serving opening when the hood is raised.

8. In a restaurant, a partition behind which the meals are prepared, said partition having a serving opening through which the meals are served and a counter protruding outwardly from the partition below said serving opening to be used as a table, a hood movable to a position to cover a portion of the counter adjacent the serving opening, a closure for the serving opening and means for locking the hood in concealing relation to the counter when the closure for the serving opening is open and for locking the closure in closed relation to the serving opening when the hood is raised, said means comprising a gravity latch element normally disposed in a position to obstruct the raising of the hood and engageable by and movable to released position by the serving opening closure when closed.

9. In a restaurant serving apparatus, a partition having an opening through which a meal is served, a hood mounted for movement into an opened and closed position with respect to said opening, means to retain the hood in its closed position, a structure movable with respect to said opening to close it when the hood is in its opened position, and means on said structure to release said first means so that said hood may be moved into its opened position, as said structure is moved into position to close said opening.

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