Nov. 9, 1926. 1,606,627

W. GRÖMER

AUTOMATIC SELF SERVING BUFFET

Filed May 8, 1926 2 Sheets-Sheet 1

Fig. 1.

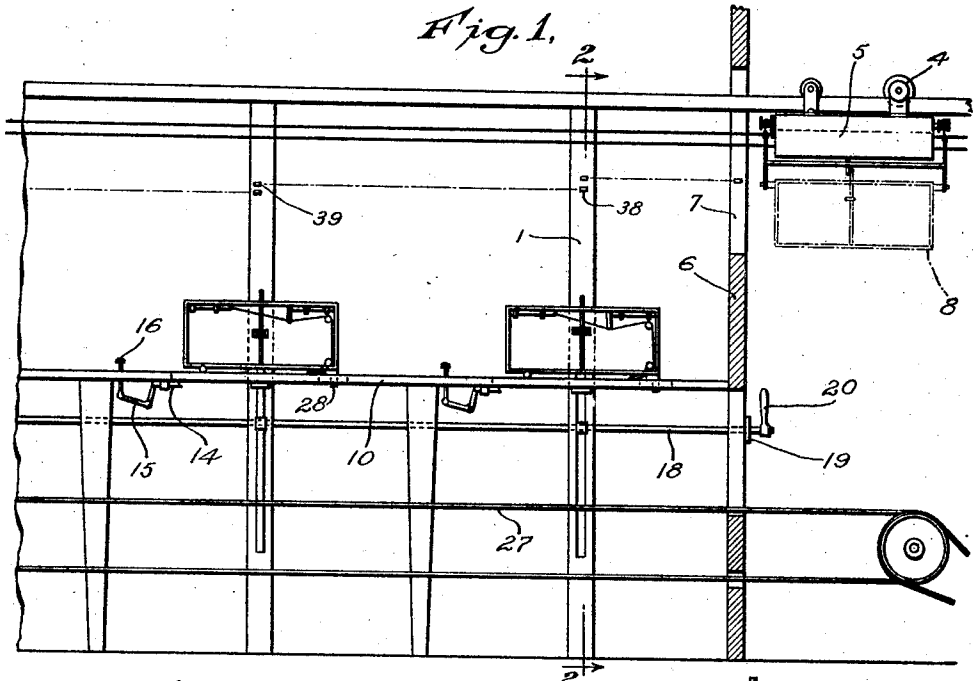


Fig. 2.

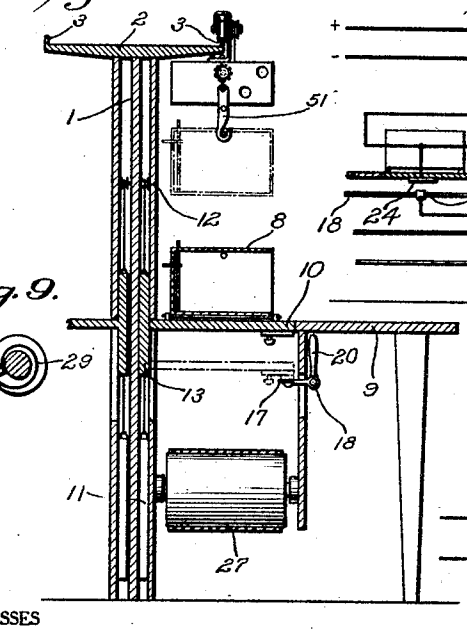


Fig. 3.

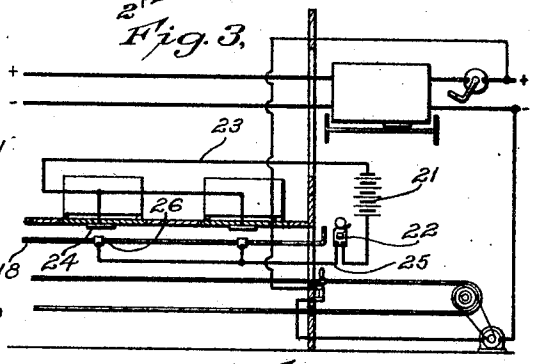


Fig. 9.

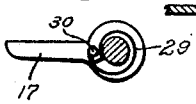
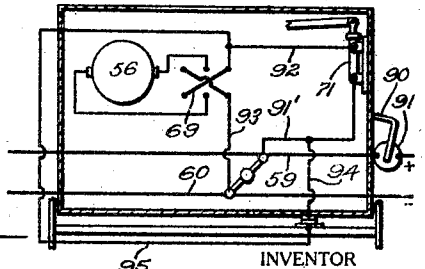


Fig. 8.



WITNESSES

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Fig. 4.

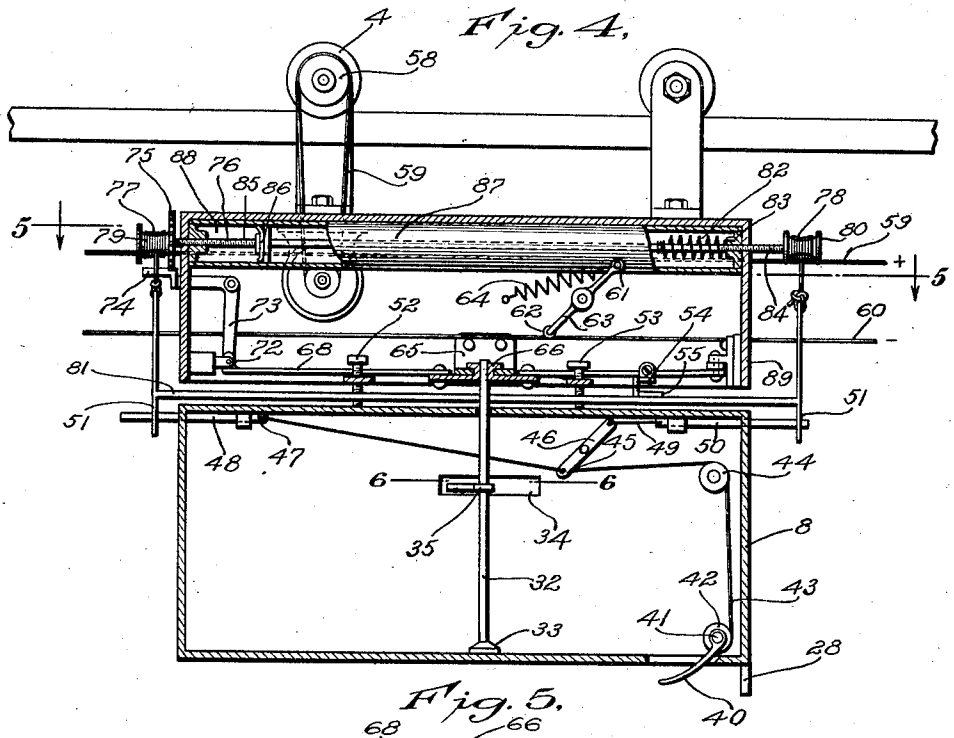


Fig. 5.

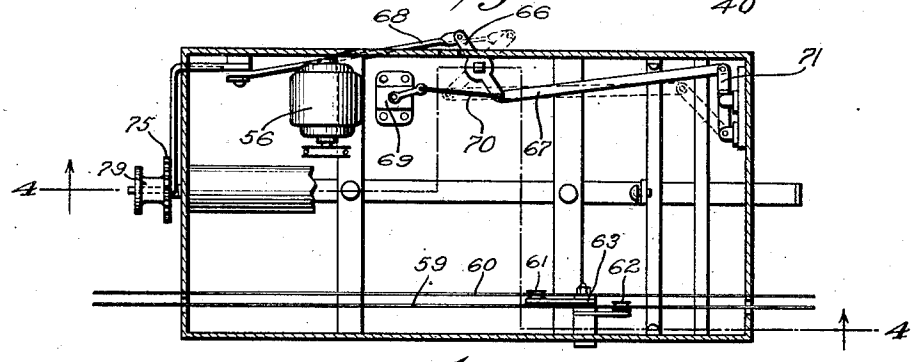


Fig. 6.

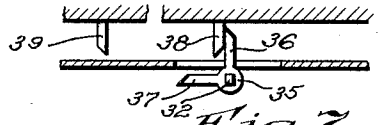
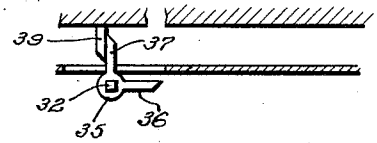


Fig. 7.



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UNITED STATES PATENT OFFICE.

WOLFGANG GRÖMER, OF LONG ISLAND CITY, NEW YORK.

AUTOMATIC SELF-SERVING BUFFET.

Application filed May 8, 1926. Serial No. 107,828.

This invention relates to automatic self serving buffets, and has for an object to provide a comparatively simple construction wherein the patron will have a minimum amount of work to do, and wherein the assistants in the kitchen or serving room will perform most of the work which is manually necessary.

Another object of the invention is to provide a self serving buffet structure wherein a single power moved carriage is utilized to carry to different points containers or carriers having food ordered by different patrons.

A further object, more specifically, is to provide in a self serving buffet means for signaling the workers in the serving room, so that one of the workers may manipulate the device to properly respond to the signal.

A still further object is to provide in a self serving buffet a carriage for carrying filled carriers to different points, the carriage being electrically driven and so constructed and associated with appropriate coacting members as to move to the desired point discharge the carrier and then automatically move back to the starting point.

In the accompanying drawings—

Figure 1 is a fragmentary view showing schematically part of the buffet device embodying the invention.

Figure 2 is a sectional view through Figure 1 on line 2—2.

Figure 3 is a diagram showing the wiring in associated parts in connection with the structure illustrated in Figure 1.

Figure 4 is a vertical sectional view through the carriage and carrier shown in Figure 1, the same being on an enlarged scale.

Figure 5 is a sectional view through Figure 4 on line 5—5.

Figure 6 is a detail fragmentary view showing an abutment and stopping mechanism embodying certain features of the invention.

Figure 7 is a view similar to Figure 6 but showing the parts in their fully stopped position.

Figure 8 is a diagram showing the wiring in associated parts of the carriage.

Fig. 9 is a detail view partly in section, of the latch.

Referring to the accompanying drawing by numerals, 1 indicates a suitable frame adapted to carry at the upper end a plate 2 and upstanding flanges 3 for receiving the traction rollers 4 of the carriage 5. At one end of the frame 1 is arranged a partition or wall 6 so as to divide the space into what may be termed a dining room and into a kitchen or serving room 7. In the kitchen or serving room 7 is arranged the usual cooking outfits, serving tables, etc., whereby the workers in the serving room may place desired orders on the various carriers 8, connect these carriers with carriage 5 and set the carriage in motion for later delivery to the customer. It is aimed to provide in the dining room a place for a large number of diners, and at each place there is provided a button associated with other means, whereby the diner may write out his order, place it in one of the carriers 8, press the button and certain mechanism will be set in motion for lowering the carrier. At the same time, an alarm will be sounded in the serving room 7, and one of the workmen in the serving room 7 may operate a certain structure hereinafter fully described, whereby the lowered carrier is further lowered and then transported to the serving room, where the carrier is supplied with the order and then placed on the carriage 5 and returned to the diner. In carrying out this scheme a suitable table 9 is provided extending for the full length of the dining room or for any desired length. This table is provided with spaced movable sections 10 which are adapted to receive the various carriers 8. Preferably, a chair or other support is provided opposite each section 10, as each section 10 indicates a space for a patron or diner. Each of the sections 10 is normally supported by the weight 11 which passes over a suitable pulley 12 and thence downwardly to a sliding member 13 rigidly connected with the section 10. Weight 11 is sufficiently heavy to normally maintain the section 10 in its raised position and to move the same to the raised position shown in Figure 2 whenever released. However, the weight 11 is not sufficiently heavy to support the section 10 and a carrier 8, but in order to hold the section 10 flush with the remaining part of table 9 a catch 14 is provided. This catch is connected with a suitable bell crank lever 15 with a push button 16. After a patron or diner has made out an order and

placed it in the carrier 8, he presses downwardly on button 16. This will release catch 14, whereupon the weight of the carrier will cause the section 10 to move downwardly until it rests on the arm 17, said arm being rigidly secured to shaft 18. This shaft is normally locked against rotation by a suitable catch 19 in the serving room 7. A handle 20 is connected to shaft 18 at a convenient point in room 7 so that one of the workers may at any time release catch 19 and turn handle 20 by moving the arm 17 out of the way. From Figure 3, it will be noted that a source of current 21 is provided by a convenient point. One side of this source is connected to a bell 22. The opposite side is connected with wire 23, which in turn is connected to contacts 24 carried by the respective sections 10. A return wire 25 is connected with bell 22 and with a contact 26 for each of contacts 24. The contacts 26 are carried by the rod 18, said contacts, if desired, being on the arm 17. From this it will be seen that whenever a patron or diner presses the button 16, and a particular section 10 is lowered, the circuit for bell 22 will be closed so that a sound will be produced in the serving room 7. This sound will continue until one of the workmen operates the handle 20 for the swinging arm 17 out of the way of the particular section 10. When this occurs, the bell 22 will cease to operate, as a circuit will be opened and section 10 will be permitted to drop down until it rests on the belt 27. This belt, preferably, is continually operated, so that as soon as the parts engage the belt, the carrier 8 will be moved into the kitchen where it is received by one of the workmen and filled as heretofore described. It will be noted that the platform 10 is not quite as long as the carrier 8, so that the carrier 8 overlaps the same and the projections or feet 28 connected with each carrier rest on the belt 27 when the section 10 has been lowered to the point of contact with the belt. The various sections 10 cannot be moved by the belt 27, as they are connected to the sliding member 13 and to the various weights 11. However as the feet 28 engage the belt, carriers 8 will be slightly tilted by reason of the length of the feet 28. This will cause most of the weight to rest on the feet 28, and consequently give them such a purchase that the belt may pull the carrier off a section 10 and transport the carrier to the serving room 7. As soon as the carrier has been moved off the section 10, said section will automatically move upwardly to its original position flush with the table 9. This is permitted by the fact that the arm 17 is in its lower position, but even if this arm was not in its lower position, the section 10 could move upwardly past the arm 10, as the arm would automatically swing out of the way. It will be noted from Figure 9 that a spring 29 is associated with each of the arms 17 for normally holding the same at right angles to the arm 20 but arranged so that the arms may move out of the way when the sections 10 move upwardly. However, the arms cannot swing downwardly from the position shown in Figure 2 without moving the handle 20, as a suitable lug or stop 30 has been provided to prevent this action. Each of the carriers 8 is formed with a housing 31 which is adapted to receive the order slip and also the food. Arranged at the back of this housing is a shaft 32 pivotally mounted at 33 and with the opposite end journaled in a suitable aperture in the top of the housing. A slot 34 is provided in the back of the housing, and through this slot extends a member 35 which is rigidly secured to the shaft 32 and which is provided with what may be termed a switch arm 36 and a stop arm 37. The switch arm 36 is adapted to strike the switch abutment 38, while the stop arm 37 is adapted to strike the stop abutment 39. From Figure 1, it will be observed that switch abutment 38 is arranged at a point slightly in advance of the stop abutment 39. It will also be noted that these buttons are arranged at different levels, and the members 35 on the various carriers are also arranged at different levels so that a particular carrier will only stop at a particular place. The idea is to provide a stop 38 sufficiently in advance of stop 39 to open the circuit of the motor of carriage 5, so that the carriage and the carrier will slow down and be readily stopped by the abutment 39. Arranged on the carrier 8 is also a swinging foot 40 pivotally mounted at 41 and rigidly secured to the small wheel or drum 42 to which the cable 43 is secured. Cable 43 extends over a pulley 44 and is secured at 45 to lever 46, and at 47 to the sliding bar or catch 48. Lever 46 is provided with a cable 49 connected with a sliding bar or catch 50. These bars or catches 48 and 50 are adapted to interlock with the hooks 51 carried by the carriage 5 whereby the carrier is supported by the carriage. The carriage 5 is supplied with adjustable stops 52 and 53 for spacing the carrier a short distance therefrom for normally maintaining the contacts 54 and 55 apart.

The carriage 5 is provided with an electric motor 56 of any desired kind and connected through suitable belts 57 with pulley 58 which is connected with one of the traction wheels 4. It will thus be seen that whenever the motor 56 is operated, one of the traction wheels 4 is also operated so as to propel the carriage in either of two directions. It will be noted that trolley wires 59 and 60 are provided and extend the full length of plate 2 and slightly below the

same. These trolley wires extend through suitable openings in the carriage 5 and are engaged by trolley wheels 61 and 62, which wheels are supported by suitable pivotally mounted members 63 resiliently held in a given position by spring 64, whereby the trolley wheels will properly engage the trolley wires. The current from these trolley wheels is taken off and supplied to motor 56, as hereinafter fully described. Carried on the carriage 5 is a suitable bracket 65, which in turn carries a rotatable lever 66, said lever having a square hole therethrough and a pair of arms, one arm being pivotally connected to the link 67 and the opposite arm connected with the link 68. As the upper part of shaft 32 is square, it will be evident that whenever shaft 32 is rotated by striking the stop 38, as, for instance, in Figure 6, the lever 66 will be moved from the position shown in Figure 5 to the dotted position shown in Figure 5, and this will open the circuit of motor 56 and also will cause the reversing switch 69 to be moved to a reverse position, as said switch is connected to lever 66 through a link 70. Link 67 is connected to the knife switch 71, whereby said knife switch is opened whenever shaft 32 is turned by reason of arm 36 striking abutment 38. Also when the shaft 32 is turned as described, link 68 will be pulled, and as this link is pivotally connected at 72 to the bell crank lever 73, the bell crank lever will move so that the pawl section or extension of the bell crank lever normally engaging the ratchet wheel 75 will be moved away from said ratchet wheel. This will release the shaft 76, to which ratchet wheel 75 has been rigidly secured, and will permit the cables 77 and 78 wound on the drums 79 and 80 to automatically unwind by reason of the weight of carrier 8 and the contents therein. It will be noted that the hooks 51 are connected by bar 81, said bar carrying a contact 55, and this bar will be lowered along with the carrier until the foot 40 strikes the section 10. As soon as this occurs, foot 40 will be swung upwardly into the carrier 8 and will pull the cable 43, whereupon the catches 48 and 50 will be retracted or pulled out of the hooks 51. This will release these hooks from bar 81 and associated parts, whereupon the spring 82 secured to the fixed member 83 and to the shaft 76 will function for rewinding drums 79 and 80. This will cause the bar 81 to quickly rise, and as it rises, contact 55 will be brought into engagement with contact 54, so that the circuit of the motor 56 will be closed, as hereinafter fully described. This will result in the carriage 5 moving back into the room 7 as switch 69 has been reversed. In order to retard both the downward and upward movement of hooks 51 and associated parts, the rod 76 is provided with threaded sections 84 and 85, threaded section 85 having a washer 86 rigidly secured thereto. This washer fits to any desired extent the tubular casing 87 and moves longitudinally of the casing as shaft 76 rotates. This will compress the air or rarefy the air in the chamber 88 to a certain extent and will thereby retard the movement of the various parts. The threaded sections 84 and 85 are threaded into the casing 89 of the carrier and consequently the shaft 76 moves longitudinally of the carriage as the carrier moves downwardly and moves longitudinally in the opposite direction as bar 81 and associated parts move upwardly. It will be noted that when the carriage 5 moves into the room 7, the end wheel of the casing 89 will strike an arm 90 connected with an ordinary switch 91, and as it strikes this arm, the same will be moved for opening the circuit of trolley 59 and at the same time the arm will act as an abutment for stopping a further movement of the carriage. At the time that the carriage moves into the room 7, the knife switch 71 is opened and contacts 54 and 55 are in engagement. As the switch 91 is opened as just described, the position of the other switches is of no consequence until this switch has been closed. After an order has been placed in the carrier, the workmen will reach in back of the carriage 5 and grasp lever 66 and move the same to the position shown in Figure 5, whereupon switch 71 is closed and the pawl extension 74 of bell crank lever 73 is moved into engagement with the ratchet wheel 75. This also causes the aperture in the lever 66 to be properly positioned for receiving shaft 32 as the workman raises the carrier to the position in Figure 4. As the carriage is moved to this position, the hooks 51 automatically move over the catches 48 and 50 or are moved over manually. Usually it is necessary to move the hooks 51 manually over the catches 48 and 50, and in doing this bar 81 is lowered until the contacts 54 and 55 are out of engagement. Moving the lever 66 for closing the switch 71 also operates the reversal switch 69 so that it is properly set to cause the carriage to move out into the dining room as soon as the switch 90 has been closed. After the parts have been adjusted as just described, the workman will give the carriage 5 a little push and at substantially the same time close the switch 90 by swinging the same a certain distance to the left, as shown in Figure 8. Current will then be supplied to the motor 56 for causing the carriage to move out until it strikes its particular switch stop 38. When this occurs, the parts will be turned and eventually assume the position shown in Figure 7. This will result, as above de-

scribed, in opening switch 71 and in reversing switch 69. These parts remain in this position until manually moved back after the carriage has moved into room 7. However, as soon as the carrier has moved down to the section 10 and thereby liberated the bar 81, said bar will move back and close the circuit of motor 56 through contacts 54 and 55, whereupon the carriage will immediately begin to move back into room 7, where it is stopped by the arm 90 and where the movement of said arm opens the circuit of motor 56 by opening the circuit of trolley wire 59. Referring particularly to Figure 8, it will be observed that when the carriage 5 is moving out into the dining room current will be taken from the trolley wire 59 and passed through wire 91, knife switch 71, wire 92, for reversing switch 69, motor 56, wire 93, and from thence back to the trolley wire 60. When the knife switch 71 is opened and the switch 69 reversed, as is the case immediately after the carrier 8 has been released and left on one of the sections 10, current will pass from trolley wire 59 through wire 91, wire 94, contacts 54 and 55, wire 95 to the switch 69, motor 56 and wire 93 back to the trolley wire 60.

Having thus described my invention, I claim:

1. In a self serving buffet device, a table, a traveling belt arranged beneath said table, a carrier for carrying orders and food, an electrically driven carriage for moving said carrier in one direction, and means operated by the patron for moving the carrier onto said belt.

2. An automatic self serving buffet comprising a means acting as a series of tables, a carrier for each table, a vertically movable section for supporting the carriers opposite their respective tables, manually actuated means for releasing the carriers so that they move down by gravity, a stop for each carrier for limiting its downward movement, means operated from a distant point for releasing said stop whereby the carrier may move further downwardly under the action of gravity, a traveling belt for engaging and moving the carriers to said distant point when the carriers have been lowered to their extreme lower position, a supporting trolley member, a carriage mounted on said trolley member, means forming part of the carriage including a motor for driving the carriage along said trolley member, a pair of conductors for supplying current to said carriage switch mechanism for turning on and off the current, means on the carriage for supporting any of said carriers, and means adjacent each table for stopping the movement of the carriage, said means also functioning to automatically open the circuit of said motor.

3. An automatic self serving buffet comprising means acting as a series of tables, each table being formed with a vertically movable section, a carrier for each movable section, means for causing said carriers to move from said sections to a supply point, means for causing said carriers to move back to their respective sections, said last mentioned means including a carriage provided with a supporting and propelling structure, a motor for actuating said propelling structure, a switch carried by the carriage adaped to be manually closed when the carriage is at the point of supply, means for automatically opening said switch when the carriage reaches a predetermined section and simultaneously reversing the terminals of said motor, and means for automatically supplying current to said motor while the terminals are reversed after said carrier has been disengaged from said carriage whereby the carriage will automatically move back to said supply point.

4. In an automatic self serving buffet, a carriage comprising a housing, a series of supporting traction wheels carried by said housing for supporting the housing, one of said traction wheels acting as a propelling wheel, an electric motor arranged in the housing, means for connecting the motor with one of said wheels so that the device may be propelled when the motor is functioning, means for connecting the motor with the source of current, said means including a reversal switch and a pair of auxiliary circuits, each circuit having a switch, one of said switches in the auxiliary circuit being closed when the reversal switch is in one position and the other of said switches in the auxiliary circuit being closed when the reversal switch is in the second position, whereby said carriage may be propelled in two directions.

5. In an automatic self serving buffet, a carriage provided with a casing, means for supporting the carriage, means for propelling the carriage, a carrier, a plurality of hooks for supporting the carrier in the carriage, means for causing said hooks to be released, and means actuated by the hooks for closing the circuit of said motor in such a manner that the motor will operate in a reverse direction.

6. In an automatic self serving buffet, a carriage comprising a casing, a motor mounted on said carriage, traction wheels connected with the carriage and with the motor whereby when the motor is functioning the carriage is propelled, means for supplying current to the motor for causing the same to operate in either of two directions, a carrier removably associated with the carriage, manually actuated means for causing the carriage to move in one direction, and automatically actuated means for releas-

ing the carrier at a given point and then causing the carriage to move in the opposite direction.

7. In an automatic self serving buffet, means acting as a series of tables, these tables having a vertically movable section, a traveling belt arranged beneath the said sections, a catch for normally supporting each section, said catch being adapted to be released by a patron, whereby the section and carrier mounted thereon will be moved downwardly under the action of gravity, means for preventing the section and carrier from engaging said belt, means operated at a distant point for releasing a second time the said section and carrier, whereby the carrier is permitted to engage the belt and be moved thereby to said distant point.

8. In an automatic self serving buffet, a traveling belt, means acting as a series of tables arranged above the belt, each table having a vertically movable section, a counter weight associated with each section for normally holding the same in a given position, a carrier normally mounted on each section, the respective sections and carriers being of sufficient weight to move downwardly under the action of gravity when released, a catch adapted to be operated by a patron of the buffet normally holding the section in a given position, means for receiving said section when said catch has been actuated, and means operated at a distant point for moving said means out of the way, whereby the carrier is deposited on said belt and is moved thereby to said distant point.

9. In an automatic self serving buffet, a carrier adapted to carry an order slip in one direction and food in the opposite direction, said barrier comprising a housing open on one side, a pair of sliding catches at the top near the center, means for retracting said catches, said means including a lever, a series of cables and a swinging foot for pulling the lever when the carriage is resting on a support.

10. In an automatic self serving buffet, an electrically driven carriage, a disengaging carrier associated with said carriage, said carrier having a pair of retractable catches and a rock shaft, a motor on the carriage, a plurality of traction wheels forming part of the carriage, some of said wheels being connected with said motor for moving the carriage when the motor is functioning, means on the carriage co-acting with said rock shaft for opening the circuit of said motor as the rock shaft is moved, and manually actuated means for closing said circuit.

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