May 15, 1956 A. A. BOOTS 2,745,542

FOOD HANDLING STRUCTURE FOR RESTAURANTS

Filed Sept. 29, 1952 2 Sheets-Sheet 1

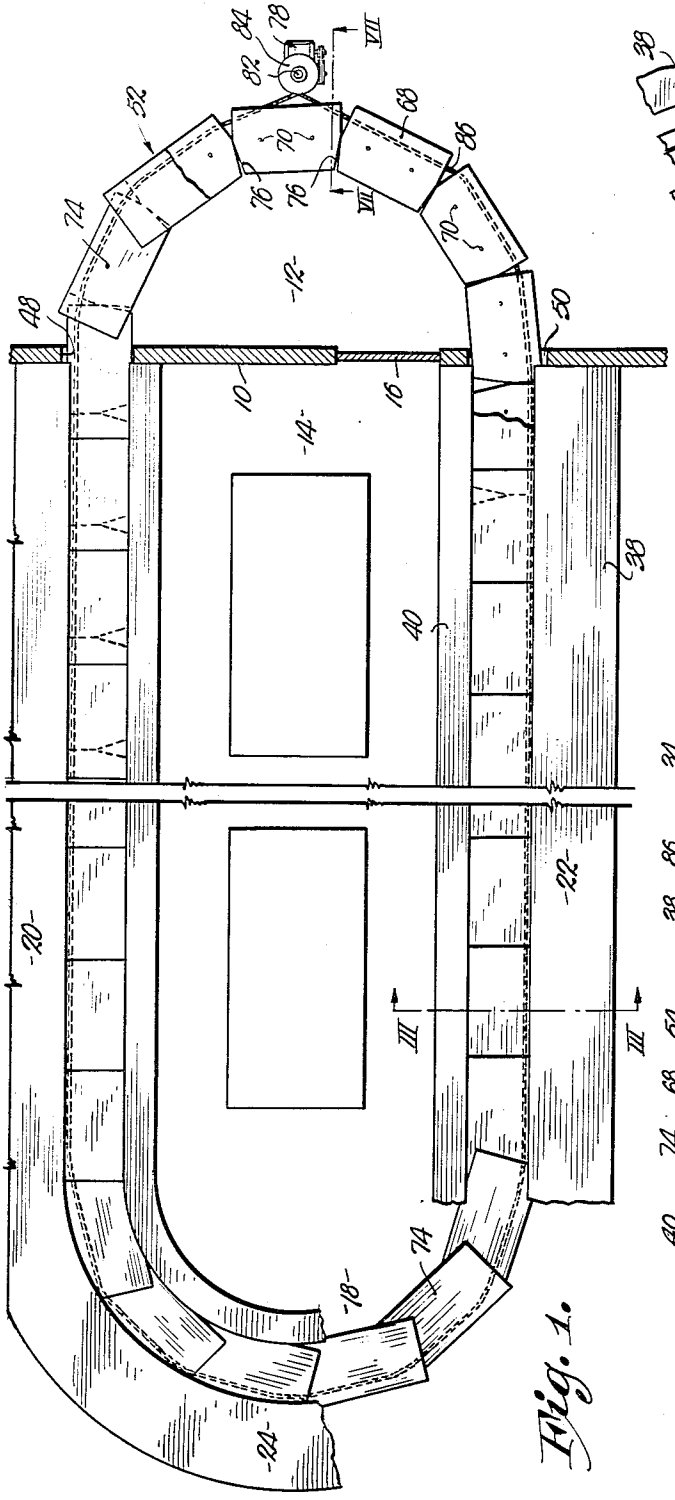


Fig. 1.

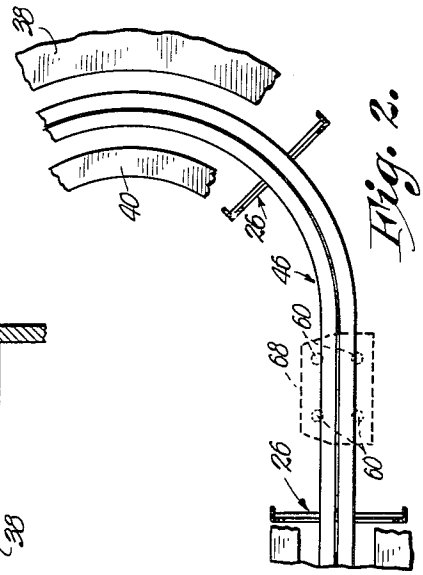


Fig. 2.

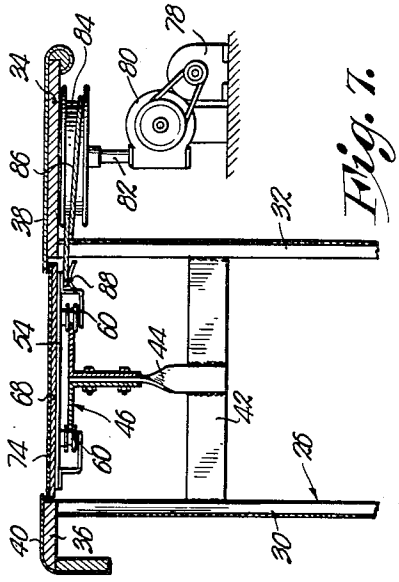


Fig. 7.

INVENTOR.
Arthur A. Boots
BY
Cecil Hovey
ATTORNEY.

May 15, 1956 A. A. BOOTS 2,745,542

FOOD HANDLING STRUCTURE FOR RESTAURANTS

Filed Sept. 29, 1952 2 Sheets-Sheet 2

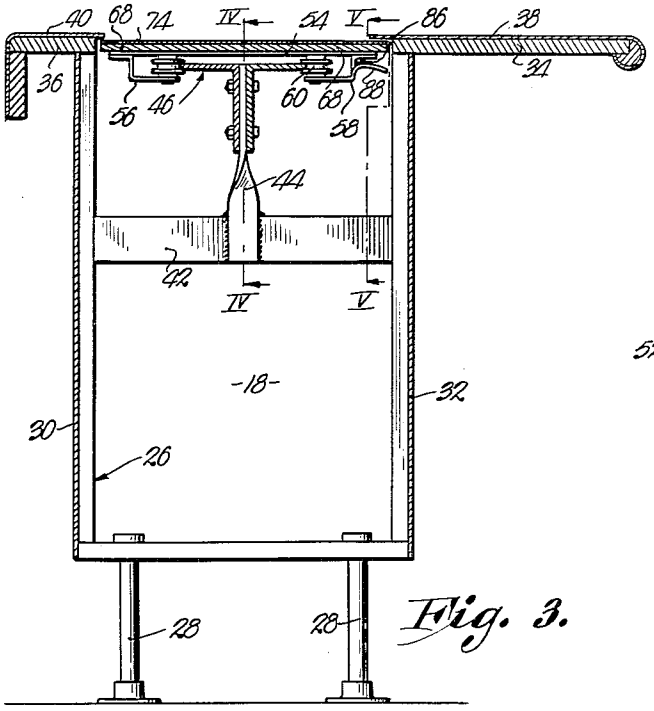


Fig. 3.

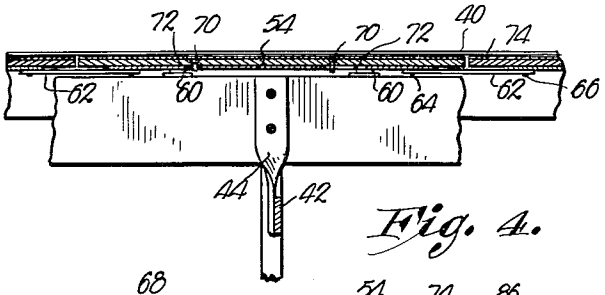


Fig. 4.

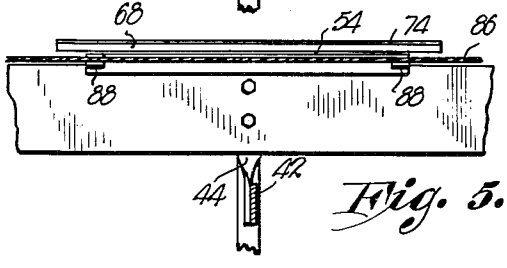


Fig. 5.

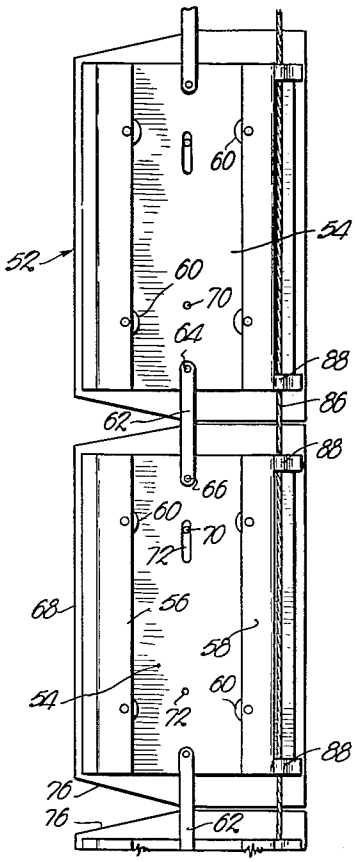


Fig. 6.

INVENTOR.
Arthur A. Boots

BY Earl Young

ATTORNEY.

United States Patent Office 2,745,542 Patented May 15, 1956

2,745,542

FOOD HANDLING STRUCTURE FOR RESTAURANTS

Arthur A. Boots, Carthage, Mo., assignor to Cafa-Roll, Inc., Carthage, Mo., a corporation of Missouri

Application September 29, 1952, Serial No. 312,029

2 Claims. (Cl. 198—203)

This invention relates to a system of serving food in restaurants, cafes and like public establishments and this application is a continuation-in-part of my co-pending application, Serial No. 166,677, filed June 7, 1950 and now Patent No. 2,666,519.

It is the primary object of the present invention to provide a system of serving food identical with that of my aforesaid co-pending application from the standpoint of principle of operation, but improving thereon in arrangement of parts, structural details and method of actuation so as to render the movable parts more positive in their operation, to lessen the cost of manufacture and to simplify the entire strutcural assembly.

It is the most important object of the present invention to provide a food serving system that includes a plurality of carriages for supporting bowls of the food, the carriages being mounted for continuous movement in procession around the track and having connection with a continuous cable whereby all of the carriages may be driven from a single prime mover.

Other objects of the present improvements to my aforesaid co-pending application include the way in which resilient clips are provided to connect the carriages with the cable; the way in which the clips are arranged to disengage the cable and thereby clear a prime mover for the latter; the way in which the carriages are mounted upon a flat-like track for mobile movement therealong; and many other more minor objects, all of which will be made clear as the following specification progresses.

In the drawing:

Figure 1 is a top plan view of food handling structure for restaurants, made pursuant to my present invention, parts being broken away and in section to reveal details of construction.

Fig. 2 is a fragmentary, top plan view partially broken away and in section illustrating a portion of the track and manner of mounting the carriages thereon.

Fig. 3 is a vertical, sectional view taken on line III—III of Fig. 1 looking in the direction of the arrows.

Fig. 4 is a fragmentary, vertical, cross-sectional view taken on line IV—IV of Fig. 3.

Fig. 5 is a fragmentary, vertical, sectional view taken on irregular line V—V of Fig. 3.

Fig. 6 is an inverted view of two of the carriages showing the connection therebetween and the way in which the same engage a cable; and

Fig. 7 is a vertical, sectional view taken on line VII—VII of Fig. 1.

In its broad aspects, the system of the present invention is similar to that described in my aforesaid application and through use thereof, customers are served "family style" somewhat in the nature of a cafeteria where the customer selects the food desired.

In Figure 1 of the drawings there is illustrated a vertical partition 10 forming a part of a building not otherwise illustrated, it being contemplated that there be a kitchen 12 on one side of the partition and a dining

room 14 on the other side thereof. A swinging door 16 formed in the partition 10 permits passage of restaurant employees between the two rooms.

A counter, broadly designated by the numeral 18, is provided to serve the customers within the dining room 14 and is provided with a pair of elongated, substantially straight sections 20 and 22 extending perpendicularly from partition 10 and interconnected by a substantially semicircular counter portion 24 remote from the wall 10. The counter 18 comprises a plurality of spaced-apart, vertical frames 26 each preferably supported in an elevated condition by a pair of posts 28 that may be secured to the floor of dining room 14.

The frames 26 cooperate in supporting a pair of spaced-apart, parallel panels 30 and 32. A shelf 34 extends outwardly from the panel 32 of counter assembly 18 and an L-shaped decorative molding 36 is secured to the assembly 18 at the uppermost end of the panel 30. Protective coverings 38 and 40 for shelf 34 and molding 36 respectively, extend inwardly beyond the frames 26 a slight distance as illustrated in Figs. 3 and 7 of the drawings.

Each of the frame members 26 is provided with a horizontal cross-bar 42 spaced below the upper ends thereof for receiving a vertical standard 44 that in turn supports a plate-like horizontal, continuous track 46. The track 46 is oval-shaped conforming with the counter assembly 18 and extends into the kitchen 12 through openings 48 and 50 formed in the partition wall 10. Suitable supports similar to or identical with the frames 26 are positioned within the kitchen 12 for supporting that part of the track 46 therewithin.

Track 46 comprises a pair of L-shaped strips as illustrated in Figs. 3 and 7, each having a horizontal leg and a vertical leg, the standards 44 being positioned between the vertical legs and attached thereto.

The track 46 is adapted to support a plurality of carriages each broadly designated by the numeral 52 and each including a normally lowermost plate 54 having a pair of elongated, parallel strips 56 and 58 secured directly to the lowermost face thereof. Spaced-apart strips 56 and 58 are Z-shaped in cross-section and each cooperates with the plate 54 in rotatably mounting a pair of spaced-apart grooved rollers 60 beneath the plate 54. Rollers 60 are arranged in opposed pairs and rotatably engage the opposite edges of track 46.

Plates 54 are arranged in spaced-relationship throughout the length of the track 46 and are interconnected through the medium of links 62, each having pivotal connection with a proximal plate 54 as at 64 and 66 respectively.

Each carriage 52 is provided with a second plate 68 that rests upon its corresponding plate 54 and held against displacement with respect thereto by depending pins 70 passing through openings 72 formed in the plate 54. One of the openings 72 is elongated to facilitate positioning of the plate 68 on the plate 54. A third plate 74 on the normally uppermost face of plate 68 may constitute any suitable protecting covering for plate 68 as desired. It is noted in Figs. 3 and 7 that when the carriages 52 are in the dining room 14, the coverings 38 and 40 overlap the marginial edges of the plates 74. The plates 68 are in substantial end-to-end relation and have their ends cutaway as at 76 along the innermost edges thereof for purposes hereinafter made clear. The plates 74 on the other hand are polygonal and one end thereof extends beyond its plate 68 to overlap a portion of the plate 74 next adjacent thereto. The carriages 52 are motivated in procession successively along the track 46 and continuously at a predetermined speed through the medium of an electric motor or other prime mover 78 operably connected with a speed reducer 80 having

a vertical shaft 82 provided with a grooved drum 84. A continuous flexible cable 86 is coiled in at least one convolution about the drum 84 preferably within the kitchen 12 and circumscribes all of the carriages 52 at the strip 58 thereof. Each strip 58 is made of a suitable resilient material and has a pair of arcuate ears 88 struck therefrom and bent to present open-mouth clips for receiving the cable 86 as illustrated in the drawings.

The ears 88 are biased upwardly against the cable 86 and accordingly, normally grips the same for connecting the carriages 52 to the continuously moving cable 86.

In operation, energization of the prime mover 78 drives shaft 82 and the drum 84 thereon. Drum 84 in turn imparts continuous movement to the cable 86 and by virtue of the connection of the carriages 52 to cable 86 through the clips 88 thereof, all of the carriages 52 will be moved simultaneously in procession around the track 46. All of the clips 88 cooperate in attaching the carriages 52 to the cable 86 by virtue of the joinder of the carriages 52 by links 62. Carriages 52 travelling along the straight stretches of the track 46 adjacent counter sections 20 and 22, are arranged relatively in the manner illustrated in Figs. 1 and 6 with the longitudinal edges thereof substantially parallel. As soon as a carriage 52 proceeds to an arcuate end of the track 46 and commences to turn thereabout, the pivotally mounted links 62 permit rotative movement of the carriages 52 on their vertical axes and the cutaway portions 76 of plates 68 permit the relative movement. However, the plates 74, extending at one end thereof beyond the corresponding underlying plate 68, remain in partial overlapping relationship as indicated in Fig. 1 of the drawings. As soon as the carriages 52 reach the drum 84, the clips 88 thereof will move out of engagement with the cable 86, thereby clearing the drum 84. Clips 88 automatically re-engage the cable 86 as soon as their carriage 52 passes the drum 84. Thus, while each carriage 52 momentarily moves out of connection with the cable 86 each time the drum 84 is approached, all of the remaining clips 88 remain locked with the cable 86 and further, by virtue of the links 62, such disengaged carriage 52 will be carried along in procession on track 46.

It is seen that because of the arcuate configuration of the ears or clips 88, the same will re-engage the cable 86 and become locked therewith after each passing of drum 84.

In my aforesaid co-pending application, the plates 74 of carriages 52 are adapted to receive bowls or plates of food that are placed thereon within kitchen 12 by attendants. The bowls of food are arranged in a number of courses and as the conveyor system continues to move slowly through the dining room 14, customers seated at the counter shelf 34, may select the food desired. Attendants within the dining room 14 and within the rotating conveyor system may place plates upon the shelf 34 for the customers, provide silverware, water and other drinks, while others in the kitchen 12 replenish the bowls or plates of food on the carriages 52 as the same return to the kitchen 12.

Through the provision of cable 86, its manner of motivation and the way in which the same is joined to the carriage 52, a simple, effective and inexpensive means of moving of the carriages 52 is provided. Through the pins 70 it is possible to remove the plates 54 and 68 for cleaning in the kitchen 12 when necessary, and the entire system may be maintained in a clean condition.

Such details of construction varying from those herein chosen for illustration that fairly come within the scope of the appended claims, are manifestly contemplated hereby.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In a food serving system, a continuous, flat, horizontal track having a pair of opposed, elongated, parallel side stretches and a pair of opposed, semicircular end stretches; a continuous series of carriages mounted on the track for movement around the latter in procession; a rotatable driver disposed outwardly of the path of travel of the carriages adjacent one end stretch of the track; a continuous cable circumscribing the path of travel of the carriages and passing around the said driver for actuation thereby; and releasable clip means on each carriage respectively extending outwardly therefrom and normally in frictional engagement with the cable for supporting the latter and for movement therewith, said clips each being disposed for movement out of engagement and supporting relationship with the cable when its carriage moves adjacent said driver, said clip means and said driver being the only structure in contact with and supporting the cable.

2. In a food serving system, a continuous, flat, horizontal track having a pair of opposed, elongated, parallel side stretches and a pair of opposed, semi-circular end stretches; a continuous series of carriages mounted on the track for movement around the latter in procession; a number of links pivotally joining adjacent carriages; open-mouth, resilient clips on each carriage respectively and extending outwardly therefrom; a continuous cable normally within said clips and supported and frictionally engaged thereby; and a rotatable member having the cable trained thereabout for driving the cable and the carriages frictionally connected thereto through said clips, said member being outside the path of travel of said carriages adjacent one end stretch of the track, whereby as the carriages successively pass the member the cable will automatically disengage from and move out of the clips and the latter will clear the member, said clips and said member being the only structure in contact with and supporting relationship to the cable.

References Cited in the file of this patent

UNITED STATES PATENTS

689,242	Stutt	Dec. 17, 1901
1,682,175	Hassler	Aug. 28, 1928
1,741,246	Maynes	Dec. 31, 1929
1,750,425	Parker	Mar. 11, 1930
2,037,815	Ora	Apr. 21, 1936
2,129,380	Morgan	Sept. 6, 1938

FOREIGN PATENTS

612,226	Germany	Apr. 16, 1935