April 21, 1936. C. L. ORA 2,037,815

SERVING COUNTER

Filed May 22, 1933 3 Sheets-Sheet 1

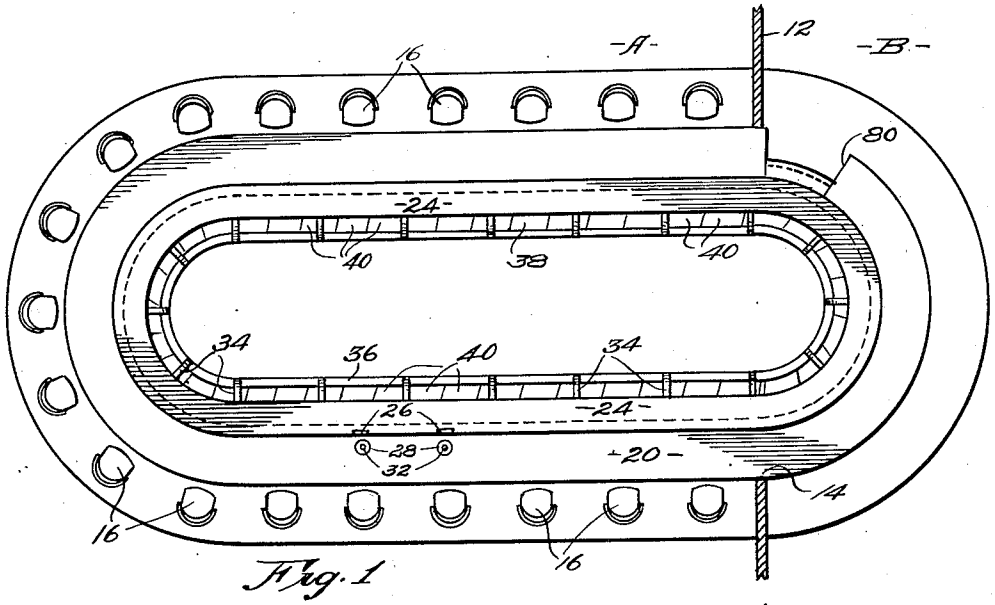


Fig. 1

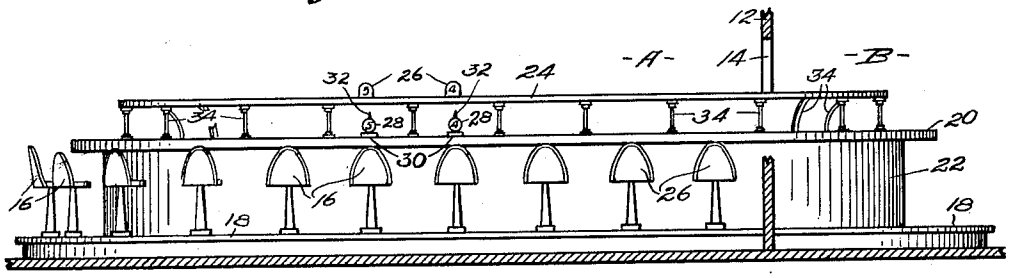


Fig. 2

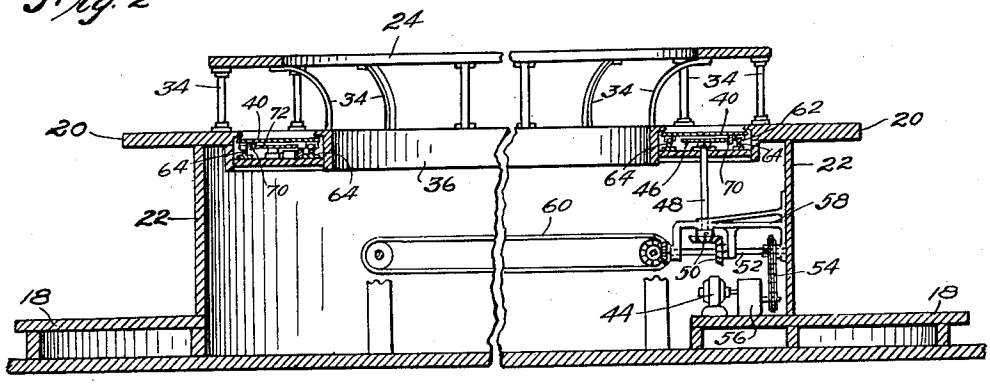


Fig. 3

INVENTOR,
Charles L. Ora.

BY
Howey & Hamilton,
ATTORNEYS.

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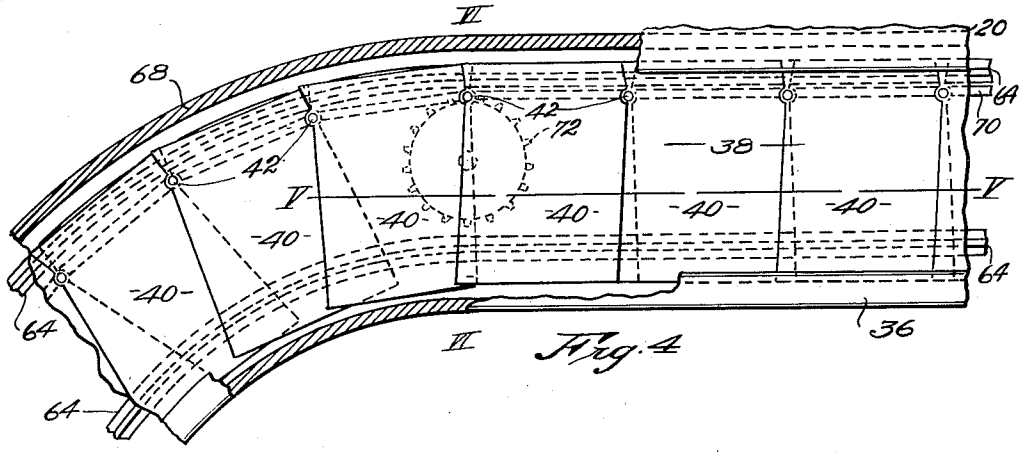


Fig. 4

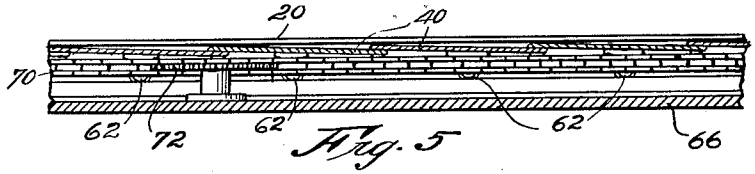


Fig. 5

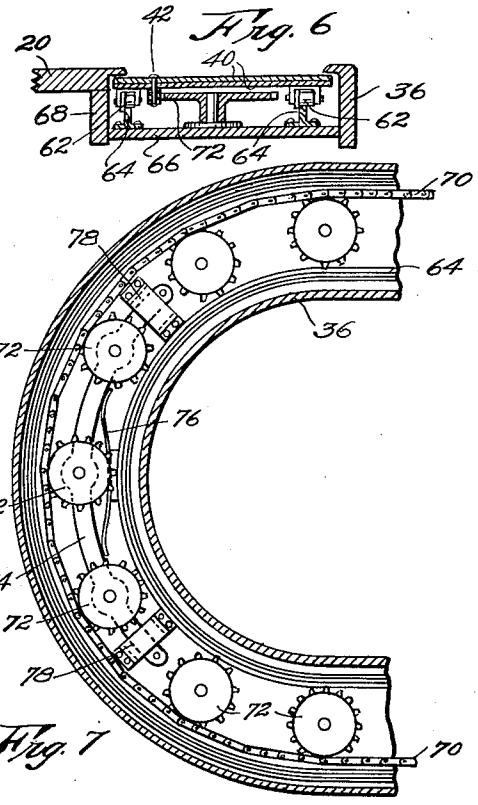


Fig. 7

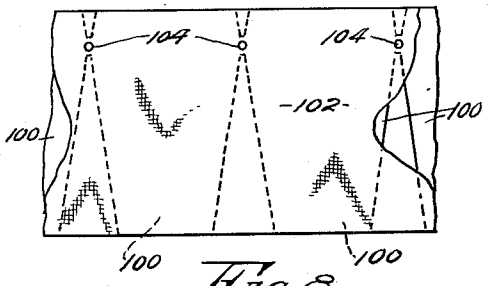


Fig. 8

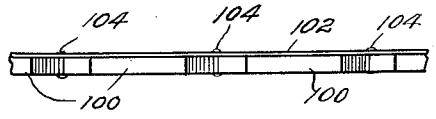


Fig. 9

INVENTOR,
Charles L. Ora.
BY
Harvey & Hamilton,
ATTORNEYS.

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Fig. 10

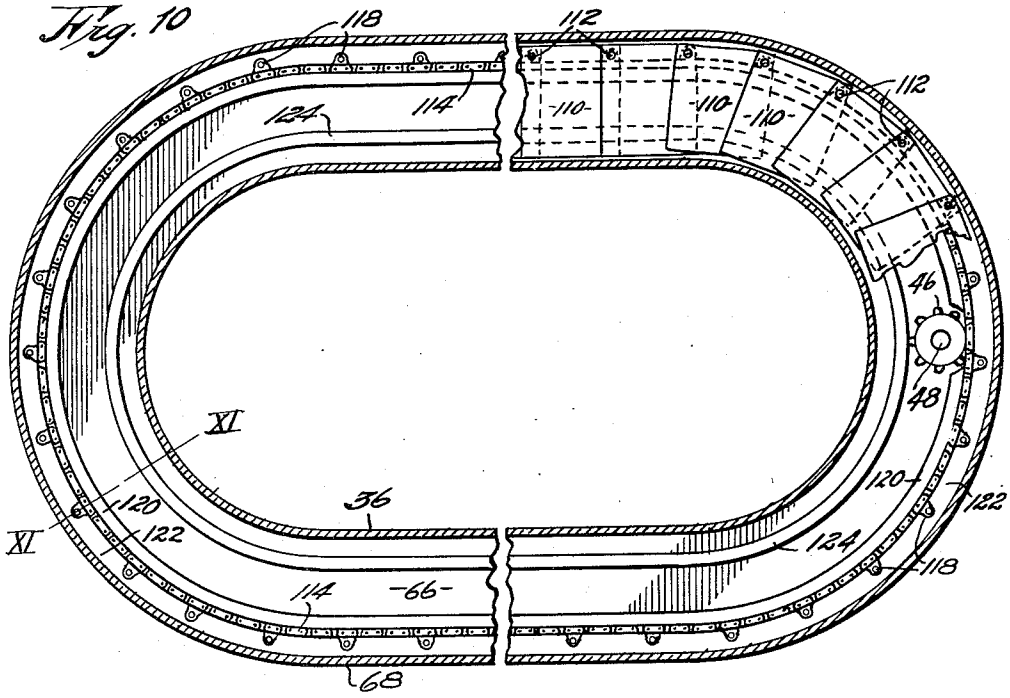
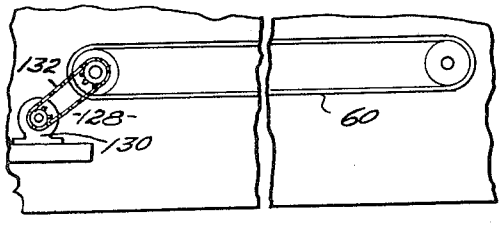


Fig. 13



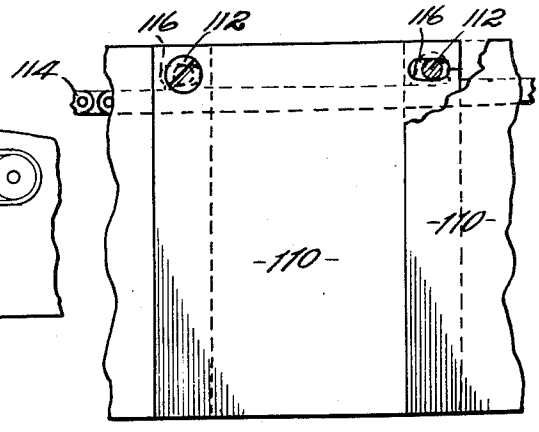


Fig. 12

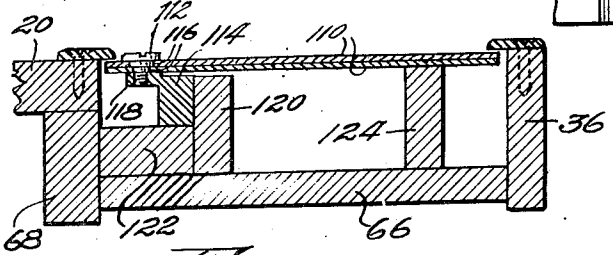


Fig. 11

INVENTOR,
Charles L. Ora.
BY Hovey & Hamilton,
ATTORNEYS.

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UNITED STATES PATENT OFFICE

2,037,815

SERVING COUNTER

Charles L. Ora, Kansas City, Kans.

Application May 22, 1933, Serial No. 672,162

4 Claims. (Cl. 186—1)

This invention relates to restaurant equipment and has particular reference to a serving structure for cafes or eating houses which not only presents a novel and unique apparatus for serving the customer, but also provides means whereby a large number of patrons might be served without the employment of the number of attendants that are now required in serving in such establishments as they are now constructed.

The primary object of this invention is the provision of serving structure for restaurants which permits a customer to send his order to and receive the same from the kitchen or other point of supply without an attendant giving individual service to that particular customer.

One of the salient objects of this invention, whereby the above broad ideas may be carried into practice, is the contemplation of a serving structure which includes a counter having an endless movable, and an endless stationary portion, the later circumscribing the former and disposed in substantially the same horizontal plane.

Another important aim of this invention is to provide especially formed and positioned counter portions and uniquely arranged parts in combination therewith, all of which present a serving structure of the character contemplated which operates in a manner hereinafter set down.

The exact operation and use of the serving structure made to embody the features of this invention will be made clear from the following specification, referring to the accompanying drawings, wherein:

Figure 1 is a top plan view of a serving structure embodying this invention.

Fig. 2 is a side elevation of the same.

Fig. 3 is a contracted, longitudinal, vertical, central section through the structure as illustrated in Fig. 1.

Fig. 4 is an enlarged, fragmentary, top plan view of a portion of the movable counter.

Fig. 5 is a fragmentary, vertical section through said movable counter taken along line V—V of Fig. 4.

Fig. 6 is a vertical cross section through the movable portion of the counter taken on line VI—VI of Fig. 4.

Fig. 7 is a horizontal, fragmentary section through a portion of the movable counter at the curved elliptical portion thereof.

Figs. 8 and 9 are fragmentary, top plan and edge elevation views respectively of a modified form of movable counter portion embodying the same principles as those illustrated in the previous figures.

Fig. 10 is a fragmentary, sectional plan view showing a modified form of the movable portion of the counter.

Fig. 11 is an enlarged, fragmentary, sectional view taken on line XI—XI of Fig. 10.

Fig. 12 is an enlarged plan view of the movable plates shown in Fig. 10, and,

Fig. 13 is a fragmentary view showing the endless conveyor belt, driven by a separate motor independently of the movable counter.

In describing the serving structure embodying this invention, but a single unit will be made clear, it being understood that any number of units of any size might be used in a single restaurant so long as the same perform the function and embody the basic concepts and structural features contemplated.

The building or other closure housing the serving structure should be divided by a partition 12, through which is formed an aperture 14 that may allow passage from room A to adjoining room B. In the instance shown, room A is the serving room or place where customers are received, while room B is the kitchen where the food is prepared and where orders are received from room A.

A series of stools 16 are arranged in succession, such as illustrated in Fig. 1, and the same may be mounted upon platform 18, if desired. These stools 16 are of the ordinary revolving type and permit the customer to eat comfortably from counter 20, which is an attenuated, stationary, endless table positioned in an elliptical path and extending from room A to room B through aperture 14 formed in partition 12. While the endless table is shown in an elliptical form, that is, it is elongated with rounded ends, however, it is apparent that it might be made to almost any circuitous form without necessitating any material change in the salient parts. Any suitable support such as wall 22 may be used as a foundation to carry stationary counter 20 and a display shelf 24 is provided for the purpose of not only displaying food, but to carry a number plate 26 that has a numeral imprinted thereon to indicate the stool number which a particular customer is occupying.

This number plate should be rigid to shelf 24 while a complementary number plate 28, bearing a similar number, is placed upon counter 20 to receive a customer's order. Number plate 28 sits upon a pedestal 30 and carries pin 32 which

receives the written order made out by the customer in the stool in front of number plate 26, which corresponds to the number marked upon plates 26 and 28 respectively. In practice, when a customer enters a restaurant equipped with the structure contemplated by this invention, the single attendant in charge behind the counter 20 presents him with an order which is filled out in any suitable fashion and secured to number plate 28 by forcing the order over pin 32. This order, together with number plate 28, is then positioned upon the hereinafter described movable portion of the counter, which carries the order into room B where the same is filled, placed upon a tray and the order with its supporting number plate put back upon the movable portion of the counter so that the tray of ordered food, the order itself and number plate 28 may be carried past a checker and thence through aperture 14 back to room A where, when the tray reaches the customer who presented the order, the same may be removed and placed upon counter 20 for use.

All that is necessary is that the customer or customers seated on stools 16 watch the number upon plates 28 that are being conveyed past his station. When the number plate 28 having a numeral thereon which corresponds to the number on plate 26 which is before him arrives, he is aware of the fact that the tray bearing such number is his order of food. He thereupon simply removes the tray to the counter 20 immediately in front of him.

In certain instances it might be desirable to simply place servings of food on the moving portion of the counter and permit the customers to remove the servings at will. In such cases it would facilitate rapid service, to several customers, to place servings of like food at spaced apart intervals.

Display shelf 24 may be supported by uprights 34 that extend upwardly from stationary counter 20 and a rub rail 36 which is likewise elliptical and is spaced inwardly from counter 20 is provided, as shown in Figs. 3 and 6. It is between stationary counter 20 and rub rail 36 that the unique endless movable counter is disposed.

One of the preferred forms of this movable counter 38 is clearly illustrated in Figs. 3 to 6 inclusive. In this instance, movable counter 38 comprises a series of overlapping, rigid plates 40 that are pivotally interconnected as at 42 adjacent one end thereof so that when the plates 40 are carried around the elliptical endless path of travel the degree of overlap may be varied as the radius of the path is increased or decreased. Such relation between adjoining plates 40 is clearly shown in Fig. 4. These plates are so thin that their overlapping edges do not present an objectionable offset from their major horizontal plane and trays may be carried thereby without interference from such offsets.

Movable portion 38 of the counter is circumscribed by stationary counter 20 and the two lie wholly within the same horizontal plane. That is to say, the upper faces of plates 40 and the upper surface of counter 20 are all in substantially the same horizontal plane.

A construction such as has been just set down, or one similar thereto permits the use of a movable counter portion that will fulfill the primary object of this invention of conveying articles from room A to room B. It is obvious that each plate 40 will pass each stool 16 and in the event some modification of the movable counter portion 40 is desired, this invention permits a wide variation in structural arrangement. Movable portion 38 of the counter which includes plates 40, is driven or moved through its elliptical endless path by suitable drive means, which in this instance is shown to be an electric motor 44, transmitting its power to drive sprocket 46 through the medium of vertical shaft 48, bevel gears 50, horizontal shaft 52, sprocket chain 54 and speed reducer 56. A suitable bracket 58 carried by wall 22 positions the aforementioned driving parts in their proper relation and in addition to driving movable portion 38 of the counter the drive means also operates an endless conveyor belt 60, which is positioned beneath the counter to extend from adjacent one end thereof to a point near the opposite end for the purpose of carrying articles from room A to room B which the attendant might want to dispose of.

This endless conveyor belt 60 is of the conventional type and may or may not be included in the serving structure.

To completely carry out the feature of smoothly driving movable counter portion 38, the invention requires that some form of roller 62 be mounted beneath each plate 40 for travel over a coacting track 64 which is carried by floor 66 extending between rub rail 36 and a depending portion 68 of stationary counter 20.

These tracks 64 are coextensive with the elliptical counters and rollers 62 are flanged at their outer ends to preclude their jumping from track 64 as the assembly is moved. A drive chain 70 extends beneath movable portion 38 of the counter and is secured to the units or plates 40 thereof through the same medium as is used to pivotally interconnect plates 40. This medium is shown here to be a pivot pin 42 which has previously been described. Pin 42 extends vertically through the overlapping portion of adjoining plates 40 and thence into engagement with drive chain 70. This chain is below the outer portion of movable counter 38 and a number of idler sprockets 72 may be used to take up slack or guide chain 70 in the ordinary manner.

To insure tautness on the part of both chain 70 and its associated movable counter portion 38, a number of idlers 72 should be mounted upon floating bar 74 which is yieldably forced outwardly by a spring or analogous means 76, as shown in Fig. 7. It may be necessary to provide keepers 78 for the end of floating bar 74 and it is preferred to locate this takeup apparatus just described at one end of the ellipse forming the path of travel of movable counter portion 38 and all its associated parts.

In the modified form of the movable counter portion illustrated in Figs. 8 and 9, the units 100 making up the carrying surface of the movable portion do not overlap, but have their converging edges in abutting relation when passing around the ends of the elliptical path.

This construction requires the use of an overlying sheet of fabric or other yieldable material 102 which falls between the adjoining edges of units 100 when the same approach each other at the points of turn. Pivotal points 104 may be merely complementary beads and grooves if desired, or any other suitable interconnecting elements might be utilized so long as horizontal displacement of units 100 is precluded thereby and free action toward and from each other is permitted when such action is necessary.

In the instance shown, the checker is stationed in cutaway portion 80 formed in counter

20, but it is understood such special arrangement need not be built into this structure unless desired.

The modified form of the movable portion of the counter as shown in Figs. 10, 11 and 12 provides for a simple form wherein the movable, overlapping, rigid plates 110 are pivotally mounted on a drive chain 114 by means of a removable screw or pin 112. Screw 112 passes through openings 116 formed through the overlapped portions of adjacent plates 110 and is secured into an ear 118 formed on the chain. It will be noted that one of the holes in each of the plates is elongated to allow for relative movement of the plates in the direction of travel, thereby permitting free movement of the parts about the curved portion of the counter. This adjustability facilitates easy movement of the movable portion of the counter around the curved portions. Chain 114 is positioned to circumscribe a guide member 120 which is stationary with counter 20. This guide member serves to maintain the chain in a fixed path of travel as it is driven to propel the movable counter plates 110. Chain 114 rests on a base support 122 which in turn is carried by the counter support. The inner ends of plates 110 ride on track 124 which is positioned in parallel relation with guide 120.

The endless conveyor 60 as shown in Fig. 13 is provided with an individual driving means 128 which may consist of a motor 130 and chain belt 132. By this means of drive it is evident that the endless belt is operable independently of the movable counter.

Through the use of a serving counter such as has been described, a restaurant might be operated with a minimum number of employees. The broad concepts of the invention have been clearly illustrated and described and while a specific form of the invention has been disclosed, it is desired to be limited in the practice thereof only by the scope of the appended claims.

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

1. A serving counter comprising an endless stationary portion having a continuous trough formed thereby intermediate the sides thereof; and an endless, movable belt positioned within said trough and comprising a series of overlapped articulated plates in substantially the same horizontal plane as the top of said counter, and means for moving said belt, said plates having means pivotally interconnecting the same extending through the overlapping portions thereof adjacent the outer side of the endless belt.

2. A serving counter comprising an endless stationary portion having a continuous trough formed thereby intermediate the sides thereof; and an endless, movable belt positioned within said trough and comprising a series of overlapped articulated plates in substantially the same horizontal plane as the top of said counter, and means for moving said belt, said counter having inwardly directed portions along the side of said trough and overhanging the said endless belt, said plates having means pivotally interconnecting the same extending through the overlapping portions thereof adjacent the outer side of the endless belt, one of the overlapping plates having a loose fit with the pivotal means for the purpose specified.

3. A serving counter comprising an endless stationary portion having a continuous trough formed thereby intermediate the sides thereof; and an endless, movable belt positioned within said trough, comprising a series of overlapped articulated plates in substantially the same horizontal plane as the top of said counter, an endless chain underlying all of said plates within the trough along the outer edges thereof, sprockets in engagement with said chain to drive the same and a roller carried by each plate respectively on each side respectively of said sprocket chain and tracks formed along the bottom of said trough to support said rollers and associated plates, said plates having registering openings formed in the overlapping portions thereof adjacent the outer side of the belt and means for pivotally interconnecting the plates extending through said openings, one of said openings in each set of overlapping plates being elongated for the purpose specified.

4. A serving counter comprising an endless stationary portion having a continuous trough formed thereby intermediate the sides thereof; and an endless, movable belt positioned within said trough, comprising a series of overlapped articulated plates in substantially the same horizontal plane as the top of said counter, an endless chain underlying all of said plates within the trough along the outer wall thereof, sprockets in engagement with said chain to drive the same and a roller carried by each plate respectively on each side respectively of said sprocket chain and tracks formed along the bottom of said trough to support said rollers and associated plates, said stationary portion of the counter having overhanging flanges extending above the plates, said rollers serving to maintain the plates in close relation to the bottom of said overhanging flanges, said plates having registering openings formed in the overlapping portions thereof above said chain and means pivotally interconnecting the said overlapped plates and said chain, the connection between the plates and pivotal means being a loose fit to allow relative movement of the overlapped plates in their direction of travel.

CHARLES L. ORA.