Dec. 5, 1939. C. J. SHLEVIN 2,182,708

SLICING MACHINE

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Fig. 1.

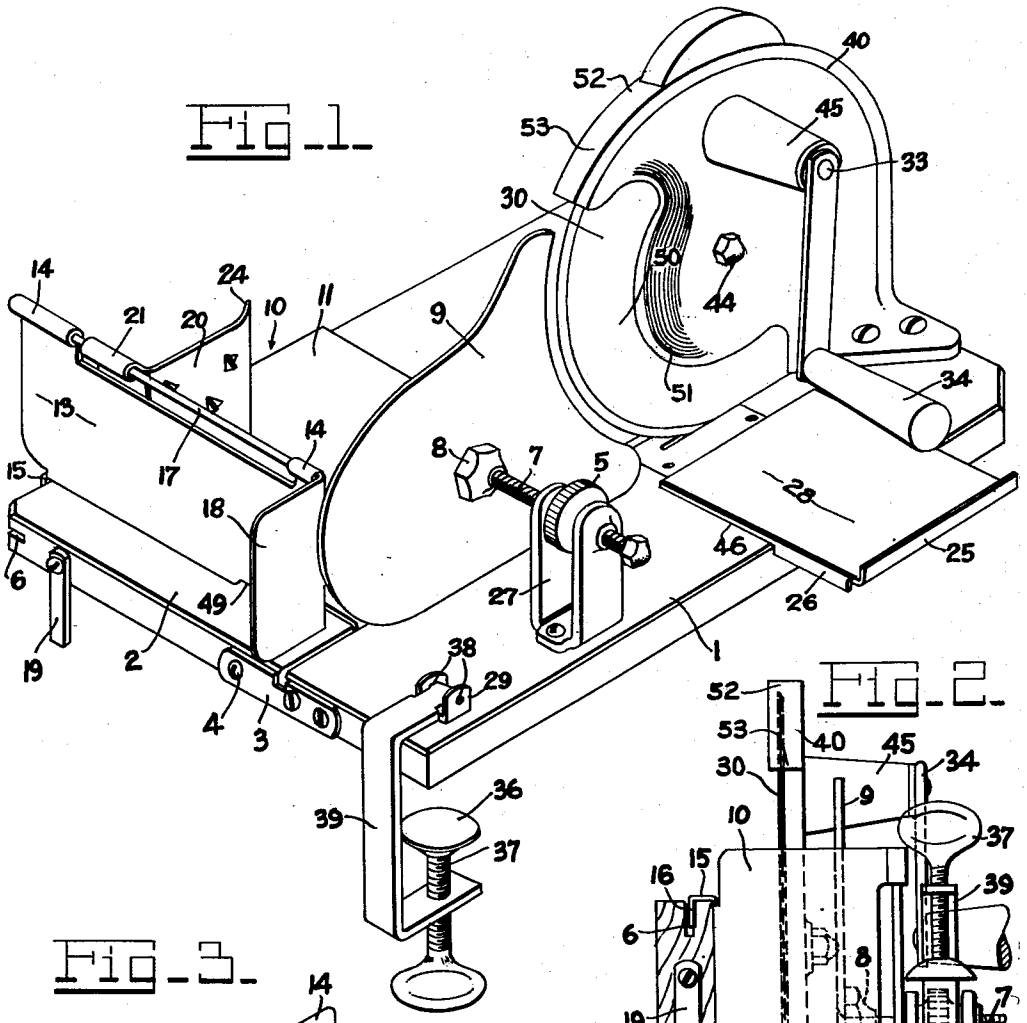
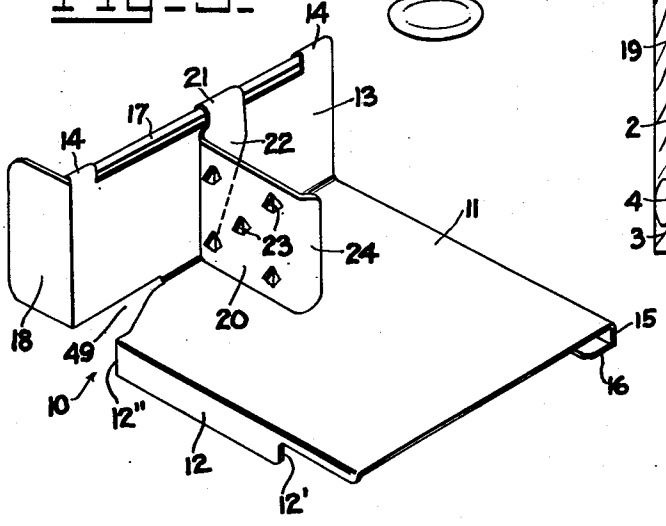


Fig. 2.

Fig. 3.



INVENTOR
CLARENCE J. SHLEVIN
BY Lem H Amdur
ATTORNEY

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Fig. 4.

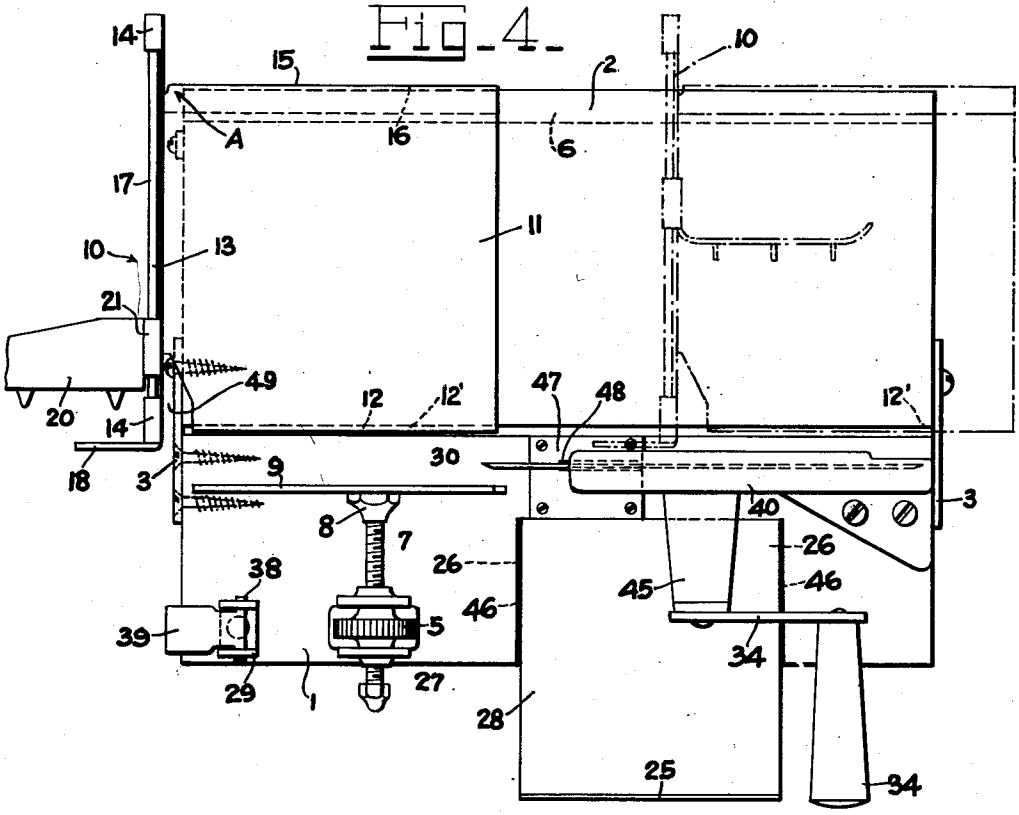
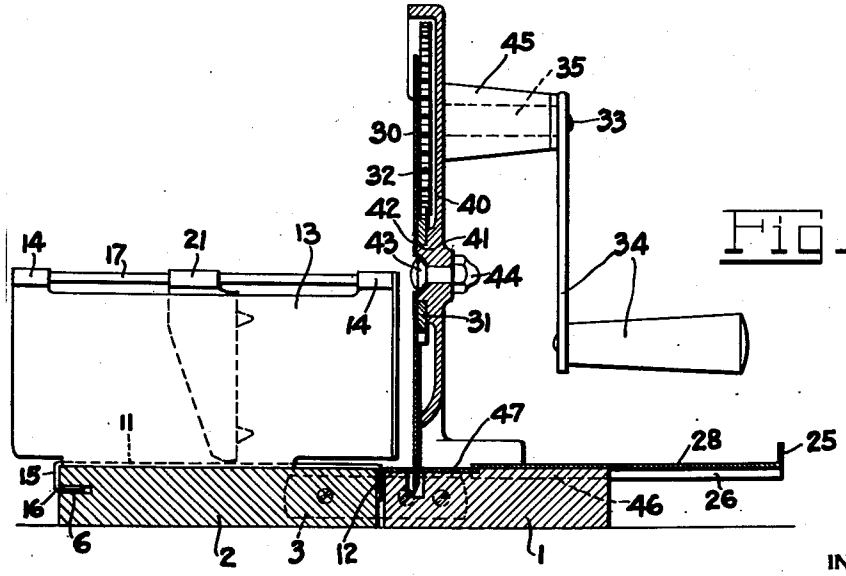


Fig. 5.



INVENTOR
CLARENCE J. SHLEVIN
BY Leon H. Anderson
ATTORNEY

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UNITED STATES PATENT OFFICE

2,182,708

SLICING MACHINE

Clarence J. Shlevin, Brooklyn, N. Y., assignor to Farber & Shlevin, Inc.

Application July 19, 1939, Serial No. 285,228

6 Claims. (Cl. 146—102)

This invention relates to hand operated slicing machines, the prime object of the invention being to devise a small size slicing machine for home use and similar services, that is, a machine which can be sold at a sufficiently low price to reach this market, and one which will occupy very little space both in use and when stored away and which will be easy to operate. Other objects of the invention include the devising of a slicing machine having but a single moving part and which obviates the need of complicated or intricate mechanism; a machine of the class described which will be fool-proof, easy to operate and which will be well guarded against the possibility of injuring the user; a machine which will be easy to clean; the provision in such a machine of simple means for readily adjusting the size of the slice; a machine which can be readily folded up to a small size for the purpose of storing and in a manner so as to shield the cutting knife and protect against the probability of injury therefrom.

For the attainment of these and such other objects as may appear or be pointed out I have shown an embodiment of my invention in the accompanying drawings, wherein:

Fig. 1 is a perspective view of the entire machine;

Fig. 2 is a front elevational view of the machine in folded condition;

Fig. 3 is a perspective view of the food carriage;

Fig. 4 is a plan view of the machine; and

Fig. 5 is a longitudinal section of the machine substantially on the lines 5—5 of Fig. 4.

The base of the machine is preferably made in two parts, for the purpose of readily folding the device for storage (as will be presently described)—a main base 1 and a foldable base 2, the two being hingedly connected by a link 3, which is securely fastened to one of the two bases, preferably the main base 1 by two screws, as best shown in Fig. 1. The link is articulated to the foldable base 2 by means of a single screw or pin 4, so that the bases may be caused to lie in the same plane as shown in Fig. 1 or the foldable base 2 may be folded substantially normal to the main base 1, as shown in Fig. 2, the foldable base turning on screw 4. In addition to the front link 3, a similar link 3 is provided at the rear, see Fig. 4. The links are made considerably longer than would ordinarily be required by positioning single screw or pin 4 a distance from the contiguous edge of the foldable base, and are also made wide so that the friction between the links and the base may be made sufficient to maintain the parts in either of the two positions. The means for connecting the links to the bases has been shown and described as screws, i. e., wood screws, inasmuch as the bases are preferably made of wood, although it is evident that any other material, metal, composition and other materials, are equally well adapted and that any other type of fastening, such as riveting and the like, may be employed.

The two parts of the base are spaced a short distance apart, see also Figs. 4 and 5, not only for the purpose of providing clearance for the foldable base 2 in being turned on the axis of screws or pins 4—4, but also to provide a convenient runway for the food carriage or slide 10, or rather for a depending flange 12 thereof. The food carriage is conveniently fabricated from sheet metal, and is preferably chrome-plated for protection against food juices and stains; it comprises a plate or floor 11 upon which the food to be sliced is placed. Along one edge of plate 11 is the said depending flange 12; along the parallel edge is another depending flange 15 which has an inwardly-turned rib 16. The outer side edge of base 2 is provided with a groove 6 in which slides the said inwardly turned rib 16 of the food carriage.

As clearly seen in Figs. 4 and 5, the food carriage is slidable along base 2, with its flange 12 slidably fitting in the clearance or slideway between part 2 and part 1 of the base, and with the rib 16 of its flange 15 slidably fitting in the groove 6 of base 2.

It will be observed, best from Fig. 3, that the flange 12 does not extend the entire length of the food carriage, as may the ribbed flange 15—16, that is, flange 12 is shorter than the flange 15—16. The purpose of this is to enable the carriage to be readily removed from the base (as for cleaning the machine) by first slightly tilting the carriage on its ribbed flange (15—16) edge (counterclockwise as viewed in Fig. 5) until flange 12 clears the top of base 2, and then turning the carriage in a counterclockwise direction, see Fig. 4, about the corner A thereof, until it is clear from the base.

Another purpose for making flange 12 shorter than the length of the carriage, is to allow a portion of the carriage (rather, its plate 11) to extend beyond the base, when at the end of its forward strike, as shown in dot-and-dash lines in Fig. 4. It will be seen from that figure that the carriage is stopped by the abutment of the end of the flange, designated 12' in Figs. 4 and 3, with the rear link 3. In like manner, the front

link 3 serves as a stop for the return stroke of the slide, by the abutment of the front end 12'', Fig. 3, of flange 12.

The sliding carriage is further provided with an upstanding wall 13 disposed normally to the plane of the slicing wheel, against which the food to be sliced is placed and braced as the carriage is moved toward the slicing blade (as will shortly be described). At the top edge of the bracing wall 13 is firmly secured, as by means of a pair of clinched ears 14, a rod 17. Slidably mounted on rod 17, as by a loosely fitted ear 21, is a pusher plate 20, which is hung from the said rod. As best seen in Fig. 3, the pusher plate has a portion 22 extending normally and rearwardly, the upper edge of which is formed into the aforesaid ear by which the pusher is suspended from rod 17, portion 22 lying in abutting and sliding relation to bracing wall 13 of the carriage. Pusher plate 20 is provided with a number of prongs 23 conveniently punched or tongued out of the plate, the purpose of which is to embed into the food and prevent slippage thereof when presented to the slicing blade (as will be seen). The pusher 20 being loosely mounted (also slidably) on rod 17, it may be turned 180° from the operative position shown in Figs. 1 and 3 to the inoperative position shown in Fig. 4. When it is desired to slice rather long pieces of food, such as a loaf of bread, the pusher 20 will be turned to its inoperative position, Fig. 4, in which case there is no obstacle in the way of placing a piece of food of any length, upon the carriage, against the bracing wall 13. When it is desired to slice smaller pieces of food, especially very small pieces or "ends", the pusher plate is turned about rod 17, to operative position, Fig. 1, and used for pushing or holding the food in position for the slicing operation, the pusher sliding along rod 17. In this manner, the food, especially the smaller size pieces, may be more steadily held, and, moreover, the hand is guarded against contact with the slicing blade (as will again be referred to). The distal edge of the pusher plate, see Figs. 1 and 3, is formed with an inwardly turned lip 24, as a further precaution and safeguard against accidental injury.

The bracing wall 13 of the food slide is itself provided with a normally extending portion 18 which serves as a thumb-guard. As best apparent from Fig. 1, the left hand would be used in advancing the food carriage to-and-from the slicing blade and in pressing the pusher in operative sliding relation therewith (as will be more fully explained hereinafter). The thumb of the left hand will hence rest against, or be stopped by, the thumb guard 18.

The slicing knife is in the form of a thin, sharpened disc 30, which is rotatively mounted in a standard 40, preferably formed as a casting, securely fastened to base 1, as shown in Fig. 1. The standard or casting 40 has a hub 41, leftwardly directed, Fig. 5, upon which is rotatively mounted an annular or ring gear 31, to which the blade disc 30 is secured as by pins or rivets. The central portion of the hub is cupped out, as clearly shown in Fig. 5. The center of the blade disc is cut away by a hole which is of larger diameter than the outside diameter of hub 41. An irregular shaped washer 42 having an inwardly directed boss curved to the curvature of the cupped portion of the hub, is received therein and securely held to the hub by means of a flat head machine screw 43, which snugly fits in the central cavity of washer 42 and the head of which is substantially flush with the washer, which, in turn, is flush with the slicing disc 30. The machine screw or through bolt is held securely by nut 44, see also Fig. 1.

Meshing with gear 31 is a larger gear 32 which is secured to the end of a spindle 35 rotatively mounted in the inner bore of a bracket 45 projecting from standard 40; the spindle is of a length equal to that of the bracket 45, except for a reduced portion 33, which is threaded. Handle 34 is screwed onto the said threaded and reduced portion 33, a washer being preferably interposed, as shown.

Turning of the handle is thus effective to rotate the slicing wheel, by reason of the gear ratio, at a fairly high speed.

In addition to the two main elements of the device, namely, the food carriage or slide 10 and the slicing disc 30, there is the adjustable guard shield 9, which is a plate of suitable metal secured to one end of a threaded bolt 7, the head end of which (having a slot for a screw-driver, see Fig. 2) is passed through a central hole in the plate and tightly secured to the plate by means of a nut 8. The bottom edge of shield plate 9 slides upon base 1; its forward edge, Fig. 1, is cut to a radius somewhat greater than that of slicing wheel 30 so that but a slight clearance separates the two.

In operation, food placed upon the food carriage 10 is pressed (either with or without the aid of pusher 20) against the guard plate 9, and the food carriage (of course, carrying the food) is reciprocated forward-and-return past the rotating slicing blade, the food being sliced, of course, only upon the forward stroke. The thickness of the slices is determined by the adjustment of the guard plate 9 relative to the plane of the revolving blade disc, as will now be described.

Bolt 7 is slidably supported in a suitable bracket, such as the U-shaped bracket 27, secured to base 1. Positioned between the two legs of the bracket is a knurled nut 5, through which bolt 7 is threaded. Hence by turning nut 5 one way or the other, the shield 9 will be advanced or retracted from the plane of the revolving slicer blade, and thus the thickness of the slices may be regulated. When not in use, shield plate 9 may be lined up with the blade to guard it and prevent contact with it.

For the purpose of securing the device to a table or other support, a clamp 39, in the form of a U, Fig. 1, is provided. The clamp is hingedly articulated to base 1, as by means of a small bracket 29 (likewise U-shaped) secured at its web to base 1, in the upstanding legs of which one end of the clamp is hinged. The legs of bracket 29 are provided with a pair of aligned holes in which fit pins 38 formed in, or driven into, the clamp member. The other leg of the clamp (the lower leg as viewed in Fig. 1) is threaded for a sufficienty long bolt 37 having a flattened finger portion at one end and a clamping disc 36 at the other end. The purpose of hinging the clamp 39 on its bracket 29 is to enable the clamp to be turned 180° to a position as shown in Fig. 2, when the device is folded (which will be again referred to).

Clamp 39, while effective to prevent shifting of the device in operation if it is screwed sufficiently forcefully, may be supplemented by a straight clamp or strip 19 hingedly screwed or otherwise

fastened to base 2; supplemental clamp 19 is effective to hold the device by abutment against the edge of the table (not shown) against turning movement occasioned by the turning of the handle and the reciprocating movement of the food carriage. When folded away, the strip 19 may be turned as shown in Fig. 2.

In folding the auxiliary base as earlier explained, the food carriage 10 need not be first removed, but may remain as shown in Fig. 2. To enable the food carriage 10 to be thus turned with auxiliary base 2, the wall 13 of the carriage being moved to its extreme position toward the front of the machine as viewed in Fig. 1, a cutout 49, see especially Fig. 3, is provided in the corner formed by the intersecting of wall 13 and floor plate 11. It will also be observed, best from Fig. 2, that the food carriage cannot be displaced in the folded condition of the device, by reason of the ribbed flange 15—16 of the carriage fitting in groove 6 of base 2.

A slice platform or plate 28 may be provided to catch the slices. For this purpose the top surface of base 1 is provided with a pair of parallel grooves 46 in which are slidably received depending flanges 26 of the slice platform 28. The forward edge of the platform may be provided with an upstanding flange 25 to facilitate movement of the platform for the purpose of removing the slices or for returning the platform in catching position.

The base 1 is provided with a slot for the lower portion of the slicing blade, as clearly shown. The base being usually made of wood I have discovered that cleaner, thinner and more uniform slices may be obtained by providing what I term a "stripper" 47 formed of thin metal and fastened to the top surface of base 1 as shown. Stripper 47 has a central slot 48 in which the lower portion of the revolving disc clears; the wood base itself is cut away to form a slot a trifle wider than slot 48 of stripper 47.

As best seen in Fig. 1, the casting or standard 40 is cut away at 50 to expose sufficient of the slicer disc 30 and to provide clearance for the slicing operation. The portion of the member 40 which borders the exposed disc is provided with a taper 51 to cause the slices to peel off the side of the member and to fall upon the platform 28. It will also be seen in Fig. 1 that the bracket member 40 is provided with a flange 52 to guard the edge of the slicing disc; flange 52 is carried around the disc to a point 53 very close to the guard shield 9, so that all points of the slicer disc are fully guarded to safeguard against accidental contact therewith.

I claim:

1. In a device of the class described, the combination of a main base, a slicing disc rotatively supported thereon, an auxiliary base provided with a groove along one edge, hinge means articulating the said main and auxiliary bases, the said two bases being separated when lying in the same plane by a small clearance to permit the auxiliary base to be folded relative to the main base, and a food carriage provided along one edge with an inwardly-ribbed flange slidably received in the said groove of the auxiliary base and provided along the parallel edge with a flange slidably received in the said clearance between the two bases.

2. In a device of the class described, the combination of a main base, a slicing disc rotatively supported thereon, an auxiliary base provided with a groove along one edge, a pair of links hingedly connecting the said two bases, and a food carriage provided along one edge with an inwardly-ribbed flange slidably received in the said groove of the auxiliary base and provided along the parallel edge with a plain flange slidably received between the two bases, the said links serving as stops for the food carriage by abutment with the said plain flange, the said plain flange terminating short of the length of the carriage whereby the carriage in its forward movement may extend beyond the base.

3. In a device of the class described, the combination of a main base, a slicing disc rotatively mounted thereon, an auxiliary base provided with a groove along one edge, hinge means for connecting the said two bases, a food carriage provided along one edge with a flange slidably received between the two bases, the other parallel edge of the said carriage being provided with an inwardly-ribbed flange slidably received in the said groove of the auxiliary base whereby the said food carriage cannot be accidentally removed from the auxiliary base in either the open or folded position of the said base, the first said flange being terminated somewhat short of the length of the food carriage to permit removal of the carriage from the auxiliary base.

4. In a device of the class described, the combination of a main base, a supporting member secured thereon, a slicing disc rotatively mounted on the said supporting member, an auxiliary base, connecting means for the two bases including a pair of links, one end of the links being firmly seecured to the said main base by at least two fastening elements and the other end of the links being hingedly articulated to the said auxiliary base by a single fastening element, the said links being made long and wide to introduce sufficient friction to maintain the said auxiliary base in an operative position in the plane of the main base and in a folded position normal to the main base, the width of the said links being less than the height of the said bases and spaced from the bottom thereof, and the said pair of links connecting the bases in slightly spaced relation, whereby the auxiliary base may be turned relatively to the main base to said folded position with the auxiliary base resting on its inner edge.

5. In a device of the class described, the combination of a base, a slicing disc rotatively mounted on the said base, a food carriage for moving food to be sliced past the said rotating disc, and a guard and slice gauge shield comprising a plate the bottom edge of which is straight and adapted to slide upon the said base and having a countersunk hole substantially centrally located, a flat head machine bolt, the tapered head of which fits in the said countersunk hole of the guard plate presenting a flush surface with the said plate, and a nut threaded on the said bolt to lock the plate tightly between it and the head of the bolt, the said nut being cupped out to receive the countersunk portion of the plate.

6. In a device of the class described, the combination of a main base, a slicing disc rotatively mounted thereon, an auxiliary base, front and rear links hingedly connecting the two bases in slightly spaced relation, and a food carriage slidably mounted on the said auxiliary base for reciprocatory movement past the said slicing disc, the said food carriage comprising a floor plate and an upright wall at the rear end thereof normally disposed relative to the direction of carriage movement, a flange depending along one side of the said floor plate and slidably received in the

space between the said main and auxiliary base, a portion of the corner formed by the intersection of the said upright wall and the said depending flange of the floor plate being removed to provide clearance between the carriage and the rear link, whereby the said food carriage may extend beyond the rear of the said auxiliary base and its said rear link and whereby the said auxiliary base together with its said food carriage may be folded relatively to the said main base, the said rear link clearing in the said removed corner portion of the food carriage.

CLARENCE J. SHLEVIN.