

April 14, 1942.

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BUN SLICER

Filed Sept. 3, 1940

2,279,376

2 Sheets-Sheet 1

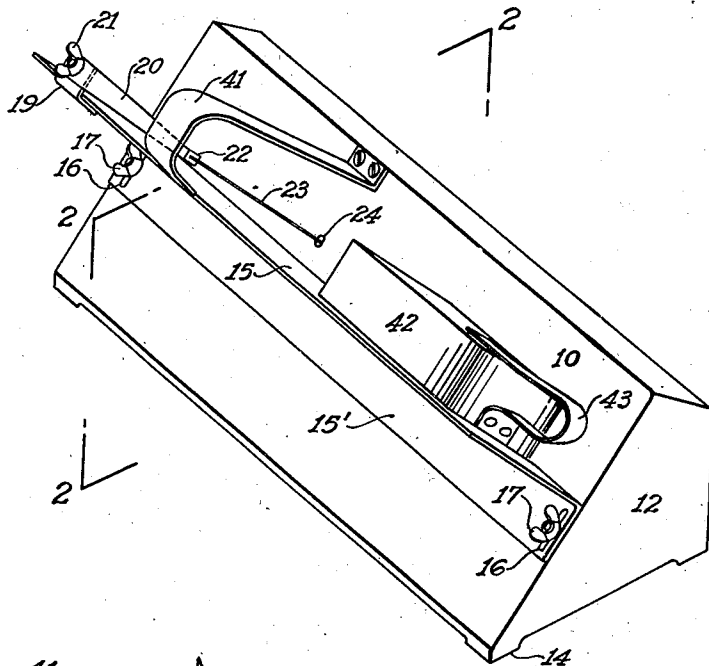


Fig. 1

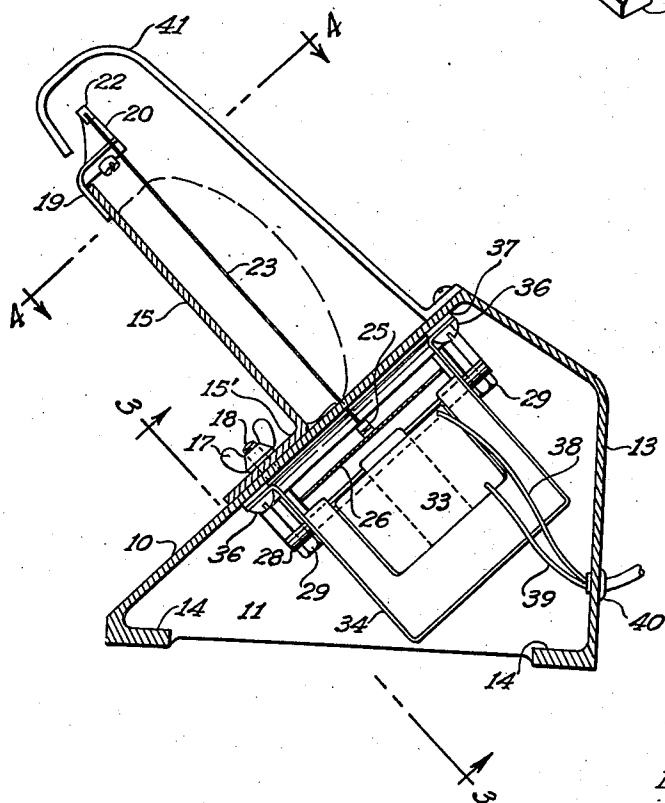


Fig. 2

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2 Sheets-Sheet 2

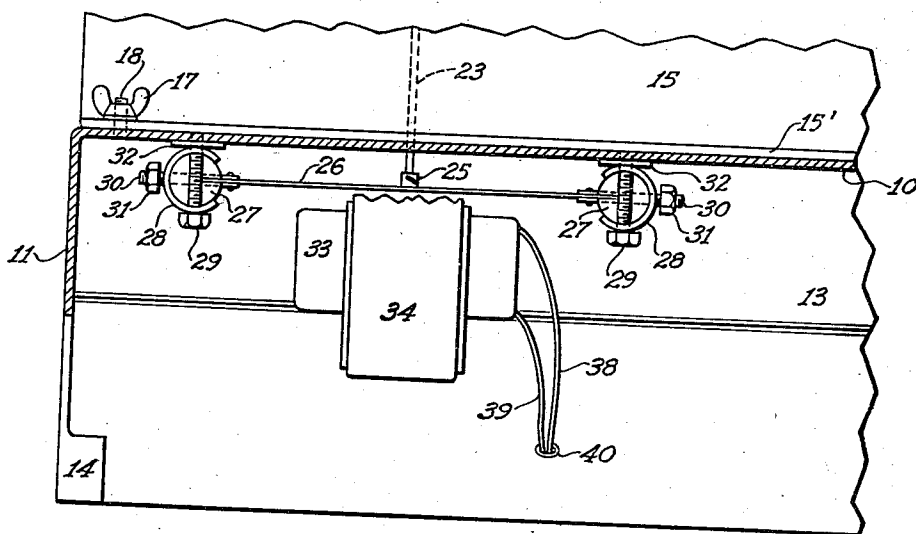


Fig. 3

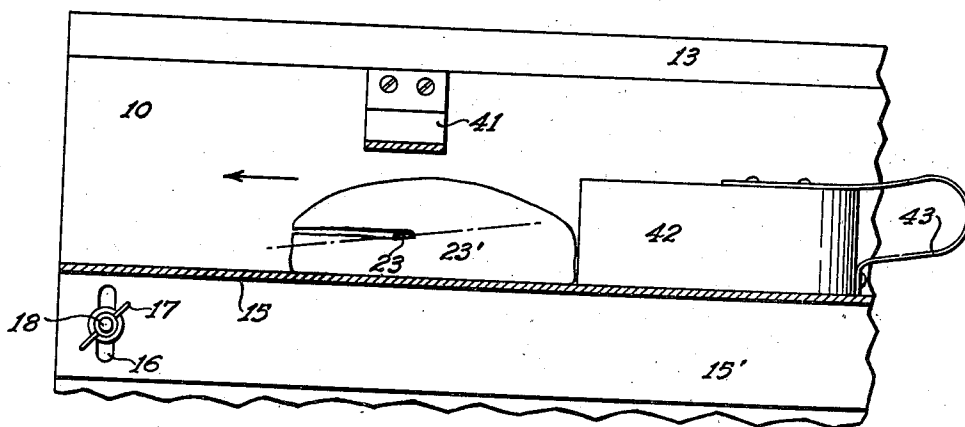


Fig. 4

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UNITED STATES PATENT OFFICE

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BUN SLICER

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8 Claims. (Cl. 146—72)

This invention relates to machines for slicing buns, rolls, and the like, and, in particular, for horizontally splitting, slicing, or halving sandwich buns of the type commonly used for hamburger, barbecue, and similar sandwiches.

Various machines have previously been invented for this purpose, some of which are quite complicated and expensive. One fault which I have found common to several is the fact that it is necessary to exert holding pressure on the bun during the slicing. This holding pressure is apt to result in an uneven, rough, or slightly wavy cut surface when the pressure is released. A common difficulty experienced in the slicing of buns is that, due to variation in density or texture of the bun, the slicing cut may have a tendency to depart from parallelism with the bottom surface of the bun. Consequently it is necessary to provide some means for holding the bun flat during the cutting so as to keep the plane of the cut surface parallel to the base of the bun, but, at the same time, without squeezing the bun or exerting undue pressure thereon.

An object of this invention is to provide a bun slicer in which the lower half of the bun will be held firmly against a support during the slicing operation, without, however, any pressure being exerted on the upper bun half.

Another object of this invention is to provide a slicing machine in which the slicing operation is performed by a cutter reciprocated at an extremely high speed so that very slight lateral pressure on the bun will be required in order to obtain a quick halving of the bun, and consequently with a minimum tendency for the cutter to roughen the cut surface.

A further object of the invention is to provide a slicer of the type indicated which will be very simple to operate, but in which the operator will be protected against any possible danger of cutting himself. The chief difficulty with the manual slicing of buns is the fact that injury to the person doing the slicing so frequently occurs. Nevertheless, since the bun slicing machines at present on the market are either extremely expensive and complicated or are unsatisfactory, the machines have not to any great extent supplanted the old method of slicing buns by hand in restaurants and in other places where the slicing of buns is required for sandwiches.

A still further and important object of this invention is to provide a bun slicer which will have but few parts and will be comparatively

simple and inexpensive to manufacture and which will require a minimum amount of upkeep.

These and incidental objects I attain by employing a cutter attached to an electrical vibrator, producing very rapid reciprocation of the cutter; by providing a support for the bun during the cutting, so arranged that the bun will rest on a side as well as on the bottom bun face; and by constructing and arranging the parts in the manner hereinafter briefly described with reference to the accompanying drawings.

In the drawings:

Figure 1 is a perspective view of my bun-cutting machine;

Figure 2 is a vertical section corresponding to the plane indicated by the numerals 2—2 in Figure 1 and drawn to a slightly larger scale;

Figure 3 is a fragmentary longitudinal section taken on line 3—3 of Figure 2; and

Figure 4 is a fragmentary longitudinal section or plan as viewed from the plane of line 4—4 of Figure 2.

Referring first to Figures 1 and 2, a face plate 10, which constitutes one side of a trough in which the bun is supported and by which the bun is guided, forms a part of a hollow casing. The face plate is supported in an inclined position (of approximately 45°) by the end plates 12 and 11 and the back plate 13, the structure thus being of substantially triangular cross-section with the inclined face 10 turned toward the front. Inturned flanges 14 are provided at each corner at the bottom of the structure to serve as legs or to receive suitable bolts for fastening the machine to a table or bench.

A guide plate 15, constituting the other side of the bun-holding and guiding trough, is formed with a base flange 15' adapted to be detachably and adjustably secured to the face plate 10 in such manner that the guide plate 15 is positioned normal to the plane of the face plate. The guide plate 15 extends the full length of the machine. Adjustment of the guide plate is afforded by slotted holes 16 in the flange 15' and wing nuts 17, threaded on screws 18 which are set in the face plate 10 and which extend through the slotted holes 16.

An angular bracket 19 is rigidly secured to the top edge of the guide plate 15 as indicated in Figure 1, and the end of a spring member 20 is detachably mounted on the bracket 19 by means of a screw and wing nut 21. The opposite or free end of the spring member 20 is adapted, as at 22, to receive and retain the top of a toothed

blade 23. The end of the spring member 20, for example, may be hooked and slotted as indicated in Figures 1 and 2, and the top of the blade 23 may be provided with a transversely-extending pin to engage the slotted end of the spring member.

The blade 23 is very similar to the saw blades used in conventional scroll saws and the like and has a series of teeth along its cutting edge. However the teeth in this cutting blade 23 are preferably broader and are made more round than the teeth of an ordinary thin scroll saw blade. The blade 23 extends downwardly through an enlarged hole 24 in the face plate 10, and the lower end of the plate is made fast, as at 25 (see also Figure 3), to the center of a diaphragm 26. The blade 23 is positioned normal to the plane of the face plate 10.

The diaphragm 26 is a substantially rectangular piece of sheet metal, the ends of which are preferably disposed in rubber mountings 27 (Figure 3) contained in slotted metal tubes 28. The slotted tubes 28 are attached to the underside of the face plate 10 by the screws 29, and the diaphragm is retained in its rubber mountings by studs 30 attached to the center of the ends of the diaphragm and extending through the rubber mountings and supporting tubes, and having nuts 31 threaded on the projecting ends of the studs 30. I have also found it desirable to interpose discs 32 of rubber or other vibration-dampening material between the tubes 28 and the underside of the face plate 10, as shown in Figure 3, to localize the vibration of the diaphragm 26.

An electric vibrator 33 is located beneath the diaphragm 26 and is supported in spaced relationship thereto by a U-shaped hanger 34 which is secured to the underside of the face plate 10 by screws 36 and insulated therefrom by washers 37 (see Figure 2). The vibrator is energized through the conductors 38 and 39 which are connected to a suitable source of electric current (not shown), a grommet 40 being placed in the wall of the base where the conductors pass through. The vibrator includes the usual coil and core which, when current passes through the coil and magnetizes the core, causes the diaphragm, suspended in the field of the vibrator, to be alternately attracted and repelled at a rapid rate, in the well-known manner, thus imparting short reciprocal strokes to the cutter blade 23.

A substantial metal guard 41 (see Figures 1 and 2) is secured to the face plate 10 and has its top curved over and above the end of the cutter blade 23 and spring member 20 and serves to protect the operator from injury by preventing any inadvertent contact of the operator's hands with the blade 23 during the cutting operation.

In operation the bun to be sliced is placed in the trough formed by the face plate 10 and the guide plate 15, the bottom of the bun resting on the guide plate 15 and one side of the bun also resting against the face plate 10. The bun will then be in the position indicated by the broken line in Figure 2. A pusher 42 (Figures 1 and 4), made of wood, or other suitable material, and shaped substantially as shown, may be used to slide or push the bun in the trough toward and past the reciprocating cutter blade 23. For the convenience of the operator a retaining strap 43 of leather or similar material is fastened to the pusher 42 as shown, to assist the operator in sliding the pusher back and forth in the trough. The two halves of the bun, after being completely separated by the cutter blade, are brought to-

gether by gravity and remain together as long as the sliced bun remains in the trough after cutting, and after the cutting operation, the bun may be slid or pushed off of the end of the trough of the machine onto any desired tray or receptacle. The keeping of the two halves of the bun together after the slicing helps to prevent the cut surface from drying out.

I have found it desirable in my slicing machine to have the cutter blade 23 turned so as to make a slight angle with the guide plate 15, as shown in Figure 4. The plane of a cutter blade in Figure 4 is indicated by the broken line 23' and thus, as will be seen, instead of being absolutely parallel with the guide plate 15, makes a small angle, for example, an angle of about 10°, with the guide plate 15. With the cutter blade in this position the toothed or cutting edge of the blade has a tendency to move further into the upper half of the bun when the bun is pushed along the trough during the cutting or slicing. However, since the bottom of the bun rests against the guide plate 15, and the spacing of the blade, with respect to the guide plate 15, is fixed, the cutting blade is not able to follow this tendency to move into the upper half of the bun. The result is that the "heel" of the cutting blade is pressed against the cut face of the bottom half of the moving bun, instead of merely sliding freely over such cut surface as would occur if the plane of the blade were parallel to the guide plate 15. This resulting pressure of the "heel" of the blade against the cut surface causes the bottom of the bun to remain gently but firmly pressed against the guide plate 15 during the entire cutting or slicing operation; it prevents any possibility of the bun being jerked or bounced from the guide plate, and thus assures, in a simple but effective manner, a straight-cut which is constantly parallel to the bottom of the bun. This is an important feature of my invention.

The thickness of the halves into which the buns are to be sliced on my machine may easily be changed by adjusting the position of the guide plate 15 with respect to the cutter blade 23. This adjustment is easily accomplished merely by loosening the wing nuts 17, moving the guide plate into the position desired, and then tightening the wing nuts so as to hold the guide plate firmly in that desired position.

While I have described a simple and preferred form of my invention, it would obviously be possible to make various changes in the construction and shape of the different parts of my machine without departing from the principle of my invention. It is essential in my machine to have a rapidly-vibrating or reciprocating cutter and to have a suitable guiding trough in which the bun will rest by gravity before and during the cutting or slicing. However it is not my intention to limit my invention otherwise than as set forth in the appended claims.

I claim:

1. In a bun-slicing machine of the character described, a housing, said housing including a face plate constituting one side of the housing, said face plate inclined at an angle to the plane of the base of said housing, a guide plate mounted on said face plate and forming with said face plate a bun-supporting trough, a vibrating mechanism within said housing, a cutter blade extending through an opening in said face plate, one end of said blade attached to said vibrating mechanism, a spring member support-

ing the other end of said blade, said blade extending parallel to said guide plate, said blade being located a distance from said guide plate corresponding to the desired thickness of the bottom half of the sliced bun, whereby when the bun to be sliced is placed in said trough, with its bottom face resting on said guide plate, and pushed against said blade, the bun will be cut into upper and lower half sections by said blade.

2. In a bun-slicing machine, a housing, said housing including a face plate, said face plate inclined at an angle to the plane of the base of said housing, a guide plate mounted on said face plate extending perpendicular to the plane of said face plate and forming with said face plate a bun-supporting trough, an electric vibrating mechanism within said housing, said vibrating mechanism including a diaphragm located below and substantially parallel to said face plate, a cutter blade extending perpendicular to the plane of said face plate and extending through an opening in said face plate, one end of said blade attached to said diaphragm, a spring member attached to said guide plate supporting the other end of said blade.

3. A bun-slicing machine comprising a housing, said housing including a face plate constituting one side of the housing, said face plate inclined at an angle of approximately 45° to the plane of the base of said housing, a guide plate mounted on said face plate, extending perpendicular to the plane of said face plate, and forming with said face plate a bun-supporting trough, an electric vibrating mechanism within said housing, a cutter blade extending perpendicular to the plane of said face plate and extending through an opening in said face plate, one end of said blade attached to said vibrating mechanism, a spring member supporting the other end of said blade, said blade being located a distance from said guide plate corresponding to the desired thickness of the bottom half of the sliced bun, said cutter blade turned slightly so that the rear edge of said blade will be closer to said guide plate than the front edge, whereby said blade will cause the lower half of the bun to remain pressed against said guide plate during the cutting operation.

4. A bun-slicing machine comprising a housing, said housing including a face plate constituting one side of the housing, said face plate inclined at an angle of approximately 45° to the plane of the base of said housing, a guide plate adjustably mounted on said face plate, and forming with said face plate a bun-supporting trough, an electric vibrating mechanism within said housing, said vibrating mechanism including a diaphragm located below and substantially parallel to said face plate, a cutter blade extending perpendicular to the plane of said face plate and extending through an opening in said face plate, one end of said blade attached to said diaphragm, a spring member attached to said guide plate supporting the other end of said blade, said blade being located a distance from said guide plate cor-

responding to the desired thickness of the bottom half of the sliced bun, said cutter blade turned slightly so that the rear edge of said blade will be closer to said guide plate than the front edge, whereby said blade will cause the lower half of the bun to remain pressed against said guide plate during the cutting operation.

5. In a bun slicing machine, a face plate, said plate inclined at an angle and forming one side of a bun-supporting trough, a guide plate mounted on said face plate, and forming the other side of the trough, a cutter blade in said trough extending through an opening in said face plate, blade supporting means attached to the ends of said cutter blade with said blade stretched between said supporting means, vibrating means adapted to impart longitudinal reciprocating motion to said blade, said blade located equidistant from said guide plate throughout its extent, whereby when the bun to be sliced is placed in said trough, with its bottom face resting on said guide plate, and pushed against said blade, the bun will be cut into upper and lower half sections by said blade, and the cut face of the upper section will rest on the corresponding cut face of the lower section after the cutting action, retarding the drying out of said faces after the cutting.

6. In a bun slicing machine, a face plate, said plate inclined at an angle and forming one side of a bun-supporting trough, a guide plate adjustably mounted on said face plate, and forming the other side of said trough, a cutter blade in said trough extending through an opening in said face plate, blade supporting means attached to the ends of said cutter blade with said blade stretched between said supporting means, vibrating means adapted to impart longitudinal reciprocating motion to said blade, said blade being located a distance from said guide plate corresponding to the desired thickness of the bottom half of the sliced bun, whereby when the bun to be sliced is placed in said trough, with its bottom face resting on said guide plate, and pushed against said blade, the bun will be cut into upper and lower half sections by said blade, and the cut face of the upper section will rest on the corresponding cut face of the lower section after the cutting action, retarding the drying out of said faces after the cutting.

7. The combination described in claim 5 with said cutter blade turned slightly so that the rear edge of said blade will be closer to said guide plate than the forward or cutting edge, whereby said blade will cause the lower half of the bun to remain pressed against said guide plate during the cutting operation.

8. The combination described in claim 6 with said cutter blade turned slightly so that the rear edge of said blade will be closer to said guide plate than the forward or cutting edge, whereby said blade will cause the lower half of the bun to remain pressed against said guide plate during the cutting operation.

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