Aug. 1, 1961 W. H. LEUZE 2,994,355

SLICER

Filed April 28, 1960 2 Sheets-Sheet 1

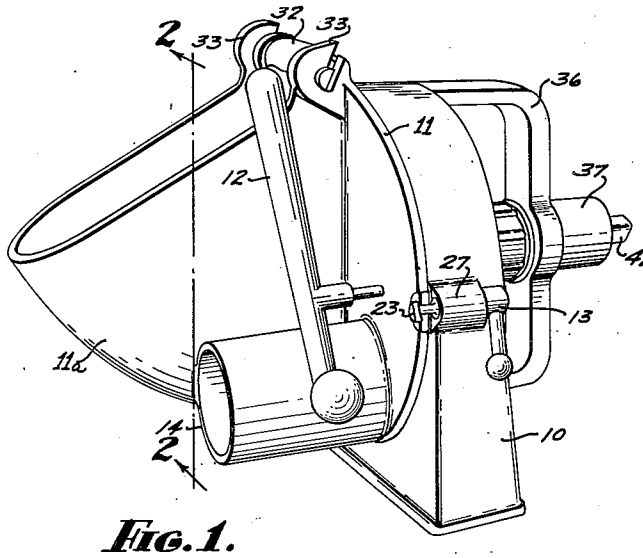


FIG. 1.

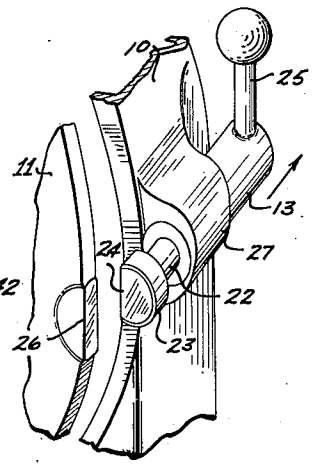


FIG. 3.

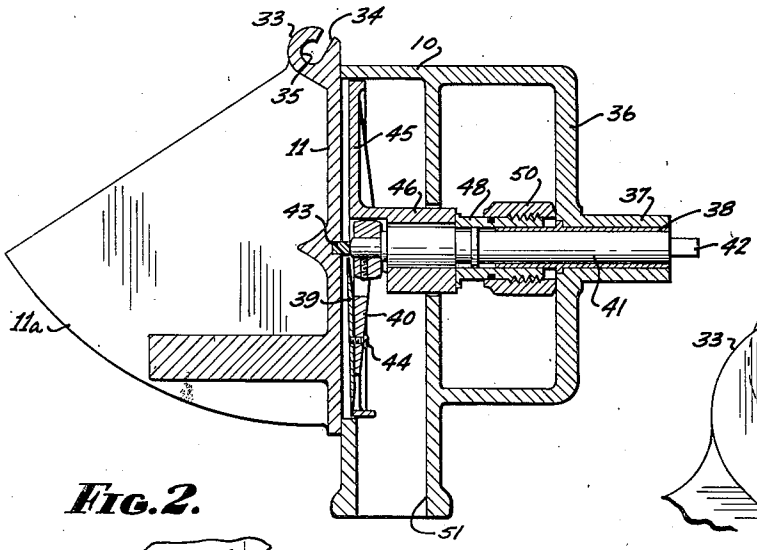


FIG. 2.

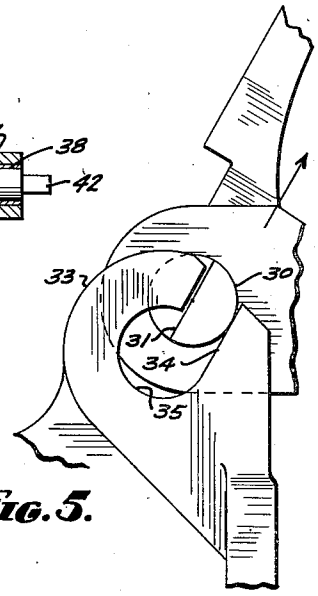


FIG. 5.

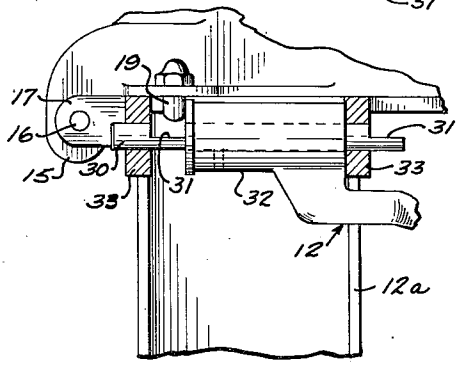


FIG. 4.

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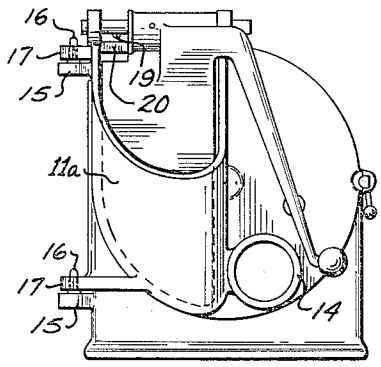


FIG. 6.

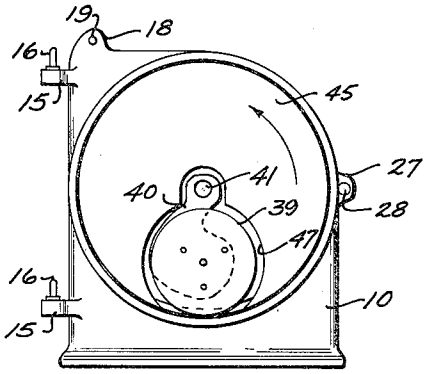


FIG. 7.

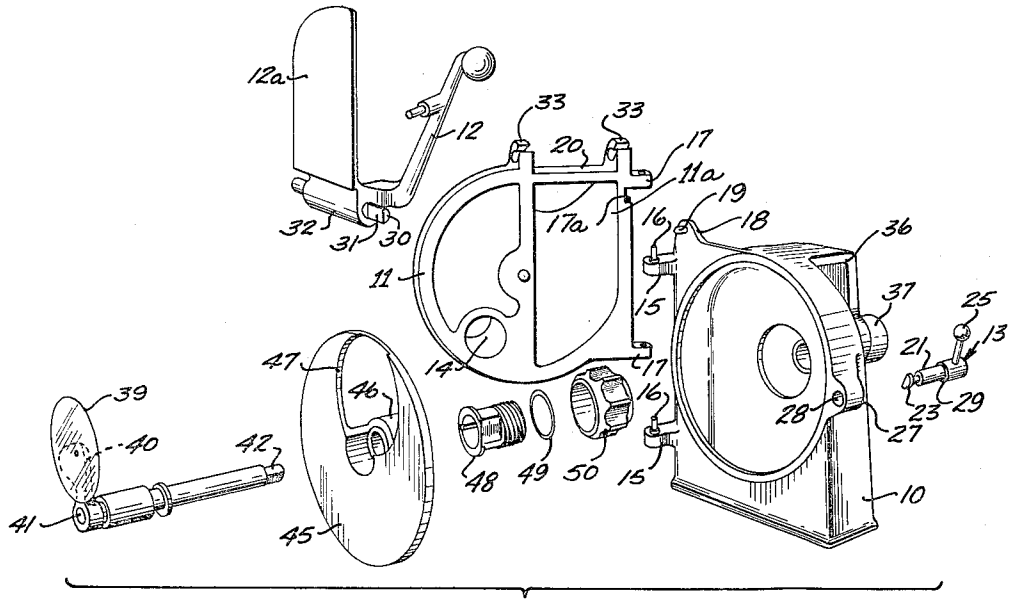


FIG. 8.

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SLICER

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7 Claims. (Cl. 146—115)

This invention resides in a novel slicer which can be assembled and taken apart without the use of nuts and bolts and the like, the parts of which, however, are positively locked together in assembled position.

Although the slicer may have general application, a primary object of the invention is to provide a slicer for slicing food under the most sanitary conditions.

An important object of the invention is to provide a construction which permits complete disassembly and assembly of the unit, without the use of tools or implements, for purpose of fast, easy and frequent cleaning in the interest of better sanitation.

Another object of the invention is to eliminate screws and bolts from the slicer so that there are no areas of this type in which food may accumulate and decay.

These and other objects of the invention will become apparent to those skilled in the art during the course of the following description and with reference to the accompanying drawings, in which drawings like numerals are employed to designate like parts throughout and in which:

FIGURE 1 is a perspective view of the slicer in its assembled condition,

FIGURE 2 is a section taken on line 2—2 of FIGURE 1,

FIGURE 3 is an enlarged fragmentary perspective view of the latch mechanism,

FIGURE 4 is a fragmentary top plan view, with parts broken away, showing a portion of the hinge mechanism,

FIGURE 5 is an enlarged, fragmentary side elevation of the hinge mechanism for the pusher plate,

FIGURE 6 is a front elevation of the slicer,

FIGURE 7 is a front elevation of the slicer with the hopper front removed, and

FIGURE 8 is an exploded view of the slicer showing its various parts and indicating how they are assembled together.

Referring now to FIGURE 1 the main housing of the slicer is generally indicated at **10**. A one piece hopper and tubular front is generally indicated at **11**. A portion of the pusher plate mechanism is shown at **12** and the positive latch mechanism is indicated at **13**. The hopper front **11** includes a deep throat tube **14** which is integral therewith. The hopper itself is indicated at **11***a*. The hopper front **11**, hopper **11***a* and tube **14** form one piece with no loose parts.

Referring also to FIGURE 8 it will be observed that the pusher plate mechanism includes the plate proper **12***a*. As also shown in this figure the housing **10** includes a pair of lugs **15** having upstanding pins **16**. The hopper front **11** has a pair of corresponding lugs **17** provided with holes to receive the pins **16**. A notch **17***a* is formed beneath the hopper lug **17**. When the hopper front is swung to its closed position, the notch **17***a* receives the upper lug **15**. The engagement of the upper lug **15** in the notch **17***a* prevents the hopper front **11** from being lifted from the housing **10**.

The positive latch mechanism **13** for maintaining the hopper front **11** in closed positon on the housing **10** is illustrated in FIGURES 1 and 3. The latch bolt **13** has a bearing surface **21** (see FIGURE 8), a stem **22** of lesser diameter and a latch **23** which would normally be of substantially the same diameter as the bearing portion **21** but which is provided with a flat **24**. The latch

bolt **13** includes a handle **25**. The hopper front **11** has a portion **26** integral therewith but which is machined to provide a close tolerance for the latch portion **23**—**24**. The main housing **10** has a projection **27** with a bore **28** to receive the bearing portion **21** of the latch mechanism **13**. A shoulder **29** on the latch mechanism **13** abuts the projection **27** when the hopper front **11** is locked to the housing **10** by this mechanism.

It will be apparent that when the latch mechanism **13** is in the position shown in FIGURE 3, with the handle **25** extending upwardly, the hopper front **11** may be brought flush against the housing **10** whereafter the handle **25** is rotated to the position of FIGURE 1 and the latch portion **23** will engage the member **26** and lock the hopper front **11** to the housing **10**. Upon rotation of the handle **25** to the position of FIGURE 3 the member **26** can clear the flat **24** and the hopper front **11** may be swung to open position.

The pusher plate mechanism **12** is also assembled without the use of nuts and bolts. As best seen in FIGURES 4 and 8 this member **12** includes as an integral part thereof a rod **30** having a pair of notches **31** cut therein. An enlarged bearing portion **32** surrounds the rod **30** between the notches **31**. The pusher plate **12***a* extends from this bearing portion **32**. The hopper front **11** has a pair of upstanding ears **33** with a flat throat or slot **34** leading to an arcuate socket **35** (see FIGURE 2).

In assembling the pusher plate mechanism **12**, with the hopper front **11** in its open position with respect to the housing **10**, the mechanism is oriented so that the pusher plate **12***a* extends upwardly. The plate mechanism **12** is then dropped into position so that the notched rod **30** engages the arcuate socket **35** provided in the ears **33** on the hopper front **11**. The pusher plate **12***a* is then moved to the right so that the notches or flats **31** are located to the right side of their respective ears **33** as viewed in FIGURE 4. The pusher plate **12***a* is then rotated to its lowest position as illustrated in FIGURE 1. When the hopper front **11** is then closed and latched as shown in FIGURE 1, the pin **19** extends alongside one end of the bearing **32**, thus preventing removal of the pusher plate mechanism **12** while the hopper front **11** is in its closed position. In this manner the pusher plate is retained in operating position when the hopper front is closed.

Referring now particularly to FIGURES 2 and 8 the slicing mechanism will be described. The main housing **10** has a bracket **36** integral therewith and a bearing **37** in which there is mounted a bearing sleeve **38**. The circular blade **39** is fixed on a dog **40** which is fixed to the shaft **41**. This shaft extends through the bearing sleeve **38** and has means **42** to be received in suitable drive mechanism not shown. A suitable bearing **43** fixed in the hopper front **11** engages the end of the shaft **41**, when the hopper front **11** is closed, and holds the slicer shaft **41** against axial movement. The position of the blade **39** on the dog **40** may be changed so that when the blade is dulled in one position it may be rotated to another position to present a new cutting edge. The blade is fixed to the dog **40** by means of a small screw **44**.

A slicer plate **45** is slideable on the shaft **41**. This plate has a hub **46** and a circular opening **47** to receive the circular slicer blade **39**. Slideably keyed on the bearing sleeve **38** is a member **48** grooved to receive an O-ring **49** and threaded to receive an adjustment member **50**. The member **48** is graduated to indicate slice thickness. The O-ring **49** is a friction device to prevent loss of slice thickness setting by vibration. When one rotates the adjustment member **50** the member **48** is caused to slide on the bearing sleeve **38** and, since the member **48** abuts the hub of the slicer plate **45**, the respective position of this slicer plate **45** on the shaft **41** is changed. This in

turn changes the position of the cutting edge of the slicer blade **39** with the left hand face of the slicer plate, as viewed in FIGURE 2. The slicer blade **39** extends from within the opening **47** of the slicer plate beyond the face of this plate **45**. Thus, a change in the position of the slicer plate with respect to the blade **39** fixed on the end of shaft **41**, effects a change in the thickness of the slice to be cut from material forced by the pusher plate **12***a* against this slicer plate **45**.

In operation, food is placed either in the hopper **11***a* or in the tube **14**. When the hopper **11***a* is used the pusher plate **12***a* is first moved out of the way and food placed within the hopper **11***a* whereafter this food is forced against the slicer plate **45** by means of the pusher plate **12***a* as controlled by the operator. As the shaft **41** is driven the plate **45** and slicer blade **39** rotate together, an edge of the blade **39** extending from the plate **45** a distance which can be regulated by means of the members **48** and **50** as previously explained. When it is desired to slice elongated objects such as, for example, carrots, these are simply pushed through the tube **14**. The sliced material falls through the housing **10** as indicated at **51** and may be collected in any suitable container. The sliced material falls in back of the blade **39** through the opening **47** in the slicer plate **45**.

It is to be understood that while the invention has been shown in one embodiment in FIGURES 1–8, modifications may be made without departing from the scope and spirit of the invention. And while the invention is shown as embodied in certain particular structures and arrangements, the invention is not limited to these particular structures and arrangements except insofar as they are specifically set forth in the subjoined claims. Having thus described the invention, what is claimed as new and what is desired to be protected by United States Letters Patent is:

1. A slicer comprising a housing, said housing having a bearing, a shaft slideable in said bearing, means on said shaft to engage means for rotating said shaft, a slicer blade fixed on said shaft, a slicer plate slideable on said shaft and rotatable therewith, said slicer plate having an opening to receive said slicer blade, said blade extending from within said opening beyond the face of said plate whereby material cut by said blade passes between said blade and said plate and through said opening, a hopper front, means on said hopper front to engage said shaft and prevent axial movement of said shaft, a hopper on said front terminating adjacent said slicer plate, a pusher plate for said hopper whereby to force material in said hopper against said slicer plate for engagement with said slicer blade, socket means on said hopper front, means on said pusher plate to be received in said socket means, a hinge joint for said hopper front and said housing comprising cooperating stationary male and female members, and a removable latch bolt for locking said hopper front against swinging movement with respect to said housing.

2. The slicer of claim 1 including an abutment on said hopper front to engage beneath a portion of said housing when said hopper front is locked to said housing, whereby to prevent lifting of said hopper front from said housing.

3. The slicer of claim 1 in which means are provided for changing the position of said blade on said shaft, whereby to present a new cutting edge as desired.

4. The slicer of claim 1 including plate adjustment means comprising a first member slideable on said shaft and against which member said plate abuts, and a second member threaded on said first member, said first member being fixed against rotation, whereby rotation of said second member slides said first member on said shaft.

5. The slicer of claim 1 in which a bearing for said latch bolt is provided on said housing, said bolt being manually slideable and rotatable in said bearing, said bolt having a member to engage said hopper front, said last mentioned member being provided with a portion to clear said hopper front when said bolt is rotated, whereby the bolt may be manually removed by sliding it through said bearing.

6. The slicer of claim 1 including a bearing on said pusher plate, and an abutment on said housing, said abutment extending along side one end of said bearing when said hopper front is locked to said housing, to prevent shifting of said pusher plate in said socket means.

7. The slicer of claim 1 in which said socket means comprise an arcuate portion and a flat portion, the means on said pusher plate having an arcuate portion and a flat portion to cooperate with those on said socket means upon manual rotation of said pusher plate.

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