June 4, 1929. A. B. KERR 1,715,929

POTATO SLICING MACHINE

Filed July 10, 1928 3 Sheets-Sheet 1

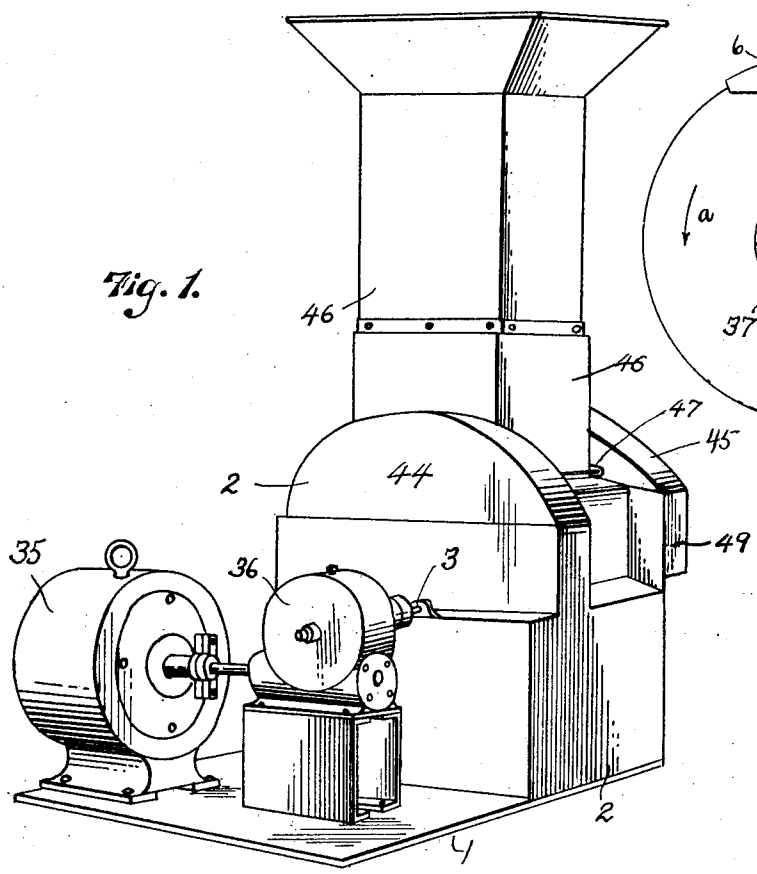


Fig. 1.

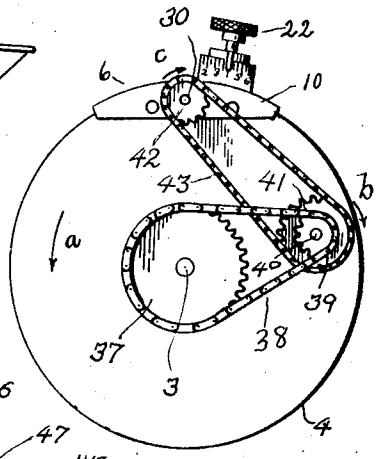


Fig. 8

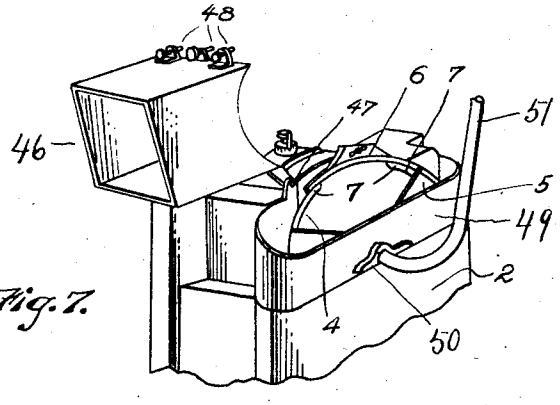


Fig. 7.

INVENTOR:
A. B. Kerr
BY Jas. M. Naylor,
ATTORNEY.

June 4, 1929. A. B. KERR 1,715,929

POTATO SLICING MACHINE

Filed July 10, 1928 3 Sheets-Sheet 2

Fig. 2.

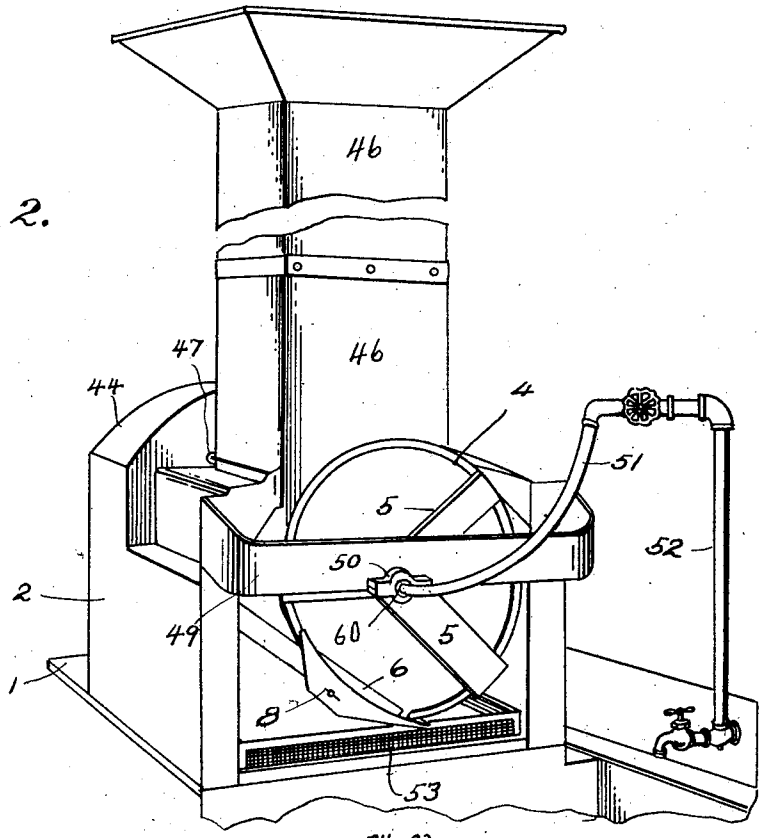
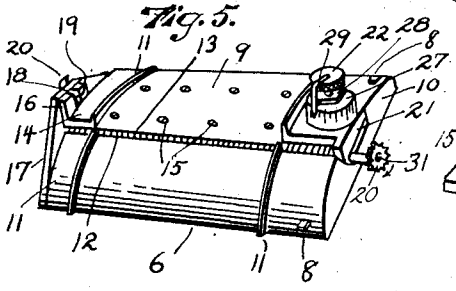


Fig. 5.



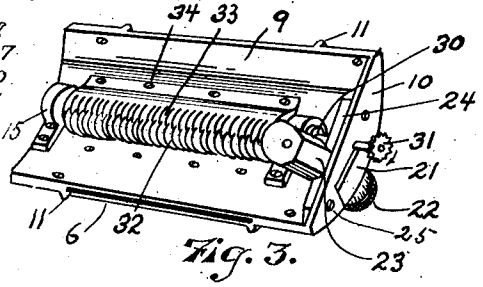
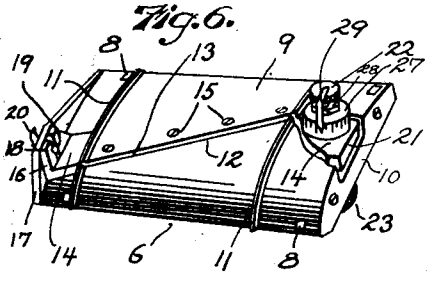


Fig. 3.

Fig. 6.



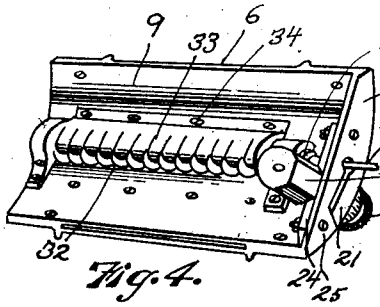


Fig. 4.

INVENTOR:
A. B. Kerr
by
Jas. Mc. Naylor
ATTORNEY.

June 4, 1929. A. B. KERR 1,715,929

POTATO SLICING MACHINE

Filed July 10, 1928 3 Sheets-Sheet 3

Fig. 9.

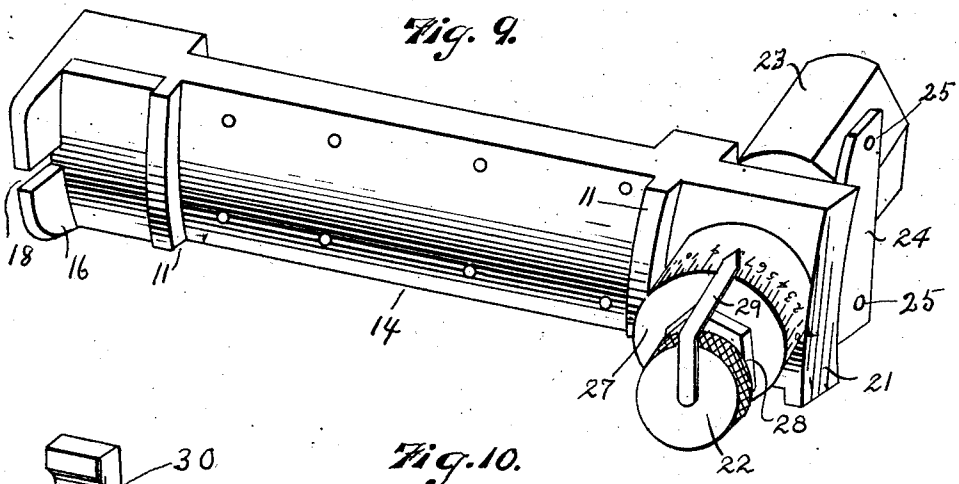
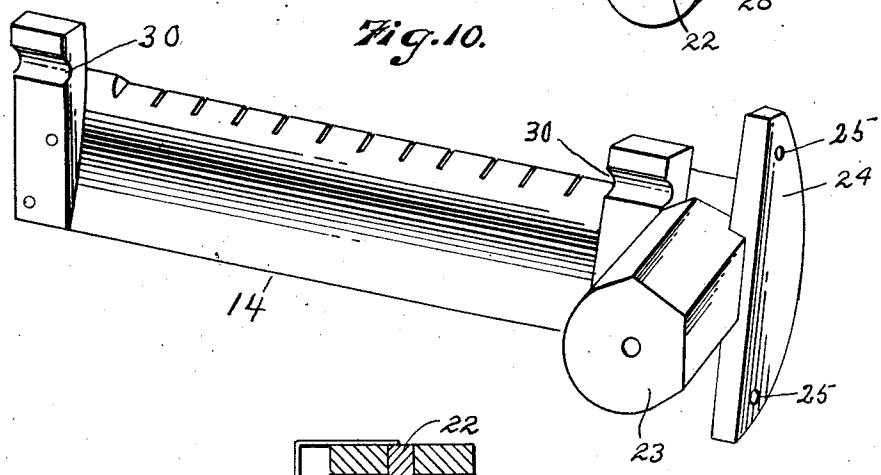


Fig. 10.



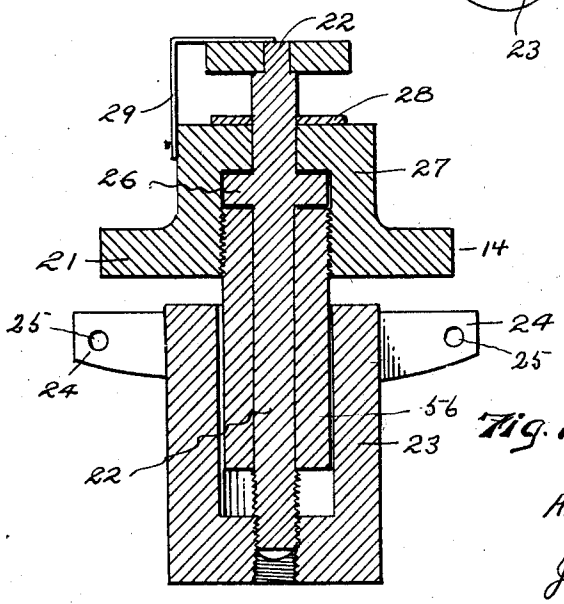


Fig. 11.

A. B. Kerr
INVENTOR
Jas. M. Naylor,
Atty

Patented June 4, 1929. 1,715,929

UNITED STATES PATENT OFFICE.

ALLEN B. KERR, OF SACRAMENTO, CALIFORNIA, ASSIGNOR OF ONE-HALF TO KERR PRODUCTS COMPANY, INC., OF SACRAMENTO, CALIFORNIA, A CORPORATION OF CALIFORNIA.

POTATO-SLICING MACHINE.

Application filed July 10, 1928. Serial No. 291,546.

This invention relates to improvements in vegetable cutters of that type which is employed to reduce potatoes to slices or strips particularly adapted to certain cooking purposes. More particularly, it relates to cutters in which a cylindrical drum is rotatably mounted in a housing including means for feeding the potatoes to the periphery of the drum, cutting mechanisms being mounted in the peripheral wall of the drum to cut the potatoes while the drum is rotated. One of the objects of the invention is to provide a series of cutting mechanisms, respectively designed to slice the potatoes and to subdivide the slices into either narrow or wide strips. Each of these cutting mechanisms is mounted on a supporting plate or casing adapted to be displaceably mounted in the cylindrical wall of the drum. The supporting plates or casings of the several cutting mechanisms are of uniform construction so that the several mechanisms can be interchangeably mounted in the cylindrical wall of the drum. The invention consists in the novel construction, combination and arrangement of parts, hereinafter described, pointed out in the appended claims and illustrated by the accompanying drawings.

In the accompanying drawings, in which similar reference characters designate corresponding parts,

Figure 1 is a perspective view, showing one side of the machine;

Figure 2 is a similar view, showing the side opposite to that shown in Figure 1, parts being removed;

Figure 3 is a detail perspective view showing the inner side of one of the cutting mechanisms;

Figure 4 is a similar view of another of the cutting mechanisms;

Figure 5 is a detail perspective view showing the outer side of the mechanism shown in Figure 3;

Figure 6 is a perspective view showing the outer side of a third form of the cutting mechanisms;

Figure 7 is a detail perspective view, with parts broken away and removed, showing the feed chute in open position;

Figure 8 is a detail view, showing an end view of the drum with the gearing for transmitting the drive of the drum to the slitting disks; Figures 9 and 10 are detail perspective views of the knife-supporting bar, taken from opposite faces; and Figure 11 is a sectional view through the supporting post of the bar.

Referring to the drawings, 1 designates the base plate upon which is immovably mounted the housing 2 of a generally rectangular formation at its lower part. Extending horizontally through the housing and journaled in bearings in opposite walls thereof is the tubular shaft 3. Carried by this shaft is the cylindrical drum 4 mounted at its ends on the spiders 5 secured on the ends of the shaft. The opposite end of the drum is closed being cast in one piece integral with the walls thereof. A longitudinal section of the wall of the drum is cut away to form a seat for a series of cutting mechanisms adapted to different cutting operations. One form of the cutting mechanism is shown in Figures 3 and 5, another in Figure 4 and a third in Figure 6.

Each cutting mechanism comprises a sector casing 6 shaped to fit the longitudinal recess formed in the wall of the drum, the longitudinal edges of the casing being seated on the flanges 7 projecting from the edges of the drum. Screws 8 passing through casing and the flanges hold the casing in place. The sector casing comprises a curved shell 9 closed at one end by the plate 10 integral with the shell. Extending transversely of the casing shell are the strengthening ribs 11. With the sector casing in place it conforms to the cylindrical contour of the drum. Extending longitudinally of the casing shell 9 is the slot 12, and the cutting edge of the knife 13 being complementary thereto, the material being cut passes into the drum at this point. The knife 13 extends fully between the ribs 11.

The knife 13 is reinforced by a bar 14 extending along the inner face of the knife adjacent to the edge of the latter, the knife blade being secured to the bar as at 15. The bar is angled at one end, as at 16, to abut the flange 17 projecting outwardly from an end of the sector casing. The angle 16 is slotted at 18 and through the slot extends the bolt 19 headed on the inner side of the angle. The other end of the bolt projects through

the flange 17 and on its outer end is the thumb-nut 20 to clamp the angle against the flange, the slot in the angle permitting adjustment of the end of the bar 14 with relation to the flange 17.

The other end of the bar 14 forms a block 21 adjustably seated in a socket in the sector casing. Extending through this block is the thumb-screw 22 engaging at its inner end the socket member or stud 23 cast integral with the bracket 24 bolted, as at 25, to the inner face of the end plate 10 of the sector casing. That part of the thumb-screw passing through the block is provided with an annular shoulder 26 registering with a similarly shaped groove in the block. This engagement between the thumb screw and the block permits rotation of the former in the latter, but prevents longitudinal movement of the thumb-screw with relation to the block. The outer end of the thumb-screw passes through a disk 27 cast on the face of the block 21 which is integral with the bar 14, and is provided with a nut 28, which, when turned to bear on the disk, locks the thumb-screw against rotation. On the outer end of the thumb-screw is fixed the index 29 to cooperate with graduations on the disk to aid in the adjustment of the knife to provide the desired thickness in the cut.

As the bar 14 and the block 21 are integral, adjustment of the latter results in a corresponding adjustment of the former. The socket member 23 and the thumb-screw 22 have considerable mutual engagement, consequently, the bar 14 will be held parallel to the shell of the sector casing during the adjustment of the bar. The threaded engagement of the thumb-screw with the socket member at one end of the bar and the clamping of the other end of the bar to the flange 17, hold the bar in its adjustments with relation to the shell of the sector casing. As the knife 13 is secured to the bar 14, adjustments of the bar will be imparted to the knife. The adjustment of the cutting edge of the knife with relation to the peripheral travel of the drum regulates the thickness of the slices cut by the knife. So far, the description can be applied to the several embodiments of the cutting mechanism illustrated by Figs. 3–6, except that in Fig. 6 the knife is shown as extending diagonally across the casing sector to provide a shearing cut. To accommodate the diagonal disposition of the knife, the bar 14 and the block 21 are positioned in angular relation.

The cutting mechanism shown by Figs. 3 and 5 is adapted to cut into strings the potatoes that are fed to it; Fig. 4 shows a cutting mechanism adapted to cut the potatoes into strips; and the mechanism shown in Fig. 6 is adapted to cut the potatoes into chips.

Referring particularly to Figs. 3, 4 and 5, auxiliary cutting means are provided for slitting into strips the slices previously cut by the knife 13. Journalled in the bearings 30 secured on the inner face of the curved shell or knife plate 9 is the shaft 31 extending parallel and adjacent to the knife 13. Mounted on this shaft is a series of slitting disks 32, held against rotation thereon by any suitable means; the shaft may be square in cross-area to prevent turning of the disks thereon and at the same time permit them to be slid along the same in spaced relation. The cutting peripheries of the slitting disks are tangent to the inner side of the knife along a line slightly inside of the cutting edge of the knife.

Projecting over the slitting disks is the comb 33 secured to the inner face of the knife plates 9 by the screws 34. The teeth of the comb are interspaced with the slitting disks and in the cutting operation the material is first sliced by the edge of the knife 13 and as the slices slide across the inner face of the knife blade they are cut into strips by the slitting disks. The comb teeth projecting between the slitting disks serve to clear the disks and prevent clogging of the same by the strips of material. As shown in Fig. 3 the disks are spaced closely together with a corresponding comb for cutting narrow strips, which are ordinarily termed "shoestring" potatoes.

As shown in Fig. 4, the disks are spaced farther apart with a corresponding comb to cut comparatively wide strips, which are ordinarily termed "ribbon" potatoes. As shown in Fig. 6, the slitting disks and combs are omitted and the knife operates to slice the potatoes without a further subdivision. The several different cutting mechanisms can be easily positioned and dismounted on the drum to provide the desired subdivision of the material.

The mechanism for rotating the drum and driving the shaft carrying the disk cutter will now be described. Connected with one end of the tubular shaft 3 is a motor 35 and an intermediate drive 36 suitably mounted on the base plate 1. The motor and drive are of a well known standard type and need not be particularly described. The drum 4 is fixed on the shaft 3 and rotation of the latter turns the drum in the direction indicated by the arrow *a*, on Fig. 8. Adjacent to the head of the drum and concentric with the shaft 3 is the sprocket wheel 37, held by any suitable means against rotation. Engaging the sprocket wheel is a sprocket chain 38 leading over the smaller sprocket wheel 39 journaled on the stub-shaft 40 projecting from the head of the drum. On this stub-shaft is journaled the larger sprocket wheel 41 with a hub common with the wheel 39, so that the drive of the latter will be imparted to the former wheel. Leading over the sprocket wheel 41 and the sprocket wheel 42 fixed on the shaft 30 of the slitting disks is the sprocket

chain 43. When the drum is rotated, the wheel 39 carries the bight of the chain 38 around the fixed wheel 37 and thereby a drive is imparted to the wheels 39 and 41 in the direction indicated by the arrow *b* and through the chain 43 and wheel 42 to rotate the shaft 30 in the direction indicated by the arrow *c*.

As the chain 43 and the gears connected by it are outside of the chain 38 and the sprockets engaged by the latter chain, the former chain 43 can be readily detached from its gears to permit a change in the cutting mechanisms; or, when the slicing mechanism shown in Fig. 6 is employed, the chain 43 can be displaced entirely and the remaining gearing permitted to idle.

Means are provided for feeding the potatoes to the cutting mechanism carried by the drum. Mounted on an intermediate part of the housing 2, between the hooded sides 44 and 45 thereof, is the chute 46 formed of two telescopic sections, the upper one of which is a removable funnel. The lower end of the chute is curved at opposite sides to coincide with the curvature of the drum. At one side of the chute, at the lower edge thereof, it is hinged to the housing, as at 47, so that the chute can be turned back, as shown in Fig. 7, to give access to the drum so that the cutting mechanisms can be changed to meet the requirements. The side of the chute opposite the hinged one is provided with the thumb-screw 48^a received by the threaded screw-hole 48^b in the base, so that the chute may be secured in place when closed on the main housing, as well as adjusted in its relation to the drum. The chute is also provided with the adjustable legs 48 which carry the weight of the chute, to relieve the strain in the adjusting screw 48^a when the chute is loaded. These legs are adjusted in unison with the thumb screw 48^a. When the chute is closed, it fits closely around the wall of the drum so that pieces of the potato cannot be forced therebetween.

The side of the main housing, opposite to that on which the motor is mounted, is open at the lower part so that the cut material can be discharged. Extending across the upper part of this open side is the yoke 49 supporting the bearing 50 carrying the stub tubular shaft 60 which extends only through the spiders 5. The hood 45 closes this side above the yoke. The yoke provides a substantial support for a detachable coupling for the hose 51.

The hose provides a connection for suitable water supply, as at 52, for flushing the interior of the drum, the wall of the tubular shaft being open at the end protruding within the drum so that the water will be jetted into the drum to wash the material therefrom. A removable screened tray 53 may be placed within the housing 2 directly beneath the slicing drum 4 to catch any finely divided material that might escape between the lower edge of the chute and the drum.

What I claim is:

1. In a vegetable cutter, the combinaton of a cylindrical drum having a longitudinal segmental opening in its cylindrical wall, with a sector plate detachably seated in the segmental opening of the cylindrical wall, said plate being provided with a longitudinal slot and an edge of the plate at the slot forming a cutting edge, a shaft journaled on the inner side of the sector plate adjacent to the cutting edge, a series of slitting disks fixed on the shaft to cooperate with the cutting edge, and means for rotating said shaft.

2. In a vegetable cutter, the combinaton of a cylindrical drum having a longitudinal segmental opening in its cylindrical wall, with a sector plate detachably seated in the segmental opening of the cylindrical wall, said plate being provided with a longitudinal slot and an edge of the plate at the slot forming a cutting edge, a shaft journaled on the inner face of the sector plate adjacent to the cutting edge, a series of slitting disks fixed on the shaft to cooperate with the cutting edge, means for rotating the shaft, and a comb secured to the inner side of the sector plate on the side of the slot therein opposite to the knife edge, said comb extending over the slot and shaft with the teeth of the comb interspaced with the disks.

3. In a vegetable cutter, the combination of a cylindrical drum having a longitudinal segmental opening in its cylindrical wall, with a sector plate detachably seated in the segmental opening of the cylindrical wall, said plate being provided with longitudinal slot and an edge of the plate at the slot forming a cutting edge, a reinforcing bar extending along and secured to the inner face of the plate adjacent to the cutting edge, and adjusting means mounted on the plate and connected with the reinforcing bar to vary the pitch of the cutting edge.

4. In a vegetable cutter, the combination of a transversely curved plate provided with a longitudinal slot and an edge of the plate at the slot forming a cutting edge with a reinforcing bar extending along and secured to the concave face of the plate adjacent to the cutting edge, a socket member attached to the plate, and an adjusting screw journaled in the reinforcing bar and held therein against longitudinal movement, said screw having threaded engagement with the socket member whereby rotation of the screw provides movement of the bar relatively to the plate to adjust the pitch of the cutting edge.

5. In a vegetable cutter, the combination of a transversely curved plate provided with a longitudinal slot and an edge of the plate at the slot forming a cutting edge, said plate having a flange at one end, with a reinforc-

ing bar extending along and secured to the concave face of the plate adjacent to the cutting edge, said bar being angled at one end to abut said flange, adjustable means for clamping together the abutting flange and angled end of the reinforcing bar, an adjusting screw journaled in the other end of the reinforcing bar and held therein against longitudinal movement, and a socket member attached to the plate and engaged by the screw whereby rotation of the screw provides movement of the bar relatively to the plate to adjust the pitch of the cutting edge.

ALLEN B. KERR.