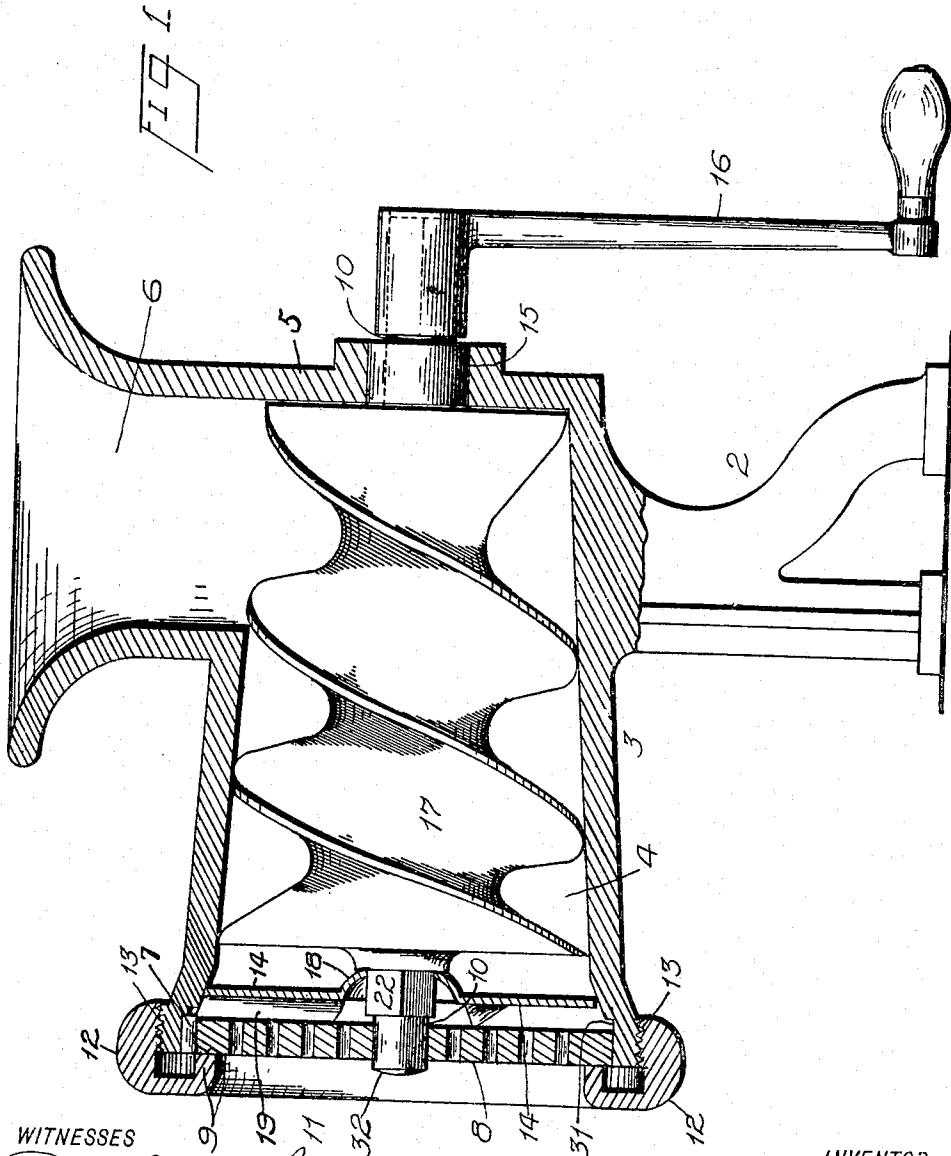


H. C. SANDER.  
MEAT CHOPPER.  
APPLICATION FILED JAN. 3, 1908.

930,799.

Patented Aug. 10, 1909.  
3 SHEETS—SHEET 1.



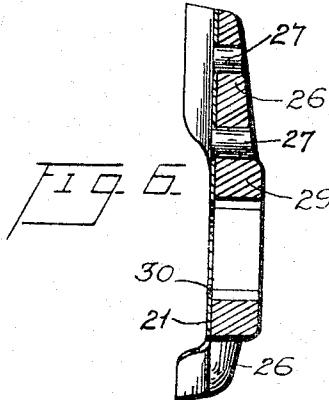
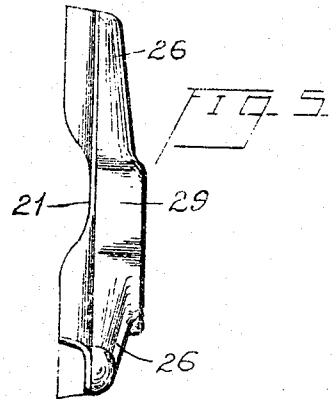
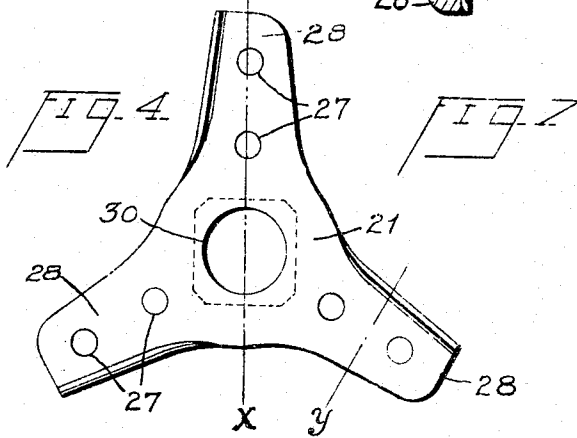
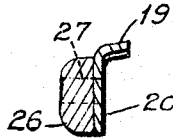
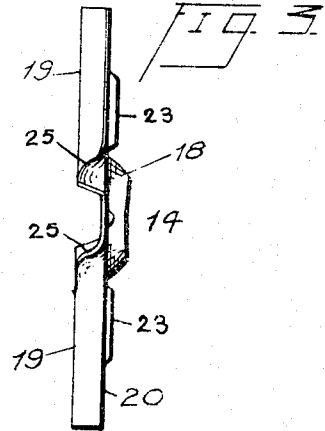
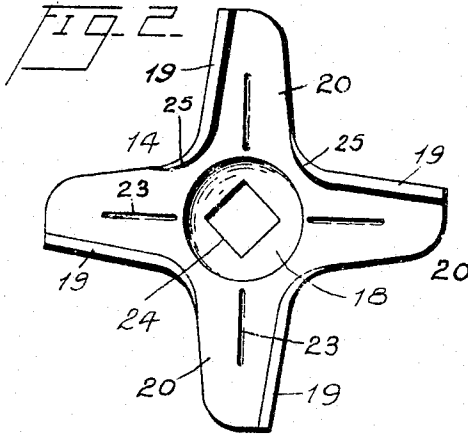
WITNESSES  
*Frederick Hermann*  
*John W. Kämpfer*

INVENTOR  
*Henry C. Sander*  
BY *Russell M. Everett*  
ATTORNEY.

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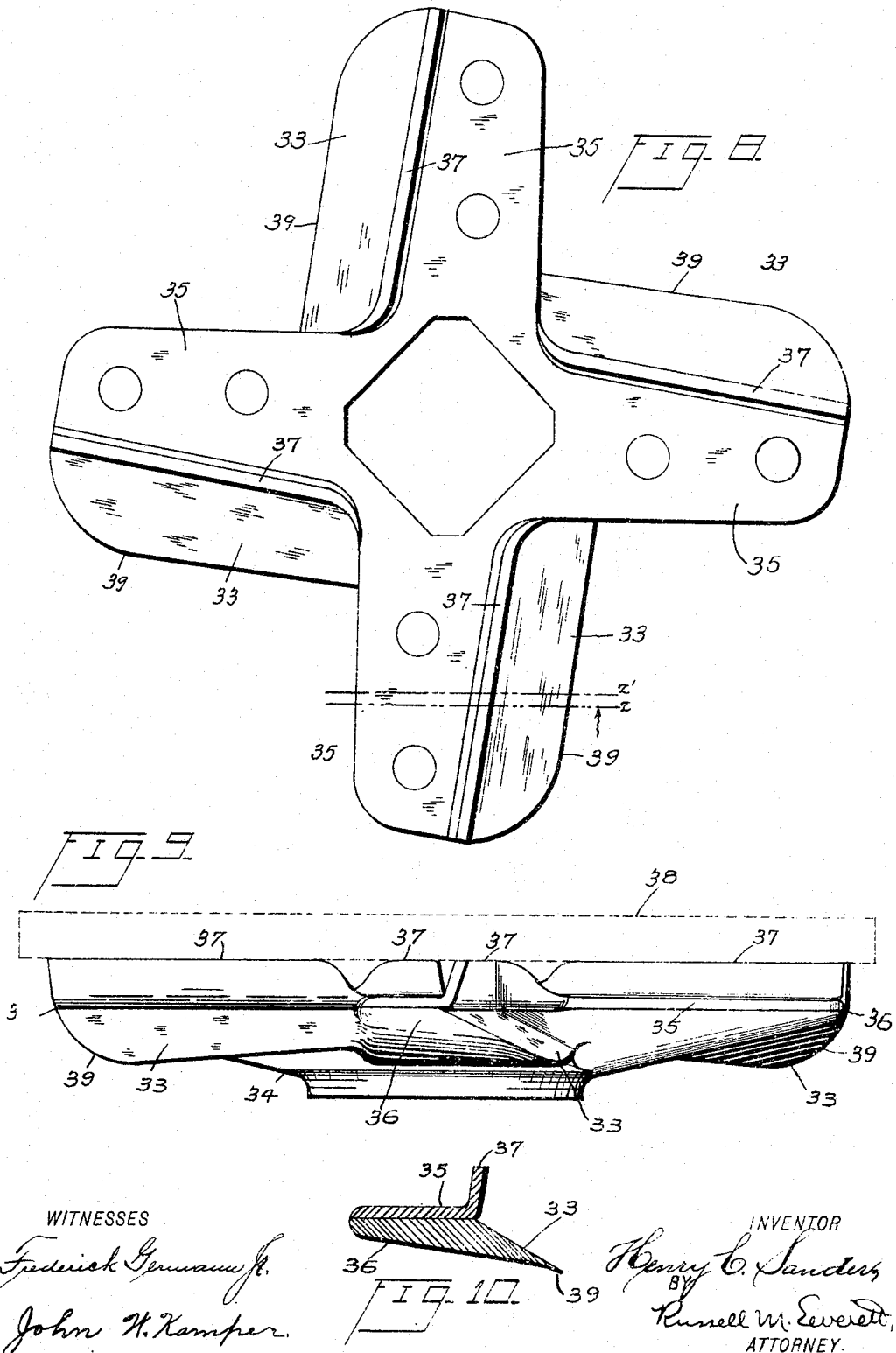
WITNESSES  
*Frederick Bernhardt*  
*John W. Kasper.*

INVENTOR  
*Henry C. Sander,*  
BY *Russell M. Everett,*  
ATTORNEY.

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3 SHEETS—SHEET 3.



# UNITED STATES PATENT OFFICE.

HENRY C. SANDER, OF NEWARK, NEW JERSEY.

## MEAT-CHOPPER.

No. 930,799.

Specification of Letters Patent.

Patented Aug. 10, 1909.

Application filed January 3, 1908. Serial No. 409,125.

*To all whom it may concern:*

Be it known that I, HENRY C. SANDER, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Meat-Choppers, of which the following is a specification.

The objects of this invention are to provide a meat-chopper which reduces the meat to a state of great fineness without bruising or crushing the fiber; to secure a rotary cutter, the cutting edges of which shall act against an independent surface or plate, and thus increase the chopping action; to provide a rotary cutter in which the cutting edges are integral with a single piece of metal, are of uniform thickness and so stamped into their required shape and position that when in operative relation with the other parts of the chopper they will not only cut the meat to a state of great fineness but will keep their edges constantly sharp by their own action against the independent plate; to provide a rotary cutter carrying a series of cutting knives, the knives and body portion of the cutter being in one piece and of uniform thickness so that as the knives wear away and are self-sharpened, their cutting edges shall be of uniform thickness and therefore of greater efficiency; to provide a simple, durable and efficient cutter, while at the same time the cost of construction is reduced; to provide a cutter which shall be unattached to the spiral feed screw and easily removable from the supporting feed screw shaft with which it turns, and to secure other advantages and results, some of which may be referred to hereinafter in connection with the description of the working parts.

Referring to the accompanying drawings, in which like numerals of reference indicate the same parts in the several figures, Figure 1 is a side view of my improved meat-chopper partly in central longitudinal section; Fig. 2 is a face view of my improved one-piece knife-plate or rotary cutter, having four cutting edges or knife blades, and Fig. 3 is an edge view of the same; Fig. 4 is a face view of a one-piece knife-plate or cutter of my improved construction having three cutting edges and a stiffening or reinforcing backing mounted thereon, and illustrating the form of cutter to be used in large meat-choppers driven by power; Fig. 5 is an edge view of the same; Fig. 6 is a cross section on line *x*, Fig. 4, and Fig. 7 is a section of one

of the arms on line *y*, Fig. 4; Fig. 8 is a face view of a cutter having a modified backing; Fig. 9 is an edge view of the same, and Fig. 10 is a view of that portion of one of the cutter arms between the lines *z* and *z'*, Fig. 8, looking in the direction indicated by the arrow.

In said drawings, 2 indicates a suitable standard supporting the usual horizontally disposed body portion 3 of the meat-chopper. Said body portion provides a slightly tapering passage 4 for the incasement of the feed screw and cutting parts hereinafter described said passage being open at its larger end and provided at its top near the opposite closed end 5 with a hopper 6 into which the meat to be chopped is thrust to be received by the feeding and cutting parts.

Within the larger open end of the passage 4 is stationed a vertical transverse perforated plate 8 fitting at its peripheral edges into a recess or groove 31 in the walls of the passage 4 and being held against rotation therein by a key 7. A ring 12 engages a screw thread 13 on the outer surface of the open end 11 of the body portion 3 of the chopper, and presses at its inner flange 9 against the perforated plate 8 to hold the same in adjustable operative relation with the cutting parts. The meat when acted upon by the cutting parts passes outward through the perforations of the plate 8 in the desired state of fineness.

Longitudinally through the passage 4 and in axial alinement therewith, extends a shaft 10 having an end portion 32 journaled in the central aperture of the perforated plate 8 and at its opposite end having a bearing 15 in the closed end of the body portion, and projecting therebeyond to receive a handle 16, or other means, for rotating the shaft. Upon said shaft 10, preferably integral therewith, is a spiral screw 17, adapted to feed the meat from the hopper 6 along the passage 4 to the perforated plate 8. Said screw is preferably a double spiral and the grooves thereof narrow somewhat toward the end of the screw adjacent to the open end of the body portion of the chopper.

Upon the shaft 10 near its extremity within the passage 4 and between the inner face of the perforated plate 8 and the larger end of the feed screw 17, is arranged a knife plate 14, which is separate and independent from said parts and contains some of the most important features of my invention.

The said knife plate 14 is stamped out of sheet metal and is provided at its face adjacent to the end of the screw 17 with a central concavo-convex projection or boss 18 for holding the knife plate 14 in operative relation away from the larger end of the screw 17, and through which is cut a central aperture 24 of the shape and size of the squared portion 22 of the shaft 10 on which the knife plate 14 is mounted. The said knife plate 14 is provided in addition to its central or hub portion, with cutting blades 19, adapted to work against the inner face of the said perforated plate 8 with a shearing action. The said blades 19 on the knife plate 14 are formed by bending up the edges of radial arms 20 of the knife plate 14 at nearly right angles thereto and in such direction that they shall project from the knife plate 14 on the side adjacent to the perforated plate 8 and on the side of the knife plate 14 opposite that carrying the boss or projection 18, so that the cutting edges of the blades 19 will work against the inner face of the perforated plate 8. The metal of which the knife plate is made and from which the blades are bent up is of uniform thickness and will therefore cause the knife blades to constantly not only retain a sharp edge as they wear but also preserve an edge of uniform thickness.

The knife plate 14 and the knife blades 19 are integral, being formed from one piece of metal which also forms the projection or boss 18. At the same time that piece of metal is sheet metal, so that the knife plates can be very rapidly and accurately produced. The boss 18 projecting in one direction and the blades 19 in the other direction facilitates the operation of stamping, and at the same time said parts serve to engage the feed screw and perforated plate, respectively, to hold the knife plate in proper position. The said knife plate 14 carrying the cutting knife blades 19 therefore comprises the hub or boss 18 and radially projecting arms integral therewith and preferably four in number, although more or less may be used if desired. The body portions of the radial arms of the knife plate lie in the same plane, while in the case of the knife plate having four cutting blades the bent up portions forming the cutting blades 19 are at right angles to each other with respect to the cutting blades next adjacent to each other in order around the hub or central portion 18 of the knife plate, while with respect to the knife blades 19 which lie on diametrically opposite sides of the hub or central portion 18 of the knife plate 14, the knife blades are parallel to each other. In a knife plate having three radially disposed arms for carrying the cutting blades this relation is not found, the cutting blades then being disposed at equal angles to each other corresponding to the angular relation

of the radial arms of the knife plate. The cutting blades 19 are inclined at an angle to the body of the knife plate 14 for the purpose of giving the cutting edge of the knife blades 19 a more perfect shearing action upon the meat when the knife blades work against the inner face of the perforated plate 8, and the extreme inner portion of the knife blades which lies nearest to the hub or central projection of boss 18 recedes into the body portion of the knife plate so that it does not work against the face of the perforated plate 8, but attaches to and is integral with that edge of the next adjacent radial arm of the knife plate, thus forming a web-like brace or support 25 (Fig. 2) for the bent-up portion 19 of the knife plate 14 which forms the knife blades.

The radial arms of the knife plate are furthermore reinforced by embossed reinforcements 23 radially disposed around the projection or boss 18, upon the face of the knife plate provided with the projection or boss 18.

In a modified form of my improved knife plate or cutter illustrated in Figs. 4, 5, 6 and 7, is shown a construction adapted to be used in large meat choppers driven or operated by power. In the form of cutter here shown as being provided with three radial arms and three cutting knife blades and having a central aperture 30 for the engagement of the feed screw shaft, the knife plate 21 is not provided with a boss or projection as in the knife plate shown in Figs. 2 and 3 and integral therewith, but has attached to itself a reinforcing backing 29 preferably of cast iron or other suitable material, having a central aperture concentric with the central aperture 30 of the knife plate 21 adapted to receive the feed screw shaft, and arms 26 projecting radially at angles corresponding to the angles of divergence between the radially projecting arms 28 of the knife plate 21. The face of the knife plate 21 and the inner face of the hub 29 and radially projecting arms 26 are plane surfaces, and they are fitted together and fastened in fixed or detachable relation as shown in Figs. 4, 5 and 6 by means of the rivets or pins 27, or other suitable fastening means, engaging the body portion of the knife plate 21 and the radial arms thereof and likewise engaging the body portion of the reinforcing backing and radial arms 26 of the same. It is to be understood that when fixed in their proper operative relation, the radial projecting arms of the knife plate 21 and of the reinforcing backing attached thereto diverge from the central hub or body portions at practically the same angle and coincide, the reinforcing radial arms 26 of the cast metal frame thus stiffening the knife plate 21. This relation of the knife plate 21 and its reinforcing backing permits the two to be readily detached from each other if so desired.

In operation, meat is introduced into the hopper 6 and is carried down the passage 4 by the action of the feed screw 17 when the shaft 10 is turned upon its axis and is forced against the inner face of the perforated plate 8, and will protrude into the holes therein and be sheared off by the knife blades 19 on the knife plate 14. As the operation continues, more meat will be forced into the holes in the perforated plate 8 and being cut and sheared by the cutting knife blades 19 will force the meat already in said holes through the perforated plate 8 in a finely divided state without having been bruised or torn.

In order to avoid depending entirely upon the feed-screw for advancing the meat toward the perforated plate, and to prevent any possibility of the blades of the cutter riding upon the meat so as to hold it away from the plate, I sometimes form upon the arms of the cutter-backing wings 33 as shown in Figs. 8-10 of the drawings. In said figures, 34 indicates the backing, to which a sheet metal knife 35, as already described, is secured, and on the forward edges of the arms 36 of said backing, or edges adjacent to the cutting edges 37 of the knife, are the longitudinal integral wings 33. These wings are simply extensions of the arms beveled from just beneath the upturned knife edges 37, away from the perforated plate 38, to a sharp edge 39. This edge obviously will give the meat a preliminary cut, and the beveled surface described will positively force the meat toward the perforated plate.

Having thus described the invention, what I claim as new is:

1. A cutter for meat choppers, comprising a hub, radially projecting arms each having at one of its lateral edges a marginal portion bent approximately at right angles to the body part and adapted to act as a cutting blade and a curved web between the inner end of said cutting blade and the adjacent edge of the hub between that arm and the next one, said web tapering from the width of the cutting blade to nothing, and said hub, arms, cutting blades and webs being one integral piece of sheet metal of substantially uniform thickness.

2. A cutter for meat choppers, comprising a hub, radially projecting arms each having

at one of its lateral edges a marginal portion bent approximately at right angles to the body part and adapted to act as a cutting blade, and a curved web between the inner end of said cutting blade and the adjacent edge of the hub between that arm and the next one, said web tapering from the width of the cutting blade to nothing, said hub, arms, cutting blades and webs being one integral piece of sheet metal of substantially uniform thickness, and reinforcements upon the sides of said arms opposite those from which the said cutting blades project.

3. A cutter for meat choppers, comprising a hub, radially projecting arms each having at one of its lateral edges a marginal portion bent approximately at right angles to the body part and adapted to act as a cutting blade and a curved web between the inner end of said cutting blade and the adjacent edge of the hub between that arm and the next one, said web tapering from the width of the cutting blade to nothing, said hub, arms, cutting blades and webs being one integral piece of sheet metal of substantially uniform thickness, and a reinforcing backing fitting against the side of said sheet metal portion opposite said cutting blades, having a central portion apertured in registration with the aperture of said hub and arms corresponding to the arms of the knife plate, said sheet metal portion and backing being separably secured together.

4. A cutter for meat choppers, comprising a sheet metal portion having radial arms with upturned cutting edges, and a backing secured to the opposite side of said sheet-metal portion from said upturned cutting edges and having arms corresponding to the arms of said sheet-metal portion, the edges of said backing arms adjacent to the upturned cutting edges extending edgewise therebeyond and being tapered to form knife blades, and said backing having a hub projecting from the sheet-metal portion a distance beyond the said knife blades, whereby said blades are spaced between the plane of the outer end of said hub and plane of the said upturned cutting edges.

HENRY C. SANDER.

In presence of—

ETHEL B. REED,

BERTHA S. FULTON.