No. 820,990. PATENTED MAY 22, 1906.

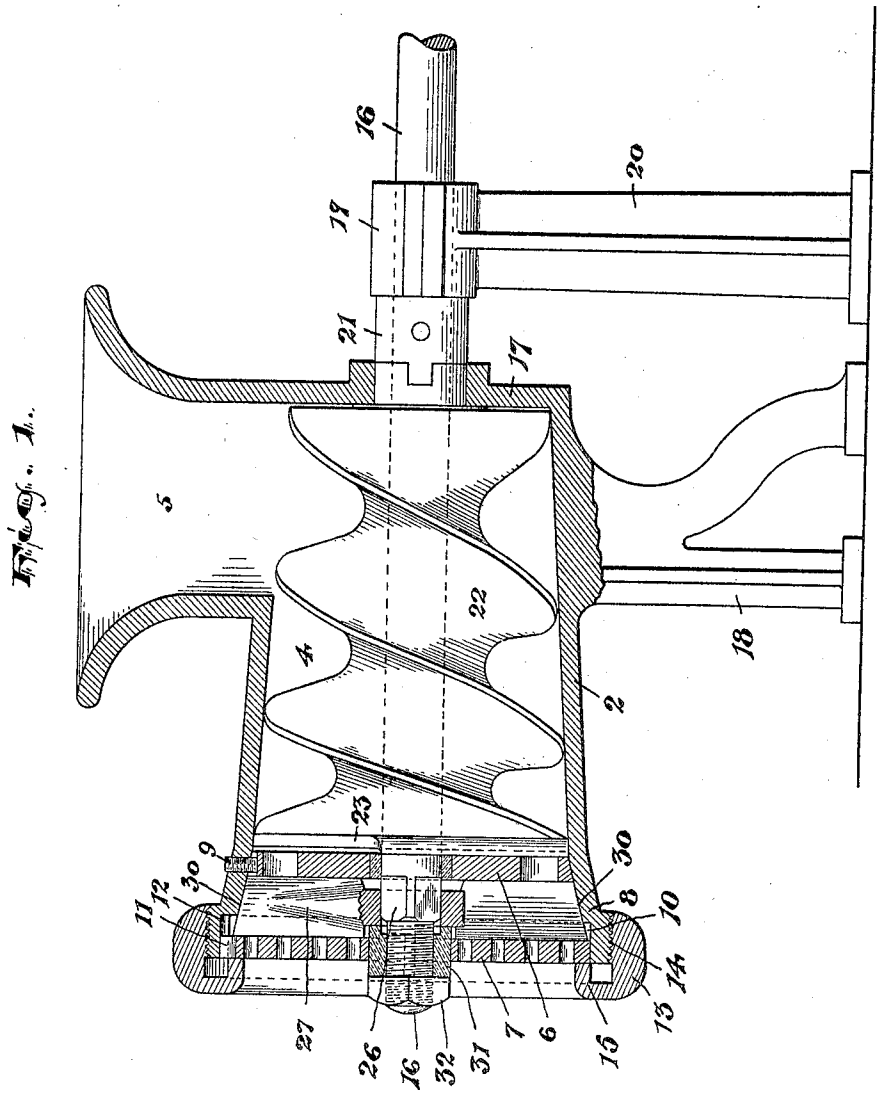
H. C. SANDER.

MEAT CHOPPER.

APPLICATION FILED JAN. 9, 1905.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:

Ralph Lancaster

Russell M. Everett.

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2 SHEETS—SHEET 2.

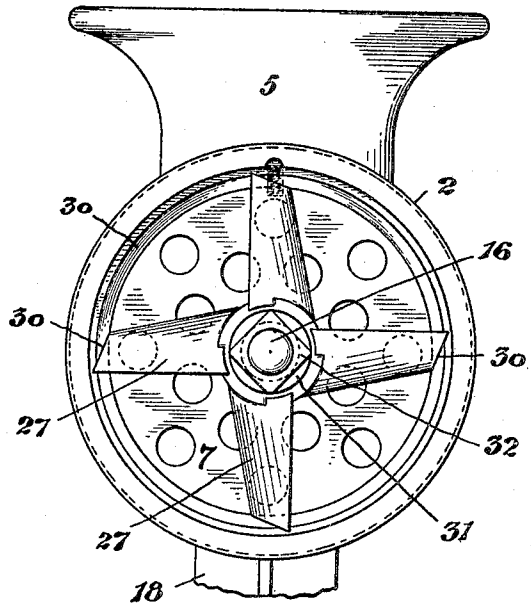

Fig. 2.

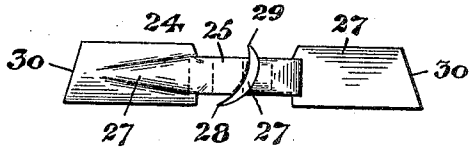

Fig. 3.

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HENRY C. SANDER, OF NEWARK, NEW JERSEY.

MEAT-CHOPPER.

No. 820,990. Specification of Letters Patent. Patented May 22, 1906.

Application filed January 9, 1905. Serial No. 240,164.

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; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

This invention relates to that class of meat-choppers represented by the one shown in the prior patent, No. 756,713, issued April 5, 1904, to John A. Sander, the objects of the present improvements being to reduce friction of the knives upon the perforated plates through which the meat is forced or to more widely distribute said friction; to fasten in place independently of each other the two perforate plates employed, so that the outer one, which is more often changed, can be so changed without taking out or removing either the inner plate or the other parts of the machine; to secure a knife which shall have a greater cutting-surface or area of engagement with the outer plate than it does with the inner one; to secure a knife in which grinding or resharpening will not interfere with its continued use and one which shall present its best cutting edge to the outer plate, and to obtain other advantages and results, some of which may be hereinafter referred to in connection with the description of the working parts.

The invention consists in the improved meat-chopping machine and in the arrangements and combinations of parts of the same, all substantially as will be hereinafter set forth, and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like figures of reference indicate corresponding parts in each of the several views, Figure 1 is a side elevation of my improved machine partly in section. Fig. 2 is a front end view of the same, the outer perforate plate being removed; and Fig. 3 is an edge view of the cutter detached.

In said drawings, 2 indicates the body portion of the machine, providing a tapering passage 4 for the cutting and feeding parts hereinafter described and a hopper 5 at the upper side of the rear end of said passage for introducing meat. The larger or forward end of the said passage 4 receives inner and outer perforate plates 6 7, respectively, located at opposite ends of a more sharply flaring or beveled part 8 of the body portion. The side walls of the chamber formed between said plates 6 and 7, which walls are on the inside of the more sharply inclined or abruptly-flaring part, are formed on lines disposed with relation to the longitudinal axis of the body at a greater angle from said axis than the gently inclined or flaring lines of the walls of the chamber 4. Thus the meat in the chamber 4 because of the proportions of the interior parts will be compactly forwarded against the interior perforated plate to insure a proper comminution, and there will be no back movement of the meat into the hopper; but the proper inclination of the walls of the chamber 4 is not such as I have found most efficient for the walls of the cutter-chamber between the plates 6 and 7. I have discovered that when the inclination of the walls is the same in the intermediate chamber between said plates as those of the chamber 4 there is a gorging of the meat in the latter chamber, which greatly retards the movement of the meat, and I have discovered that by abruptly flaring the walls of the intermediate chamber and extending the terminal edges 30 of the cutter-arms 27 accordingly there is a material increase in the capacity of the machine. The said inner plate 6 fits against the walls of the body portion at the angle of the interior wall formed at the smaller end of said sharply-flared portion 8 and is held against rotation by a key-screw 9, inserted through the walls of the body, as shown. The other or outer plate 7 has its edges at right angles to its face and sets into an annular recess 10 at the outer end of said sharply-flared portion 8, being keyed therein by any suitable means, such as a radial lug 11 and slot 12. Said outer plate 7 is furthermore held against outward displacement by means of a ring 13, threaded to screw on the outer part of the body portion, as at 14, and having a flange 15, adapted to extend inward over the edges of the body portion and engage the plate 7 near its edges, as shown. The plates 6 and 7 lie a little apart to receive

an intermediate more sharply inclined side cutter, the walls of which receive the beveled outer ends of the cutters, and because the intermediate chamber quickly enlarges on lines exceeding the normal lines of the passage 4 outside of the inner perforated plate said inner plate is quickly relieved of undue pressure due to the gorging of the meat within the intermediate chamber, rendering the movement of the intermediate cutter more free to act in connection with the cutting operations at the inner and outer edges.

A shaft 16 extends longitudinally and centrally through the passage 4, perforated plates 6 7, and out through the rear wall 17 of the body portion, as shown in Fig. 1. The body portion of the machine is supported by standards of any suitable construction, such as indicated by reference-figure 18 in the drawings, and the shaft 16 preferably has a bearing 19 in a post or standard 20, said shaft being driven by a belt-pulley (not shown) or any other suitable means. Upon the said shaft 16 at the side of its bearing 19 next the body portion of the machine is a fixed collar 21, having at its end next the body portion of the machine clutch means for engaging the end of a screw 22, which is adapted to be slipped upon said shaft to rotate therewith inside the passage 4. Obviously antifriction-bearings of any well-known form may be provided between the said collar 21 and bearings 19 or at any other suitable point.

At the forward or large end of the machine the screw 22 carries a knife-plate 23, as specifically shown and described in the above-mentioned prior patent and which engages the inner surface of the inner plate 6. On the outer side of said plate 6, and thus between the inner and outer plates described, is a cutter 24, having its hub 25 fitted on a squared portion 26 of the shart 16 and providing radially-projecting arms 27. Each of said arms is transversely curved, as shown more particularly in Fig. 3, and preferably arranged at an angle or obliquely, the obliquity being such as to bring the forward edge of each arm against the outer plate. The object of this is to bring the most effective cutting edge 28 of the arms against the outer plate 7, where all the meat must be cut as it passes. The inner plate 6 has cutting-knives on both its opposite sides, and obviously, since the meat is all cut by the knife 23, as it enters the perforations of such inner plate the work of the inner edges 29 of the cutter-blades 27 against said inner plate is not very heavy.

The edges of the arms 27 of the cutter project beyond the faces of the hub 25, as clearly shown in the drawings, so that as they are ground down in sharpening the cutter they can still freely engage the perforated plates. Furthermore, the ends of the blades 27 are beveled or slanted, as at 30, in conformity to the walls 8 of the body portion, so that they have a longer reach upon the outer perforated plate than upon the inner. This also increases the amount of cutting done at the outer plate 7 in comparison with that done at the inner or rear plate 6, enabling the meat to be more perfectly comminuted and preventing back pressure upon the inner plate by reason of the impeded escape of meat through the outer plate.

Outside the cutter 34 is a bushing or washer 31 upon the shaft 16, engaging at its inner end the hub of the cutter and fitting an aperture in the outer perforated plate 7. Beyond this bushing or washer 31 is a nut 32, screwing upon the shaft, and, obviously, by tightening up this nut the cutter 24 will be forced against the inner perforated plate 6, which in turn is forced against the end of the feeding-screw 22, the end thrust or friction being taken at the other end of the machine between the bearing 19 and clutch member 21.

The outer perforated plate 7, which fits loosely over the bushing 31, is held by means of its ring 13, and by this construction the outer plate can be removed or changed independently of the rest of the machine and without disturbing the clamped relation of the rest of said parts. This is of great practical advantage, since in the use of the machine the inner plate is seldom changed, but the outer plate is more often changed to secure different degrees of fineness of the meat. Furthermore, as the cutter-blades are ground or worn away by use the outer plate 7 can be forced inward to follow said blades and retain a cutting engagement therewith. Again, a saving of friction is gained over what is shown in the prior patent referred to in that there the outer plate was clamped between two rotating members, while in this case one of the members—to wit, the outer one or collar 13—is stationary.

By increasing the flare of the body part 2 of my improved machine, as at 6, and placing the two plates 6 7 at opposite ends of said flaring portion of the passage-way for the meat I insure a more ready and free discharge of the meat, so that it is delivered in better condition. It will be noted that the inner plate 6 has large apertures through which the meat passes readily, and, furthermore, there are knives on both sides of this plate to do the cutting, so that the forward progress of the meat is not seriously impeded. When, however, the forward plate is reached, such plate has much smaller perforations, through which the meat must be forced with more difficulty, and there is a knife only at its inner side. The meat heretofore has therefore been obstructed in its passage here and the capacity of the machine reduced. By my improved construction, however, the area of the outer plate is greatly increased and additional perforations secured—in practice about four hundred more—and hence the meat can more readily escape. Also the

greater length of the cutting-blade against the outer plate serves to insure a perfect comminution of the meat while passing.

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

1. In a meat-chopper, the combination with a tubular body portion, of a shaft extending longitudinally therethrough, a feed-screw and an inner perforated plate and a cutter upon said shaft, the said cutter and feed-screw being adapted to turn therewith, means for holding the perforated plate stationary, means upon the end of said shaft for clamping the cutter and inner plate and feed-screw together thereon, an outer perforated plate at the opposite side of the cutter from the inner plate centrally apertured to loosely receive the said clamping means independent thereof, and means upon the body portion for clamping said outer plate against the cutter.

2. In a meat-chopper, the combination with a tubular body portion, of a shaft extending longitudinally therethrough, a feed-screw and an inner perforated plate and a cutter upon said shaft, the said cutter and feed-screw being adapted to turn therewith, means for holding the perforated plate stationary, an outer perforated plate at the opposite side of the cutter from said inner plate and being centrally apertured, a cylindrical washer upon said shaft extending through said aperture of the outer plate, a nut outside said washer, and means upon the body portion for clamping said outer plate against the cutter.

3. In a meat-chopper, the combination with a chambered body portion, a shaft extending therethrough, a feed-screw on said shaft and an inner perforated plate, of a large outer perforated plate stationed at the end of said body, a cutter on said shaft between said perforated plates, and clamping means independent of the large plate, lying within and extending through said outer plate, and means at the outside of said outer plate to force the feed-screw, inner plate and intermediate cutter in close operative relation.

4. In a meat-chopper, the combination with the chambered body of an operating-shaft, a feed-screw, an inner perforated plate, and an outer perforated plate, of a cutter arranged on said shaft between said plates, and means clamping the screw and cutter firmly against the opposite sides of the inner perforated plate said clamping means extending through the outer perforated plate and being adapted to be manipulated at the outer side thereof.

5. In a meat-chopper, a body having a gently enlarging or flaring interior passage and near one end having an increase in the angle of its flaring surfaces, an inner perforated plate set at the angle formed by the gently-flaring and increased flaring lines, an outer plate set at the large end of the flaring body, a shaft, a feed-screw arranged at the inside of the inner plate, a cutter on said shaft intermediate of said perforated plates and having its ends extend to the flaring walls of the chamber between said plates and means for fastening the feed-screw and cutter upon said shaft.

6. In a meat-comminuting machine, the combination with a chambered body having gently-flaring interior walls, with a hopper at its upper side, and a more sharply flaring large end, the flaring walls of which are formed on lines at angles to the gently-flaring walls, perforated plates arranged at right angles to the longer axis of the flaring body, said plates being disposed one at the larger end and the other at the small end of the sharply-flaring part and being separate to form an intermediate chamber, a feed-screw, a shaft extending from the feed-screw through the perforated plates, the outer perforated plate being centrally apertured, a cutter arranged between the perforated plates, on said shaft, and clamping means arranged on said shaft and extending through the aperture of the outer plate and adapted to be manipulated from the outside of said outer plate, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 22d day of December, 1904.

HENRY C. SANDER.

Witnesses:
CHARLES H. PEEL,
RUSSELL M. EVERETT.