

C. F. SMITH.
MEAT CUTTER.

APPLICATION FILED JUNE 24, 1903.

NO MODEL.

2 SHEETS—SHEET 1

Fig. 1.

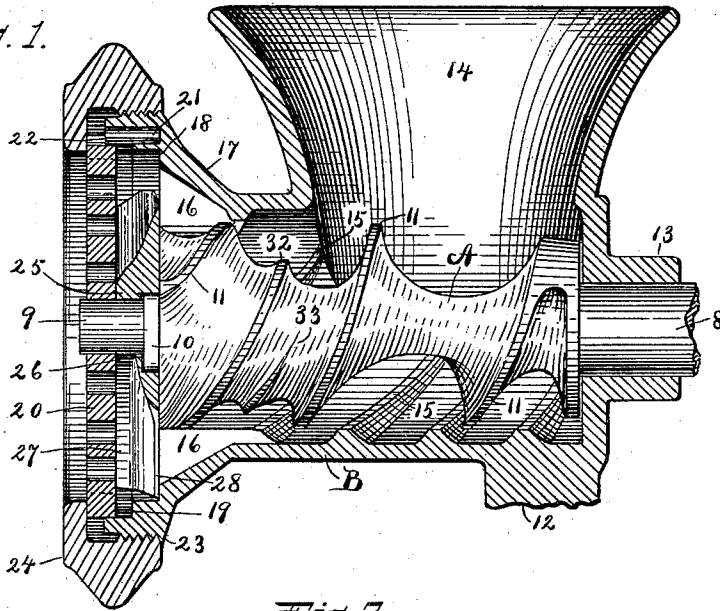


Fig. 2.

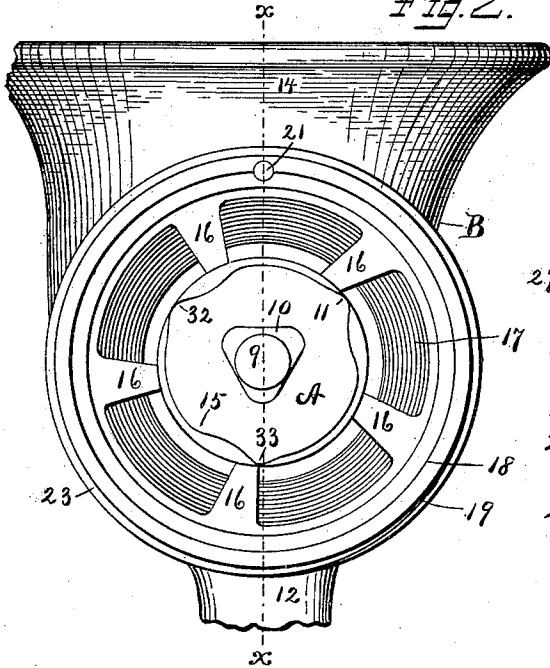
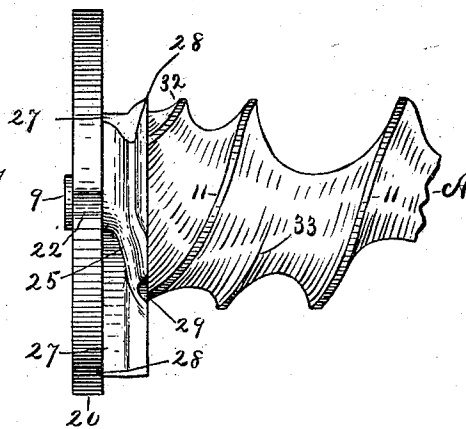


Fig. 3.



Witnesses.

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No. 745,079.

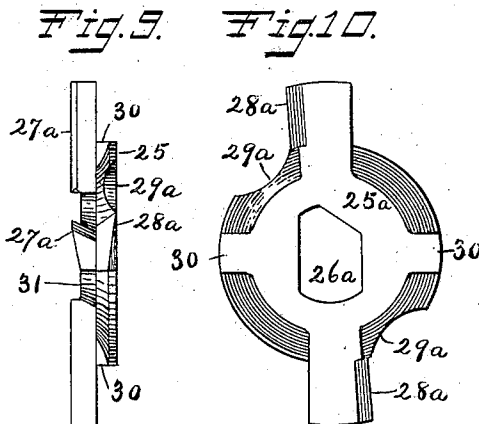
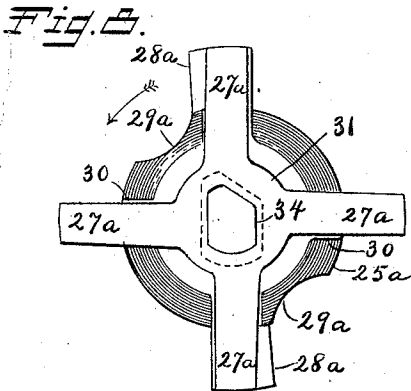
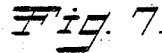
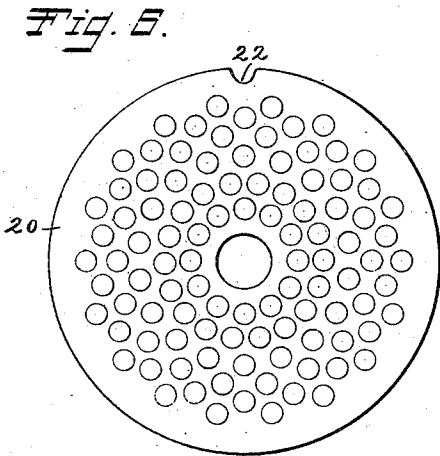
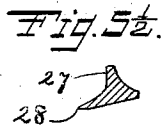
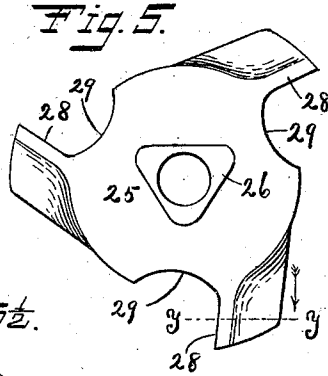
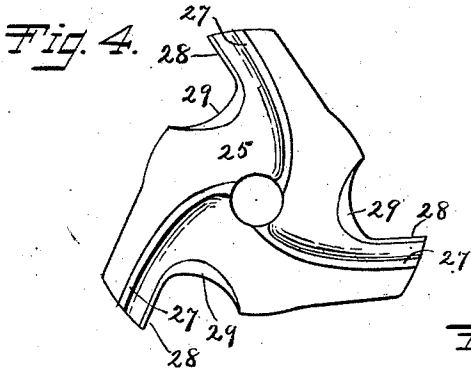
PATENTED NOV. 24, 1903.

C. F. SMITH.
MEAT CUTTER.

APPLICATION FILED JUNE 24, 1903.

NO MODEL.

2 SHEETS—SHEET 2.



WITNESSES.
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UNITED STATES PATENT OFFICE.

CHARLES F. SMITH, OF NEW BRITAIN, CONNECTICUT.

MEAT-CUTTER.

SPECIFICATION forming part of Letters Patent No. 745,079, dated November 24, 1903.

Application filed June 24, 1903. Serial No. 162,905. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. SMITH, a citizen of the United States, residing at New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Meat-Cutters, of which the following is a specification.

My invention relates to improvements in meat-cutters; and the objects of my invention are simplicity and economy in construction and efficiency in use.

In the accompanying drawings, Figure 1 is a central vertical section of the main portions of my meat-cutter with some of the parts in elevation, the plane of section being indicated by the line *xx*, Fig. 2. Fig. 2 is an end view of the case and forcer, the knives and clamping-ring being removed. Fig. 3 is a plan view of the knives or cutters that belong on the delivery end of the forcer, together with a portion of the forcer. Fig. 4 is a side view of the compound knife, showing the outer side, which works against the perforated plate. Fig. 5 is a like view of the reverse side of the said compound knife. Fig. 5½ is a sectional view of the same on the line *yy* of Fig. 5. Fig. 6 is a side view of the perforated plate. Fig. 7 is an end view showing the delivery end of the forcer in a modified form. Fig. 8 is a side view of the knives for said modification, showing the outer side. Fig. 9 is a plan view of the same. Fig. 10 is a side view showing the outer side of the inner one of the said knives.

The forcer *A* is mainly of an ordinary form, the crank end having a journal or shaft portion 8, the outer end of which, that receives the crank, being represented as broken off. The delivery end of the forcer has a short shaft or journal 9 and a driving portion 10 of an angular form. The body of the forcer has the ordinary screw form, composed of the main thread 11 and two additional threads 32 33 at the delivery end, with the tops of all the threads forming a cylindrical periphery.

The case *B* is represented as broken off at the standard 12 and is provided with a journal-bearing 13 at the crank end and an ordinary hopper 14 at the top. The interior of the case is provided with the usual feeding-ribs, and I prefer to employ spiral ribs 15

for the main portion of the case, with short terminal rib portions 16 arranged to extend longitudinally of the case at the delivery end. The case is mainly of a cylindrical form, but flares outwardly on an abrupt taper 17 at the delivery end, the space between the feeding-ribs throughout the whole length of the case conforming substantially to the exterior form of the case, while the tops of all the ribs in the case follow the cylindrical form of the forcer from end to end of the interior bore of the case so far as the ribs extend. This makes the terminal portions 16 of the ribs very deep or high at their outer ends, as shown, a little more than three times the depth of the spiral ribs 15 in the main body of the case. The ends of these terminal portions are faced off, preferably at right angles to the axis of the case, to form cutting-faces for acting in connection with the knife hereinafter described. Adjacent to the end portions 16 of the ribs there is a short cylindrical chamber 18 for the knives to rotate in, and outside of that a larger cylindrical portion 19 to receive the stationary cutter 20, which, as shown, is in the form of a perforated plate. The case is provided with a fixed pin 21 and the edge of the perforated plate with a notch or recess 22 to receive the said pin or with other ordinary means to prevent the perforated plate from rotating. The case at the delivery end is provided with an external screw-thread 23 to receive the internally-threaded clamping-ring 24, that holds the perforated plate in place and presses the plate against the knife acting in connection therewith.

In the preferred form I make an integral compound knife—that is to say, what practically constitutes two different knives or two sets of knife-edges made in one and the same piece on a common body portion. On that side of the hub 25 that faces the forcer there is an angular driving-socket 26, that fits on the driving portion 10 of the forcer, and leading from the said socket to the opposite side of the hub there is a round hole that substantially fits the journal 9 on the end of the forcer, so that this compound knife cannot possibly be put on wrong side out and also whereby the outer knife or knife-edges 27

may be continued inwardly to the said journal. The inner knife or knife-edges 28, three in number, extend from the extreme outer ends of the knife-blades to the hub 25, into which they merge. Just in front of the inner ends of these edges the hub is recessed or cut away, as at 29, to a depth which brings the bottom of the recess at a point a little inside the inner faces of the feeding-ribs and inside the tops of the threads of the screw-forcer to permit the meat to flow more readily than it would if all of the meat were forced outwardly beyond the periphery of the forcer. Although the hub is recessed, as at 29, it is large enough as to its major portion to extend outwardly and bear for a short distance on the end faces of the cutting-ribs 16, or, in other words, said hub is in the main a little larger than the bore of the case at the inner side of the feeding-ribs. The knife or knife-edges 27 are set back from the edges 28, face the perforated plate, against which they cut, and extend inwardly much farther than the said edges 28 and preferably to the central hole or journal-bearing on that side of the hub, the said edges 27 projecting forwardly from the knife-arms on the broad side of the hub, so that a clear space or chamber is formed between the cutting ends of the ribs on the case and the perforated plate, whereby the meat may flow outwardly beyond the outermost inner walls of the case and at the same time inwardly to a point adjacent to central hole or journal-bearing in the perforated plate. The outer limits of the perforations in the plate 20 are indicated by broken lines in Fig. 1. The shape of the knife-blades in end view at their outer ends is clearly shown in Figs. 3 and 5½. When the forcer has two short threads, it presents the form of a modified triangle in end view, as shown in Fig. 2, the grooves between the threads extending to the delivery end of the forcer, although quite shallow at the said end.

In the modification shown in Figs. 7 to 10, inclusive, I give only one short thread to the forcer A', which terminates diagonally opposite the main thread, as shown in Fig. 7. I form the same journal or shaft 9 at the outer end and employ two angular driving portions 10^a and 10^b in different sizes. The two knives or two sets of knife-edges 27^a and 28^a are formed in two separate pieces. The knife 28^a has only two knife-edges arranged diagonally opposite to correspond with the terminal ends of the two threads on the forcer, and its hub 25^a has an angular socket 26^a, Fig. 10, to fit the angular driving portion 10^a of the forcer. Its hub may also be recessed, as at 29^a, if desired. It is also beveled or chamfered off on its outer face to permit the material passing it to work inwardly; but I make two breaks 30 in this bevel for the back of two of the blades that carry the edges 27^a to rest upon. This outer knife 27^a has four blades, and its hub 31 has an angular socket 34, that fits the driving portion 10^b. These knives or two sets of knife-edges, like the

knife first described, are placed between the perforated plate and end cutting-faces of the ribs for acting the one on the perforated plate and the other on the said ribs. As shown, however, the knife-edges 27^a do not extend inwardly so nearly to the center of the perforated plate as do the knife-edges 27 first described. By reason of the angular form of the driving portions 10^a 10^b in two sizes and corresponding sockets in the knife-hubs it is impossible to wrongly assemble these knives. The series of knife-edges arranged in two sets in one piece or in two separate pieces are considered as equivalents, excepting in cases where the integrality of the two sets is particularly mentioned, and the number in each set is immaterial, so long as there is at least one knife-edge in each set.

In both constructions as the meat reaches the enlarged space between the ribs at the flaring end of the case it spreads outwardly and fills the outwardly-flaring spaces between the terminal portions of the ribs and is partially reduced by the set of knife-edges acting thereon. The partially-reduced meat flows into the chamber between the ends of the ribs and the inner face of the perforated plate, where it is cut by the outer one of the two sets of knife-edges. The longer knife-edges and adjacent spaces in the set that bears on the perforated plate permit part of the meat to flow inwardly and pass through the perforated plate at points within the diameter of the forcer and within the diameter of that side of the hub that bears against the ribs. The construction is simple, while the machine is efficient. The clamping-ring for the perforated plate acts to adjust one set of knife-edges properly against the face of the perforated plate and the other set against the ends of the terminal portion of the ribs.

It is apparent that some changes from the specific construction herein disclosed may be made, and therefore I do not wish to be understood as limiting myself to the precise form of construction shown and described, but desire the liberty to make such changes in working my invention as may fairly come within the spirit and scope of the same.

I claim as my invention—

1. The combination of the case having internal ribs that terminate in end cutting-faces, with the forcer, a knife-edge rotating with the said forcer, extending outwardly beyond the periphery of the said forcer and across the ends of the said ribs against which it cuts, a stationary cutter mounted in the outer end of the case and having its cutting area extending both outwardly and inwardly to points both outside and inside the inner diameter of the said end cutting-faces of the said ribs, a knife-edge for acting on the inner face of the said stationary cutter, and a clamping-ring, adjustable on the case for adjusting the said knife-edges to the said stationary cutter and also to the end cutting-faces of the ribs.
2. The combination of the case having a

cylindrical body with an outwardly-enlarged delivery end, and internal ribs extending over the said cylindrical and enlarged portion with the tops of the ribs forming a cylindrical bore throughout the length of the interiorly-ribbed portion of the said case, the ends of the said ribs having cutting-faces, with a substantially cylindrical screw-forcer, a knife-edge rotating with the said forcer at the end thereof and acting on the said end faces of the said ribs, a stationary cutter mounted in the delivery end of the said case and having a cutting area that extends both inside and outside the diameter of the said forcer, and a knife-edge rotating with the forcer and acting on the inner face of the said stationary cutter.

3. The combination of the case having interior ribs, the ends of which form cutting-faces, with a rotary forcer, a knife-edge rotating with the said forcer and extending across the said cutting-faces, a hub for the said knife-edge mainly of a larger diameter than the smallest inner diameter of the case at the said cutting-faces, a stationary cutter mounted in the delivery end of the said case, and a knife-edge acting on the inner face of the said stationary cutter, the said knife-edge extending inwardly to a point inside of the inner diameter of the said end cutting-faces of the ribs, whereby the meat is mainly forced, first outwardly beyond the diameter of the forcer, and then part of it permitted to flow inwardly within the diameter of the forcer.

4. The combination of a case having interior ribs the ends of which form cutting-faces, with a rotary forcer, a stationary cutter mounted in the end of the said case and knife-edges rotating with the forcer and acting on the said stationary cutter and end cutting-faces of the said ribs, the cutting area of the said stationary cutter and coacting knife-edges extending both outside and inside the

inner diameter of the said end cutting-faces of the said ribs.

5. The combination of a case having internal feeding-ribs with the spaces between the said ribs enlarged outwardly at the delivery end so as to be of a greater depth at the ends of the said ribs than at any other portion of the case, the said ribs having cutting-faces at their ends, with a forcer rotating within the ribbed portion of the said case and having grooves that extend through to its delivery end, and a cutter having a hub mounted on the end of the said forcer to rotate therewith and act upon the ends of the said ribs, the said cutter having its hub recessed adjacent to the inner end of its cutting edge to a point that describes a smaller circle than the circle of the inner faces of the said feeding-ribs at their cutting ends.

6. The combination of the case having interior ribs the ends of which form cutting-faces, with a forcer, a knife-edge rotating with the said forcer and acting across the said cutting-faces of the ribs, a perforated plate at the delivery end of the case, and a knife-edge rotating with the forcer and acting on the said plate, the inner end of the said knife-edge and innermost coacting holes in the said perforated plate extending inwardly beyond the inner circle of the said ends of the ribs.

7. In a meat-cutter, a compound knife having cutting edges on opposite sides for coacting with other cutters, and a central hub integral with the said cutting edges into which hub the cutting edge or edges on one side merge, the cutting edges on the other side extending farther inwardly on the side face of the said hub.

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Witnesses:

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