

No. 810,767.

PATENTED JAN. 23, 1906.

A. W. JOHNSON.

MEAT CUTTER.

APPLICATION FILED MAR. 3, 1905.

4 SHEETS—SHEET 1.

Fig. 3.

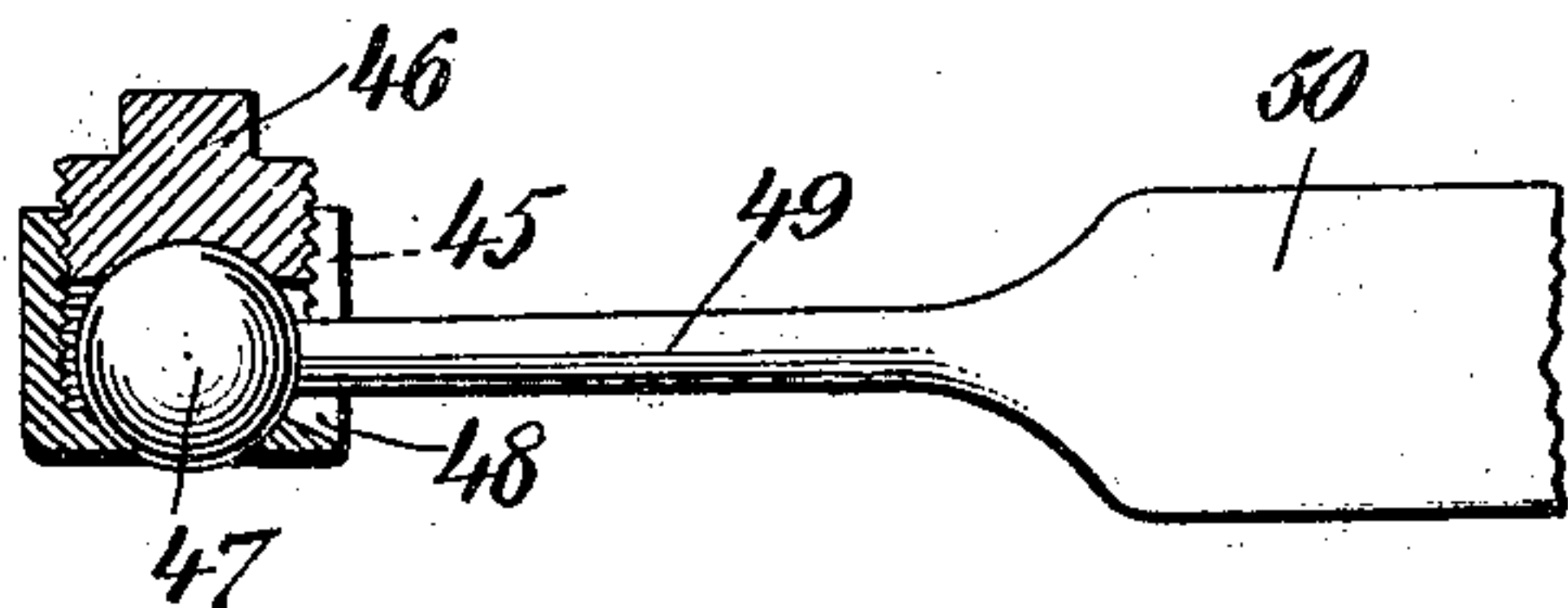


Fig. 1.

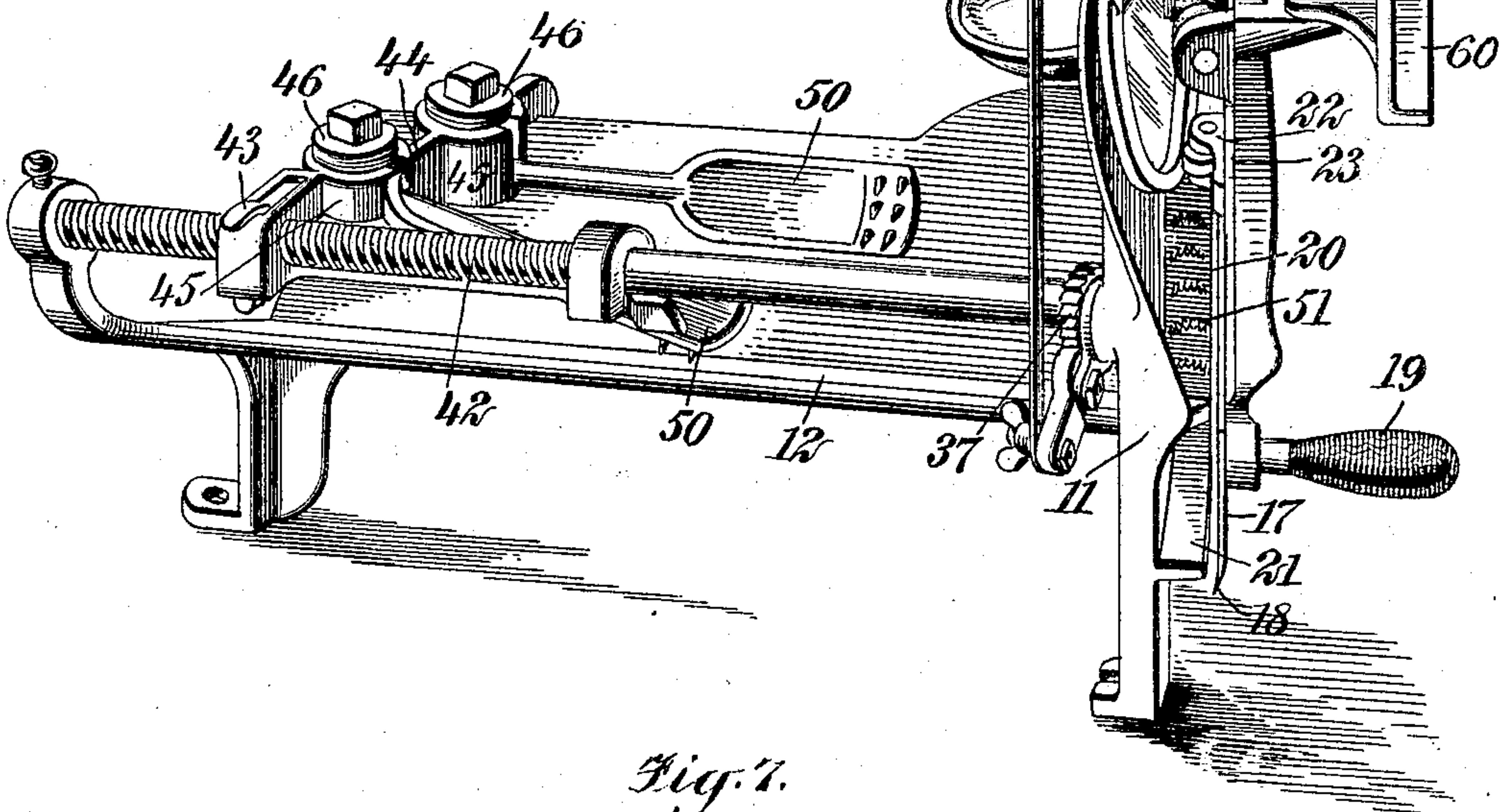
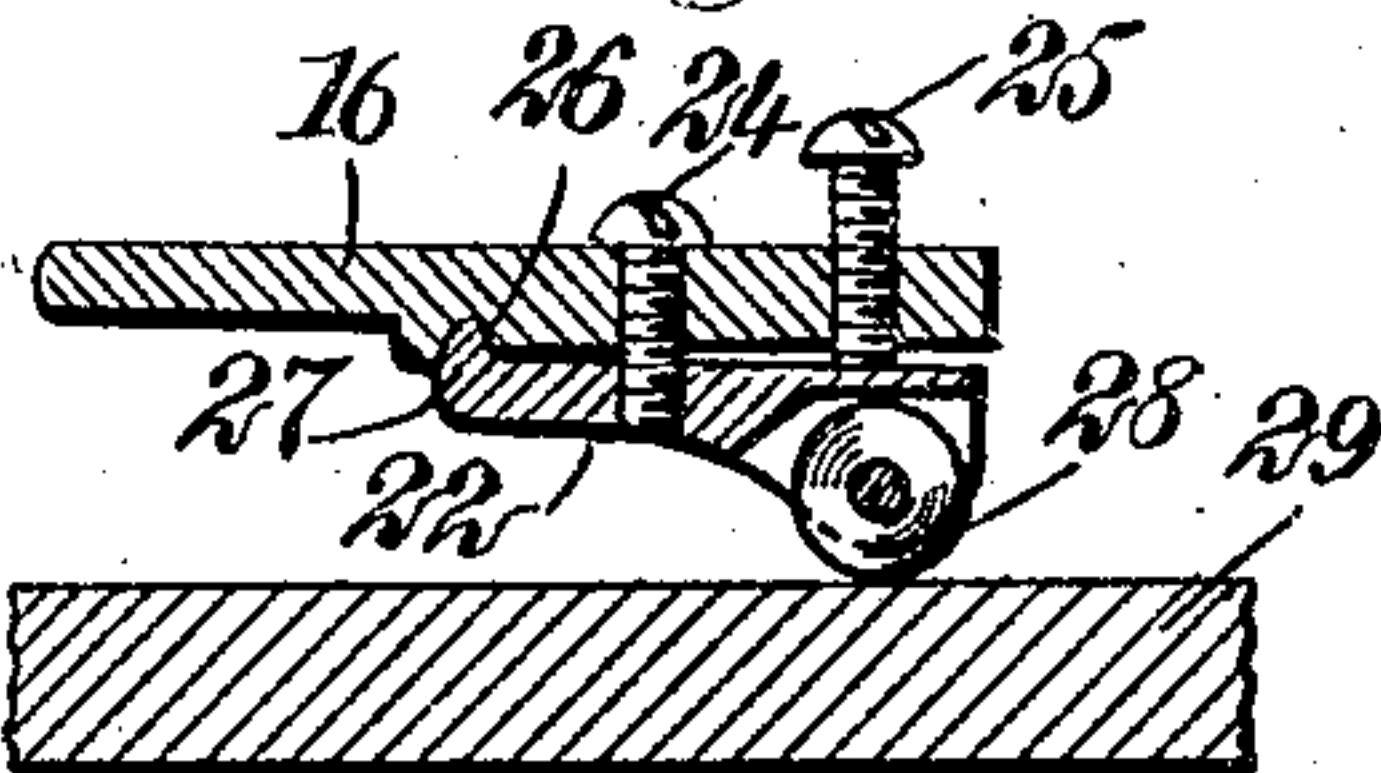


Fig. 7.



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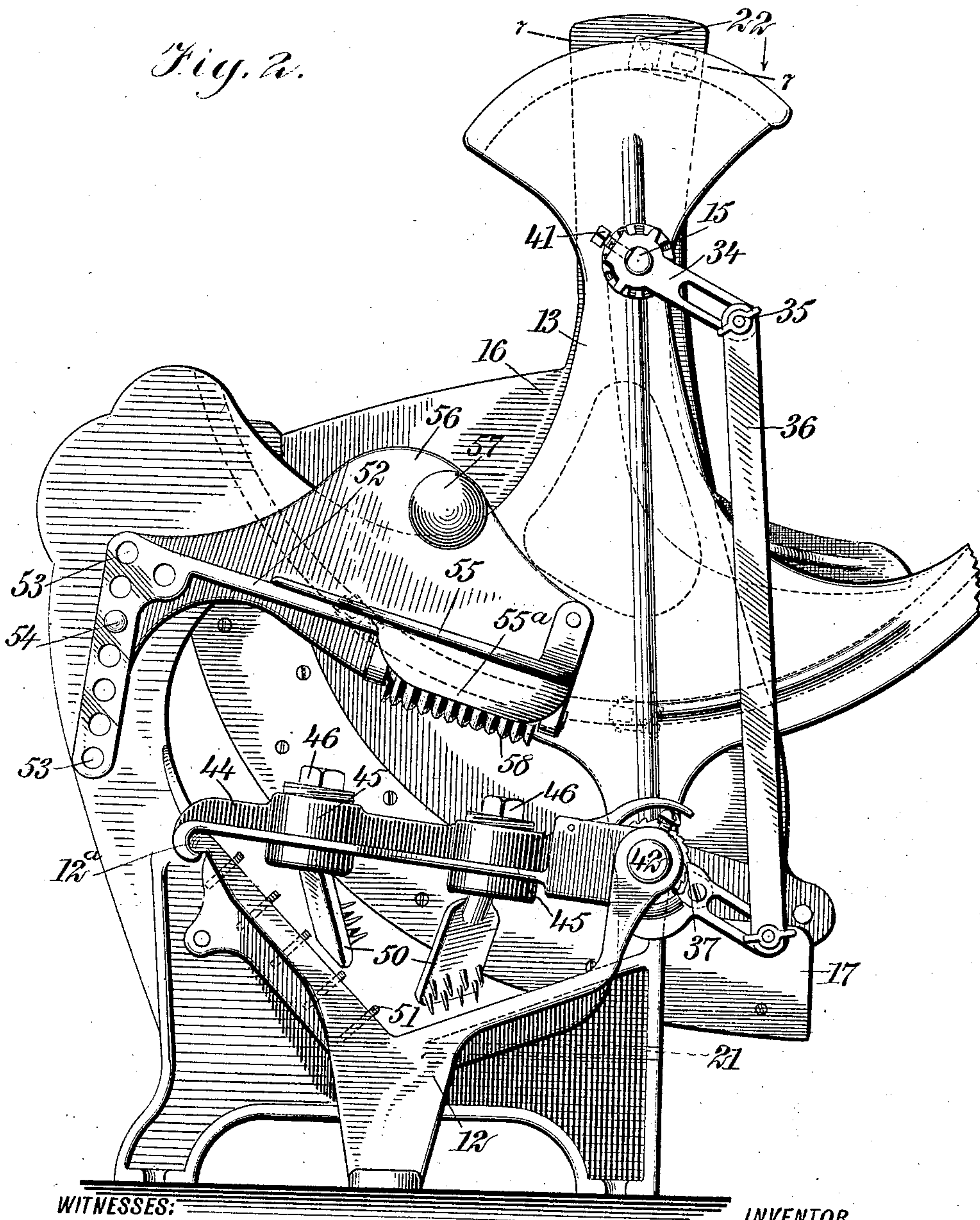
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4 SHEETS—SHEET 2.

Fig. 2.



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4 SHEETS—SHEET 3.

Fig. 4.

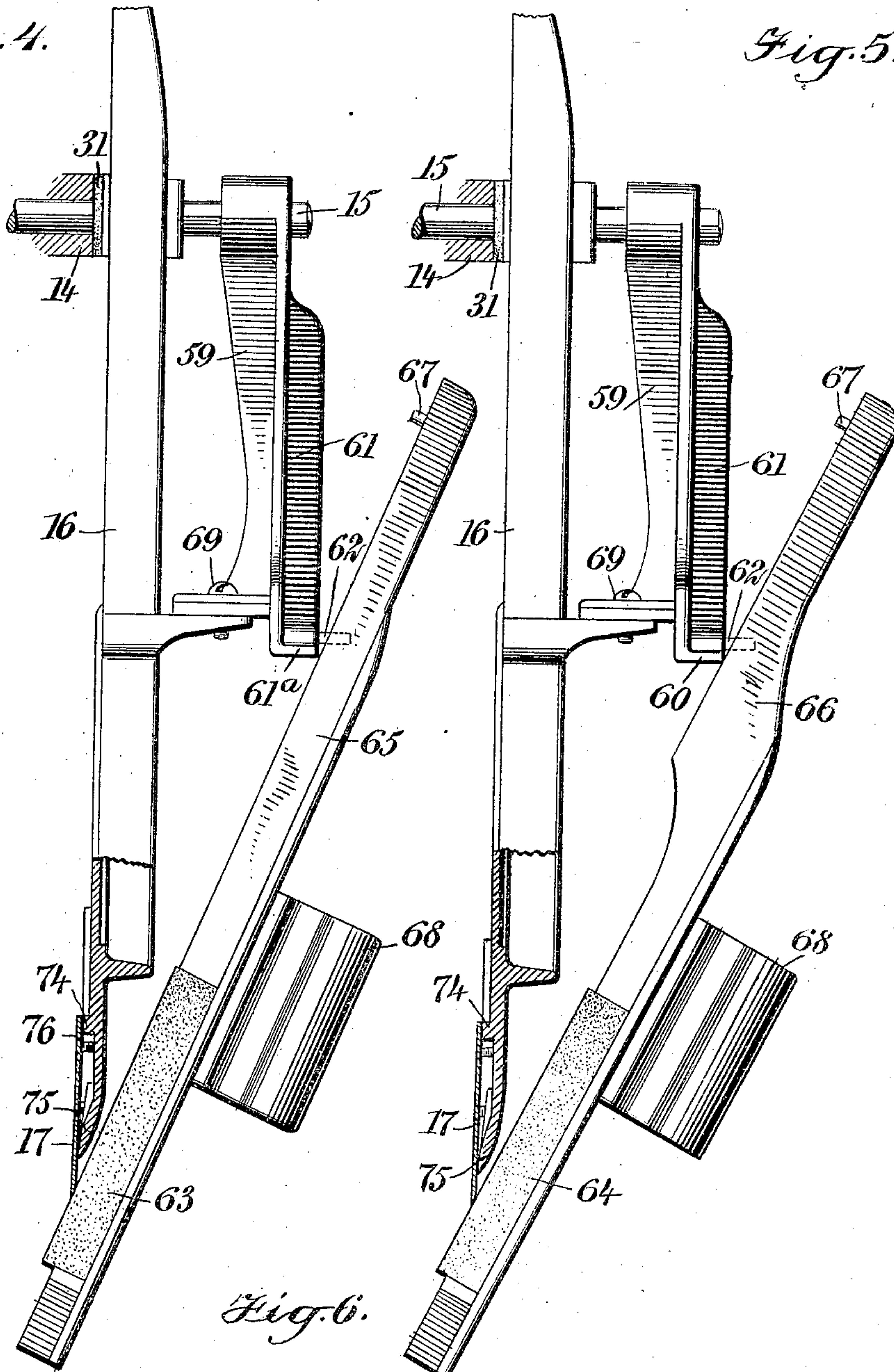


Fig. 5.

Fig. 6.

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4 SHEETS—SHEET 4.

Fig. 8.

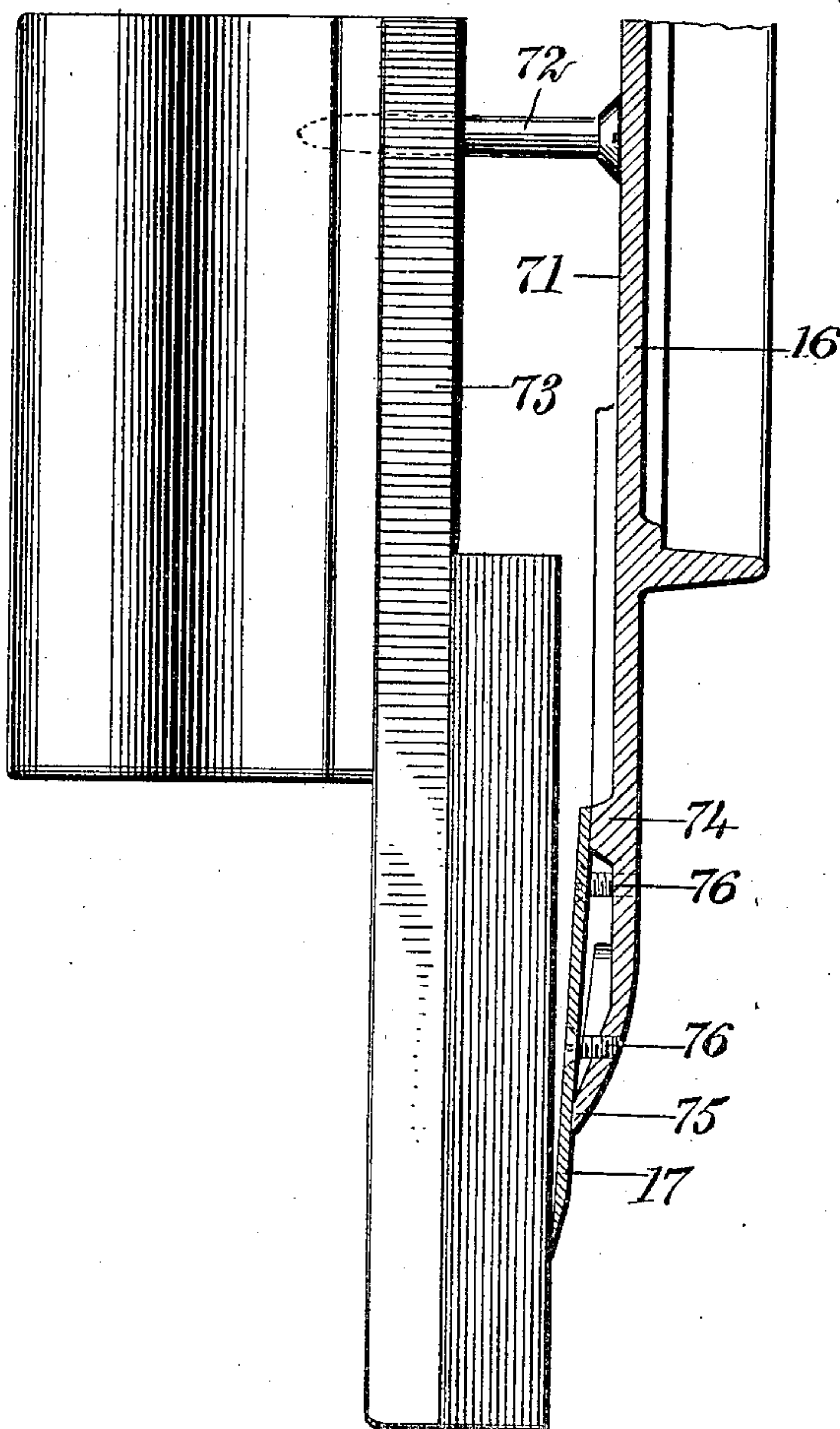


Fig. 9.

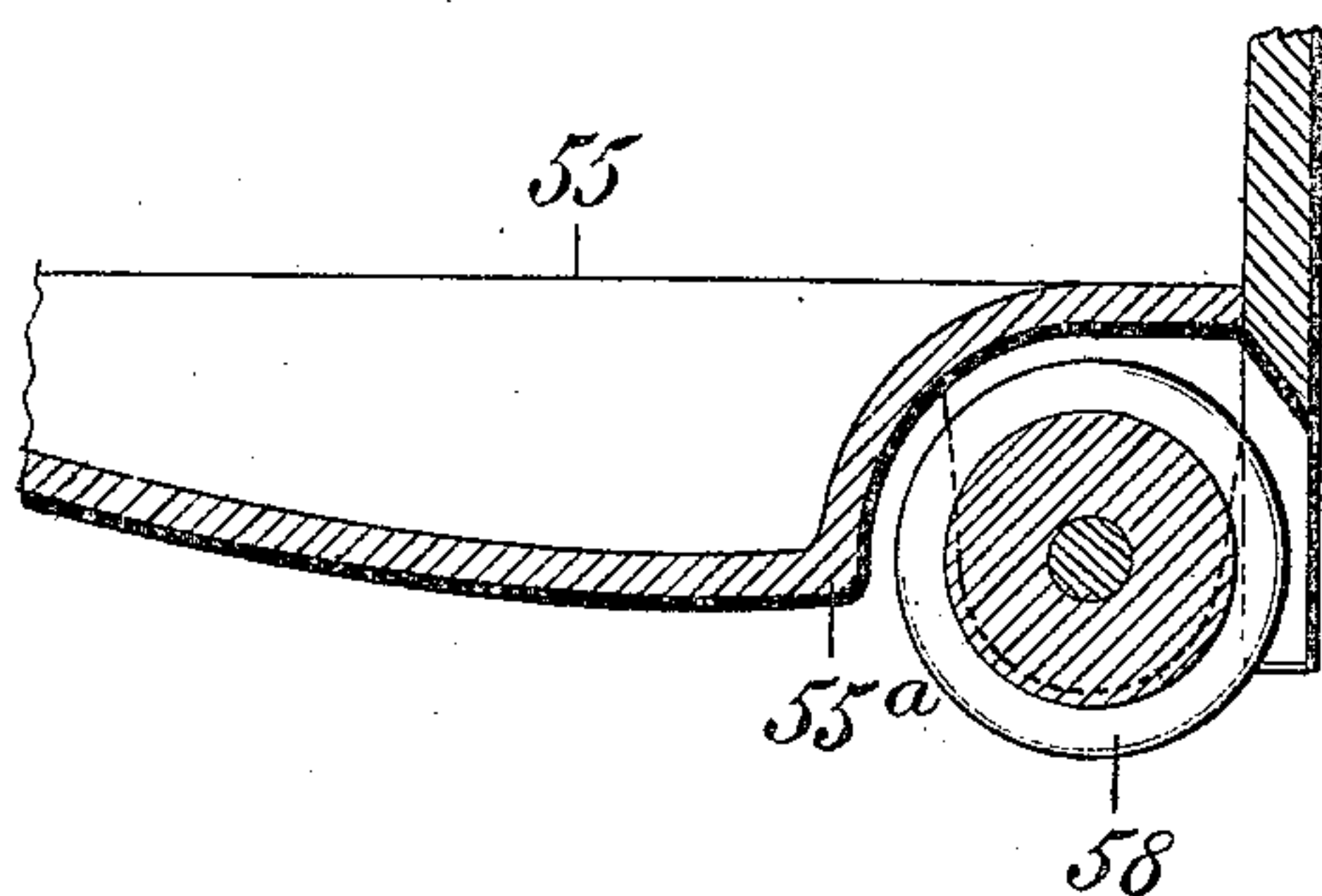
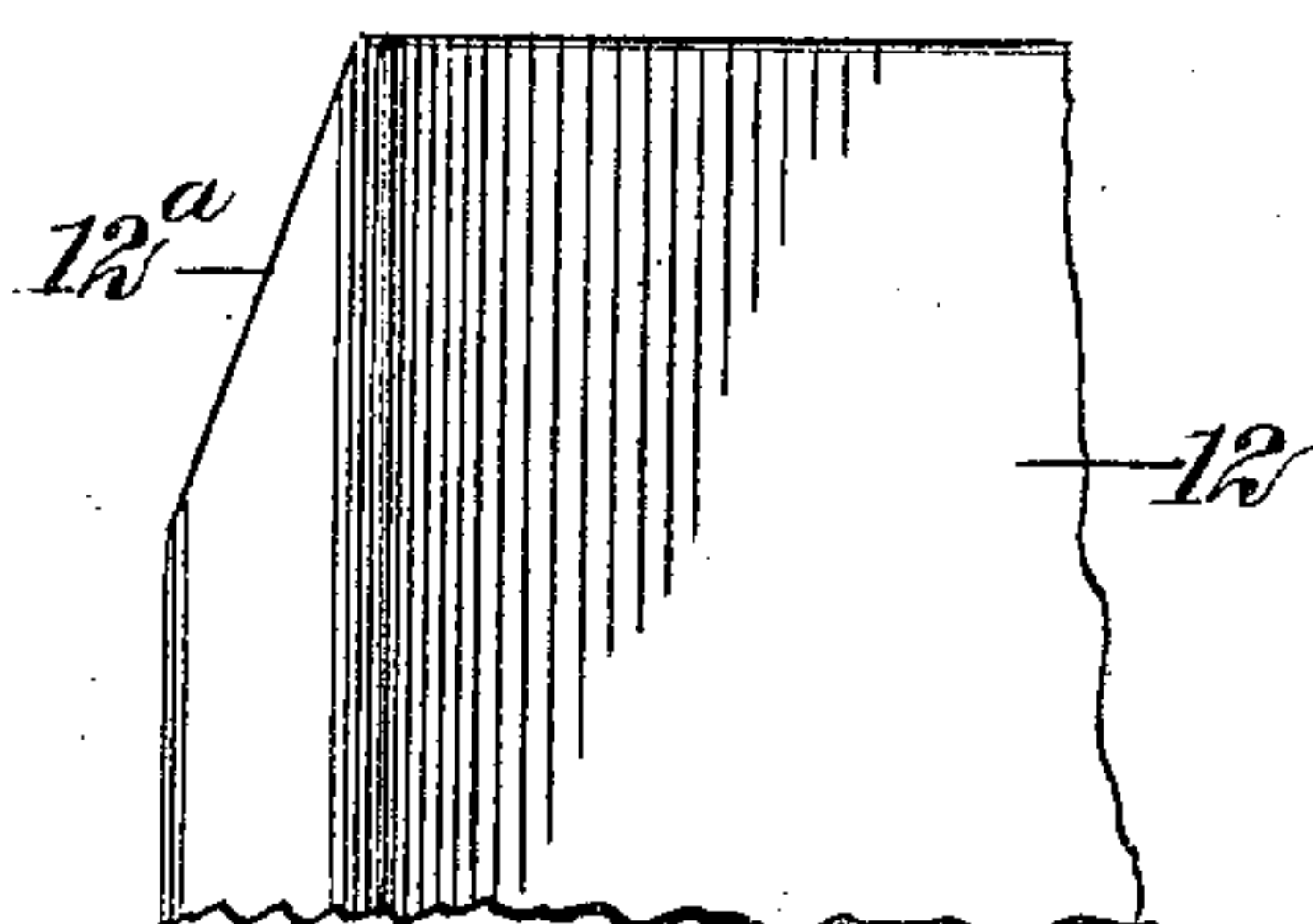


Fig. 10.



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UNITED STATES PATENT OFFICE.

ALFRED W. JOHNSON, OF NEW BRUNSWICK, NEW JERSEY.

MEAT-CUTTER.

No. 810,767.

Specification of Letters Patent.

Patented Jan. 23, 1906.

Application filed March 3, 1905. Serial No. 248,249.

To all whom it may concern:

Be it known that I, ALFRED W. JOHNSON, a citizen of the United States, and a resident of New Brunswick, in the county of Middlesex and State of New Jersey, have invented a new and Improved Meat-Cutter, of which the following is a full, clear, and exact description.

My invention relates to improvements in meat-cutters, especially those applicable to the slicing of smoked or dried beef.

The chief objects of the invention are to provide machines of this character with means for guiding a rank cutting-blade in such a manner as to prevent it from coming into contact with the bed and to force it to cut uniformly-thin slices, to provide means for guiding three kinds of sharpening-stones, so as to properly sharpen a blade of the peculiar character which I use without the exercise of mechanical skill on the part of the operator, and to provide for firmly holding and regularly feeding the meat. These and other objects, which will appear in the subjoined description, can be attained in many ways, and I have illustrated one form of machine which represents a practical embodiment of the invention.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of a meat-cutting machine constructed in accordance with the principle of my invention. Fig. 2 is a rear end view thereof. Fig. 3 is a fragmentary view, partly in section, on an enlarged scale, showing a portion of a claw constituting part of my invention. Fig. 4 is a side elevation, partly in section, of the cutter-frame, showing the manner of applying a sharpening-stone to the blade and guiding it. Fig. 5 is a view similar to Fig. 4, showing the application of a different sharpening-stone. Fig. 6 is a sectional view of the blade, showing the way in which it is sharpened. Fig. 7 is a sectional view of a detail on the line 7 7 of Fig. 2. Fig. 8 is a sectional view of the cutter-frame, showing the manner of applying a sharpening-stone for the inside surface of the blade. Fig. 9 is a sectional view, on a large scale, of a portion of a clamp constituting a part of my invention; and Fig. 10 is a fragmentary plan view illustrating a part of the bed.

The frame 11 of the machine is provided

with a bed 12, which is in general constructed in a similar manner to that shown in my Patent No. 783,836, granted February 28, 1905. This frame is provided with an upward extension 13, which is provided with bearings 14 for a shaft 15. This shaft passes through the frame and extends from it at the front and rear. On the front portion of this shaft is pivotally mounted, by being fixed to the shaft, a knife-frame 16. To the lower portion of this frame is secured a knife-blade 17, which, as shown in Fig. 6, is provided with a rank cutting edge 18, slightly offset toward the frame of the machine. A handle 19 is provided for swinging the knife-frame about the shaft 15, and means is also provided for preventing the blade from coming into contact with the edge 20 of the bed. This means comprises two parts. One part is represented by a rib 21, preferably cast integral with the frame and having the shape of an arc of a circle drawn from the shaft 15 as a center. The elongated lower portion of the rear of the blade 17 is adapted to pass along in front of this rib and to bear upon it in case the meat or any other force pulls the knife inwardly toward the frame. The rib projects sufficiently far, so that when the blade bears against it no part of the blade can by any possibility come into contact with the edge 20. An additional means for guiding the knife and assisting in this result is also provided. This consists of a series of brackets 22, mounted on the knife-frame one above the shaft 15 and two below it. These brackets are preferably placed so that a line drawn through the shaft and the bracket above the shaft will pass about midway between the two brackets mounted below the shaft. These brackets are mounted upon lugs 23 on the inside of the knife-frame and are made adjustable. The manner which I have illustrated for making these brackets adjustable is represented by two screws 24 and 25, the screw 24 passing through the knife-frame and the bracket and the screw 25 passing through the frame in the same manner and bearing upon the surface or inner cavity of the bracket. The lugs 23 are also each provided with a depression 26, in which fits a projection 27 on the bracket. It will be seen that the brackets can thus be adjusted about the end of this pivot toward and from the frame 16. Each bracket is provided with a roller 28, and the main frame of the machine is provided with two tracks 29 and 30, upon which these rollers are adapted

to run. These two tracks are obviously drawn about the shaft 15 as a center. A compressible washer 31 is mounted between the hub 32 of the frame 16 and the bearing

5 14.

It will be seen that in the usual operation the rollers 28 will run upon the tracks 29 and 30 and that any tightening means can be employed to force the frame 16 toward the
10 main frame of the machine against the resistance of the rollers and tracks. It will also be obvious that in case of any force being applied to cause the edge of the knife to be directed toward the edge 20 of the frame
15 the rib 21 will come into operation to prevent the contact of these two elements. Furthermore, if it is desired to swing the knife-frame out of operative position, so that the rollers 28 will leave the ends of their respec-
20 tive tracks, it will be obvious that the tightening means mentioned above will, if unopposed, force the frame 16 inward until the rollers will be out of alinement with the track. In order to counteract this effect,
25 the compressible washer 31 is employed, and this, while permitting the necessary flexibility and allowing the rollers to bear with the desired force upon their tracks, will prevent the frame 16 from being forced sufficiently
30 far inward to cause the rollers to have difficulty in finding the tracks when it is desired to swing the knife-frame back into operative position. The tightening means which I have illustrated comprises a nut 33, screw-
35 threaded onto the end of the shaft 15 and bearing upon the inside of the extension 13.

In order to transmit motion from the shaft 15 in the usual way, an arm 34 is attached to it, and this by means of a screw 35 is adjust-
40 ably connected with a link 36, which in turn is connected with a feed-ratchet 37, such as that commonly employed in machines of this character. In order to prevent the nut 33 from turning with the oscillating movements
45 of the arm 34, it is provided with a series of notches 38, in which are adapted to engage projections 39 from the hub 40 of the arm 34. The hub 40 is also provided with a set-screw
50 41, engaging with a flattened portion of the end of the shaft 15. The arm 34 can be set in any desired position with the projections 39 in the notches 38, and it will be obvious that the nut 33 will necessarily oscillate with the arm 34 without becoming displaced from
55 its original position upon the shaft 15.

The ratchet feeding device 37 is connected in the usual way with a feed-screw 42, having a movable nut 43, which is in turn connected with a cross-head 44. This cross-head is
60 provided with a pair of cups 45, each having a nut 46 in screw-threaded engagement therewith, the nut and cup in each case being provided with spherical seats for a ball-joint 47 and the cup being provided
65 with a passage 48, through which an arm

49, connected with the ball-joint, extends. Each of these arms is provided with a claw 50. It will be apparent that by manipulation of the nuts 46 the two claws 50 can be adjusted to any desired position. It has
70 heretofore been proposed to employ a claw to assist in feeding the meat; but when this is done it is necessary that the claw engage the meat at a position part way between its ends, and consequently the rear end of the meat is
75 free to lift from the bed. It has been found in practice in cutting meat in this manner that this was somewhat objectionable, and the second claw is added for the purpose of securing the rear end of the meat and pre-
80 venting it from rising. The rear claw is shorter than the front claw for this purpose; but both of them are provided with ball or any other convenient joints, so that they can be manipulated in the desired manner. In
85 order to insure the registration of the cross-head with the ledge of the base 12 after it has been moved and replaced, the latter is provided with a beveled or rounded end 12^a, upon which the cross-head will be guided to
90 proper position on the bed.

The bed of the machine is provided with toothed wheels 51, which are free to turn with the meat as it passes over them. This feature has been used before, but in the prior
95 uses of it its full efficiency was never brought out. For the purpose of providing for the feeding of the meat in the desired manner and keeping it solid against the bed, so that the cutting operation can be most efficiently
100 performed, I provide a clamp 52 to coöperate with these toothed wheels. This clamp is provided with a series of holes 53, by which the clamp is adapted to be pivotally mounted upon the frame. For this purpose the
105 frame is provided with a stud 54, which may be placed in any one of the holes 53 according to the size of the piece of meat to be cut. The clamp is provided with a concave plate 55, upon which the palm of the hand can rest,
110 and with a back 56 to protect the hand from the knife. It also has a handle 57 for assisting in operating it. A grooved roller 58 is mounted in the lower part of the clamp, and this roller is free to turn with the meat. In
115 order to prevent the meat from clogging between the roller and plate, the latter is provided with a projection 55^a, extending toward the lower part of the roller 58. It will be readily understood that when this clamp
120 is placed upon the stud 54 in the desired position according to the size of the piece of meat employed it can be pressed upon by the hand of the operator so that the roller 58, acting against the wheels 51, will cause a constant
125 pressure to be exerted upon the meat without retarding the forward motion of the meat or necessitating the exertion of any appreciable addition of force in order to drive the meat forward. At the same time the hand
130

of the operator is protected from the knife and the clamp can be so adjusted as to secure the most efficient results. Upon the shaft 15 is also pivotally mounted a frame 59. This frame is adjustably connected with the knife-frame 16 by means of a screw-and-slot connection, as shown in Fig. 1. The frame is provided with two ribs 60 and 61, having a stud 62 between them. These ribs may be of any desired shape; but they preferably make an angle with each other, and the stud 62 is located at the point at which they meet. These ribs are designed as guides for sharpening implements. These sharpening implements (shown in Figs. 4 and 5) are in the form of stones 63 and 64, having guiding-bars 65 and 66, one being straight and the other offset from the surface of the stone. They are also provided with stop-pins 67 and handles 68. The stone 63 is coarser than the stone 64 and is intended to grind the back of the knife-blade on the line *a a* in Fig. 6. The fine stone 64 is for finishing the edge on the line *b b* in Fig. 6. The purpose of the offset portion of the guiding-bar 66 will be obvious. The purpose of the stops 67 67 is to engage with the ribs 60 and 61 to prevent the stone moving beyond the edge of the blade. This is an important feature, because it allows the stone to be used by any one who is not an expert and prevents an injury of the edge which is found to occur if the stone is allowed to pass beyond the edge upon which it is working. It will be seen that the whole construction also provides for the manipulation of the sharpening devices by an unexperienced person and prevents any damage to the blade, while it also provides for the production of a good edge. The frame is intended to be adjusted along the shaft 15 by means of a screw 69, working in a slot 70, (see Fig. 1,) so as to provide for the proper angle of the edge for the particular conditions existing. This of course will be affected by the quality of steel in the blade, and it will also be affected by the kind of meat to be cut. After this adjustment is made, however, no exercise of judgment is necessary in order to properly sharpen the blades. In order to provide for sharpening the other side of the blade without necessitating the exercise of any mechanical skill, the frame 16 is provided with a flat surface 71, on which a screw 72 or other bearing element on a sharpening-stone 73 is designed to bear. The stone and its handle are so designed that the screw 72 will accurately guide it to produce the proper edge on the knife. The screw is adjustable, so that the stone can be fixed at the proper angle.

The knife-blade is made of sufficiently thin material to admit of its being slightly bent and is originally formed as a flat piece of metal, but is set on the frame in such a manner that its edge will be forced away from the edge of the frame. This is done by forming

a ledge 74 on the inside of the frame and parallel with its edge and edge 75, the edge 75 being slightly higher than the ledge 74. The blade is then secured to the frame with its flat side resting on the ledge 74 and edge 75 by means of screws 76, located between the latter two elements. This concaves the blade and forces its edge outwardly. It will also be observed that by the use of the two ball-jointed claws of unequal lengths the meat will be held more securely than with a single claw and that the tendency to tilt up at the back will be prevented by the short claw. This insures that the meat will be evenly and uniformly fed to the knife. The circular-shaped track above the shaft 15 and the roller riding on the track provide a much simpler and easier method of imparting rigidity and firmness to the knife-frame than has heretofore been produced. The three rolling points engaging with the two segmental tracks concentric to the shaft center constitute a very important feature of my invention. The novel construction of the roller-shoes is exceedingly simple, cheap, and easily adjustable, as well as firm and rigid, and these devices overcome all the difficulty which has heretofore been encountered in the adjusting of the knife-frame. The oscillating knife-shaft fitted with a thread on the back end and a gage on the front end for the sharpening-stones, the six-sided nut fitting the thread, the radial recesses on the face of the nut engaging with the projections on the feed-arm hub, and the set-screw fitting the flat portion of the shaft provide an efficient means for holding the rollers against their track and also prevent the parts from turning with respect to each other when once adjusted to the desired position. The nut is also absolutely prevented from working loose on account of the friction of the parts of the machine.

The adjustable gage on the front end of the shaft, which is intended to be used in connection with the knife-sharpener patented by me on June 28, 1904, provides effectively for the sharpening of the curved part of the knife by an inexperienced person. The stud 62 and the pins 67 also prevent the guides for the stones from slipping off the gage and add to the ease with which the device may be used. The adjustable clamp, provided with holes by which it is mounted in any desired position on the frame and with the freely-turning grooved roller presenting sharp faces to the surface of the meat, effectively grips the meat, but allows it to be fed forward freely as the roller slowly revolves. This clamp and roller are pressed by the left hand of the operator toward the meat and cause the soft and yielding mass of beef to assume a firm and unyielding form and also protect the operator's hand from the knife. The segmental rib 21 has been fully described and its effi-

ciency pointed out above. It is intended to provide about a thirty-second of an inch clearance between the knife edge and the edge of the bed of the machine. The compressible washer 31 is, as has been explained, designed to keep the knife-frame in its proper plane of action when it is drawn back far enough for the rollers to become disengaged from the curved tracks. This is the usual position occupied by the frame while the sharpening operation is performed. The washer may be made of wood, leather, rubber, or any desired compressible composition.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a meat-cutter, the combination of a bed, a knife-frame pivotally mounted thereon, and guiding devices for said frame, comprising lugs integrally mounted on the inside of the frame, each lug being provided with a groove, and a shoe having a projection entering said groove and adjustably mounted upon each of said lugs.

2. In a meat-cutter, the combination of a bed, a swinging knife-frame, a blade mounted on said knife-frame, said blade having a cutting edge offset toward the bed, means for preventing the blade from coming into contact with the end of the bed, a shaft by which said frame is pivoted on the machine, a guiding device for the frame above the shaft, and a plurality of guiding devices for the frame below the shaft.

3. In a meat-cutter, the combination of a bed, a knife-frame pivotally mounted thereon, a compressible washer between the knife-frame and the stationary part of the bed, guiding devices for the frame mounted on opposite sides of the shaft, said guiding devices comprising a plurality of lugs integrally mounted on the inside of the knife-frame, each lug being provided with a groove, a shoe having a projection entering said groove and adjustably mounted upon each one of said lugs, a roller mounted on each of said shoes, and tracks rigidly mounted with respect to the bed for said rollers.

4. In a meat-cutter the combination of a bed, a swinging knife-frame, a blade mounted on said knife-frame, and means for preventing the cutting edge of the blade from coming into contact with the end of the bed, said means comprising a rib on the bed below the end thereof and adapted to engage with the blade at a point beyond its cutting edge.

5. In a meat-cutter, the combination of a frame, a bed, a swinging knife-frame, a blade mounted on said knife-frame, and means for preventing the cutting edge of the blade from coming into contact with the end of the bed, said means comprising a rib integrally mounted on the frame and projecting beyond the end thereof, said rib being segmental in shape and

drawn upon the arc of a circle struck from the pivotal point at which the knife-frame is suspended as a center and below the lowest point of the meat-trough.

6. A cutting-machine having a frame, a bed, a movable cutter and a rib integral with the frame mounted below the end of the bed in position to engage the cutter and keep its edge from the end of the bed, said rib extending beyond the end of the bed.

7. In a meat-cutter, the combination of a bed, a frame upon which said bed is mounted, a shaft mounted on said frame, a knife-frame mounted upon said shaft provided with a blade, means for forcing said knife toward said first-mentioned frame, a compressible washer between the knife-frame and the main frame, a pair of tracks located on the main frame, rollers mounted on the knife-frame and engaging said tracks, and a rib mounted on the main frame and projecting beyond the edge of the bed for engaging with the knife and preventing it from coming into contact with the edge of the bed.

8. In a meat-cutter, the combination of a bed having an extension at the front end thereof, a shaft mounted on said extension at the front end thereof, a knife-frame pivotally mounted by means of said shaft, said shaft having a thread upon it on the inside of said extension, a nut engaging with said thread, a feed-screw, an arm for transmitting motion to the feed-screw, and means for preventing the nut from becoming loosened on the shaft; said means comprising a series of notches on the edge of the nut, and projections connected with said arm and engaging said notches.

9. In a meat-cutter, the combination of a bed having an extension at the front end thereof, a shaft mounted on said extension, a knife-frame pivotally mounted by means of said shaft, said shaft having a thread upon it on the inside of said extension, a nut engaging with said thread, a feed-screw, and means for transmitting motion from said shaft to the feed-screw, said shaft also being provided with a flat side, said means comprising a set-screw engaging said flat side, a series of notches on the edge of the nut, and projections engaging said notches.

10. In a meat-cutter, the combination of a bed, a frame upon which said bed is mounted, a shaft mounted on said frame, a knife-frame pivotally mounted by means of said shaft and provided with a blade, means for forcing said knife toward said first-mentioned frame, a compressible washer between the knife-frame and the main frame, a pair of tracks located on the main frame, rollers mounted on the knife-frame and engaging said tracks, a rib mounted on the main frame and projecting beyond the edge of the bed for engaging with the knife and preventing it from coming into contact with the bed, and a

guide for a sharpening implement mounted on the knife-frame, said guide being adjustable to and from the knife-frame.

11. In a meat-cutter, the combination of a bed, a swinging knife-frame, a blade mounted on the knife-frame, said blade having a cutting edge offset toward the bed, a shaft on which said frame is pivoted, guiding devices for the frame mounted on opposite sides of the shaft, and a guide for a sharpening implement mounted on the knife-frame and adjustable toward and from the knife-frame.

12. In a meat-cutter, the combination of a bed, a knife-frame, a blade mounted on said knife-frame, said blade having a cutting edge offset toward the bed, means for preventing the edge of the blade from coming into contact with the end of the bed, and a guide for a sharpening implement adjustably mounted on the knife-frame, said guide comprising two ribs placed at an angle to each other for guiding the sharpening implement, and a stud at the meeting-point of said ribs.

13. In a meat-cutter, the combination of a knife-frame, a blade mounted on said knife-frame, and a guide for a sharpening implement adjustably mounted on the said frame, said guide comprising two ribs placed at an angle to each other for guiding the sharpening implement.

14. In a meat-cutter, the combination of a knife-frame, a blade mounted thereon, and a guide for a sharpening implement carried by the knife-frame and adjustable thereon.

15. In a meat-cutter, the combination of a bed, a frame upon which said bed is mounted, a shaft mounted on said frame, a knife-frame pivotally mounted by means of said shaft and provided with a blade, means for forcing said knife toward said first-mentioned frame, a compressible washer between the knife-frame and the main frame, a pair of tracks located on the main frame, rollers mounted on the knife-frame and engaging said tracks, a rib mounted on the main frame and projecting beyond the edge of the bed for engaging with the end of the knife and preventing its cutting part from coming into contact with the bed, a feed-screw, means for transmitting motion from said shaft to said feed-screw, a cross-head connected with said feed-screw and adapted to travel therealong, and two adjustable claws mounted on said cross-head, one of said claws being longer than the other.

16. In a meat-cutter, the combination of a bed having an extension, a shaft mounted on said extension, a cutter-frame pivotally mounted by means of said shaft, a feed-screw, means for transmitting motion from the shaft to the feed-screw, a nut engaging with said feed-screw, a cross-head upon which said nut is mounted, said cross-head being provided with two cups, a nut adapted to be secured to each cup, and cups being provided

with spherical interior surfaces, a ball in each of said cups engaging with said spherical surfaces, and a claw rigidly connected with each of said balls, one of said claws being longer than the other.

17. In a cutting device the combination of a V-shaped bed, rotatable toothed wheels mounted in said bed near the front edge thereof and projecting beyond the inner surface of the bed, means for pressing material against said wheels, and a cutting-blade mounted to move past the edge of said bed; said pressing means comprising a plate pivotally mounted with respect to the bed and having a freely-turning grooved roller mounted on the lower side thereof.

18. In a meat-cutter, the combination of a bed, a knife-frame mounted to swing across the edge of the bed, said bed being provided with a stud, a clamping device comprising a plate, and a freely-rotatable grooved roller mounted below said plate, said clamping device being provided with a series of holes by which it is adapted to be pivotally mounted in any desired position upon said stud.

19. In a meat-cutter, the combination of a bed, a stud thereon, and a clamping device comprising a plate and a freely-rotatable roller mounted below said plate, said clamping device being provided with means for pivotally mounting it in any desired position upon the stud.

20. In a cutting device, the combination of a bed, and means for pressing material against the surface thereof, said means comprising a plate pivotally mounted with respect to the bed and having a freely-rotatable roller mounted on the active side thereof.

21. In a cutting-machine, the combination of a knife-frame, a bed, and a clamp comprising a concave plate pivoted to the bed and having a roller, said clamp having a depression for the roller and a projection extending from said depression toward a point below the axis of the roller.

22. In a cutting-machine, the combination of a movable knife-frame, a V-shaped bed having a beveled end, and a cross-head adapted to slide over said end.

23. A cutting-machine having a knife-frame, a flat flexible blade and means for bending said blade and securing it to the frame; said means comprising a raised ledge and an edge parallel to the ledge on the frame.

24. A cutting-machine, comprising a knife-frame having an offset blade, and a flat surface located in a different plane from the blade for guiding a sharpening-stone.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALFRED W. JOHNSON.

Witnesses:

THOMAS M. HOFFMAN,
CHARLES J. HELFERICH.