

No. 703,285.

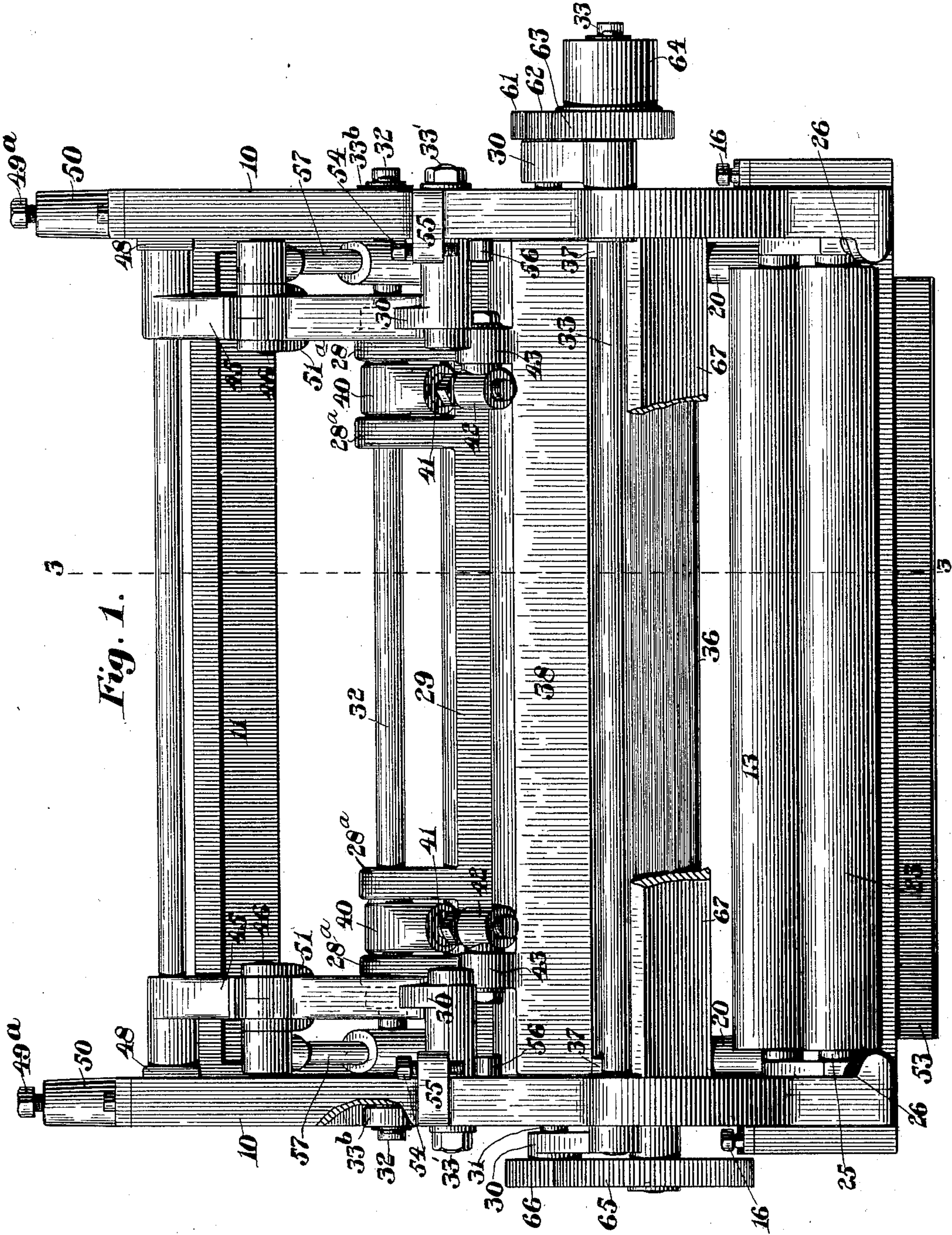
Patented June 24, 1902.

W. E. LOMBARD.
FLESHING MACHINE.

(Application filed Feb. 11, 1902.)

(No Model.)

4 Sheets—Sheet 1.



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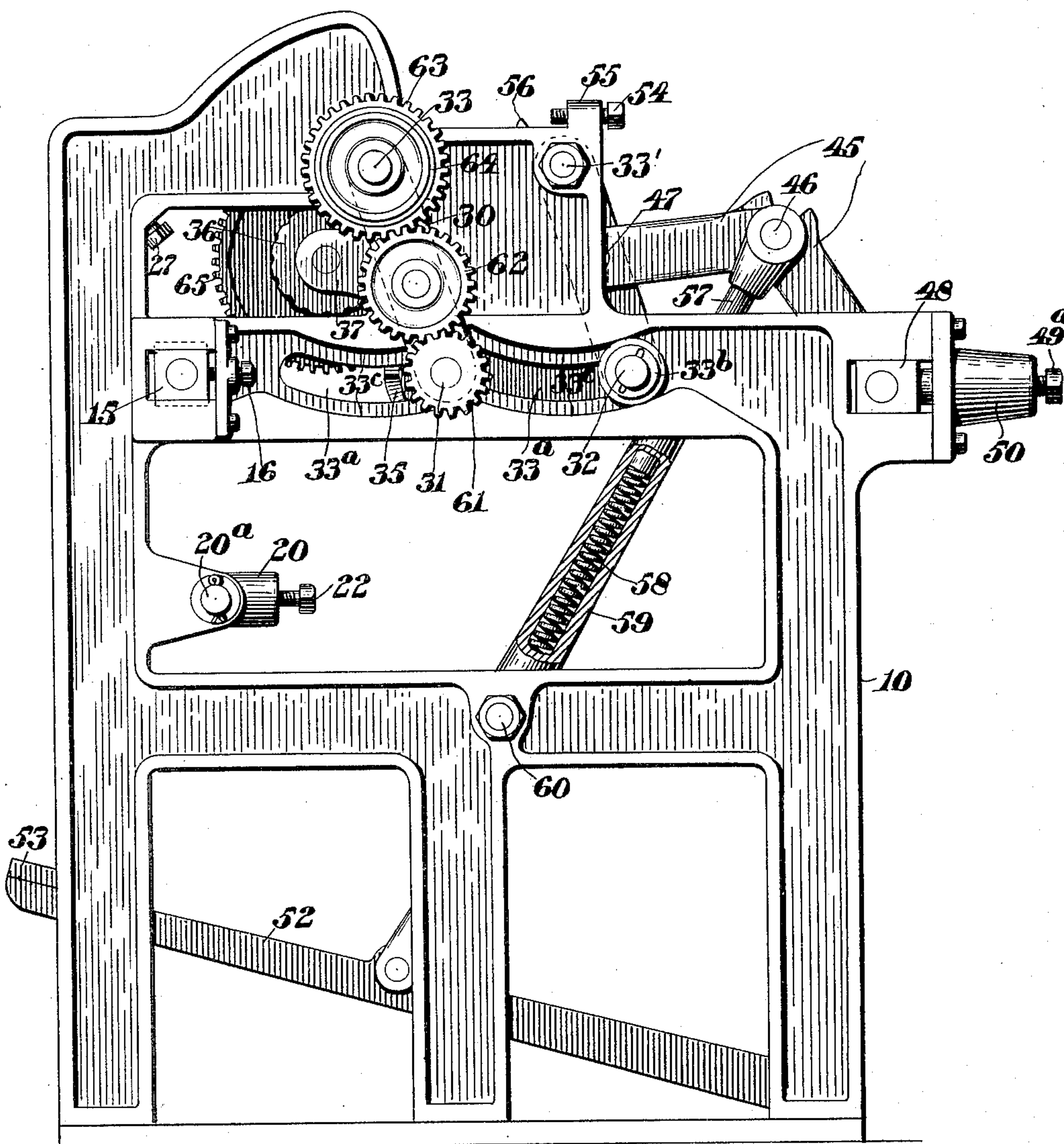
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Fig. 2.



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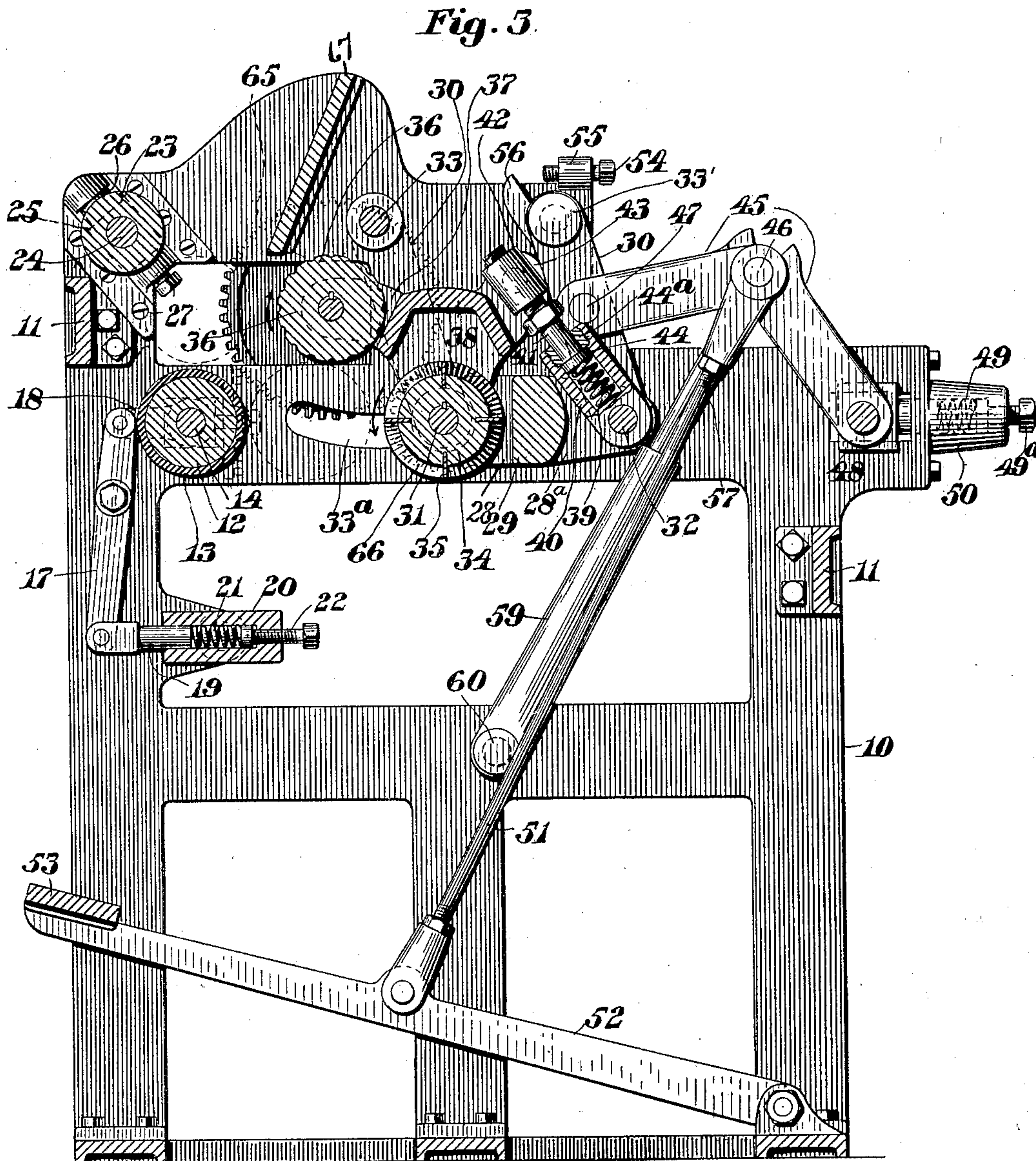
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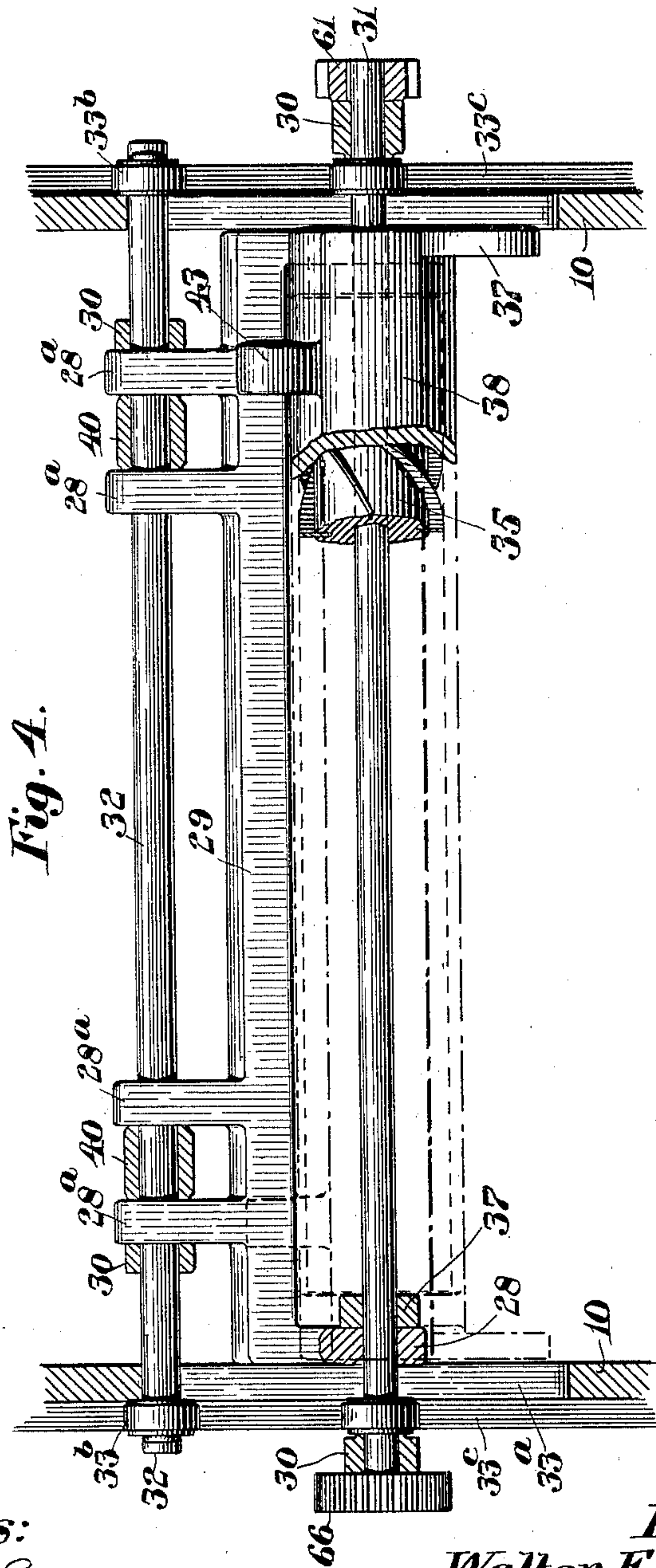


Fig. 4.

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UNITED STATES PATENT OFFICE.

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FLESHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 703,285, dated June 24, 1902.

Application filed February 11, 1902. Serial No. 93,527. (No model.)

To all whom it may concern:

Be it known that I, WALTER E. LOMBARD, a citizen of the United States of America, and a resident of Arlington, county of Middlesex, and State of Massachusetts, have invented certain new and useful Improvements in Fleshing-Machines, of which the following is a specification.

My invention relates to improvements in machines for removing superfluous flesh from hides, and has for its principal object the improvement of that type of the device in which the hide is placed by the operator upon one or more rolls carried by radius-arms pivoted at the bottom and inclined toward the front of the machine and then moved by treadle mechanism toward a rotatable feed-roll and knife-cylinder, which operate to advance the hide and cut off the flesh. Although this machine has been found useful, it is subject to several serious defects. For example, the movable bed-roll must be at a sufficient distance from the feed-roll and knife-cylinder to give the operator ample room to throw the hide over the former. Then as it is moved up to the working position he must follow by a forward movement of the body, retaining his hold until the feed-roll is in engagement, and must then recover his position before rehandling the hide or introducing a fresh one. This reduces the speed with which the operations may be performed and tires and decreases the efficiency of the workman. It is also necessary to lift a considerable weight in the radius-arms, rolls, and skin supported thereon at each operation, save as this may be counterbalanced by springs or weights, which complicate the machine, and some portions of this mechanism necessarily project by where the operator stands and are in the way of free movement. Moreover, the driving and controlling elements are mounted low on the machine, most of them being in planes below the knife-cylinder, and although toward the side of the supporting-frame are directly in the path of the material thrown off by the spiral knives usually employed. This accumulates and difficulties arise from clogging the parts. To obviate these objections and in various ways increase the effi-

ciency of the device are among the objects of my present invention.

In the accompanying drawings, Figure 1 shows a top plan view of one form of my improved fleshing-machine. Fig. 2 is a side elevation thereof looking from the left in Fig. 1, parts being broken away. Fig. 3 is a vertical section on the line 3 3 of Fig. 1; and Fig. 4 is a partial horizontal section showing the secondary frame and associated elements, with parts shown in dotted lines.

Similar characters designate like parts throughout the several figures of the drawings.

To support the working portion of the machine, a main frame is preferably provided, made up of end frames 10 10 and tie-bars 11. At the front or feed side is mounted a bed-roll 12, preferably provided with a covering 13, of rubber or like material, and having its shaft 14 turning freely in boxes 15, capable of a limited movement in ways formed in the end frames. Screws 16 may adjustably limit the inward movement of the boxes, while an outward yield of each box is permitted by mechanism comprising a lever 17, fulcrumed to each end frame and having its ends pivotally connected, respectively, with a lug 18 on the box and with a rod 19, playing in a cylinder 20, trunnioned at 20^a in the frame and coacting with a spiral spring 21, contained within said cylinder. Both rod and cylinder extend toward the rear of the machine and do not project from the feed side. A screw 22, threaded through the end of the cylinder, serves to adjust the tension of the spring. Near the top of the main frame and somewhat in front of the bed-roll is rotatably mounted a roll 23, with its shaft 24 journaled in boxes 25, movable in inclined ways in the end frames and yieldably limited in upward movement by some such suitable means as rubber blocks 26 and adjusted as to downward movement by screws 27, situated at the opposite ends of the ways. These two rolls 12 and 23 serve as a substantially stationary but slightly-yielding support, over which the hide is thrown to receive the fleshing treatment to be hereinafter described.

Within the main frame at the rear of the

bed-roll is a secondary frame, formed of side bars 28 28, pairs of arms 28^a 28^a, and a cross-bar 29. This frame is preferably supported upon oppositely-placed pairs of links 30 30, 5 pivoted to the secondary frame upon cross-shafts 31 32 and at or near the top of the main frame above the secondary frame upon a tie-rod 33 and studs 33' 33', these links being normally inclined from their supports to 10 ward the front of the machine. The shafts 31 32 may be extended through pairs of suitably-curved slots 33^a 33^a in the end frames and carry freely rotatable rollers 33^b 33^b, contacting with tracks 33^c 33^c, preferably situated 15 both above and below the slots and curved upon the arcs of circles about the centers of the rod 33 and studs 33'. These tracks may serve to sustain a portion of the weight of the frame and associated parts and effectually prevent any upward or downward movement 20 resulting from pressure brought upon the rolls. At the front of the frame 28 29, in substantially the same horizontal plane as the bed-roll, is mounted conveniently upon 25 the shaft 31 a knife-cylinder 34, preferably provided with spiral cutters 35. The secondary frame also carries a feed-roll 36, preferably corrugated, which is shown as supported to swing about the knife-cylinder toward 30 and from the supporting-rolls upon arms 37, which oscillate about and may be supported by the shaft 31 and may be connected to one another by a cross-bar 38. The feed-roll is forced toward the supporting-rolls by one or 35 more spiral springs 39, which are preferably each contained in a cylinder 40, swinging about some point fixed relatively to the feed-roll, as upon the shaft 32, and exerting its tension upon a rod 41, threaded through a nut 40 42, trunnioned upon a lug 43, projecting from the cross-bar 38. This rod is preferably provided with a squared or hexagonal portion, whereby it may be turned to vary the effective length of the rod between the nut and 45 spring and adjust the tension of the latter, and also with an enlargement 44, coacting with the inner side of a head 44^a, threaded into the cylinder to limit the forward motion of the feed-roll.

50 The secondary frame with the knife-cylinder and feed-roll are moved toward and from the supporting-roll, the links preferably moving to a substantially equal extent upon each side of a vertical through the studs 33. Convenient mechanism for this purpose consists 55 of one or more pairs of toggle-links 45 45, each pair articulated by a pin 46 and having their outer ends pivoted, respectively, at 47 on one of the rear links 30 and in a box 48, 60 mounted in ways in one of the end frames and allowed some rearward yield by a spiral spring 49, situated between the box and a tension-adjusting screw 49^a, threaded through the end of a cylinder 50, secured to the frame in which the spring is contained. To the 65 pins 46 of the toggles are connected rods 51, pivoted to the side bars 52 of a treadle 53,

situated at the front of the machine, through which the operator may straighten the toggles and move the secondary frame and elements it carries toward the supporting-rolls. 70 Screws 54, threaded through lugs 55 on the end frames, may contact with upward extensions 56 from the links and adjustably limit the forward movement of the frame. To re- 75 turn the frame to its normal or rearward position, rods 57 may be pivoted upon the pins 46 and coact with and be pressed upward by spiral springs 58, contained in cylinders 59, oscillating about studs 60 on the end frames. 80

Rotation may be imparted to the knife-cylinder through a gear 61 on its shaft meshing with an idler 62, turning on a stud on one of the forward links 30, which in turn meshes with a larger gear 63, turning upon 85 the rod 33. This gear 63 has fixed to it a pulley 64, to which power may be applied. The feed-roll may receive rotation from the knife-cylinder at a slower speed and in the opposite direction by a large gear 65 on the 90 opposite side of the machine from the gearing just described meshing with a smaller gear 66 upon the knife-cylinder shaft.

A deflecting-board 67 may be situated between the roll 23 and the upper portion of 95 the supporting-links of the secondary frame just above the feed-roll, serving to direct the hides in front of the latter.

In using the machine the operator places the hide over the supporting-rolls with the 100 center of its length below the bed-roll and depresses the treadle. This advances the secondary frame, bringing the feed-roll between the supporting-rolls, as is shown in dotted lines in Fig. 3, thus wrapping the hide 105 about nearly one-half the circumference of the former and giving it sufficient surface of contact to feed upward the slippery material. The knife-cylinder is simultaneously advanced and pressing the hide against the 110 yielding surface of the bed-roll cuts off its superfluous flesh, its spiral form at the same time keeping the hide smoothly stretched. The feed-roll and upper supporting-roll yield 115 sufficiently to adjust themselves to different thicknesses of material, while the bed-roll and toggle mechanism yield to permit the knife-cylinder to adapt itself to inequalities in the hides. When the first half of the hide 120 has been operated upon, the workman releases the treadle, allowing the springs 58 to raise the toggles and swing the frame back to its initial position, when the hide is reversed and its fleshing completed in the same manner. 125

It will be seen that with my improved machine the operator may handle the hides throughout the treatment with but slight change in position of the body and that in actuating the moving parts he has to overcome but little resistance and effect movement through a comparatively short distance, 130 enabling the operations to be quickly performed with a minimum exertion, and there-

fore with greatly-increased efficiency. Furthermore, the gearing and other movable elements, save the treadle, are above the knife-cylinder and out of the way of the flesh which is detached and will therefore not become clogged by its gathering upon them.

Having thus described my invention, I claim—

1. The combination with a pair of separated supporting-rolls, of a feed-roll movable toward and from a position between the supporting-rolls, and a knife-cylinder movable toward and from one of the supporting-rolls.

2. The combination with a pair of separated supporting-rolls, of a frame, a feed-roll and a knife-cylinder mounted together upon the frame, and means for moving the frame toward and from the supporting-rolls.

3. The combination with a pair of yieldable separated supporting-rolls, of a feed-roll movable toward and from a position between the supporting-rolls, and a knife-cylinder movable toward and from one of the supporting-rolls.

4. The combination with a pair of separated supporting-rolls, of a frame, a feed-roll and a knife-cylinder mounted together upon the frame, and yieldable means for moving the frame toward and from the supporting-rolls.

5. The combination with a pair of separated supporting-rolls, of a frame, a feed-roll and a knife-cylinder mounted together upon the frame, yieldable supports for the feed-roll upon the frame, and means for moving the frame toward and from the supporting-rolls.

6. The combination with a bed-roll, of a feed-roll and a knife-cylinder and means for moving the feed-roll and knife-cylinder toward and from the bed-roll and into or out of coaction therewith.

7. The combination with a bed-roll, of a feed-roll and a knife-cylinder supported together upon oppositely-situated pairs of pivoted links, and means for moving the feed-roll and knife-cylinder toward and from the bed-roll.

8. The combination with a bed-roll, of a feed-roll and a knife-cylinder supported together upon oppositely-situated pairs of links pivoted above the rolls, and means for oscillating the links toward and from the bed-roll.

9. The combination with a bed-roll, of a feed-roll and a knife-cylinder supported together upon oppositely-situated pairs of pivoted links, an additional support for the feed-roll and knife-cylinder below the links, and means for moving the feed-roll and knife-cylinder toward and from the bed-roll.

10. The combination with a pair of supporting-rolls comprising a bed-roll, of a feed-roll and a knife-cylinder supported together upon oppositely-situated pairs of pivoted links, and means for moving the feed-roll and knife-cylinder toward and from the bed-roll.

11. The combination with a main frame, of a secondary frame movably mounted there-

in, a knife-cylinder and a feed-roll mounted upon the secondary frame, a bed-roll mounted upon the main frame, and means coacting with the secondary frame for moving it toward and from the bed-roll to bring the knife-cylinder and feed-roll into or out of coaction with said bed-roll.

12. The combination with a main frame, of a pair of links pivoted at each side thereof, a secondary frame pivotally secured to the links, a knife-cylinder and a feed-roll mounted upon the secondary frame, a bed-roll mounted upon the main frame, and means coacting with the secondary frame for moving it toward and from the bed-roll.

13. The combination with a main frame, of a pair of links pivoted at the upper portion of said main frame and at each side thereof, a secondary frame pivotally secured to the links, a knife-cylinder and a feed-roll mounted upon the secondary frame, a bed-roll mounted upon the main frame, and means coacting with the secondary frame for moving it toward and from the bed-roll.

14. The combination with a main frame provided with tracks, of a secondary frame carrying rollers cooperating with the tracks, a knife-cylinder and a feed-roll mounted upon the secondary frame, a bed-roll mounted upon the main frame, and means coacting with the secondary frame for moving it toward and from the bed-roll.

15. The combination with a main frame provided with tracks, of a secondary frame carrying rollers cooperating with the tracks, supporting-links pivoted to the main frame and secondary frame, a knife-cylinder and a feed-roll mounted upon the secondary frame, a bed-roll mounted upon the main frame, and means coacting with the secondary frame for moving it toward and from the bed-roll.

16. The combination with a main frame, of a secondary frame mounted thereon, a knife-cylinder and feed-roll mounted upon the secondary frame, the feed-roll being supported to swing about the knife-cylinder, a bed-roll mounted upon the main frame, yieldable means for forcing the feed-roll toward the bed-roll, and means coacting with the secondary frame for moving the knife-cylinder and feed-roll toward and from the bed-roll.

17. The combination with a main frame, of a secondary frame movably mounted thereon, a knife-cylinder and feed-roll mounted upon the secondary frame, the feed-roll being supported to swing about the knife-cylinder, a bed-roll mounted upon the main frame, means for adjusting the feed-roll toward the bed-roll, and means coacting with the secondary frame for moving the knife-cylinder and the feed-roll toward and from the bed-roll.

18. The combination with a main frame, of a secondary frame movably mounted therein, a knife-cylinder and a feed-roll mounted upon the secondary frame, a bed-roll yieldably mounted upon the main frame, and means coacting with the secondary frame for moving

it toward and from the bed-roll to bring the knife-cylinder and feed-roll into or out of co-action with said bed-roll.

19. The combination with a bed-roll, of a
5 rotatable knife-cylinder, a shaft upon which the knife-cylinder is supported, arms turning about the shaft, and a feed-roll journaled in the arms.

20. The combination with a bed-roll, of a
10 rotatable knife-cylinder, a shaft upon which the knife-cylinder is supported, arms turning about the shaft, a feed-roll journaled in the arms, and a spring connected with the arms and serving to force the feed-roll toward the
15 bed-roll.

21. The combination with a bed-roll, of a rotatable knife-cylinder, a shaft upon which the knife-cylinder is supported, arms turning about the shaft, a feed-roll journaled in
20 the arms, a rod pivotally connected with the arms and with a relatively fixed point, and means for adjusting the effective length of the rod.

22. The combination with a main frame, of bearings mounted near the front of the frame
25 to slide therein, a bed-roll journaled in the bearings, a lever connected with at least one of the bearings, a rod connected with the lever and extending toward the rear of the frame, a spring carried by the frame and co-
30 acting with the rod, a knife-cylinder, and means for moving the knife-cylinder toward and from the bed-roll.

23. The combination with a pair of supporting-rolls, of a knife-cylinder movable to-
35 ward and from the supporting-rolls, supporting means for the knife-cylinder, and a deflector situated between the rolls and a portion of the supporting means for the knife-cylinder.
40

Signed by me, at Boston, Massachusetts, this 6th day of February, 1902.

WALTER E. LOMBARD.

Witnesses:

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