

No. 769,016.

PATENTED AUG. 30, 1904.

F. J. PERKINS.

MACHINE FOR UNHAIRING HIDES OR SKINS.

APPLICATION FILED SEPT. 24, 1903.

NO MODEL.

3 SHEETS—SHEET 1.

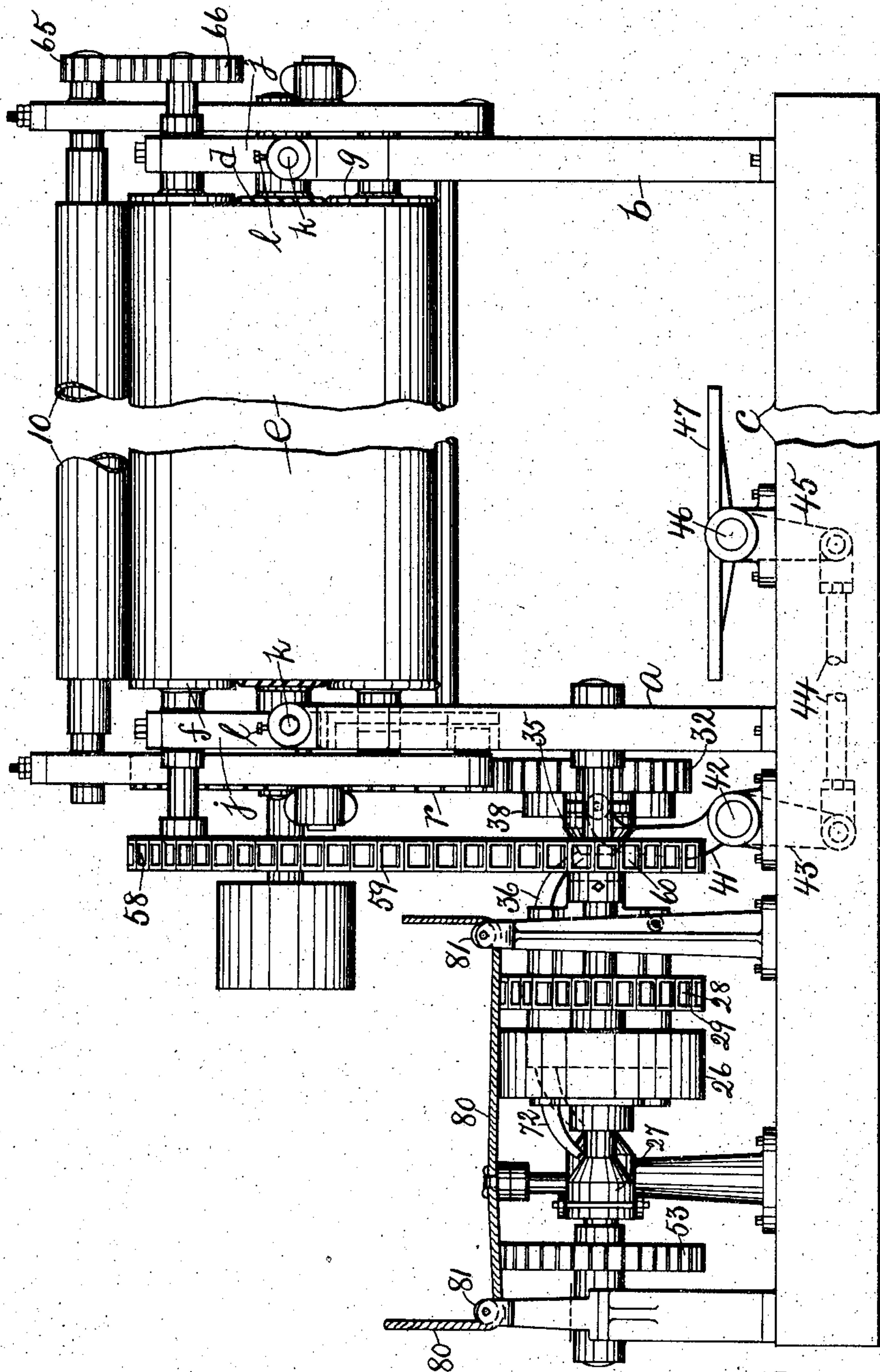


Fig. 1.

Witnesses.

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3 SHEETS—SHEET 2.

Fig. 2.

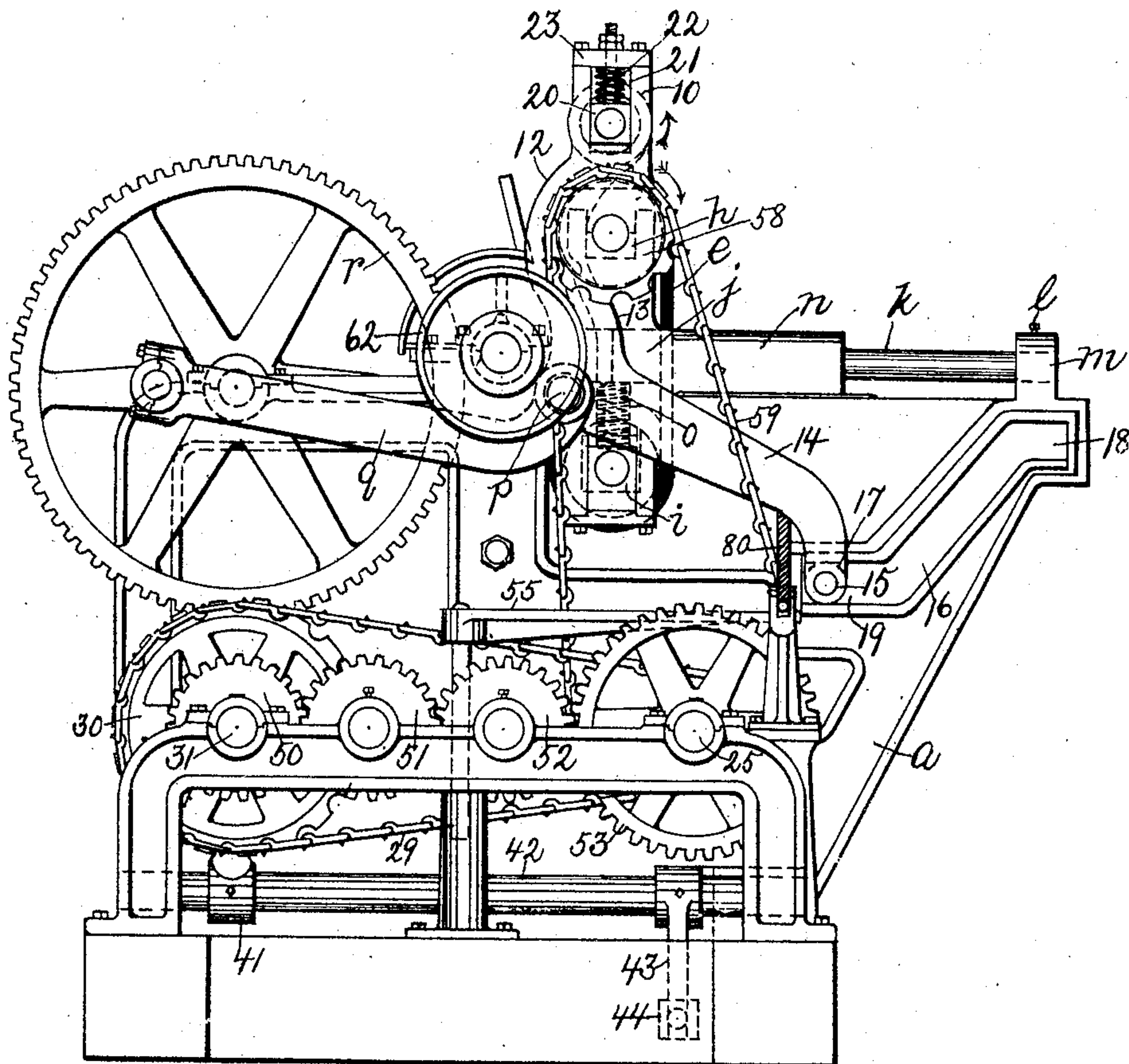
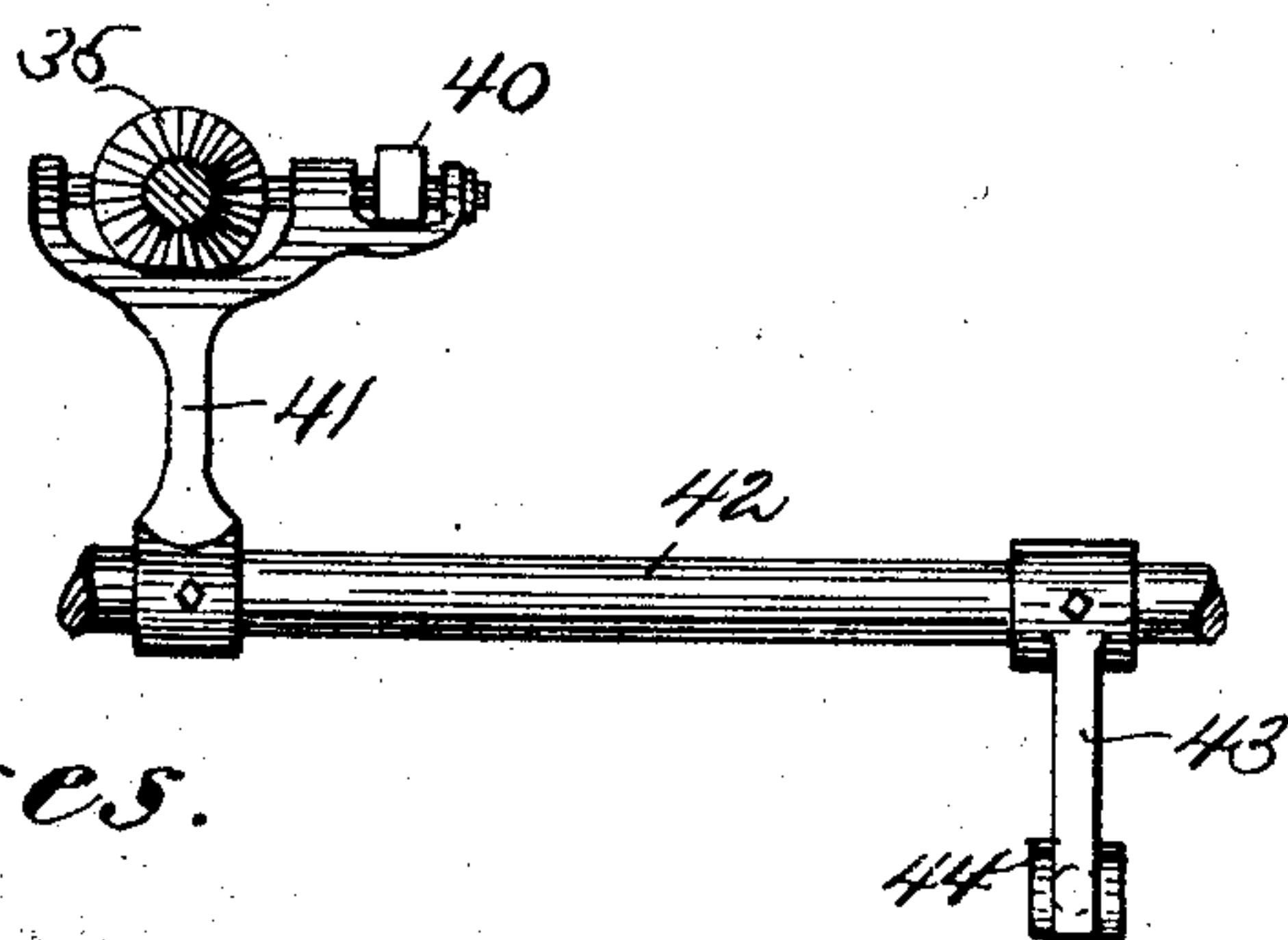


Fig. 6.



Witnesses.

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3 SHEETS—SHEET 3.

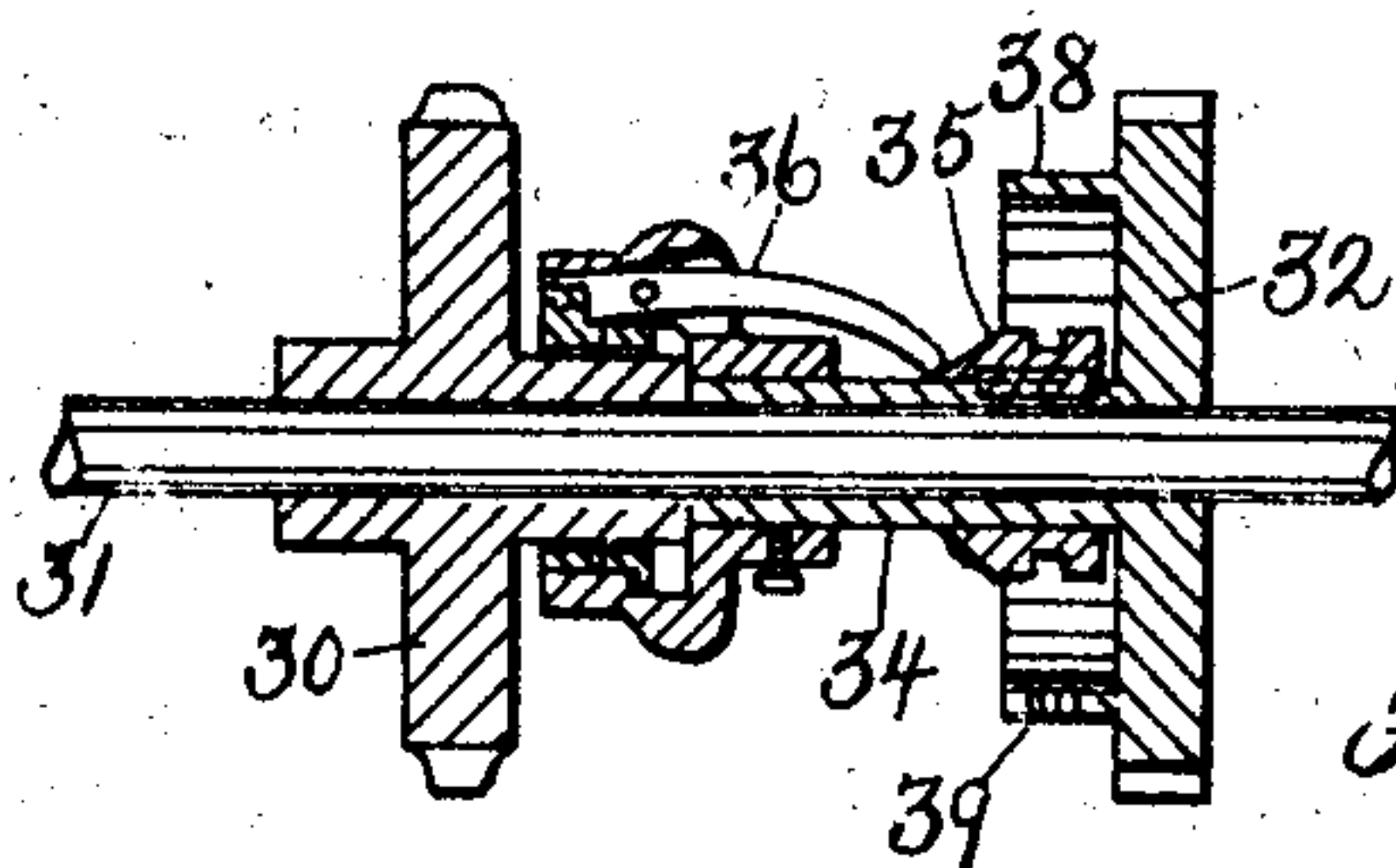


Fig. 4.

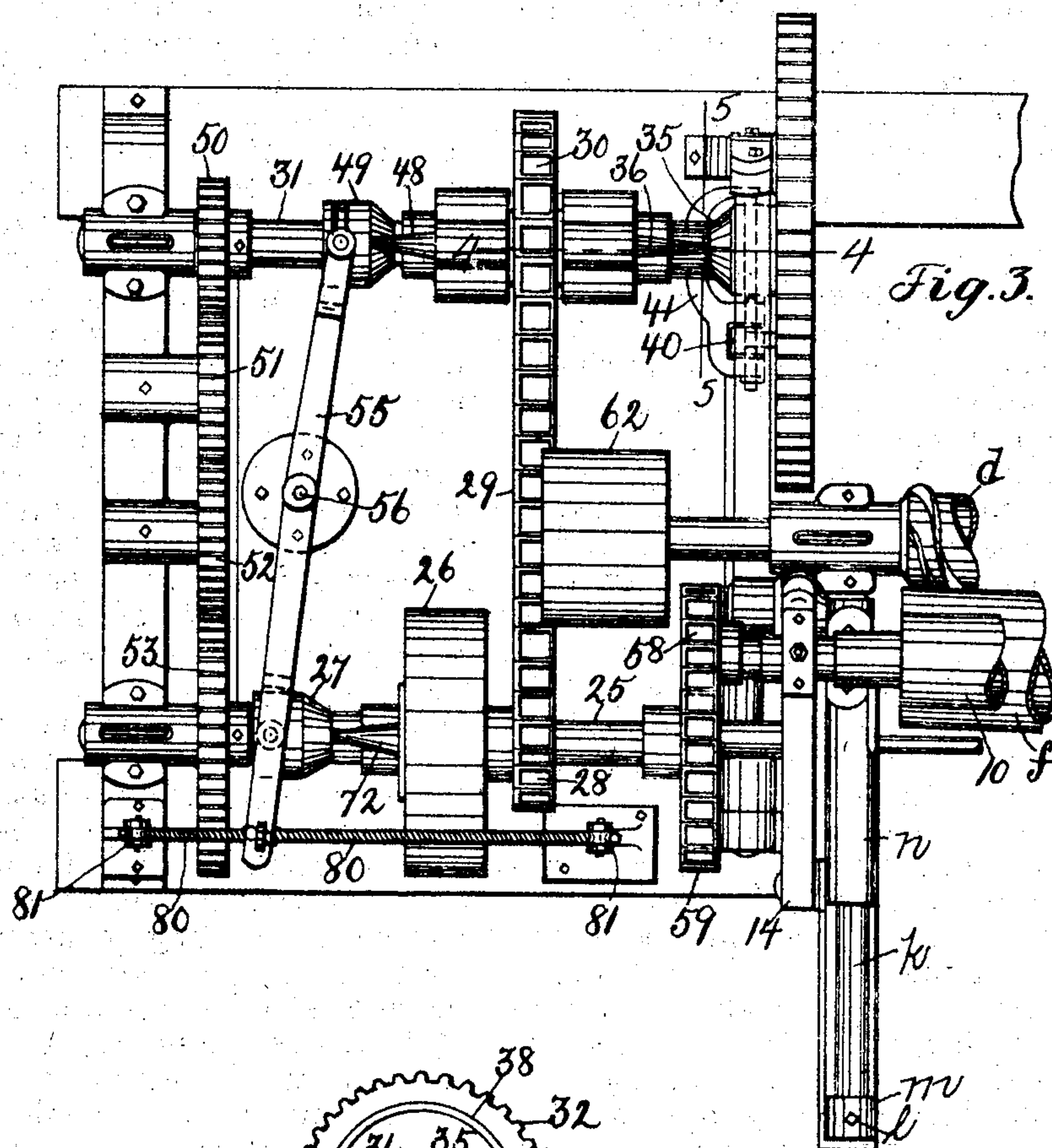


Fig. 3.

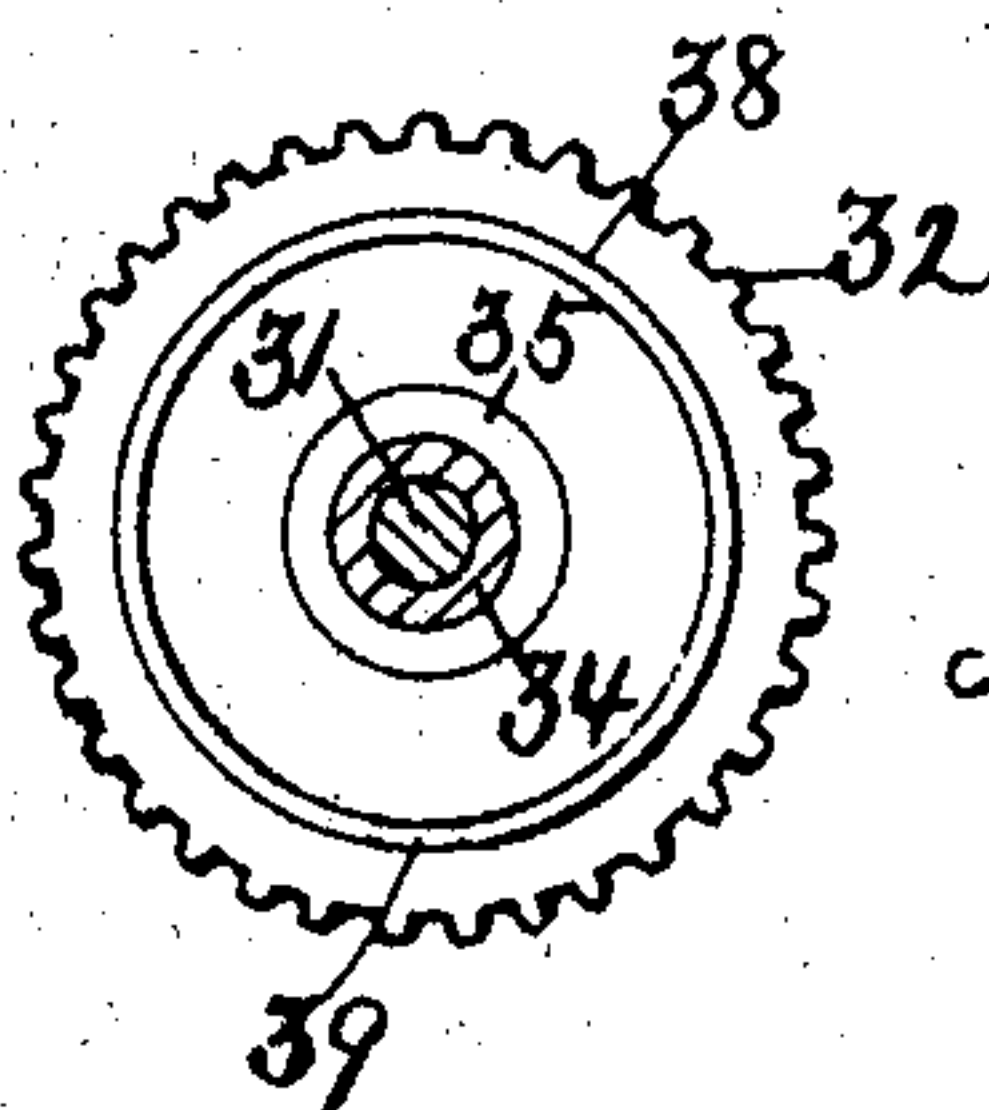


Fig. 5.

Witnesses.

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UNITED STATES PATENT OFFICE.

FRANKLIN J. PERKINS, OF WOBURN, MASSACHUSETTS, ASSIGNOR TO
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MACHINE FOR UNHAIRING HIDES OR SKINS.

SPECIFICATION forming part of Letters Patent No. 769,016, dated August 30, 1904.

Application filed September 24, 1903. Serial No. 174,404. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN J. PERKINS, a citizen of the United States, residing in Woburn, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Machines for Unhairing Hides or Skins, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to a machine for treating hides, skins, and leather, and is especially adapted, among other uses, to be employed for unhairing hides and skins.

The present invention has for its object to provide a simple and efficient machine for the purpose specified, and to this end a flexible bed or apron of rubber or other suitable material is employed, which is passed about suitable rollers mounted in a substantially vertical plane on a reciprocating carriage, the said bed or apron cooperating with an operating-tool, preferably a rotatable bladed cylinder or roll, which engages the hide or skin on the said bed or apron between said rollers. The reciprocation of the carriage may be effected by power, and provision is made for causing the flexible bed to travel in opposite directions, so as to feed the hide into and out of the machine at the will of the operator, as will be described. The flexible bed has cooperating with it a feed-roll carried by a support which is pivoted to the carriage and which is automatically placed into its operative and inoperative positions with relation to the said bed, as will be described. These and other features of this invention will be pointed out in the claims at the end of this specification.

Figure 1 is a front elevation, with parts broken away, of a machine embodying this invention; Fig. 2, a side elevation of the machine shown in Fig. 1 looking toward the right; Fig. 3, a detail in plan view, to be referred to; Fig. 4, a detail in section on the line 4 4, Fig. 3; Fig. 5, a detail in section on the line 5 5, Fig. 3; and Fig. 6, a detail to be referred to.

In the machine herein shown as embodying

this invention *a b* represent side frames or uprights erected upon a suitable base *c*. The side frames *a b* support in suitable bearings a rotatable tool, preferably a bladed cylinder or roll *d*, with which cooperates a flexible or yielding support for the hide or skin, preferably a band or apron *e*, of rubber or similar material, which is arranged, as shown, to move in a substantially vertical path and is passed over an upper roll *f* and a lower roll *g*, mounted in boxes *h i*, carried by a movable support. The movable support referred to may be made as herein shown and consists of two side frames *j*, mounted to slide on the uprights or side pieces *a b* of the frame of the machine, the side frames *j* being guided in their movement by rods *k*, fastened at one end, as by screws *l*, to lugs or ears *m* on the uprights *a b* and having their opposite ends extended into suitable holes or sockets in extensions or arms *n* on the side frames *j*.

The flexible endless bed or apron *e* may be kept under proper tension in any suitable manner, and in the present instance this result is accomplished by means of springs *o*, (see Fig. 2,) which act upon the lower boxes *i* to force them away from the upper boxes *h*, the lower boxes in this manner being made movable or yielding to permit the bed or apron to yield to compensate for uneven thicknesses in the hide or skin.

The carrier or support *j* for the endless bed or apron *e* may be reciprocated by power, and for this purpose one of the side frames of the carrier or support has pivotally connected with it at *p* one end of a connecting rod or bar *q*, which has its opposite end eccentrically connected with a gear-wheel *r*, which in each rotation effects a complete reciprocation of the carrier or support for the flexible bed or apron. The gear-wheel *r* may be rotated, as will be hereinafter described.

The flexible bed or apron *e* has cooperating with it a feed-roll 10, which may be made plain or fluted on its circumference and which is supported in the arms 12 of substantially elbow-shaped levers 13, pivoted to the side frames of the carriage *j* and having their other arms, 14, extended toward the front of

the machine and provided with studs or projections 15, extended into cam slots, grooves, or channels 16 in the side frames *a b*, the said studs preferably having on them antifriction-rollers 17. The cam-slots 16, as herein shown, are provided at their opposite ends with horizontal portions 18 19 for a purpose as will be described.

The cam-slots 16 serve to turn the levers 13 on their pivots and move the feed-roll 10 with relation to the flexible bed or apron *c*. As herein shown, the feed-roll 10 is moved away from the flexible bed or apron when the antifriction-rollers travel up the cam-slots 16 and is moved toward the said apron when the said rollers travel down the said cam-slots.

As represented in Fig. 2, the feed-roll 10 is mounted in boxes 20, which slide in the slots 21 in the end of the arms 12, and the said boxes are backed by suitable springs 22, arranged between the boxes 20 and caps 23 on the arms 12, which springs serve to hold the feed-roll in engagement with the hide or skin with a yielding pressure. The endless apron or bed *e* is adapted to be moved or driven in opposite directions, so as to feed the hide or skin out of the machine and under certain circumstances to feed the hide or skin into the machine, and this may be accomplished as will now be described.

Referring to Figs. 1 and 3, the machine is provided with a shaft 25, upon which is loosely mounted a pulley 26, which is adapted to be rendered fast on said shaft by a clutch 27, which latter may be of any suitable or usual construction. The pulley 26 has fast to it a sprocket-wheel 28, which is connected by a link chain 29 with a sprocket-wheel 30, loose on a counter-shaft 31, which has loose on it a pinion 32, which meshes with the gear-wheel *r* and is of such size as to effect a half-revolution of the gear-wheel *r* for each complete revolution of the pinion 32. The pinion 32 is provided with an elongated hub 34, (see Fig. 4,) to which is keyed to revolve therewith and slide thereon a clutch hub or member 35, which coöperates with a clutch arm or member 36, carried by the sprocket-wheel 30, to couple the pinion 32 with the said wheel. The pinion 32 is provided with an annular flange 38 on its side or face, which flange has a slot 39 (see Fig. 5) into which a roller 40, (see Figs. 3 and 6,) carried by an arm 41, is adapted to enter, as will be described. The arm 41 is fast on a rock-shaft 42, supported in suitable bearings and having a second arm 43, which is connected by a link 44 with a crank or arm 45 on a rock-shaft 46, provided with a foot-treadle 47.

The sprocket-wheel 30 is adapted to be rendered fast on the counter-shaft 31 by a clutch mechanism of any suitable construction and comprising the member 48, fast on the shaft and adapted to be engaged with the wheel 30 by the member 49 loose on the shaft 31. The

counter-shaft 31 is connected with the shaft 25 by the gears 50 51 52 53. The clutch hubs or members 27 49 are connected to an operating-lever 55 on opposite sides of its pivot 56, so as to be simultaneously moved in opposite directions. The shaft of the upper bed-roll *f* is provided with a sprocket-wheel 58, which is connected by a link chain 59 with a sprocket-wheel 60; fast on the shaft 25.

The shaft of the knife-cylinder *d* has fast on it a pulley 62, and the said pulley and the pulley 26 are continuously driven by separate belts. (Not shown.) The shaft of the feed-roll has fast on it a pinion 65, which engages a gear 66 on the shaft of the upper roll *f* when the feed-roll is in its operative position shown in the drawings.

By the mechanism above described the reciprocation of the carriage is controlled by the foot-treadle 47, and the feed of the hide or skin is controlled by the lever 55.

As represented in the drawings, the parts of the machine are in their operative position and the endless band or bed *e* and the feed-roll 10 are moving in opposite directions (indicated by the arrows in Fig. 2) to feed the hide or skin (not shown) out of the machine.

With the parts in the position shown power is transmitted from the pulley 26 to the sprocket-wheel 30 by the link chain 29. The wheel 30 being rendered fast on the counter-shaft 31 rotates the latter, which in turn rotates the shaft 25 through the gears 50 51 52 53. The shaft 25 through the link chain 59 drives the shaft of the upper roll *f*, which by the gears 66 65 rotates the feed-roll 10. While the machine is operating upon the hide or skin the carriage for the endless bed is stationary, the roller 40 at such time engaging the slot 39 in the flange 38 on the pinion 32. When a portion of the hide or skin exposed to the action of the bladed cylinder has been fed beyond the influence of the latter, the operator depresses the foot-treadle, thereby rocking the shaft 42 so as to withdraw the roller 40 from the slot 39 and simultaneously causing the clutch hub or member 35 to engage the member 36 and couple the pinion 32 with the wheel 30, thereby imparting motion to the gear-wheel *r*, which makes a half-revolution and moves the carriage toward the front of the machine.

When the carriage has reached the front of the machine, the pinion 32 is unclutched from the wheel 30 by the roller 40 again entering the slot 39 in the flange 38, the operator in the meantime having removed his foot from the treadle. The carriage remains stationary at the front of the machine, and the operator is free to reverse the hide or skin or to place substantially one-half of a fresh hide or skin over the endless bed and between it and the feed-roll 10, which latter has been turned back away from the endless bed or apron by the cam-slots 16 on the forward movement of the

carriage. The feed-roll is held in its open position by the horizontal portion 18 of the cam-slot. The treadle is again depressed, which clutches the pinion 32 with the wheel 30, and the carriage is moved toward the operating-cylinder. At or about the time the hide or skin is brought into contact with the knife-cylinder *d* the carriage is stopped by the roller 40 entering the slot 39 in the flange 38 on the pinion 32.

During the movement of the carriage toward the operating tool or cylinder the feed-roll 10 is moved upward by the rollers traveling down the cam-slots 16, and when the rollers are in the horizontal portions 19 of the cam-slots the feed-roll is above and substantially in a vertical line with the rolls carrying the endless bed or apron. The portion of the hide or skin between the endless bed and the knife-cylinder is acted upon by the said knife-cylinder as the hide or skin is fed forward or out of the machine. In some instances it may be desirable to subject the hide or skin to a second operation without moving the carriage from its operative position shown in Fig. 2, and this result may be accomplished, as herein shown, by moving the lever 55 so as to disengage the clutch-hub 49 from the member 48, and thereby unclutch the wheel 30 from the shaft 31, and to engage the clutch-hub 27 with the member 72, and thereby clutch the pulley 26 to the shaft 25. In this case the shaft 25 is driven directly from the pulley 26 and is rotated in a reverse direction to that in which it is driven from the counter-shaft 31, thereby causing the bed-supporting roll *f* and the feed-roll 10 to be rotated in the reverse direction, so as to feed the hide or skin into the machine, and when said hide or skin has been fed into the machine sufficiently far the operator reverses the lever 55—that is, moves the same into the position shown in Fig. 3—and causes the hide or skin to be fed out of the machine.

The lever 55 may be moved in opposite directions in any suitable manner, and in the present instance I have shown a shipper-rope 80 as attached to the lever 55 and passed under guide-pulleys 81. In practice the shipper-rope will pass over a second set of pulleys, (not shown, but which are located above the pulleys 81 and supported in any suitable manner.)

The roller 40 may be operated by gravity, as herein shown, to cause it to enter the slots in the flange 38.

The clutch mechanisms 27 72 and 49 48 may be of the construction shown and described in United States Patent No. 444,173, dated January 6, 1891, to which reference may be had.

I claim—

1. In a machine of the class described, in combination, a reciprocating carriage, rolls mounted in said carriage, an endless bed or apron passed about said roller, a feed-roll co-

operating with said endless bed or apron, levers pivoted to said carriage to move therewith and supporting said feed-roll, cams co-operating with said levers to turn the same on their pivots and move said feed-roll toward and away from said endless bed, means to effect travel of said endless bed, means to rotate said feed-roll, a rotatable shaft, means to connect said carriage with said rotatable shaft, a bladed cylinder or roll coöperating with said endless bed, and means to rotate said bladed cylinder, substantially as described.

2. In a machine of the class described, in combination, an operating-tool, a reciprocating carriage movable toward and from said operating-tool, means to move said carriage, a movable support for a hide or skin carried by said carriage, a feed-roll coöperating with said movable support for the hide or skin, a support for said feed-roll pivoted to said carriage, and a cam coöperating with the support for said feed-roll to turn said support on its pivot and thereby move the said feed-roll toward and away from the support for the hide or skin, substantially as described.

3. In a machine of the class described, in combination, a reciprocating carriage, means to move it, a support for the hide or skin carried by said carriage, a feed-roll coöperating with said support, a support for said feed-roll pivoted to said carriage, and means coöperating with the feed-roll support to turn the latter on its pivot during the reciprocation of said carriage, substantially as described.

4. In a machine of the class described, in combination, a reciprocating carriage, means to move it, a support for the hide or skin carried by said carriage, a feed-roll coöperating with said support, levers pivoted to said carriage and in which said feed-roll is mounted, and a cam to turn said levers on their pivots during the reciprocation of said carriage, substantially as described.

5. In a machine of the class described, in combination, an operating-tool, a reciprocating carriage, a rotatable support for the hide or skin carried by said carriage, a shaft, means for connecting said rotatable support with said shaft, a second or counter shaft geared to said first-mentioned shaft, a rotatable device normally loose on each of said shafts, means to connect said devices, a clutch mechanism on each of said shafts coöperating with the normally loose device thereon, and means connecting said clutch mechanisms to simultaneously move the same in opposite directions, whereby the support for the hide or skin on said carriage may be rotated in opposite directions while the said carriage is in its operative position, substantially as described.

6. In a machine of the class described, in combination, an operating-tool, a reciprocating carriage, a rotatable support for the hide or skin carried by said carriage, a shaft, means for connecting said rotatable support with said

shaft, a second or counter shaft geared to said first-mentioned shaft, a pulley loose on the first-mentioned shaft, a sprocket-wheel attached to said pulley, a sprocket-wheel loose on said counter-shaft, a link chain connecting said sprocket-wheels, clutch mechanisms co-operating with said pulley and with the sprocket-wheel on the counter-shaft, and a lever connected to said clutch mechanisms on opposite sides of its pivot, substantially as described.

7. In a machine of the class described, an operating-tool, a reciprocating carriage movable toward and from said tool, means to move it, an endless bed or apron supported by said carriage in a substantially vertical plane and co-operating with said operating-tool, a feed-roll coöperating with said apron, a support for said feed-roll pivoted to said carriage, and means to turn said support during the reciprocation of said carriage, substantially as described.

8. In a machine of the class described, in combination, a framework, a reciprocating carriage supported thereby, a movable support for the hide or skin carried by said carriage, a feed-roll, a support for the feed-roll pivoted to said carriage, and a cam on the framework coöperating with the support for the feed-roll to turn said support on its pivot, substantially as described.

9. In a machine of the class described, in combination, a reciprocating carriage, a rotatable shaft, means for connecting said shaft with said carriage to produce reciprocation of the carriage by the rotation of the said shaft, a support for a hide or skin carried by said carriage, a feed-roll coöperating with said support, levers pivoted to said carriage and supporting said feed-roll, and cams to move said levers on their pivots, substantially as described.

10. In a machine of the class described, in combination, a reciprocating carriage, means to move it, a movable support for a hide or

skin carried by said carriage, a feeding device coöperating with said support, a support for said feeding device pivoted to said carriage, and means to move the support for the feeding device about its pivot, substantially as described.

11. In a machine of the class described, in combination, an operating-tool, a reciprocating carriage, a rotatable support for the hide or skin carried by said carriage, a shaft, means for connecting said rotatable support with said shaft, a second or counter shaft geared to said first-mentioned shaft, a pulley loose on the first-mentioned shaft, a sprocket-wheel attached to said pulley, a sprocket-wheel loose on said counter-shaft, a link chain connecting said sprocket-wheels, clutch mechanisms coöperating with said pulley and with the sprocket-wheel on the counter-shaft, and means to operate said clutch mechanisms, substantially as described.

12. In a machine of the class described, an operating-tool, a reciprocating carriage movable toward and from said tool, means to move it, an endless bed or apron supported by said carriage in a substantially vertical plane and coöperating with said operating-tool, a feed-roll coöperating with said bed, a support for said feed-roll, and means to move said support, substantially as described.

13. In a machine of the class described, in combination, a framework, a reciprocating carriage supported thereby, a movable support for the hide or skin carried by said carriage, a feed-roll, a movable support for said feed-roll, and a cam to move said feed-roll support, substantially as described.

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

FRANKLIN J. PERKINS.

Witnesses:

JAS. H. CHURCHILL,
J. MURPHY.