

No. 768,712.

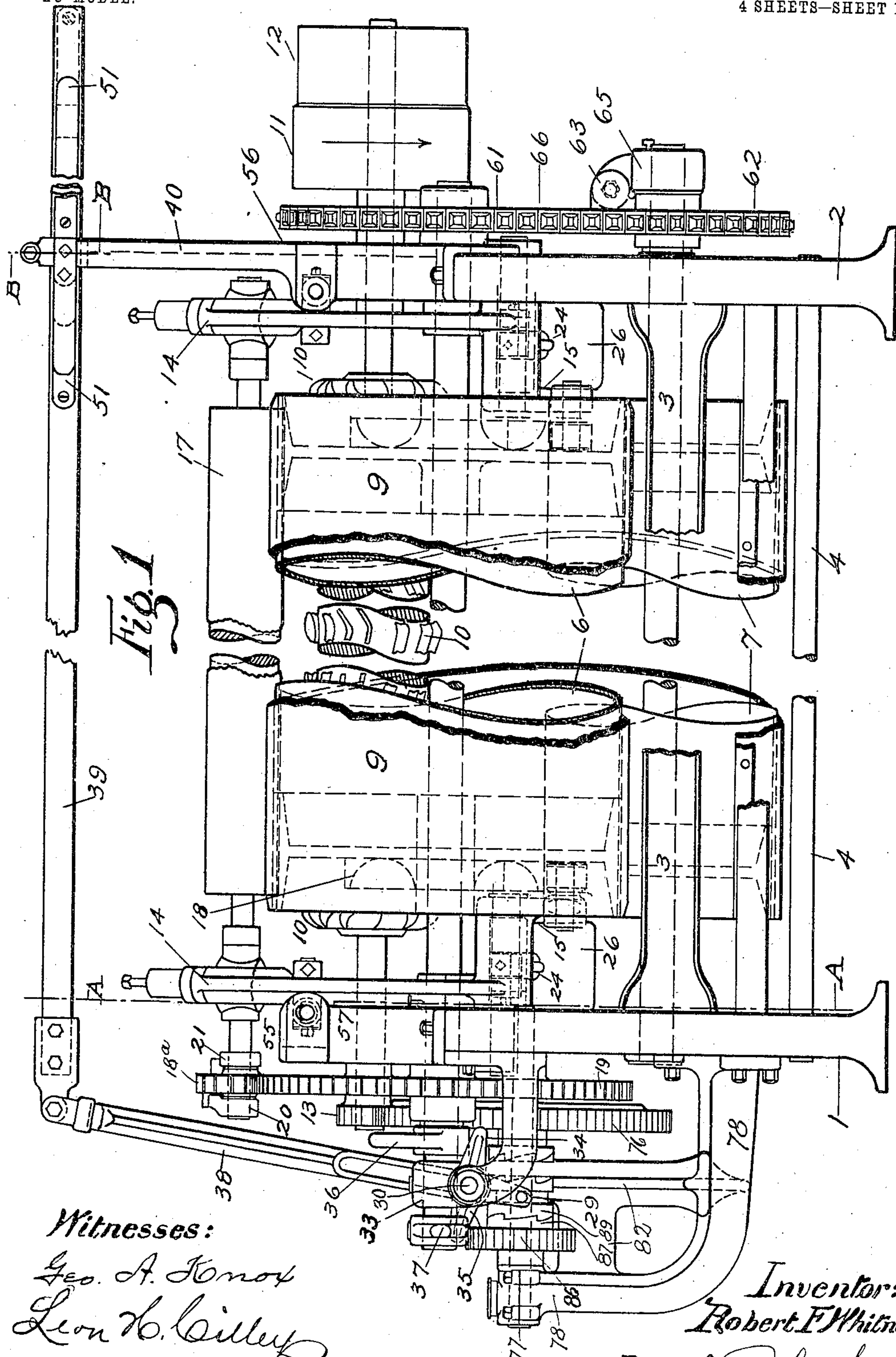
PATENTED AUG. 30, 1904.

R. F. WHITNEY.  
HIDE WORKING AND UNHAIRING MACHINE.

APPLICATION FILED JAN. 18, 1904.

NO MODEL.

4 SHEETS—SHEET 1.



Witnesses:  
Geo. A. Knox  
Leon H. Bailey

Inventor:  
Robert F. Whitney  
by N. C. Lombard  
Atty.

No. 768,712.

PATENTED AUG. 30, 1904.

R. F. WHITNEY.  
HIDE WORKING AND UNHAIRING MACHINE.

APPLICATION FILED JAN. 18, 1904.

NO MODEL.

4 SHEETS—SHEET 2.

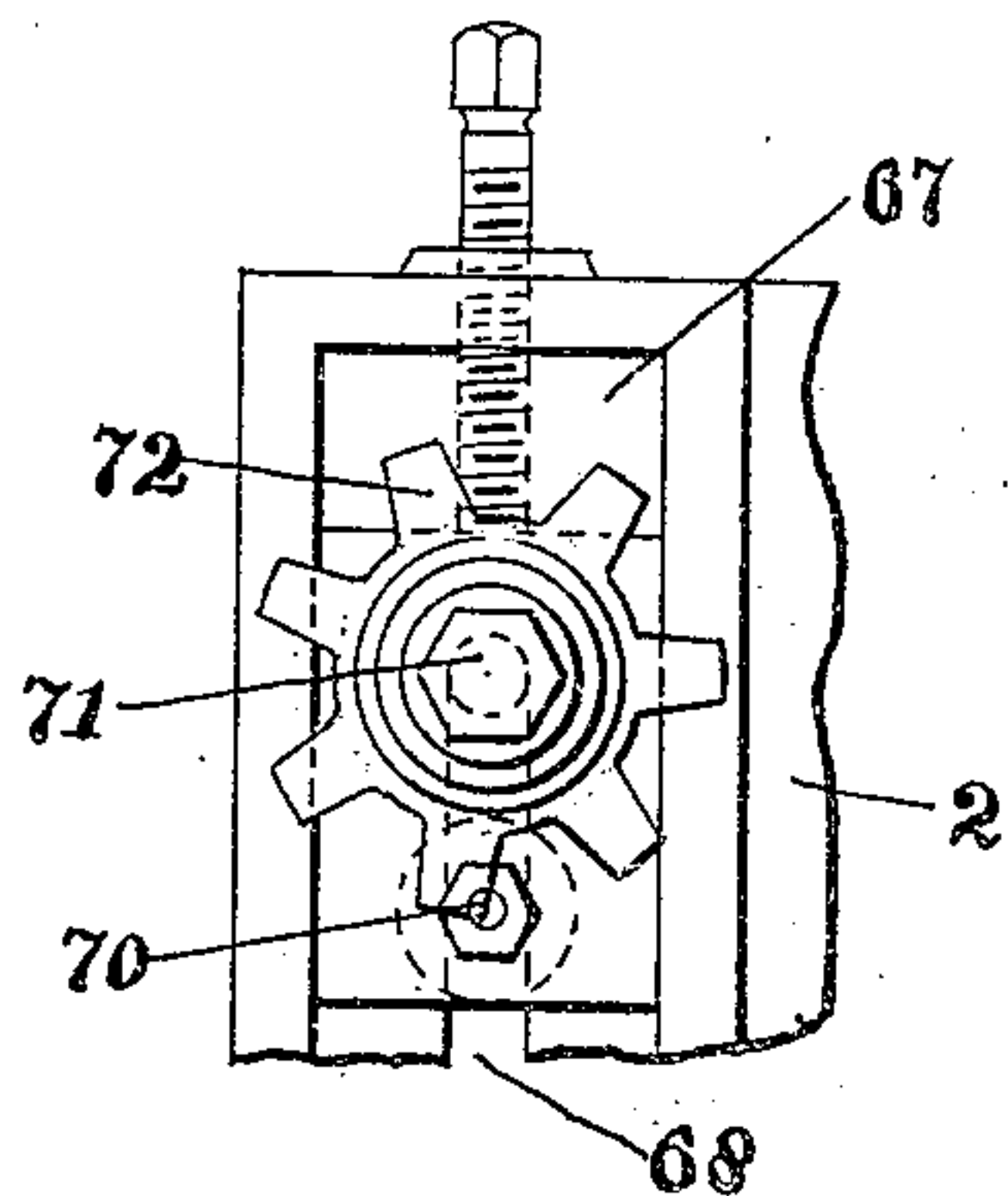


Fig. 9.

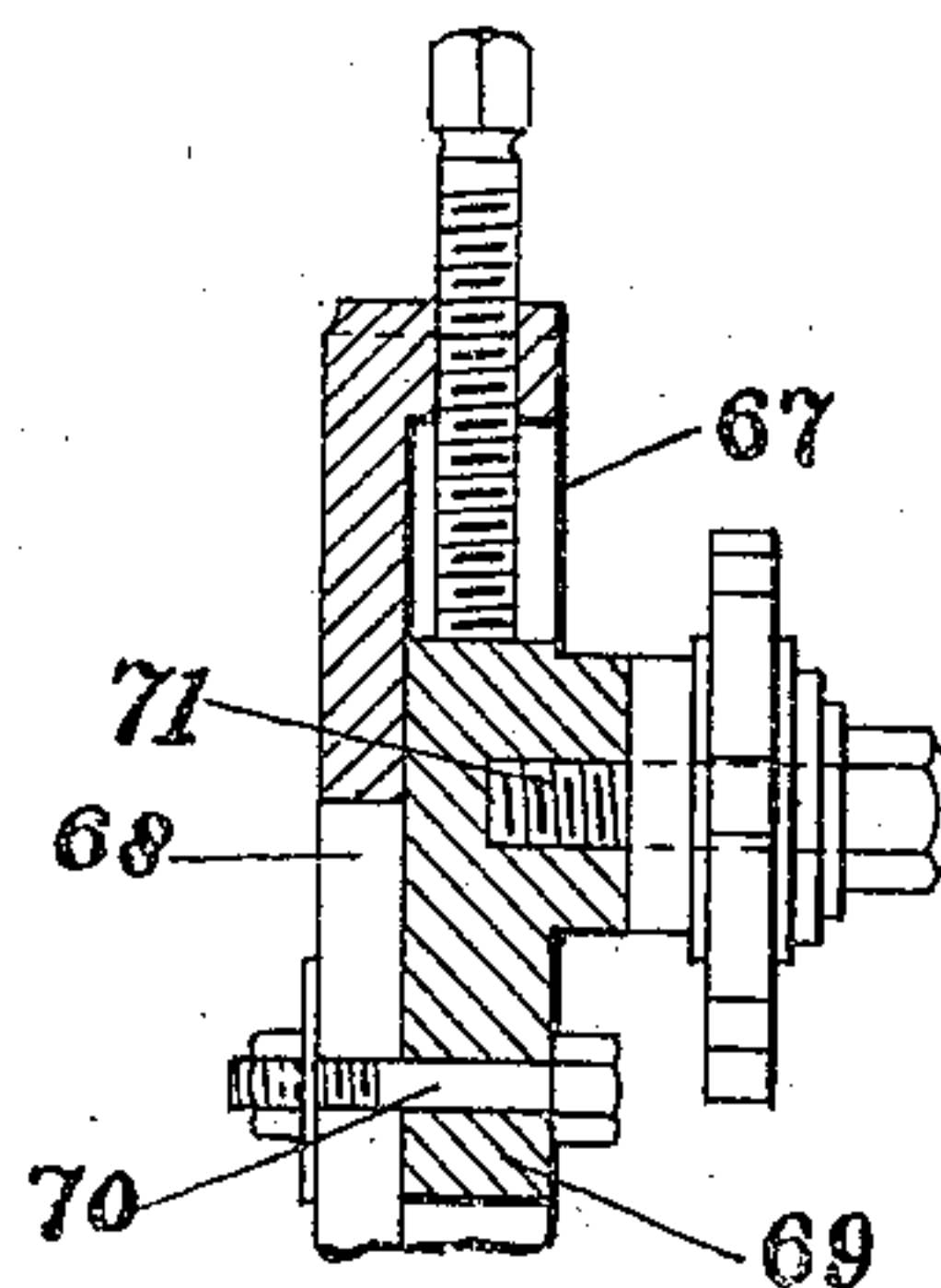


Fig. 10.

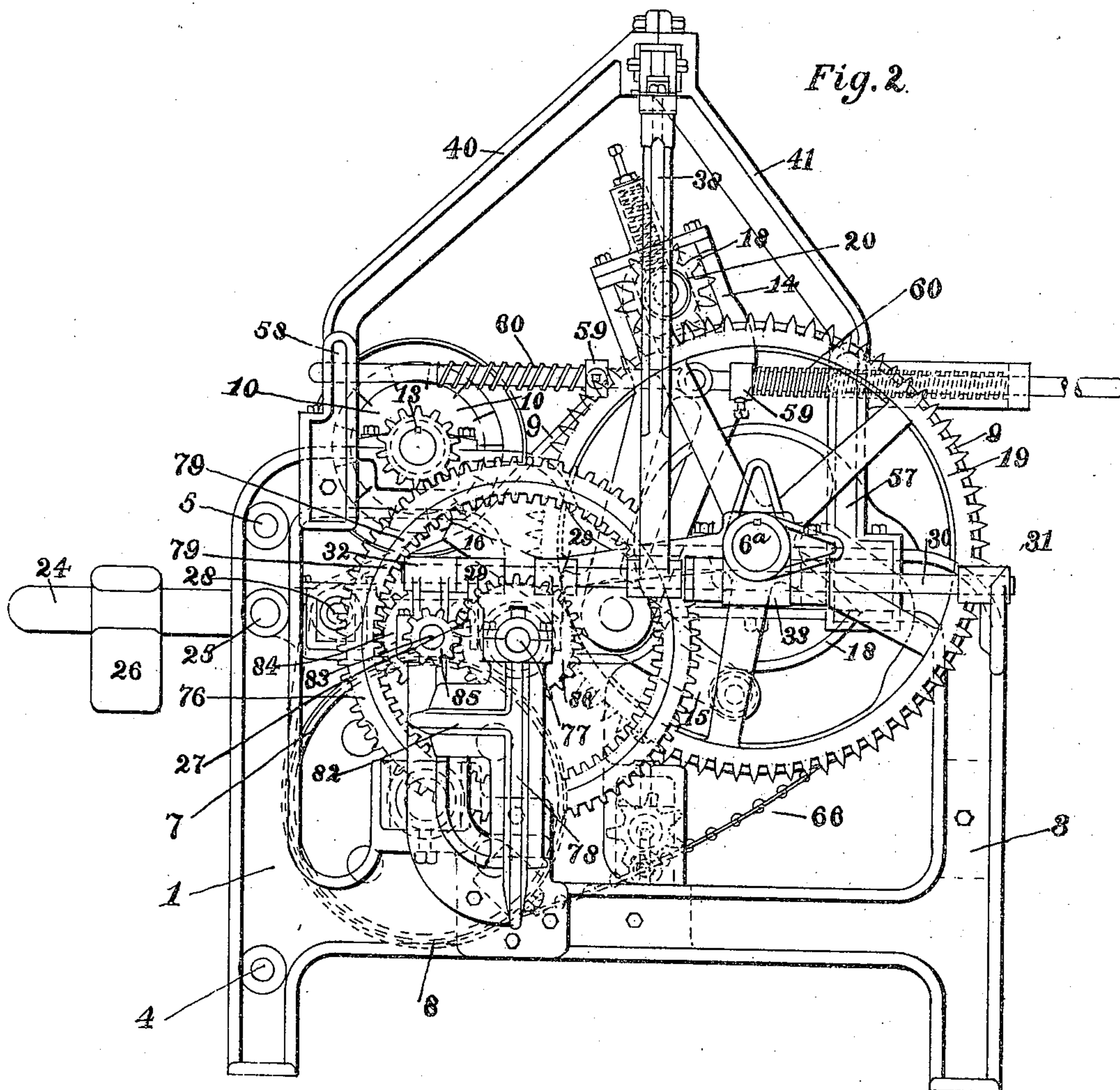


Fig. 2.

Witnesses.  
R. Clifton Lambert.  
J. H. Stevenson

Inventor.  
Robert F. Whitney.  
by N. C. Lombard  
Attorney.



No. 768,712.

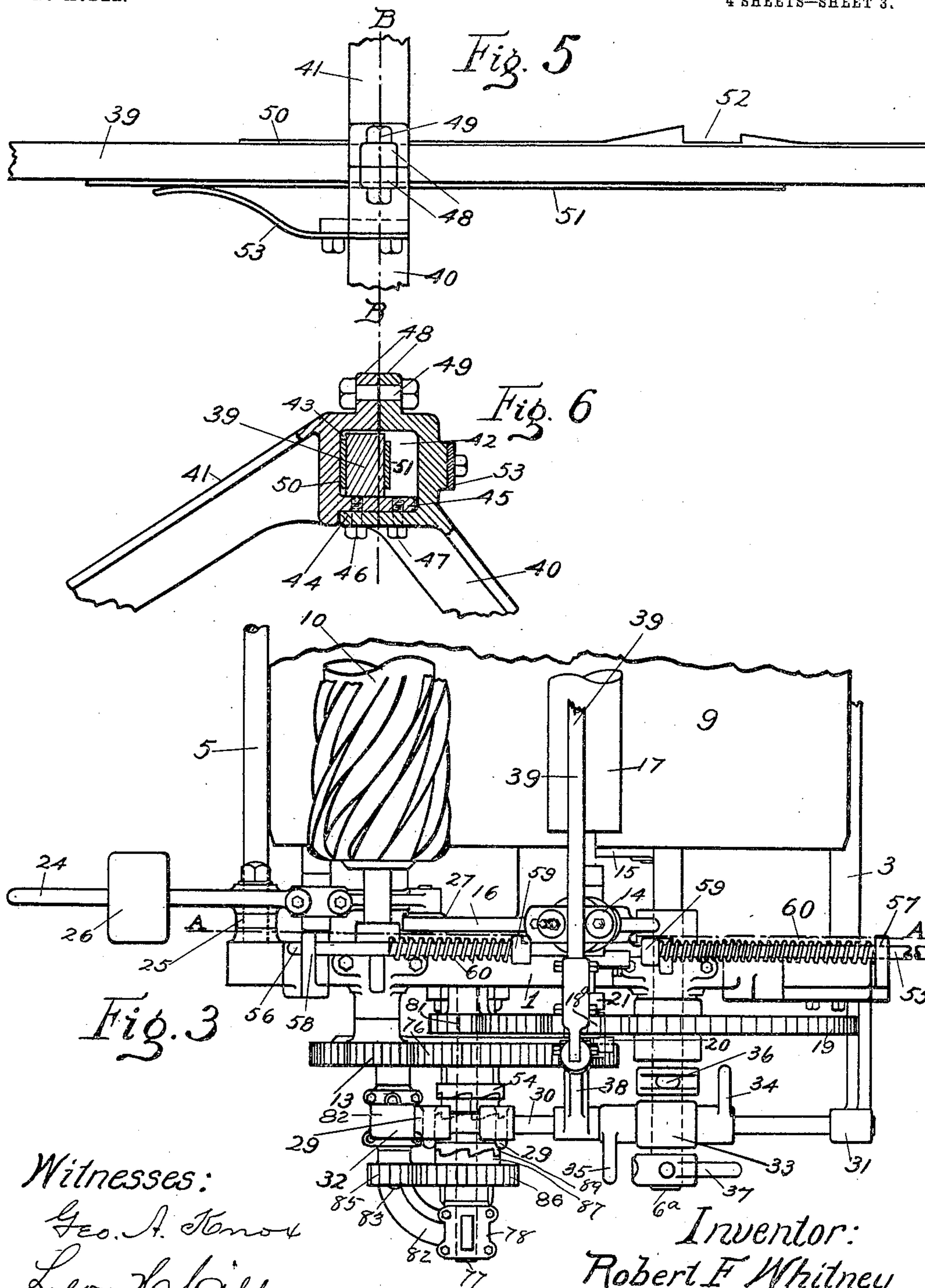
PATENTED AUG. 30, 1904.

R. F. WHITNEY.  
HIDE WORKING AND UNHAIRING MACHINE.

APPLICATION FILED JAN. 18, 1904.

NO MODEL.

4 SHEETS—SHEET 3.



Witnesses:

Geo. A. Knorr  
Leon Bailey

Inventor:  
Robert F. Whitney  
by N. P. Lombard

Atty.

No. 768,712.

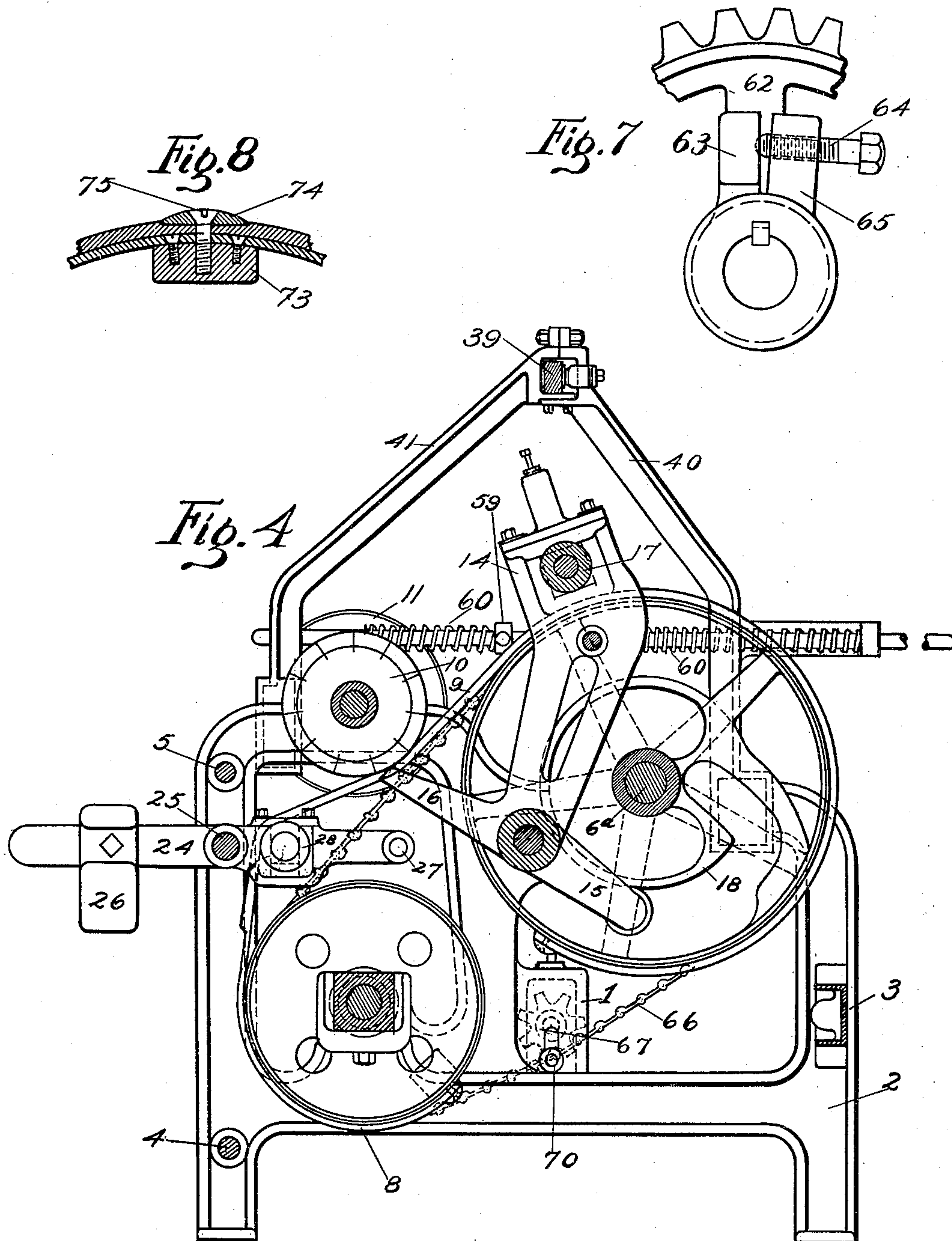
PATENTED AUG. 30, 1904.

R. F. WHITNEY.  
HIDE WORKING AND UNHAIRING MACHINE.

APPLICATION FILED JAN. 18, 1904.

NO MODEL.

4 SHEETS—SHEET 4.



Witnesses:  
Geo. A. Hoxox  
Leon H. Willey

Inventor:  
Robert F. Whitney  
by N. P. Lombard  
Atty.



# UNITED STATES PATENT OFFICE.

ROBERT F. WHITNEY, OF WINCHESTER, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO ARTHUR E. WHITNEY, OF WINCHESTER, MASSACHUSETTS.

## HIDE WORKING AND UNHAIRING MACHINE.

SPECIFICATION forming part of Letters Patent No. 768,712, dated August 30, 1904.

Application filed January 18, 1904. Serial No. 189,396. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT F. WHITNEY, of Winchester, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Hide Working and Unhairing Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to hide working and unhairing machines, and is an improvement upon the invention illustrated and described in another application of mine filed May 4, 1903, Serial No. 155,511; and it consists in certain novel features of construction, arrangement, and combination of parts, which will be readily understood by reference to the description of the accompanying drawings and to the claims hereto appended and in which my invention is clearly pointed out.

Figure 1 of the drawings is a front elevation of a machine embodying my invention with a portion at the center broken away. Fig. 2 is an end elevation of the same looking at the left end of Fig. 1 with a portion of one of the gear-wheels broken away. Fig. 3 is a partial plan of the same. Fig. 4 is a transverse section on line A A on Figs. 1 and 3. Fig. 5 is a plan of the shipper-bar and its bearing drawn to an enlarged scale. Fig. 6 is a sectional elevation of the upper portion of the upward extension of the right-hand end frame on line B B on Figs. 1 and 5 looking toward the right of said figures. Figs. 7, 8, 9, and 10 are details to be referred to hereinafter.

In the drawings, 1 and 2 represent, respectively, the left and right hand end frames. 3 is a front tie-girth, and 4 and 5 are rear tie-rods, by which said end frames are connected together. A pair of drums 6 and 7 are mounted in suitable bearings on said frames in substantially the same relative positions as in my before-cited application. An apron of rubber belting 8, carrying a soft-rubber bolster 9, is secured by one end to the drum 6 and by its other end to the drum 7 and operates as in said prior application.

The knife-cylinder 10 is constructed, ar-

anged, and operates as in said prior application, being provided with tight and loose pulleys 11 and 12, respectively, and with the spur-pinion 13, as shown in Figs. 1 and 2.

Just inside of the frames 1 and 2 are mounted on suitable studs therein a pair of three-armed levers, each comprising arms 14, 15, and 16, in the upper ends of the arms 14 of which is mounted a feed-roll 17 and the arms 15 being arranged to be acted upon by the cams 18 to move said feed-roll into and out of contact with the bolster 9 on the drum 6, said feed-roll having rotary motion imparted thereto when in contact with said bolster by means of the pinion 18<sup>a</sup>, mounted thereon, engaging the teeth of the gear-wheels 19, firmly secured on the shaft 6<sup>a</sup> of the drum 6, as in said prior application. The pinion 18<sup>a</sup> is loosely mounted on the shaft of said feed-roll, but is secured thereto when engaging gear 19 by means of dogs 20 and 21, fast on said shaft, coming in contact with teeth of said pinion, which project laterally from opposite sides thereof, as in said prior application.

In said prior application the apron extends in a straight line tangentially from the periphery of the drum 6 to the periphery of the drum 7, and a sag of said apron when desired was obtained by turning said drum 7 backward by the action of the three-armed lever upon an arm firmly secured upon the shaft of said drum, thereby lifting a weight connected by a chain to a sheave on the shaft of said drum 7. In my present invention instead of the chains, sheaves, and arms on said drum-shaft I employ a pair of levers 24, fulcrumed on studs 25 and each having adj-justably mounted thereon a weight 26 and carrying at its inner end a roll 27, with which the arms 16 of the three-armed levers engage to depress the inner ends of said levers 24, in bearings in which, located between their inner ends and their fulcrums, is mounted a binder-roll 28, over which the apron 8 passes between the drum 7 and the knife-cylinder 10, the office of said roll being to force said apron into contact with the working edges of the blades of the knife-cylinder 10 when acted upon by the



force of gravity through the weight 26 and to permit said apron to fall away from such contact when said roll is depressed by the action of the arms 16 upon the inner ends of the levers 24.

Motion is imparted to the drums 6 and 7 in opposite directions from the pinion 13 through two trains of gearing, with clutch mechanism arranged to control the transmission of motion through one or the other of said trains of gearing to move said drums alternately in opposite directions and at different speeds.

The pinion 13, secured upon the left end of the shaft of the knife-cylinder 10, engages with the teeth of the spur-gear 76, mounted loosely upon a short shaft 77, having a bearing at one end in the frame 1 and at the other end in a stand or bracket 78, which is bolted to the outer surface of said frame 1, as shown in Figs. 1 and 2. The gear-wheel 76 has formed in one piece therewith or secured thereto the internal gear 79 and one jaw 54 of a clutch, all constructed and arranged to revolve on the shaft 77 as one piece. The shaft 77 has firmly secured thereon, so as to revolve therewith, the pinion 81, which engages with and imparts motion to the large gear-wheel 19, hereinbefore referred to. This train of gearing, comprising the pinion 13, spur-gear 76, pinion 81, and spur-gear 19, together with the clutch-jaw 54, shaft 77, and the clutch-sleeve 89, constitutes the means of transmitting power to the drum 6 when the apron 8 and bolster 9 and the hide resting on said bolster is to be moved toward the front at a slower speed than when it is moved toward the rear through the other train of gearing described in the next paragraph.

The stand or bracket 78 has formed in one piece therewith or secured thereto a side branch bracket 82, in a bearing in the upper end of which is mounted a short shaft 83, on the inner end of which is secured a pinion 84, (see Fig. 2,) the teeth of which are engaged by the teeth of the internal gear-wheel 79, and the outer end of said shaft 83 has firmly secured thereon the gear-wheel 85, which engages with and imparts motion to the gear-wheel 86, mounted loosely on the outer end of the shaft 77 and having formed in one piece therewith or attached thereto a second clutch-jaw 87, opposed to and separated from the jaw 54, before referred to.

The train of gearing comprising the pinion 13, the spur gear-wheel 76, the internal gear-wheel 79, the pinion 84, and gears 85 and 86, the pinion 81, and the spur gear-wheel 19 are so proportioned relative to each other and to the other train before referred to that the drum 6 is moved toward the rear at a considerably greater speed than it is moved on the return toward the front, which is a great advantage in that it requires less power to move said drum and bolster and the hide toward the front at a slow speed than at a fast speed,

as when the hide is being moved toward the front it is being moved against the rapid movement of the blades of the cylinder 10 in the opposite direction, and another advantage of the slower return movement of the hide is that it receives a great many more actions of the cylinder-blades in a given distance, which is necessary to remove the finer and more firmly-fixed hairs that were not removed during the advance or rearward movement.

Between the clutch-jaws 54 and 87 the shaft 77 has splined thereon, so as to be movable endwise thereof, the clutch-sleeve 89, provided at each end with clutch-teeth, with their working faces in opposite directions, and with a centrally-arranged circumferential groove with which the two shipper-arms 29 engage upon its opposite sides and serve to move said clutch-sleeve endwise on said shaft 77, said shipper-arms 29 being firmly secured upon the shaft 30, mounted in bearings 31, 32, and 33, the latter being mounted on the shaft 6<sup>a</sup> of the drum 6 so as to be supported thereby, while at the same time said shaft 6<sup>a</sup> may revolve therein, and the shaft 30 may be revolved in a second bearing therein, as shown in Figs. 1, 2, and 3. The shaft 30 has secured thereon the two dog-arms 34 and 35, which are acted upon, respectively, by the corresponding arms 36 and 37, firmly secured on the shaft of the drum 6, as in my said prior application.

Instead of the short shipper-lever secured on the front end of the shipper-shaft in my prior application I now employ an upwardly-projecting lever 38, firmly secured on said shaft near the middle of its length, the upper end of which is pivoted to the left end of the horizontal shipper-bar 39, which extends longitudinally over the whole length of the machine and has a bearing in the inverted-V-shaped upward extension of the frame 2, preferably made in two parts 40 and 41 and bolted to the upper portion of said frame 2, as shown in Fig. 1, the upper ends of said two parts being formed and secured together, as shown in Figs. 4 and 6, each part having in the inner side of its upper portion a rectangular groove 42 or 43, the lower wall of which is longer than its upper wall, said elongated walls 44 and 45 overlapping each other and are secured together by bolts 46 and 47, and each of the parts 40 and 41 is provided with an ear 48, through which is passed the bolt 49 to further secure said parts together. By this construction of the upper ends of the parts 40 and 41 the shipper-bar 39 rests upon a smooth surface of the wall or flange 45 of the groove 43, which presents no obstruction to its longitudinal or lateral movements.

The shipper-bar 39 is preferably made of wood, but has its two vertical sides at its right-hand end reinforced by metal plates 50 and 51, as shown in Figs. 5 and 6. The plate 50 has a thickened section, in the middle of



which is formed a rectangular notch 52, the shoulder of which that is nearest to the right-hand end of said bar having a less depth than the opposite shoulder, and the rear or back side of said plate contiguous to said shoulders is inclined therefrom in opposite directions, as shown in Fig. 5.

The upper portion of the part 40 of the V-shaped extension of frame 2 has secured thereto one end of a spring 53, the opposite end of which bears against the plate 51 and serves to press said shipper-bar toward the rear and into contact with the rear surface of the bearing in which it rests, and if the clutch is engaged as shown in the drawings and the apron and the hide resting thereon are moving toward the rear the motion of the drums may be reversed automatically in the same manner as in said prior application, in which case the upper end of the lever 38 and the bar 39, to which it is pivoted, will be moved toward the left till the notch 52 passes entirely through the bearing in the inverted-V-shaped frame without engaging therewith, and when the hide is fed forward to the starting-point the clutch-sleeve is automatically moved into its central position, the bar 39 is moved toward the right until it is arrested by the deepest shoulder of said notch 52, which then engages the rear wall of the bearing for said bar and locks said clutch-sleeve in said central position. The same result may be obtained at any time independent of the automatic action by the operator moving the bar 39 toward the right or left, as it is desired, to reverse or stop the motions of said drums and apron. When moving the bar 39 toward the left by hand to reverse the movements of the drums, the operator moves said bar toward the front against the tension of the spring 53, so as to avoid any possibility of notch 52 engaging the bearing and stopping the machine.

Each arm 14 of the three-armed levers has pivoted thereto two rods 55 and 56, which extend horizontally in opposite directions from their pivotal connections and are supported near their outer ends in bearings in or connected to the parts 40 and 41, respectively, of the V-shaped frame extension at the right end and in the stands 57 and 58, respectively, at the left end of the machine, each of said rods having adjustably secured thereon near its pivotal connection to said arm 14 a collar 59, and between said collar and its outer bearing each rod has fitted thereto a coiled spring 60, as shown in Figs. 1, 2, 3, and 4. The office of said springs is to relieve the shock of throwing the feed-roll into and out of action and also in the case of the front springs helping to counterbalance the weights 26 on the tension-arms 24 through the three-armed levers when tension is relieved and the feed-roll is thrown out of action.

The shaft of the drum 6 has firmly secured on its right hand end a sprocket-wheel 61, and

the shaft of the drum 7 has loosely mounted thereon a sprocket-wheel 62, said wheel 62 being provided with an outwardly-projecting ear 63, with which the point of the set-screw 64, set in the dog 65, keyed on said shaft, engages and by means of which said rear drum 7 may be adjusted to a limited extent about its axis to take up any slack in the apron and bolster, said sprocket-wheels being connected and made to revolve in unison by means of the chain 66, as shown in Figs. 1, 2, and 4.

The frame 2 has formed therein near the middle of its width and in its outer face a rectangular recess 67 and a slot 68, and a rectangular plate 69 of less length than said recess is fitted to said recess, so as to be movable vertically therein, but is clamped in the desired adjusted position by binding-screw 70, which passes through the slot 68 and is provided with a nut and washer on its end opposite its head to secure said plate in position. The plate 69 has set therein a stud 71, upon which is mounted the small sprocket-wheel 72, which engages said chain 66, and by adjustment thereof any slack in said chain caused by wear or otherwise may be taken up.

The drums 6 and 7 are formed of sheet-steel cylinders firmly secured upon suitable heads at each end, which in the drawings are represented as made in the form of spoked pulleys, but may be closed heads. Each of the drums 6 and 7 has secured to the inner side of its steel shell a metal bar 73, arranged parallel to the axis of the drum at the point where the apron is to be secured to said drum, and a clamp-bar 74 rests upon said apron and is pressed firmly thereon by the screws 75 screwed into said bar 73. (See Fig. 8.)

All the parts of the machine which are not herein specially referred to are constructed, arranged, and operate substantially as in said prior application.

The operation of my present invention will be readily understood from the foregoing without further explanation here.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a hide working and unhairing machine, the combination with a pair of drums having their axes parallel to each other, a combined hide-supporting apron and bolster connecting said drums, and means for moving said drums alternately in opposite directions about their axes, of a double-acting clutch for controlling the motions of said drums; a shipper-lever engaging the endwise-movable portion of said clutch by one end; a horizontally-arranged shipper-bar extending lengthwise of the machine to approximately the whole length thereof, connected at one end to the long arm of said shipper-lever, and guided near its other end in a fixed bearing, and provided with a rectangular notch having side walls of different depths, with inclined planes on either side thereof, constructed and ar-



ranged to engage the side of said bearing when moved in one direction to lock the reciprocating portion of said clutch in disengaged or central position, and permit said shipper-bar 5 to be moved the entire length of its stroke when moved in the opposite direction.

2. In a hide working or unhairing machine, the combination with a pair of drums, an apron connected by its ends to each of said drums, a 10 sprocket-wheel firmly secured on the shaft of one of said drums; a sprocket-wheel loosely mounted on the shaft of the other drum; a chain belt carried by said sprocket-wheels; an ear formed upon or secured to said loosely- 15 mounted sprocket-wheel and projecting outward therefrom; a dog firmly secured to the shaft on which is mounted said loose sprocket-wheel; a set-screw in said dog in position to engage said ear as and for the purposes de- 20 scribed.

3. In a hide working or unhairing machine, the combination with a pair of drums arranged with their axes parallel to each other, an apron connected by its ends to each of said drums, 25 and means for revolving said drums in unison alternately in opposite directions, and a bladed cylinder mounted in fixed bearings in position to act upon a hide placed upon said apron upon a line intermediate of said drums, of a 30 tension-roll beneath said apron between the rear drum and said bladed cylinder; a pair of levers mounted on fixed fulcrums; an adjustable weight mounted on one arm of each of said levers; bearings in the other arms of said 35 levers in which is mounted said tension-roll; a roll carried by the inner end of each of said levers; the arms 16 of the three-armed levers; and the cams 18.

4. In a hide working or unhairing machine, 40 the combination with a pair of drums arranged

with their axes parallel to each other, an apron secured by its ends to each of said drums; sprocket-wheels secured on the shafts of each of said drums; a chain belt carried by said sprocket-wheels; an adjustable plate secured 45 to the frame 2; means for adjusting said plate to the desired position and clamping it in said position; a stud set in said plate; and a binder sprocket-wheel mounted on said stud in position to engage said chain, whereby any slack 50 in said chain occasioned by wear or otherwise may be taken up.

5. In a hide working or unhairing machine, the combination with a pair of drums arranged with their axes parallel to each other; an apron 55 connected by its ends to each of said drums; means for rotating said drums in unison alternately in opposite directions a feed-roll mounted in bearings in the ends of a pair of vibratory levers, cams arranged to act upon 60 and vibrate said levers and move said feed-roll into and out of contact with said apron or a hide resting thereon, of a pair of horizontally-arranged rods connected by their inner ends to each of said feed-roll-carrying levers; 65 guide-bearings for supporting the outer ends of said rods; an adjustable collar mounted on each of said rods near its inner end; and a helical spring fitted to each of said rods between its outer bearing and the adjustable collar 70 mounted thereon.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 14th day of January, A. D. 1904.

ROBERT F. WHITNEY.

Witnesses:

N. C. LOMBARD,

GEOR. W. PEGRAM.