

No. 640,581.

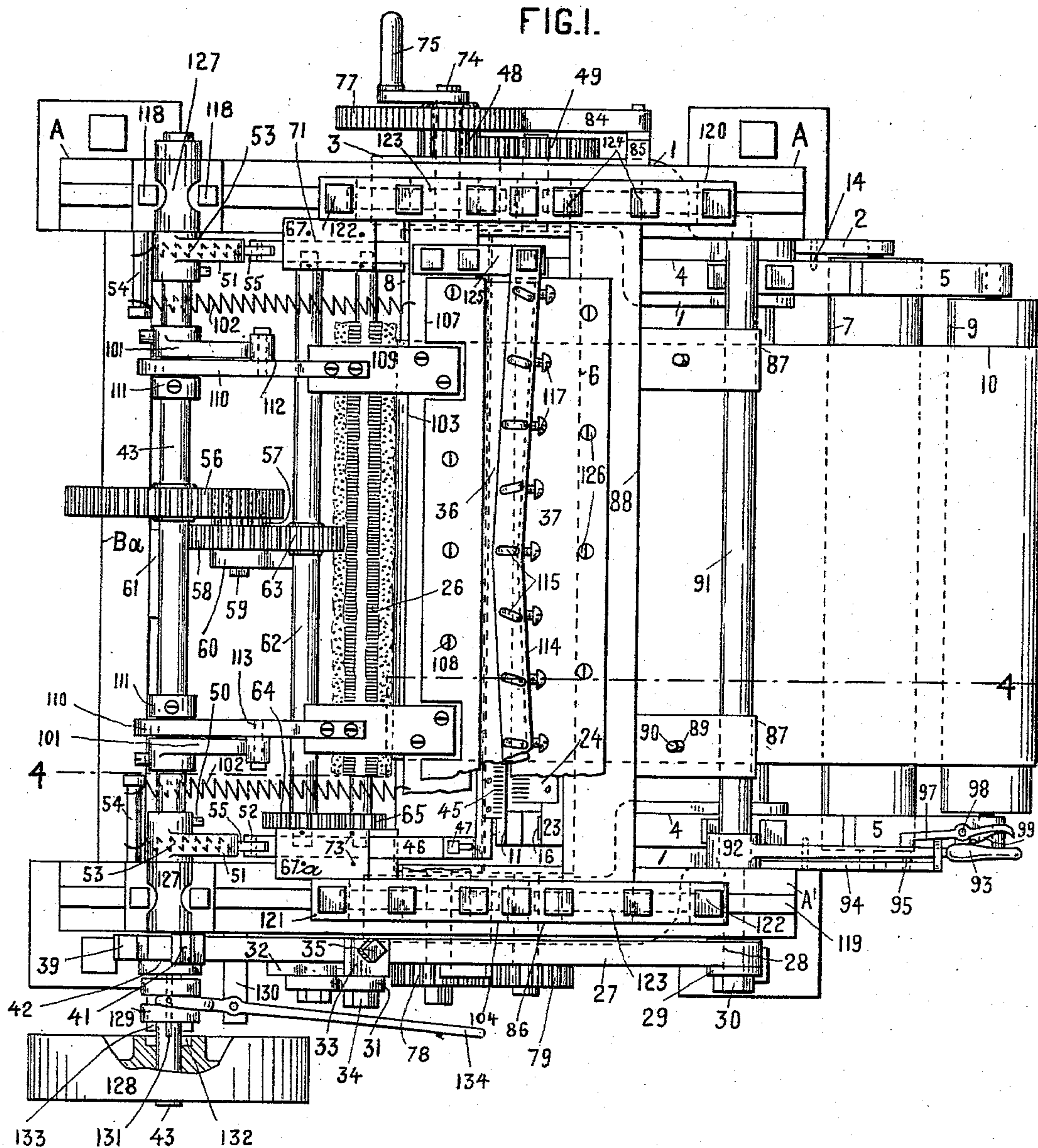
Patented Jan. 2, 1900.

K. MISCHKE.
PELT REFINING MACHINE.

(Application filed May 15, 1899.)

(No Model.)

5 Sheets—Sheet 1.



Witnesses:

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C. C. Paulson.

By

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his Att'ys

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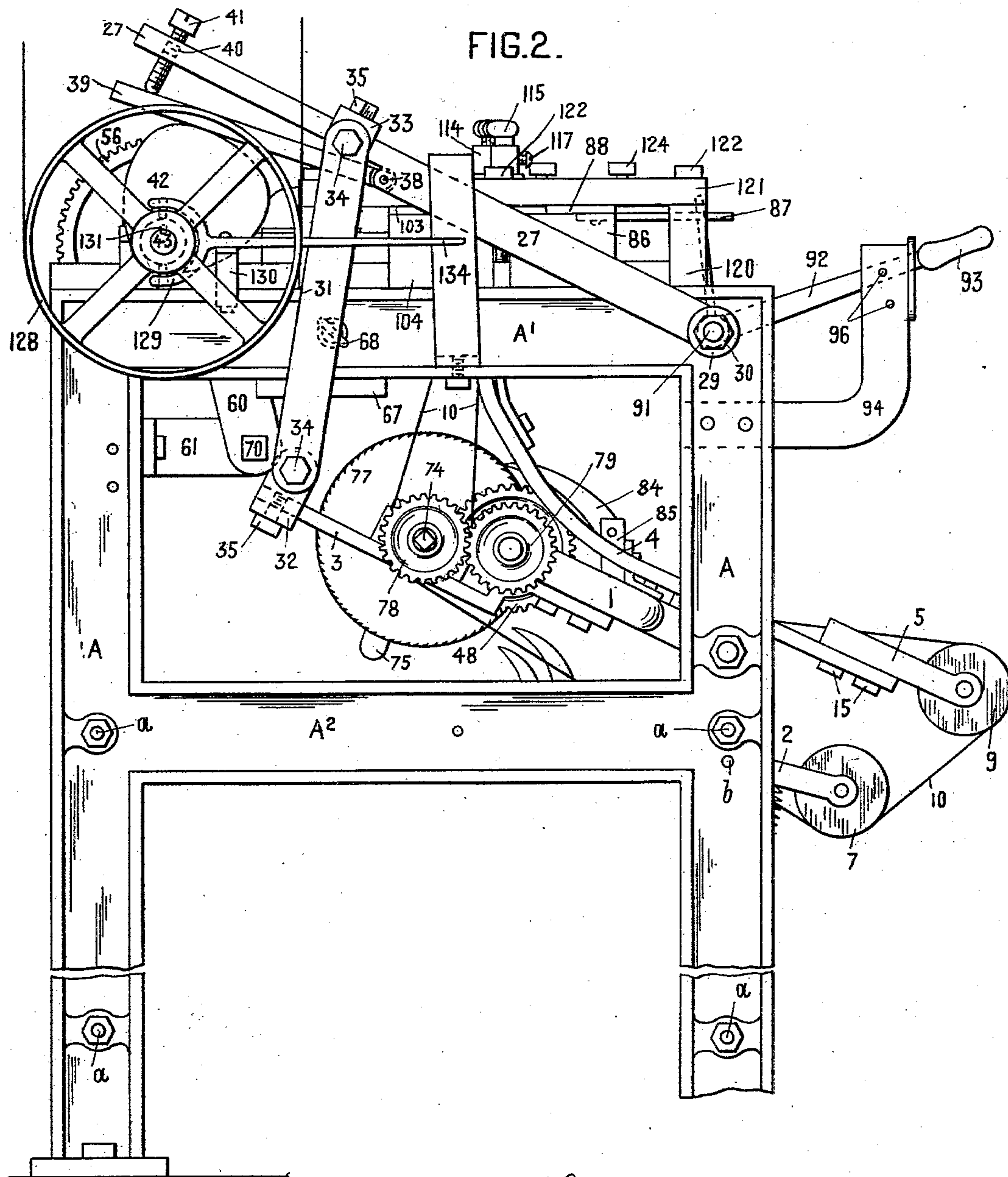
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5 Sheets—Sheet 2.



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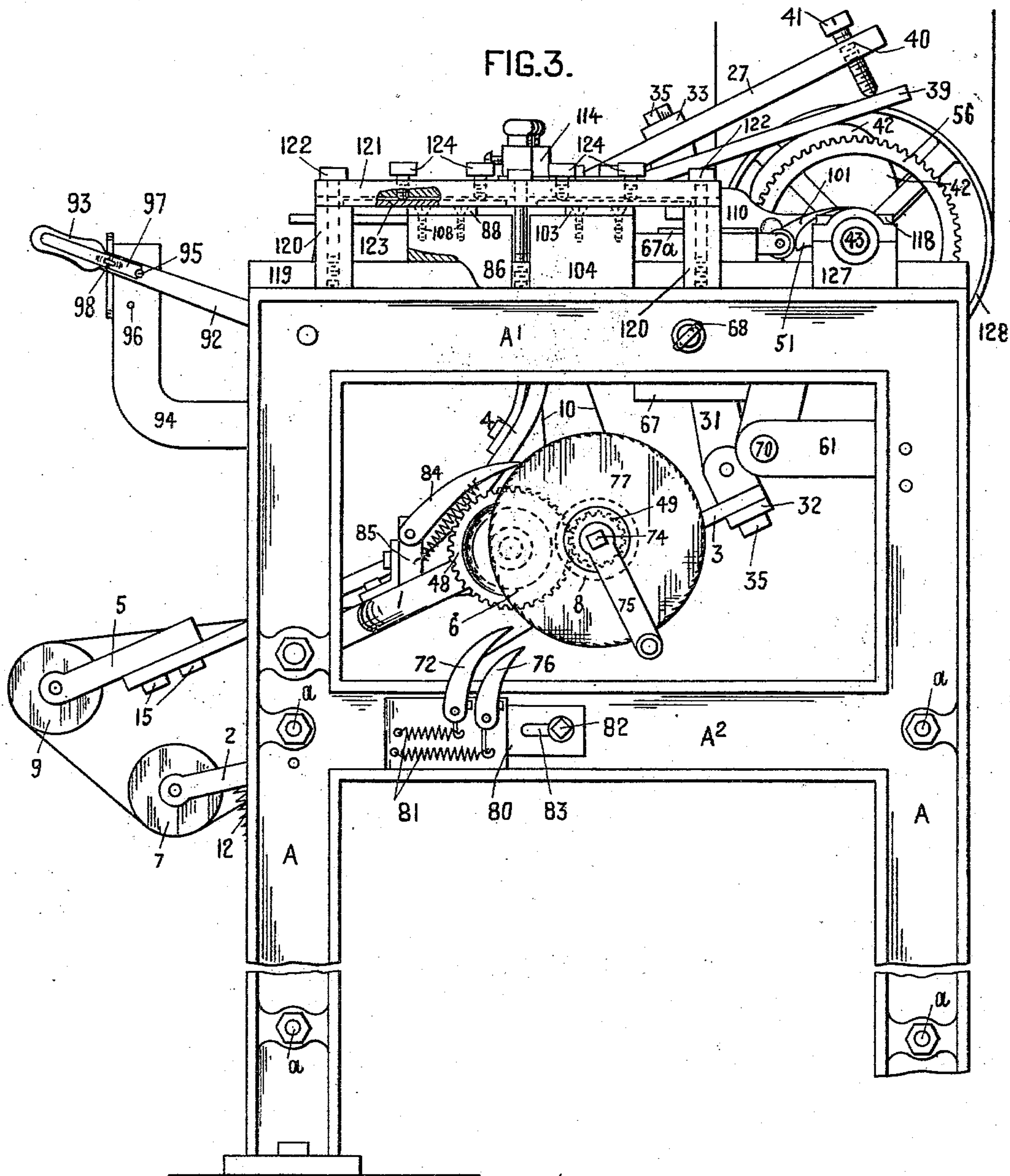
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(No Model.)

5 Sheets—Sheet 3.



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FIG. 4.

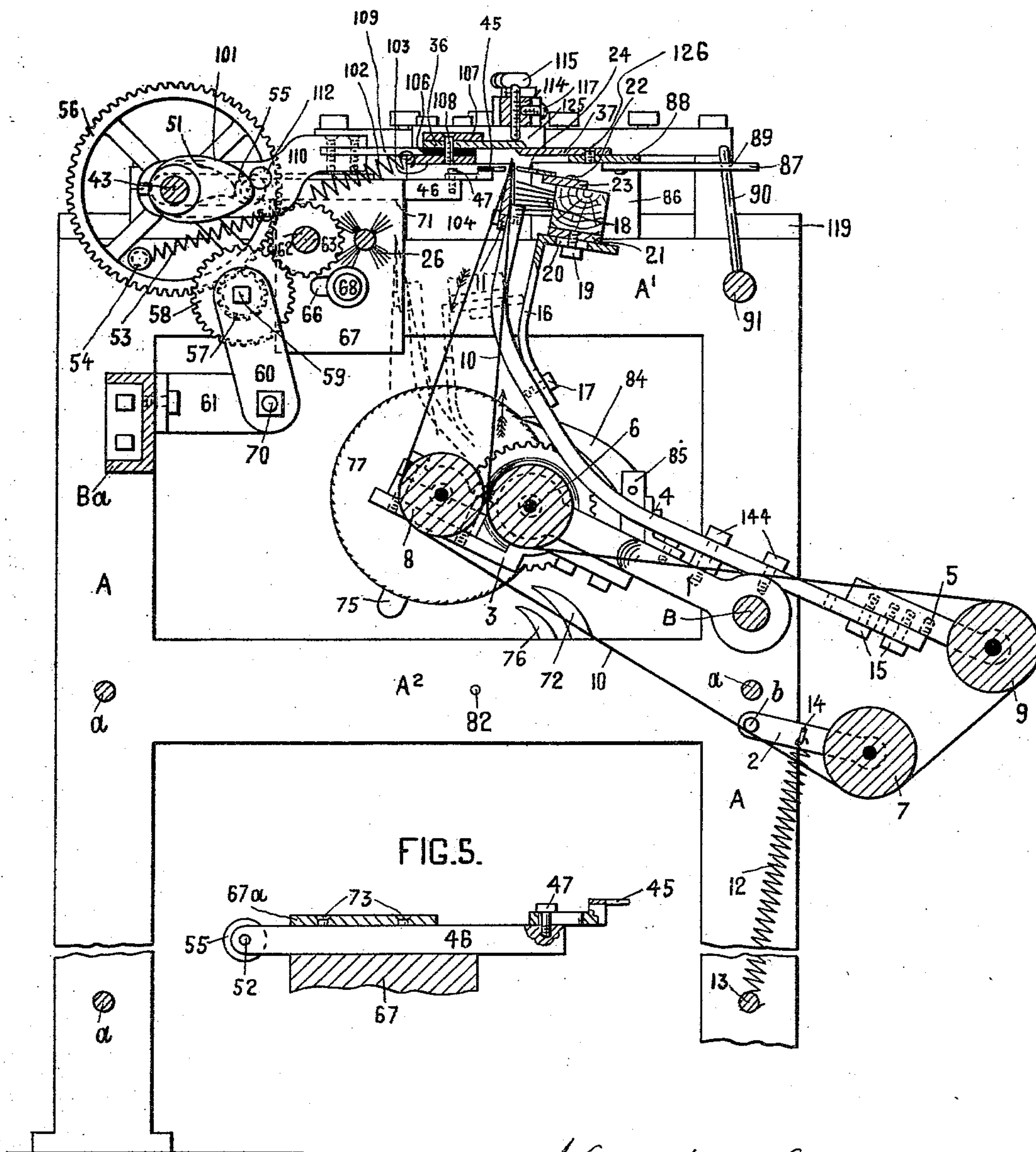


FIG. 5.

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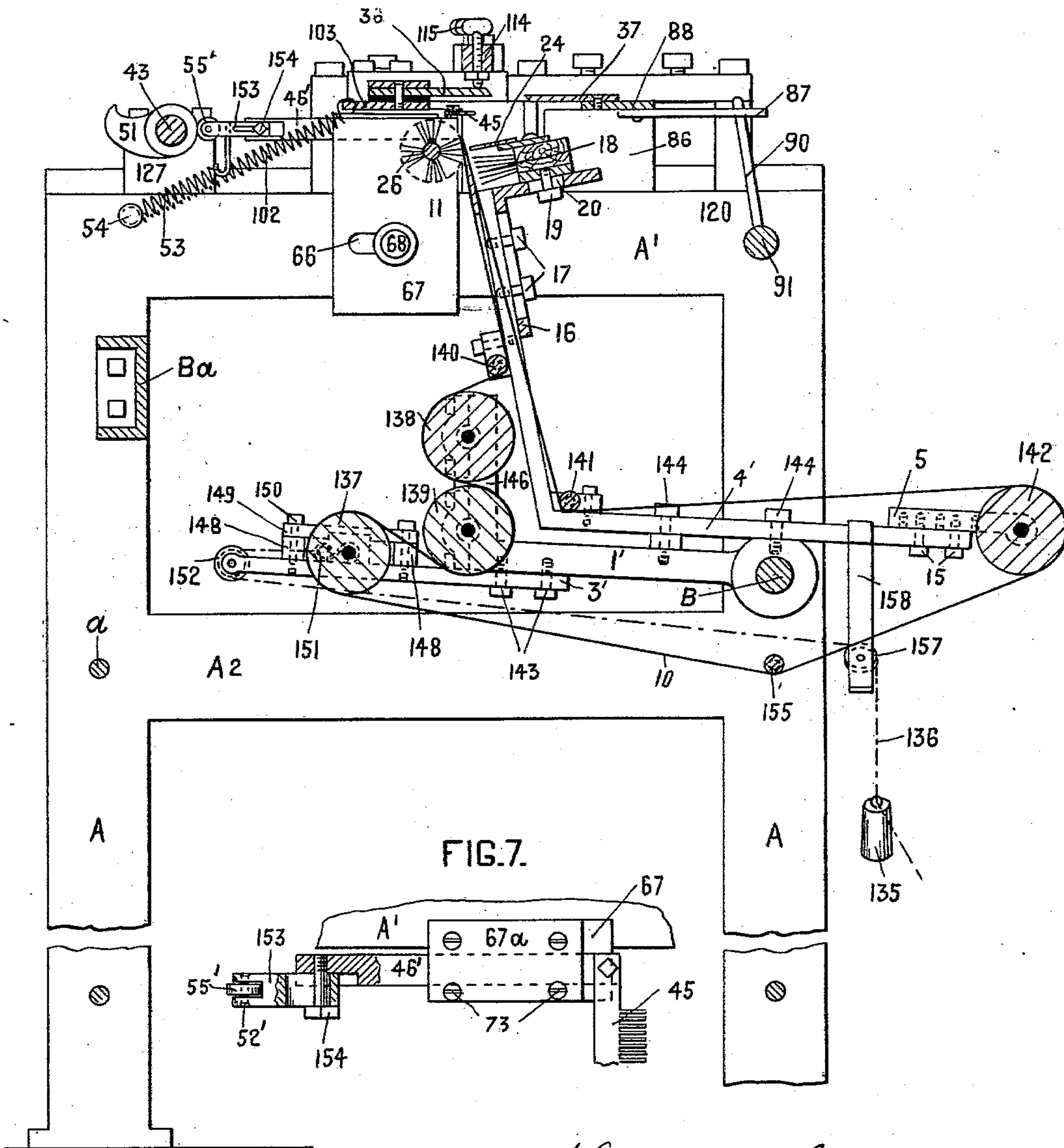
K. MISCHKE.
Pelt Refining Machine.

(Application filed May 15, 1899.)

(No Model.)

5 Sheets—Sheet 5.

FIG. 6.



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his Attys

UNITED STATES PATENT OFFICE.

KARL MISCHKE, OF NEW YORK, N. Y.

PELT-REFINING MACHINE.

SPECIFICATION forming part of Letters Patent No. 640,581, dated January 2, 1900.

Application filed May 15, 1899. Serial No. 716,822. (No model.)

To all whom it may concern:

Be it known that I, KARL MISCHKE, of New York, county and State of New York, have invented certain new and useful Improvements in Pelt-Refining Machines, of which the following is a full, clear, and exact specification, reference being had to the accompanying drawings, wherein—

Figure 1 is a plan view of my improved un-hairing-machine; Fig. 2, a side elevation; Fig. 3, a side elevation, opposite view to Fig. 2; Fig. 4, a sectional view on lines 4-4 indicated in Fig. 1; and Fig. 5 is a side view (somewhat enlarged detail) of the movable comb. Fig. 6 is a sectional view similar to Fig. 4, showing a modified construction of the stretching and feeding mechanism and of the frame supporting the movable comb; and Fig. 7 is a plan view (somewhat enlarged detail) of a modified construction of the frame supporting the movable comb.

Similar letters and figures of reference indicate corresponding parts in all the views of the drawings.

My invention relates to machines for refining pelts; and it consists of the hereinafter-described improvements in the construction of a machine for removing of so-called "water" or "master" hairs from the skins and in the novel combinations of its parts.

The operative parts of my improved pelt-refining machine are mounted in and on a frame consisting of the uprights A, connected by ties a. They may be divided into the following groups: first, those for stretching and feeding the pelts; second, those for brushing and combing the pelts; third, those for removing the water-hairs, and, fourth, the mechanisms for actuating the movable parts of the machine.

The devices for stretching and feeding the pelts are mounted in the movable frame. The frame consists of oscillating levers 1 and 2, pivotally affixed to the shafts B and b, respectively, both of which are pillowed in uprights A. Arms 3 and 4 are secured to lever 1. Stretcher-bar 11 is adjustably secured to the upwardly-curved ends of arms 4, and arms 5 are secured to the other ends of arms 4. Rollers 6 and 7 are journaled in the free ends of levers 1 and 2, and rollers 8 and 9 in bearings affixed to the projecting ends of arms 3 and 5.

respectively. Endless apron 10 is stretched over rollers 6, 7, 8, and 9 and held taut by two springs 12, each of the springs being secured with one end to a bolt 13, set in upright A, and with the other end to a screw-eye 14, set one in each of the oscillating levers 2.

To compensate for stretching of the apron and permit its readjustment, arms 5 are adjustably secured to arms 4 by screws 15. A number of holes are provided in the ends of the arms. The holes in arms 5 are screw-threaded and the holes arranged in corresponding sets of two, though only one screw is absolutely necessary for securing the arms together. Bracket 16 is affixed by screws 17 to arms 4, and brush 18 is adjustably secured thereto by screw 19. This screw 19 passes through slot 20 of the bracket and enters into a screw-threaded hole provided in the metallic plate 21, to which the wooden back of brush 18 is affixed.

On top of brush 18 is secured, by means of screws 22, plate 23, supporting comb 24. The brush and the comb extend to the side of the stretcher-bar 11 and are so adjusted that the bristles of the brush and the prongs of the comb are in contact with the pelt fed over the stretcher-bar in the direction indicated by arrows in Fig. 4. On the other side of the stretcher-bar rotary sectional brush 26 is mounted in the frame in such position that the bristles thereof come in contact with the pelt on that side of the stretcher-bar during the time while the frame supporting the stretcher and feeding mechanism is swung toward it. This brush is made of hard bristles arranged in sectional rows. The bristles are not equally long. They are so made to penetrate more deeply into the fur. This is necessary to remove therefrom the clippings of water-hairs and other impurities, to straighten out the fur, and to pack it down closely to the skin. Brush 26 rotates in adjustable bearings and is driven by multiplying-gear from the main shaft 43, or it may be driven independently from a transmission or a counter shaft. As shown in the drawings, the brush is driven from the main shaft. Cog-wheel 56, keyed to shaft 43, gears with pinion 57. This pinion is integral with cog-wheel 58, rotating on stud 59, secured in link 60, adjustably secured to bracket 61, which is affixed to cross-beam B^a.

on the frame. Cog-wheel 58 gears with cog-wheel 63, keyed to auxiliary shaft 62, pillowed in E-shaped blocks 67, movably mounted on the ties A' of the frame. Cog-wheel 64 is rigidly secured to the end of the same shaft 62 and gears with pinion 65 on the projecting axle of brush 26. Blocks 67 are fitted to slide on ties A' and are secured thereto in adjusted position by screw-bolts 68, passing through slots 66, provided in blocks 67, and through corresponding holes in ties A'.

The bearings of brush 26 admit of slight adjustment without disengaging the driving-gears, and when the brush is adjusted in the required position bolt 70, securing link 60 to bracket 61, is loosened and link 60 is shifted to set gear-wheel 58 in engagement with gear-wheel 63.

The mechanism for oscillating the frame is illustrated in elevation in Fig. 2. It consists of the oscillating lever 27, pivoted on shaft 91 and held in place by washer 29 and screw-nut 30, and of link 31, connecting it to one of the arms 3. These connections are made by means of clamps 32 and 33, pivoted one to each end of link 31 by bolts 34 and adjustably secured to lever 27 and arm 3, respectively, by set-screws 35. By changing the positions of either or of both of the clamps 32 and 33 the extent of the oscillation of the frame is adjusted.

For a more minute adjustment the end of lever 27 is recessed and arm 39 pivoted thereto by pin 38. The end of lever 27 is provided with a screw-threaded bore 40, into which a set-screw 41 is fitted. The end of screw 41 bears against arm 39, resting on cam 42, which is set on the driving-shaft 43. By screwing set-screw 41 into the bore 40 arm 39 is pushed farther apart from lever 27, or rather lever 27 is lifted, and thereby also the frame supporting the stretcher-bar, and vice versa. Cam 42 is keyed to shaft 43, and by rotating the shaft the oscillating frame is actuated, so that the stretcher-bar 11 is brought once in such position that knives 36 and 37 may shear off the coarse or stiff water-hairs protruding on the edge of the stretcher-bar closely to the skin and then again in such position that the brushing and combing devices may act upon the pelt as the particular kind of pelt worked upon may require. While the stretcher-bar is being swung from the knives toward the brush 26 the feeding mechanism acts, shifting the strip of pelt acted upon by the knives from the edge to the rear side of the stretcher-bar, where it is then exposed to the action of the said brush. On the return motion from the brush to the knives the strip of pelt stretched over the edge of the bar 11 is drawn through the prongs of comb 45, whereby the fur packed down by the action of the brush is combed and the water-hairs that might be retained among the fur released. The comb 45 acts at the same time as a guarding device, holding the soft fur below the edge of the stretcher-bar 11, while the water-hairs re-

leased from the fur rise on the edge of the stretcher-bar. Comb 45 is adjustably mounted on bars 46, being secured thereto by screws 47. The rear ends of bars 46 are bifurcated and rollers 55 mounted in the slots on pins 52. These rollers rest against cams 51, which are adjustably secured to shaft 43 by set-screws 50. Springs 53 (indicated in dotted lines in Fig. 1) are attached with one end to arms 46 and with their other ends to studs 54, set in the frame of the machine. They draw the comb 45 rearwardly, whereas cams 51, acting upon rollers 55, push it forwardly against the stretcher-bar. This reciprocating motion of the comb is timed to make it recede from the stretcher-bar immediately after the knives 36 and 37 cut off the protruding water-hairs and to return it again to its most forward position shortly before the stretcher-bar reaches that point on its return motion. Thus each successive strip of pelt shifted by the feeding mechanism over the edge of the stretcher-bar comes in contact with and is drawn through the prongs of the comb. This action of the comb upon the pelt has been already explained.

Comb 45 must be minutely adjusted in position as required for each particular kind of pelt. This is done by loosening screws 47 and shifting the comb forwardly or rearwardly, as may be required. When adjusted, the comb is fixed in desired position, as explained above.

Bars 46 move longitudinally in grooves 71, provided in blocks 67, and they are held in the slots by plates 67^a, secured to the blocks by screws 73.

Feed-rollers 6 and 8 are operated by hand when the machine is being adjusted for starting or when necessary to return a part of a skin back over the stretcher-bar. For this purpose roller 8 is provided with a squared trunnion 74, adapted to receive crank 75 for rotating the roller. While the machine is in operation, however, the feed-rollers are driven by pawls 72 and 76, operating in unison and engaging with ratchet-wheel 77, loosely revolving on the trunnion of roller 8. By using two pawls instead of one a more accurate and safe action of the feeding mechanism is obtained, permitting the running of the machine at a considerably higher speed without endangering the quality of the work. Both pawls engage with the ratchet-wheel 77 every time the frame supporting the stretcher-bar swings toward brush 26 and cause it to turn. Another pawl 84 is pivotally secured to bracket 85, mounted on the oscillating frame. This pawl 84 also engages with the ratchet-wheel 77, but in such position as to prevent its reverse motion. Pinion 49, integral with or secured to ratchet-wheel 77, turns with it on the trunnion of roller 8. This pinion engages with cog-wheel 48, rigidly secured to the trunnion of roller 6, and causes this roller to revolve. The motion of roller 6 is transmitted to roller 8 by gear-wheels 78 and 79, rigidly secured

to the other ends of rollers U and S, respectively, and meshing with each other. By this arrangement the pawls are given a much greater leverage, insuring reliable feed, and, again, the speed of the feed (the width of each successive rip of pelt drawn over the stretch-
 5 er-bar) may be more minutely regulated, because the motion of the ratchet-wheel 77 is reduced in the same proportion as its diameter bears to the diameter of the pinion 49.

Pawls 72 and 76 are pivotally mounted on plate 80. This plate is adjustably secured to tie A² by screw 82, passing through slot 83 of the plate. The pawls are held in position
 15 against the ratchet-wheel 77 by springs 81, attached each with one end to the pawl and with the other end to the plate.

The water-hairs projecting from the pelt on the edge of the stretcher-bar are removed, sheared off, by the action of the knives 36 and 37. Of these knives 37 is stationary, though blocks 86, supporting it, are movable to permit the withdrawing of this knife 37 from
 25 action, as is sometimes necessary while the machine is being prepared for operation or for better convenience of removing the knife for sharpening or other purpose. Knife 36 is a reciprocating knife. Knife 37 is affixed to bar 88 by screws 126 and is supported by
 30 means of this bar on blocks 86. For withdrawing knife 37 from its position plates 87, provided with slots 89, are affixed to bar 88. Fingers 90, set in shaft 91, engage in slots 89. Shaft 91 is operated by lever 92, rigidly secured thereto and terminating in a handle
 35 93. By shifting lever 92 accordingly knife 37 is moved in and out of its place.

To prevent accidental shifting of knife 37, lever 92 is secured to bracket 94 by pin 95, passing through a corresponding bore in the lever 92 and entering into one of the bores 96, provided in bracket 94. This pin 95 is operated by lever 97, fulcrumed to handle 93 by pin 98. Pin 95 is pressed in its place by
 40 spring 99, affixed to handle 93 and acting on the other end of lever 97, pressing it downwardly.

When the position of the knife 37 is to be changed, the operator takes hold of handle 92, gripping also lever 97 with his thumb, (whereby pin 95 is withdrawn from the bore in bracket 94,) and then moves the lever as may be required. When the operator releases the handle, pin 95, being pressed by spring 99,
 55 is driven automatically in one of the bores 96, and thereby lever 92 is affixed to the bracket.

Knife 36 is mounted on bar 103, secured to blocks 104, and is moved to and from the other knife by cams 101 and springs 102, the cams moving it forwardly and the springs drawing it back. Between bar 103 and the knife 36 is provided a compressible packing 106. The knife is held between this packing and top plate 107 by screws 108. The purpose of this
 60 arrangement is to permit a minute adjustment of the knife relative to the edge of knife 37, as will be explained hereinafter. Bar 103

is connected by links 109 to slotted arms 110. These are slid on shaft 43 between collars 111 and cams 101. Cams 101 engage with rollers 112, set on pins 113, secured in arms 110, and thereby move knife 36 at every turn of shaft 43 forwardly against the resistance of springs 102, which are fastened each with one end to bar 103 and with the other end to one of the
 70 pins 54. They draw the knife 36 rearwardly by an almost instantaneous motion as the cams 101 recede. This knife 36 is given a relatively-slow positive motion forwardly, when it operates upon the water-hairs and is almost instantaneously drawn back by the reaction of springs 102. Knife 36 coacts with knife 37 as shears. Its edge forms an obtuse angle, the vertex thereof being approximately in center of its length. This manner of removing the water-hairs (shearing) is much more satisfactory than the so-called "clipping." The work is performed much better. The edges of the knives are preserved, and there is no such possibility for water-hairs to escape the action of the knives as when removed by clipping between the edges of the knives. Though I prefer to use as means for removing the water-hairs such shearing-knives, other devices may be substituted for performing their function in combination with the other parts of my improved machine.

Knife 36 is a comparatively thin blade and may be adjusted exactly to the edge of knife 37 throughout its entire length by the device shown in the drawings. Bar 114 is mounted on brackets 125 above the knife 36 and is of the same shape as the knife. In this bar are provided a number of screw-threaded holes in which set-screws 115 are fitted. The points of these set-screws bear upon the knife 36, near the edge thereof. Knife 36 is set in such position that its edge is elevated somewhat above the edge of knife 37 and being springy yields to the pressure of screws 115. Thus by turning these screws the edge of the knife is more or less depressed and brought in line with the edge of knife 37. Set-screws 117 are screwed in horizontal bores communicating with the bores in which set-screws 115 are inserted. They serve for securing set-screws 115 in position when the knife 36 is adjusted. Blocks 86 and 104 are provided with grooves fitted upon guides 119, upon which they move. They are inclosed in a frame consisting of standards 120 and ties 121, affixed thereto and to the frame by screws 122, passing through the ties and through the standards. The lower faces of ties 121 are grooved, and splines 123, fitted in these grooves, engage with the upper faces of bars 88 and 103, supporting the knives 36 and 37, respectively. Set-screws 124, set in ties 121, bear with their points upon splines 123, and by means of these screws the pressure upon blocks 104 and 86, respectively, is adjusted.

Main shaft 43 is mounted in stationary bearings 127, affixed to the frame of the machine by screw-bolts 118. Pulley 128 rotates on

this shaft. Clutch 129 is engaged with shaft 43 by spline 131 and is longitudinally movable thereon by lever 134, pivotally mounted on bracket 130. In the hub of pulley 128 are provided notches 132, into which the tongues 133 of the clutch engage. By shifting the clutch the shaft is coupled to the pulley 128 and the machine is set in motion. By withdrawing the clutch from engagement with the pulley 128 the action of the machine is stopped.

A modified construction of the pelt stretching and feeding mechanism illustrated in Fig. 6 differs from the one previously described in the arrangement of the feed-rollers and, further, in substituting for the springs 12 as means for stretching apron 10 the weights 135, acting through chains 136 on the shaft of roller 137. In other respects the construction of the oscillating frame is the same as in the previously-described machine.

The object of arranging the feed-rollers as shown in Fig. 6 is to avoid the pressing of the pelt between two of the feed-rollers. These feed-rollers are preferably covered with corrugated rubber, and by pressing the pelt between them the smooth and glossy appearance of the soft fur is impaired.

By arranging rollers 137, 138, and 139 in the positions as shown in Fig. 6 the roller 139, which comes in contact with the fur, acts merely as a guiding-roller for increasing the extent of contact of the apron 10 with the rollers 137 and 138. Roller 155 is also a guiding-roller bearing on the apron 10. This roller is pillowed in the uprights A of the frame of the machine and serves for holding the front apron away from the shaft B and to prevent its friction. Roller 139 and also the guiding-rollers 140, 141, and 155 are smooth rollers, whereas rollers 137, 138, and 142, acting on apron 10, are covered with corrugated rubber. Guiding-rollers 140 and 141 are provided to bend the pelt on the edge of the stretcher-bar in a more acute angle, whereby the parting of the fur on the edge of the stretcher-bar is facilitated.

The parts of the oscillating frame supporting the feeding-rollers and the stretcher-bar are appropriately modified to correspond to the changed positions and arrangement of the feed-rollers. Arms 4', supporting the stretch-bar, are secured by screws 144 to lever 1'. Arms 3', supporting the bearings of roller 137, are affixed in the same manner to lever 1 by screws 143, and arms 5, supporting the bearings of roller 142, (which is the same as the roller 9 of the previously-described construction,) are adjustably secured to the ends of arms 4' by screws 15. Lever 1' is elongated and its end bent at right angles thereto, forming a bracket 146, to which the bearings for the rollers 138 and 139 are secured. The bearing-blocks of the roller 137 are set in a frame composed of standards 148, ties 149, and the arms 3'. The parts of the frame are secured together by screw-bolts

150. The bearing-blocks are slotted, and ties 149 are fitted into the slots, thus serving as guides for the bearing-blocks. Hooks 151 engage within the trunnions of roller 137 and are connected by chains 136, passing over rollers 152 and 157, rotating on pins set in the slotted ends of the arms 3', and links 158, respectively, to weights 135. These weights draw the roller toward the ends of the arms 3' as far as the apron 10 will permit, and thereby hold the apron tautly stretched.

Another modification of my improved machine (shown in Figs. 6 and 7) pertains to the construction of the frame supporting the movable comb 45. This modification is shown in Fig. 6 in side elevation and in Fig. 7 in plan view. In the previously-described machine comb 45 is shown adjustably secured to bars 46' to facilitate its adjustment.

The kind of comb required in this machine depends upon the kind of pelt to be refined, and as some of the pelts require a very fine and flexible comb it is not always possible to adjust it in this manner. For this reason the modified construction shown in Figs. 6 and 7 is provided, wherein the comb 45 is rigidly affixed to the ends of bars 46', and instead detachable arms 153, carrying rollers 55', are adjustably secured by screws 154 to the rear ends of bars 46'. Thus instead of shifting the comb upon the bars 46 the arms 153 are shifted, and thereby the comb moved nearer to or farther away from the stretcher-bar.

It must be remembered that rollers 55 rest constantly against cams 51 and that therefore by elongating the bars 46 in the manner as hereinbefore described the same effect is attained as by changing the position of comb 45 relatively to bars 46. The other parts of the machine, some of which are not shown in Fig. 6, are the same as in the previously-described construction.

I claim as my invention and desire to secure by Letters Patent—

1. A pelt-refining machine comprising a stationary frame, a stationary and a reciprocating knife, a comb, a rotary brush and means for rotating the brush and for operating the reciprocating knife, mounted on the stationary frame, an oscillating frame, pivotally mounted on the stationary frame, a keen-edged bar, a fur-retaining device and means for stretching and intermittently feeding the fur over the edge of the keen-edged bar, mounted in the oscillating frame.

2. A pelt-unhairing machine, comprising a stationary frame, an oscillating frame movably mounted in the stationary frame, a stretcher-bar and means for intermittently feeding a pelt over the edge of the stretcher-bar and a fur-retaining device in front of the stretcher-bar, all mounted in the oscillating frame, a rotary brush, a comb and means for removing of water-hairs and mechanism for rotating the brush and for operating the means for removing the water-hairs mounted on the stationary frame.

3. The combination in an unhairing-machine, comprising a stationary frame, a driving-shaft, a rotary brush, a movable comb and an oscillating frame, mounted in the stationary frame, a stretcher-bar and a fur-retaining device mounted on the oscillating frame; means for intermittently feeding a pelt over the edge of the stretcher-bar and means for removing the water-hairs projecting from the pelt on the edge of the stretcher-bar, of mechanism for actuating the oscillating frame concurrently with the operating parts of the machine, the mechanism consisting of a cam set on the main shaft, an oscillating lever pivoted to the stationary frame and engaging with the cam, and a link connecting the oscillating lever with the oscillating frame.

4. The combination in an unhairing-machine, comprising a stationary frame, a driving-shaft, a rotary brush, a movable comb and an oscillating frame, mounted in the stationary frame, a stretcher-bar and a fur-retaining device mounted on the oscillating frame; means for intermittently feeding a pelt over the edge of the stretcher-bar and means for removing the water-hairs projecting from the pelt on the edge of the stretcher-bar, of mechanism for actuating the oscillating frame concurrently with the operating parts of the machine, the mechanism consisting of a cam set on the main shaft, an oscillating lever pivoted to the stationary frame and engaging an arm pivoted to the oscillating lever and bearing against the cam, a set-screw set in the oscillating lever and bearing

against the arm, and a link connecting the oscillating lever to the oscillating frame.

5. The combination with an unhairing-machine, comprising a stationary frame, a driven shaft, a rotary brush, a movable comb and an oscillating frame, mounted in the stationary frame, a stretcher-bar and a fur-retaining device mounted on the oscillating frame; means for intermittently feeding a pelt over the edge of the stretcher-bar and means for removing the water-hairs projecting from the pelt on the edge of the stretcher-bar, of mechanism for actuating the oscillating frame concurrently with the operating parts of the machine, the mechanism consisting of a cam set on the main shaft, an oscillating lever pivoted to the stationary frame and engaging with the cam, a clamp adjustably secured to the oscillating lever, a link pivotally connected to the clamp and having its other end connected to the oscillating frame.

6. The combination with a shearing-blade, of an adjusting device therefor consisting of a bar mounted independently of and above the shearing-blade, a series of set-screws set in the bar and bearing with their points on the edge of the shearing-blade and means for securing the set-screws in position.

In witness that I claim the improvements described in the foregoing specification I have signed my name in the presence of two subscribing witnesses.

KARL MISCHKE.

Witnesses:

HENRY SCHREITER,

ROBERT VALENTINE MATHEWS.