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R. S. SCHAAB ET AL
FUR CONDITIONING MACHINE

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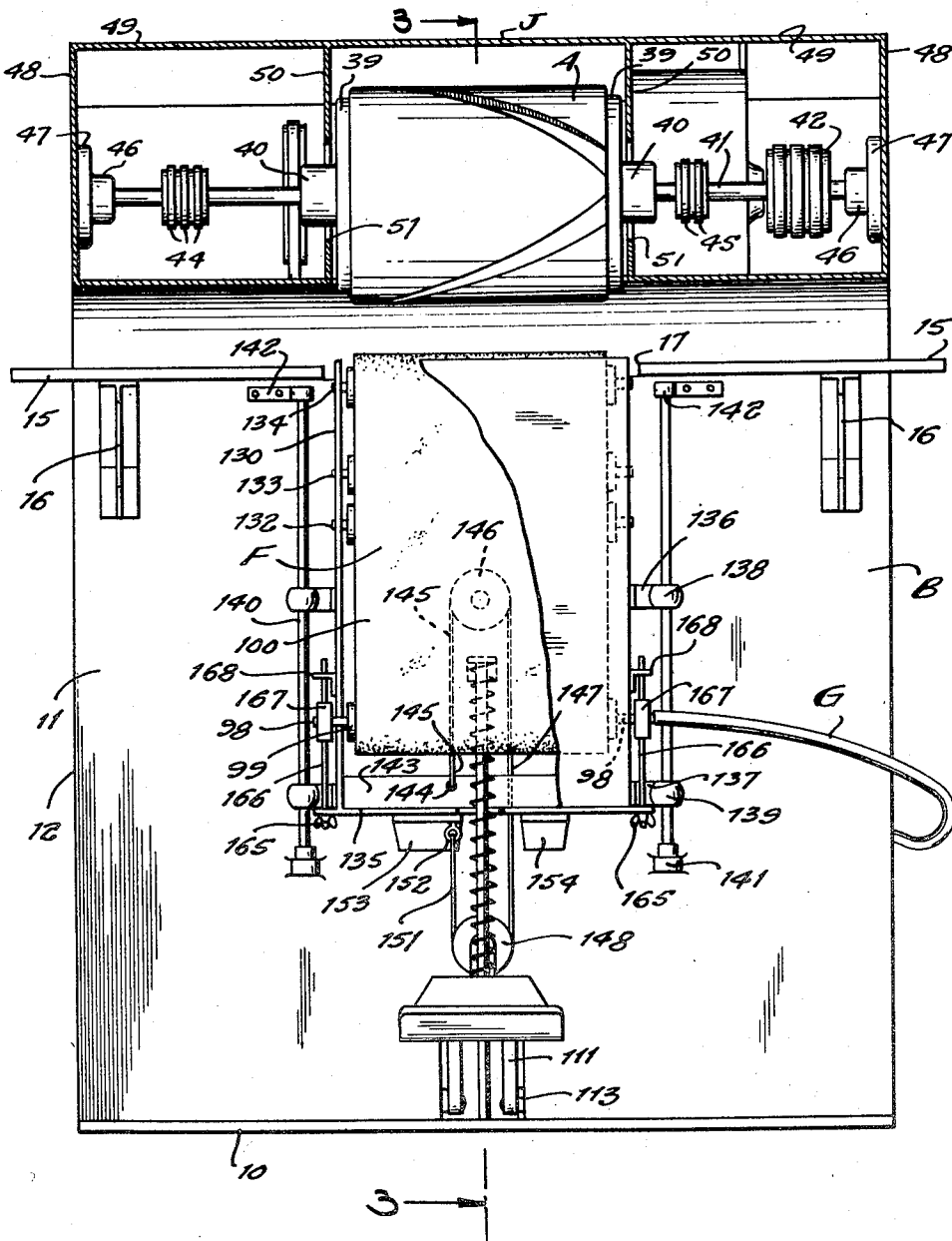


FIG. 1.

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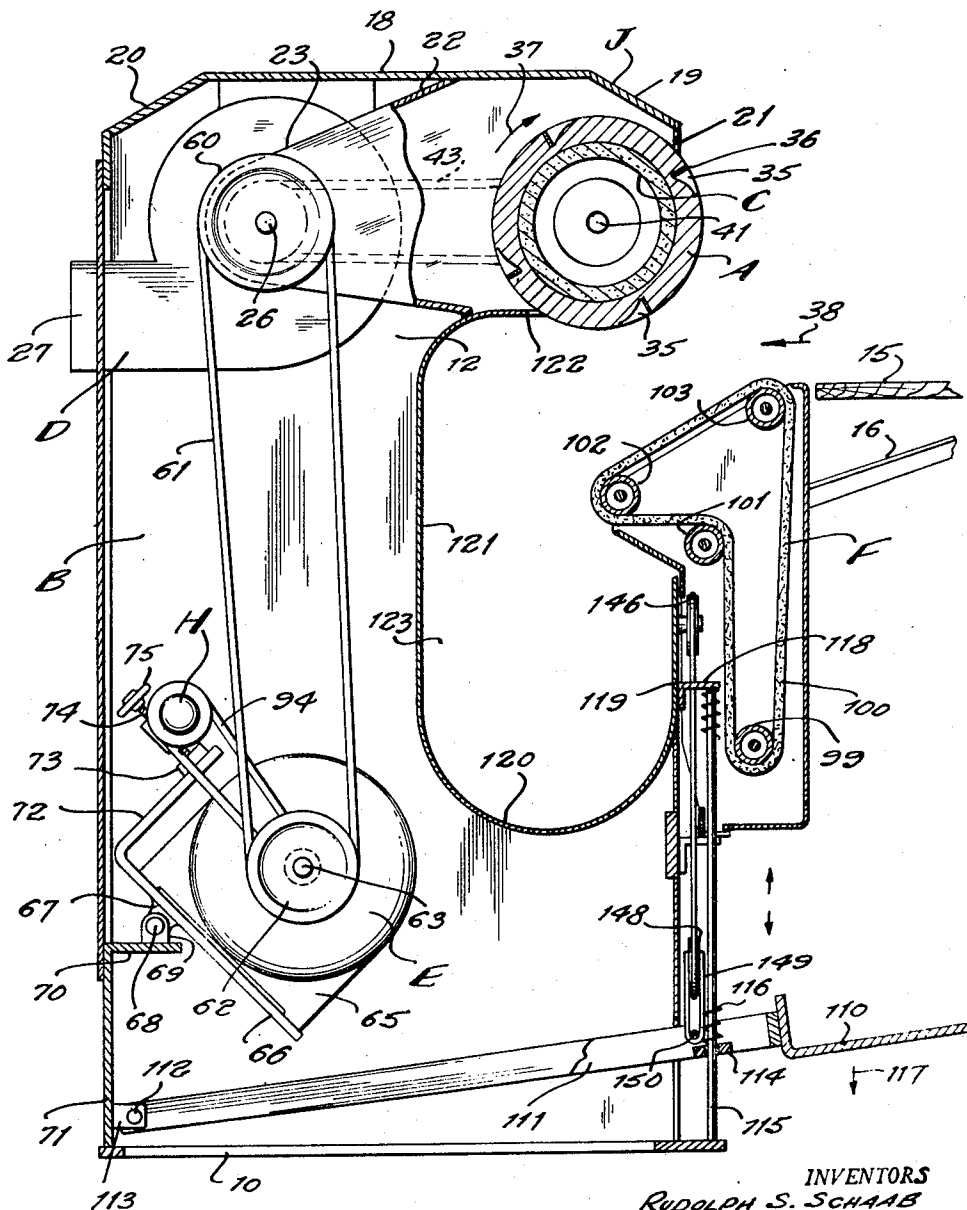
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FIG. 3.



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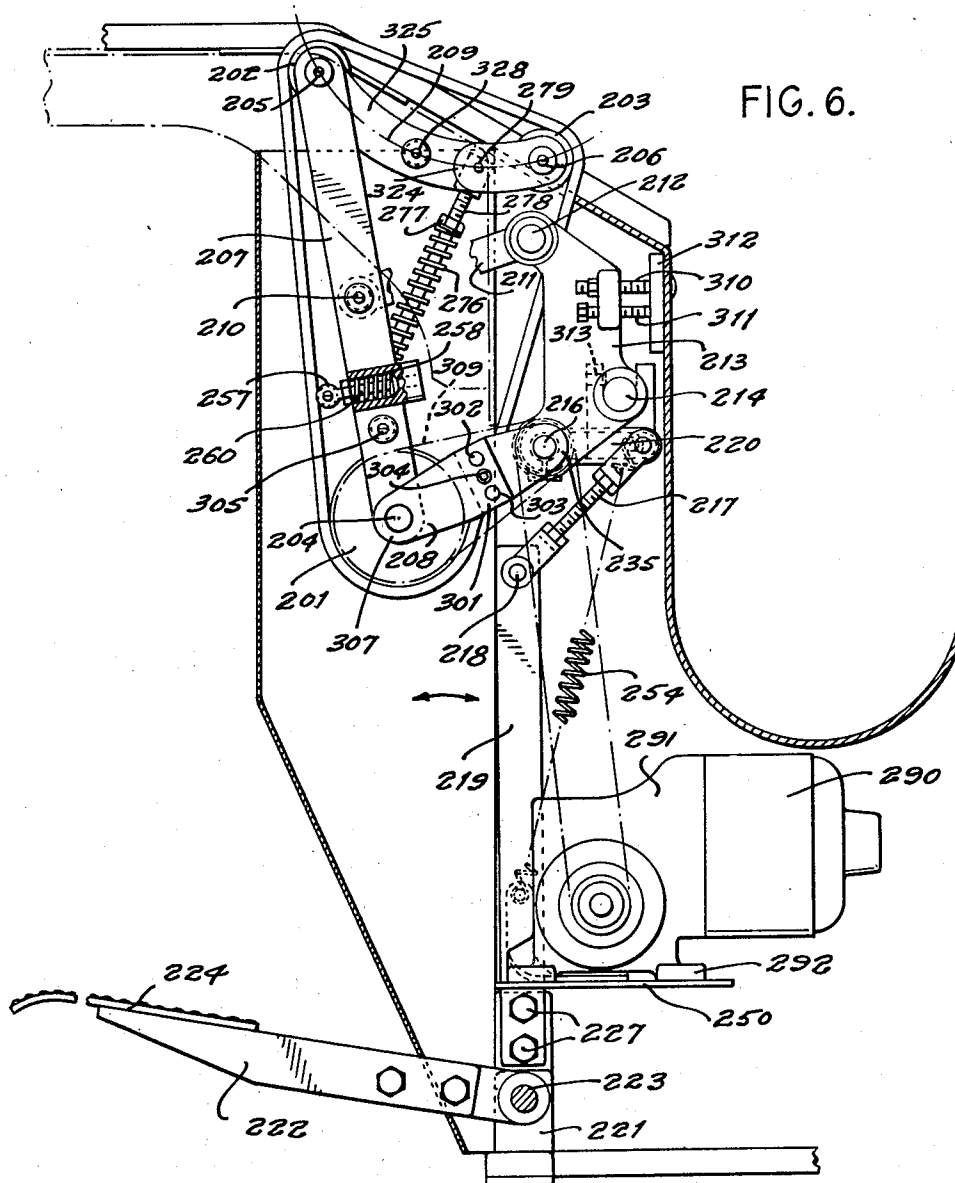


FIG. 6.

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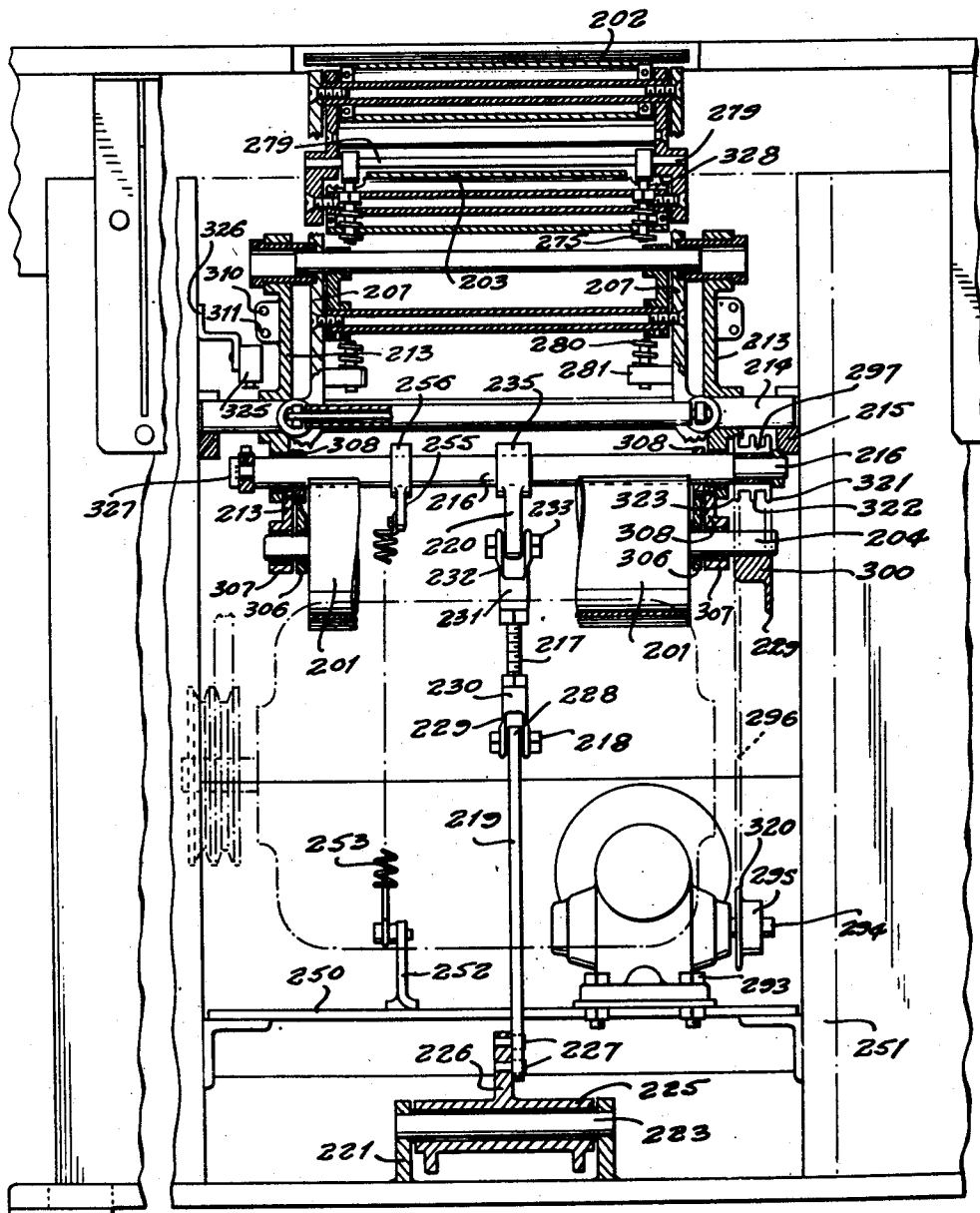
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FIG. 7.



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FUR CONDITIONING MACHINE

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1 Claim. (Cl. 69—27)

The present invention relates to a fur conditioning machine, and although it is broadly applicable to machines for processing of furs, skins and other materials having a proteinaceous or nitrogenous pile material, it has a particular application to the renovating or rejuvenating of fur clothing and particularly fur coats.

It is among the objects of the present invention to provide a fur processing, and particularly fur coat processing, machine which will effectively rejuvenate and refurbish fur without either damage to the fur or lining and with assurance that this operation will be carried out speedily, with a minimum of manual labor.

Another object is to provide a fur processing machine which may be utilized for the refurbishing or rejuvenating fur coats, which will feed the coat into the ironing machine without any danger of ripping or tearing or weakening of the lining and with assurance that the fur will be given renewed luster.

Still further objects and advantages will appear in the more detailed description set forth below, it being understood, however, that this more detailed description is given by way of illustration and explanation only and not by way of limitation, since various changes therein may be made by those skilled in the art without departing from the scope and spirit of the present invention.

In accomplishing the above objects it has been found most suitable, according to one embodiment of the present invention, to provide a high speed, heavy metal ironing roller in readily fixed position, having on the exterior face thereof a plurality of spiral grooves having relatively sharp-edge, replaceable blades on the deep side of the grooves.

These grooves serve to comb and separate and renew the individual fibers of the fur.

Desirably, this roller is provided with an internal, cylindrical, electrical resistance element which is fed by an alternating, two-phase or three-phase circuit and it is also provided with thermostatic control which will regulate such temperature within narrow, desired limits so as not to damage the fur and at the same time assure maximum effective treatment thereof.

While the ironing roller is in fixed position and at an elevated point, upon the structure, the support for the fur garment to be processed is elevated and lowered by means of a bracket or carrier structure provided with rollers which in turn carry a traveling belt, preferably of felt or canvas material. Although the belt may be permitted to turn freely upon rollers, it is desirably driven by means of a motor at a slower speed than the rotating roller.

There are provided manual means for elevating and lowering the rotating belt so as to apply the fur garment to the rapidly rotating roller from a table upon which the fur garment is supported.

Desirably a hood is provided which will take up all loose fibers and dust from the roller, and associated with this hood is a suction fan.

With the foregoing and other objects in view the invention consists of the novel construction, combination and arrangement of parts as hereinafter more specifically described, and illustrated in the accompanying drawings, wherein is shown an embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which fall within the scope of the claims hereunto appended.

In the drawings wherein like reference characters denote corresponding parts throughout the several views:

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Fig. 1 is a front elevational view of the fur conditioning machine, partly in section to more clearly show the interior construction thereof.

Fig. 2 is a rear elevational view, partly in section, of the machine of Fig. 1 upon the same scale as compared to Fig. 1.

Fig. 3 is a vertical transverse sectional view upon the line 3—3 of Fig. 2.

Fig. 4 is a side view partly in section of a detail of the construction, showing the variable belt pulley arrangement.

Fig. 5 is a side elevational view partly in section and upon an enlarged scale as compared to Fig. 2, showing the adjustable pulley in a different position from that shown in Fig. 4.

Fig. 6 is a vertical side sectional view, similar to Fig. 3, of an alternative cradle operating construction.

Fig. 7 is a front elevational view, partly in section and similar to Fig. 1, of said construction of Fig. 6 showing the parts in slightly different position.

Referring to Figs. 1 to 3, there is shown the ironing roller A supported upon the frame structure B. The ironing roller A has an interior heater construction C and it is provided with an exhaust and blower arrangement D driven by the motor E, which also drives the ironing roller A.

The carrier belt arrangement F is driven through a flexible shaft G from the variable speed unit H.

The machine frame B has a base 10, a lower front cover 11, the side covers 12 and the back cover 13. These covers may be held in position by means of the screws 14.

Upon the front of the casing is positioned the table 15 mounted by the brackets 16 upon the front wall 11.

The table 15 has a centrally located cut-out as indicated at 17 through which projects the moving belt arrangement F.

The ironing roller A is enclosed in a hood J which has a top wall 18 with the oblique forward flange 19 and the oblique rear flange 20. The forward flange has a depending lip 21 which will terminate just above the rotating roller A.

The hood J has the funnel member 22, which at its reduced center 23 opens into the casing 24 of the blower D. The blower D has a vane member 25 which rotates on the shaft 26 to the rear of the ironing roller A.

The stream of air which is drawn into the hood J and which is exhausted through the opening 27, picks up all dirt and dust which is discharged into the dust collector D.

The ironing roller has the spiral grooves 35 (see Figs. 1, 2 and 3), which are faced with the sharp, vertically grooved steel blades 36.

These blades are turned in the direction 37 against the fur, which is also moving in the direction 38, being carried by the belt F.

The roller A has the end plates 39 with the hubs 40 which enclose the heater shell C and through which passes the central shaft 41. The shaft 41 has a triple pulley 42 thereon, driven by the three belts 43.

On the shaft 41 are three contact rings 44 for contacting triple phase current to the heater element C, and at the other side there is provided the two contact rings 45 leading to an automatic electrical temperature control (not shown).

The shaft 41 is provided with end bearings 46 supported by the flanges 47 on the end walls 48. The end walls 48 are part of the enclosure 49 on each side of the main ironing roller A.

It will be noted that the enclosures 49 are separated from the hood J by the partition having openings at 51 for the hubs 40.

The exhaust blower D has a pulley 60 upon the shaft 26. The pulley 60 is driven by the belt 61 from the pulley 62 on the motor shaft 63.

The motor E which drives the shaft 63 has a body 64 mounted by the support 65. The motor supporting the base 66 is pivoted on the shaft 68 and the position of the base 66 will be determined by the length of the belt 61. The base 66 may slope in either direction relative to the pivot shaft 68 and it may be either oblique or horizontal.

The bracket 66 has a support ear or lug 67 which may

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be pivoted on the shaft 68. The shaft 68 bears in the bracket 69 on the flange 70, turning inwardly from the lower rear wall portion 11.

The support base 66 for the motor E has the upturned or right angle rear section 72 upon which is adjustably mounted the variable pulley member H.

The mounting on the block 73 is adjustable by means of the screws 74 and the handle 75. The handle 75 may be turned to elevate or lower the variable pulley H.

As best shown in Figs. 4 and 5, the variable pulley H has a body 90, a central shaft 91 and the two flat cone members 92 and 93.

Between the flat cone members 92 and 93 is the belt 94.

The spring enclosed in the housing 90 tends to pull the members 92 and 93 together to the position in Fig. 4 while the belt 94 tends to separate the flanges 92 and 93 to the position as shown in Fig. 5.

As a result, the deeper the belt 94 pulls itself between the flanges 92 and 93, the lower the speed ratio will be.

As shown, the belt 94 is driven from the pulley 95 on the motor shaft 63.

The drive goes through the shaft 96 of the adjustable pulley device H and then passes through the reduction box 97 (see Fig. 2). Then it passes through the flexible cable G to the shaft 98 of the roller 99 carrying the felt belt 100 of the belt arrangement F.

The felt belt 100 is carried by the lowermost pulley or roller 99 and the outside pulley 101 as well as the inside pulley 102 and 103.

The rollers 102 and 103 are positioned so as to present an oblique face to the roller A when the carrier F is elevated.

The elevated mechanism is shown in front view in Fig. 1 and in side view in Fig. 3.

The elevated mechanism includes a treadle 110 on the parallel arms 111, pivotally mounted at 112 on the bracket 113. The treadle has an eye member 114 which rides upon the vertical rod 115 carrying the return coil spring 116. The return coil spring normally biases the treadle 110 upwardly against the direction indicated by the arrow 117. The upper end of the spring 116 reacts against the shelf 118 projecting forwardly from the apron 119 of the reservoir 120. The reservoir 120 has a back wall 121 extending up at 122 to adjacent the roller A to form the bottom of the hood.

The recess 123 is designed to receive the coat as it moves forwardly under the action of the ironing roller.

The carrier belt arrangement F is carried by the side brackets 130, which in turn carry the axles or shafts 132, 133 and 134 of the belt carrier rollers 99, 101, 102 and 103.

The side brackets 130 terminate in the base bracket or bar 135.

The side brackets have the outwardly extending members 136 and 137 which have the eyes 138 and 139 which ride upon the guide rods 140.

The guides rods 140 are supported at their lower end by the members 141 and at their upper end by the brackets 142.

Between the side members 130 adjacent the base 135 is positioned the cross web 143, which has an opening 144 receiving the cord 145. The cord or rope 145 extends over the fixed pulley 146 and then extends downwardly as indicated at 147 to the movable pulley 148. The movable pulley 148 is carried by the U-bracket 149 and at its lower end it is connected by the cross bar 150 to the arms 111 attached to the treadle 110.

The rope or cable then continues upwardly at 151 to the eyelet 152, where it is connected to the fixed brackets 153 attached to the frame of the machine.

The fixed bracket 153 and the fixed bracket 154 are mounted upon the front plate 11 and they act as a lower stop for the cross bar 135.

To adjust the position of the axles 98 of the lower roller 99, the wing nuts 165 are provided on the threaded bars 166. These bars extend through the trunnions 167 and through the angle members 168. The trunnions 167 carry the ends of the shaft 98 of the roller 99. In operation, the belt is tightened by means of the wing nuts 165, loosening or drawing down upon the trunnions 167.

The side brackets 130 carrying the belt 100 together with the pulleys 99, 101, 102 and 103 are elevated or lowered by the treadle 110.

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The belt will be slowly driven through the flexible shaft G, the reduction box 97, the adjustable pulley H and the belt 94 from the motor E.

The exhaust blower 25 will be driven by the belt 61 from the pulley 62 and through the pulley 60.

The ironing roller A will be driven through the motor E, through the belt 61, the pulley 60, belts 43 and the pulleys 42.

The motor E is balanced upon the pivot 68 and swings freely.

The adjustment is varied at the box 97 and by the adjustable pulley H.

In the alternative form of reciprocating cradle, the belt is shown carried by the pulleys or cylinders 201, 202 and 203 of Fig. 6.

The ends of the shafts 204, 205 and 206 of the belt-carrying rolls 201, 202 and 203 are carried by the vertical bar member 207 and the transverse bar members 208 and 209.

The vertical bar member 207 has a pivotal connection 210 to the bar 211 which is pivotally mounted at 212 on the frame member 213.

The hubs 306 at the lower ends of the bar 207 will turn on the shaft 204.

The tie rod 305 will hold the right and left parallel vertical side bars 207 together.

The frame member 213 has a pivot mount at 214 in the U-bracket 215.

The bar member 208 is pivotally mounted at 216 on the bracket member 213.

The hubs 307 of the lever 208 will also turn freely on the shaft 204.

The adjusting bar or tie rod 217 extends between the pivot mount 218 on the vertical actuating bar 219 and it extends up to the end of the rearwardly extending arm or lever 220 mounted on the racket 213.

The treadle 224 is mounted upon the vertical bar 222, which has a pivotal connection at 223 to the frame member 224.

From the sleeve 225, which fits upon the pivot mount 223 extends the short connection member 226.

The connection member 226 has a fixed connection at 227 to the vertical bar 219. The bar 219 at its upper end 228 engages the pivot 218 and fits between the clevis 229 of the sleeve 230 at the lower end of the rod 217.

The upper end of the tie rod 217 is screwed into the sleeve 231 at the lower end of the clevis 232. The clevis 232 is connected to the pivot 233.

The upper end of the member 231 has an eye at 235 engaging the shaft 216.

Extending upwardly from the horizontal frame member 250 and between the legs or framework 251 of the machine is the bracket 252. The bracket 252 engages the lower end 253 of the spring 254.

The upper end of the spring engages the member 255 of the eye 256, which fits upon the bar 216.

The spring 254 will normally move the cradle X, including the felt belt 209, downwardly, and the treadle 221 will elevate the cradle. The treadle 222 when it is lowered through the connection member 226 will act upon the bar 219. The connection between the treadle 222 through the connection member 226 and the bar 219 is shown in the lower part of Fig. 7. The member 226 will extend at an angle forwardly from the end of the treadle 222 so that the bar 219 will be elevated upwardly and in turn will act through the sleeve 230, the adjustable threaded rod 217 and the sleeve 231 on the lever 220 which is pivotally mounted at 216 on the bracket 213. This will be done against the tension of the spring 254. The tension on the belt 200 is normally maintained by the roller 257, which is pressed outwardly by the coil spring 258.

The coil spring 258 fits in the cup 259 in the vertical bar 207 and encircles the shaft 260 extending rearwardly within said cup 259.

The springs 275 fit around the inclined rods 276 and press upwardly upon the adjustable nuts 277. The nuts 277 are mounted upon a threaded portion 278, which is pivotally connected at 279 to the bar 209.

The lower ends of the springs 280 are acted upon by the frame members 281 and press the cross bar 209 upwardly.

A separate motor 290 is provided in this embodiment for driving the belt 200. The motor 290 has a reduction

gearing 291 and it is mounted at 292 upon the shelf 250 by the bolts 293.

The reduction box 291 is provided with an outwardly extending shaft 294, which carries the sprocket wheel 295. The sprocket wheel 295 drives the sprocket chain 296. The chain 296 drives the triple sprocket 297 upon the shaft 216.

The sprocket 297 in turn drives sprocket 300 having the flange 229, the flange 299 and the cup portion 300 through the belt 301.

In operation, the treadle will elevate the vertical bar 219 through the connection member 226 which in turn will elevate the cradle X, carrying the belt 200.

The linkages or pivotally connected bars 207, 208, 209, 211 and 217 will provide a proper movement of the entire cradle, including the belt, up, toward and away from the ironing machine.

The drive of the belt 200 is accomplished from the sprocket 295 through the chain 296, the sprocket 297, the chain 301 and the chain 298.

The sprocket chain 296 will be driven from the sprocket 320 and, in turn, will drive the inside sprocket wheel 323 of the triple sprocket 297. The outside sprocket 321 will drive the sprocket 299 through the sprocket chain 301.

The vertical bar 219 will swing forwardly as the pedal 224 is depressed. The bar 219 through pivot 218 will draw the adjustable tie rod 217 forwardly.

This will draw the lever 220 downwardly to the position shown in Fig. 7. The hub or collar 235 of the lever 220 is fixed to the shaft 216 and the shaft 216 will turn with the lever 220.

The levers 208 have overlapping portions which are held together by dowel pins 302 and 303 and the screw 304 in the center. The split construction enables easier changing of the felt belt 200 without disturbing the bracket 213.

The fixed shaft or studs 214 on the bracket 213 are readily removably mounted in the mounting block 215 and held in position by the left and right set-screws 313. Upon loosening of the set-screws 313, the bracket 213 may be lifted out of the block 215.

The sprocket wheel 298 will drive the shaft 204 and the belt 200.

The left and right levers or links 211 steady the cradle arrangement and they have a parallel arrangement with the split arms 208.

The offsets 324 on the upper links 209 will permit the forward ends 325 of the links 209 to fit between the

vertical bars 207. The two links 209 are held together by the tie rod 328.

The springs 275 will press the bars 209 upwardly. The nut 277 will permit adjustment of the angle of the top of the belt 200 and permit adjustment of pressure against the ironing roller.

The springs 258 will take up slack on the belt 200.

The micro-switch 325 is mounted on the bracket 326 or it may be mounted on the bracket 213 and it will be actuated by the cam 327 on the shaft 216 camming upwardly.

While there has been herein described a preferred form of the invention, it should be understood that the same may be altered in details and in relative arrangement of parts within the scope of the appended claim.

The present application is a continuation-in-part of application Ser. No. 118,133 filed September 27, 1949.

Having now particularly described and ascertained the nature of the invention, and in what manner the same is to be performed, what is claimed is:

A fur treating machine having a hollow rotating cylinder with curved spiral grooves extending the full width thereof from end to end of the cylinder provided with sharp deep edges on one side and shallow edges on the other side, sharp-edged blades mounted on the deep edges, means to heat the interior of the cylinder, a driven belt having a plurality of spaced guide pulleys to provide an inclined portion of the belt to contact the lower outside quadrant of the roller and means to elevate said belt directly vertically linearly upwardly and into contact with the outer lower quadrant of said roller, the inside edge of the inclined portion of the belt being directly vertically below the center line and axis of rotation of the roller and the outer edge of the inclined portion of the belt being substantially beyond the outer edge of the roller, said means to elevate said belt including a belt and pulley arrangement provided with an actuating foot treadle, said treadle being provided with a bracket and a pulley forming part of said pulley arrangement mounted in said bracket and an additional pulley forming part of said pulley arrangement fixedly mounted in position on the machine.

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