

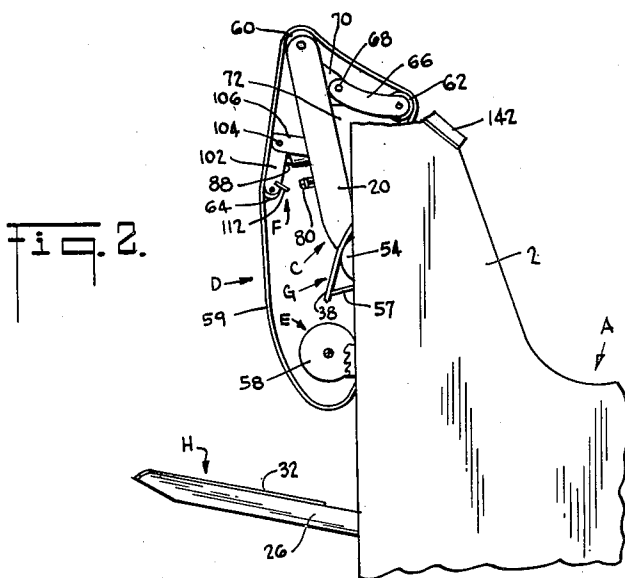
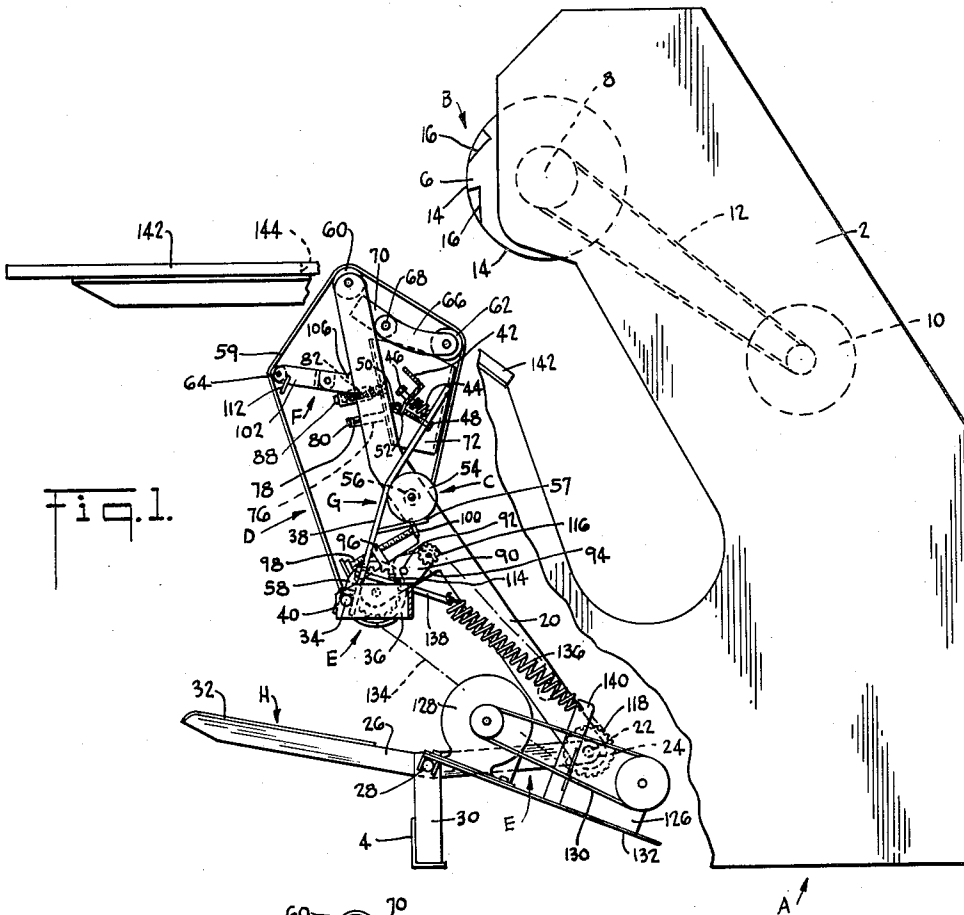
April 7, 1953

S. FRIEDMAN
FUR TREATING MACHINE

2,633,731

Filed Sept. 9, 1950

4 Sheets-Sheet 1



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4 Sheets-Sheet 2

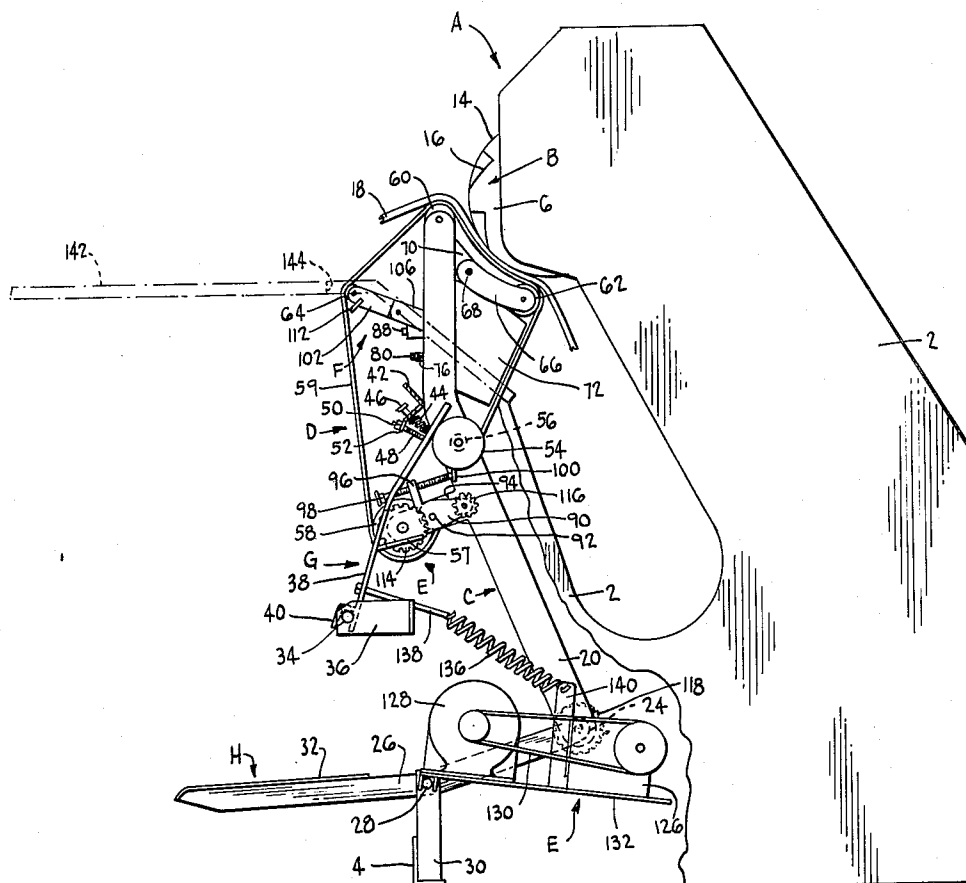


Fig. 3.

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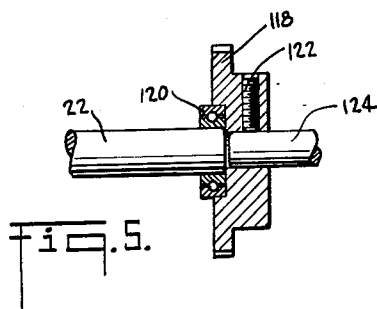
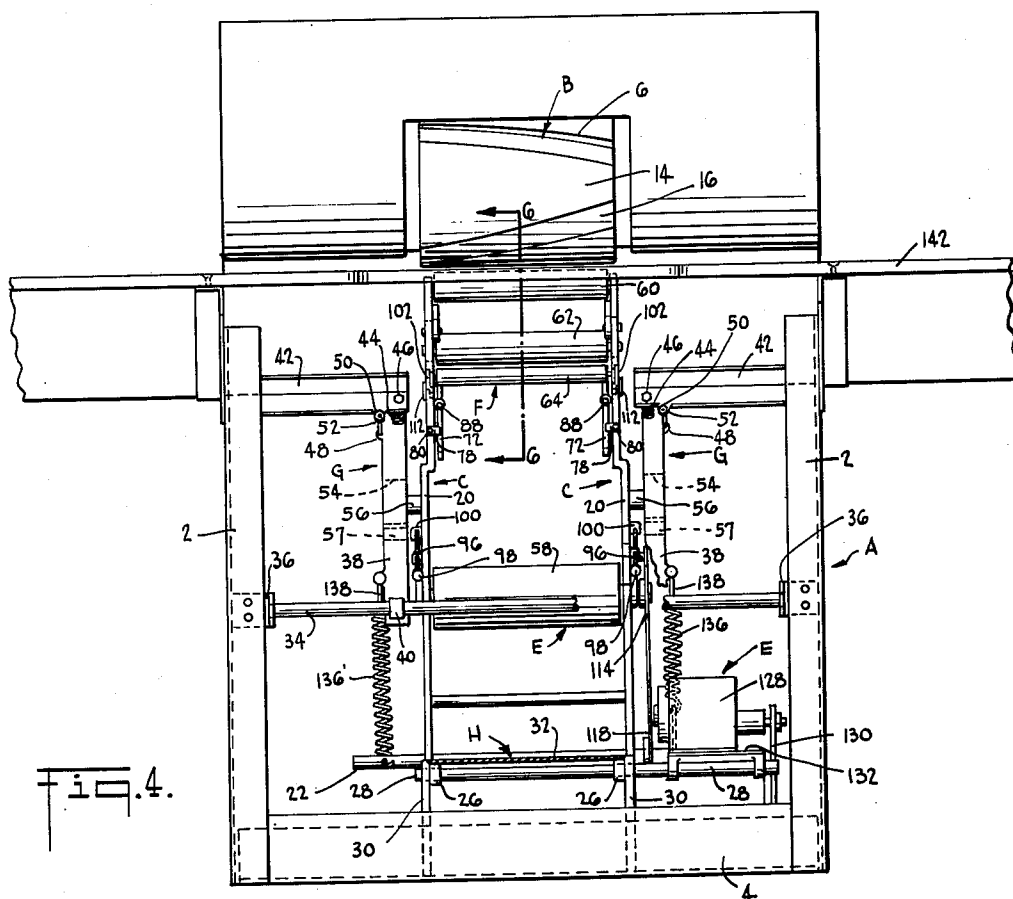
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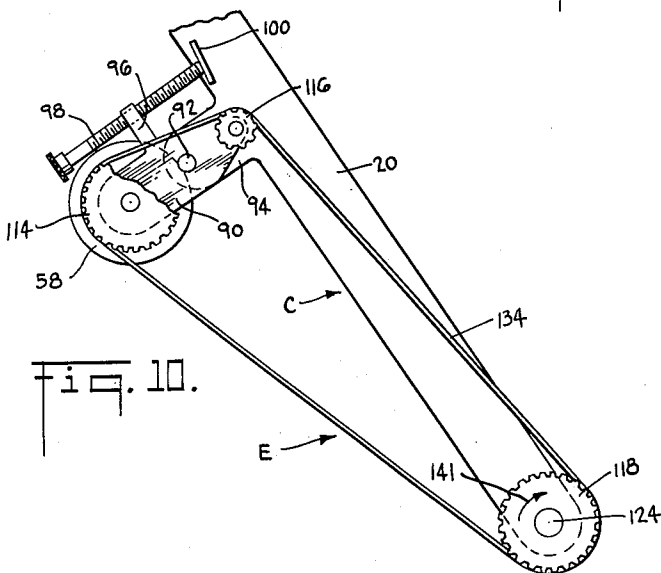
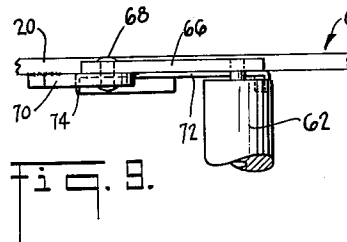
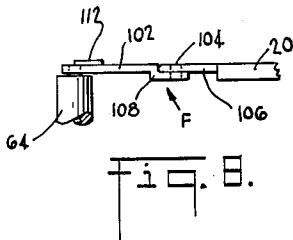
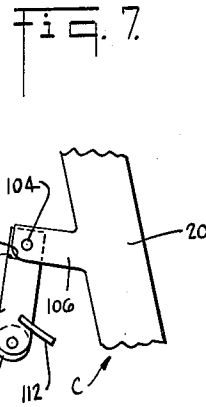
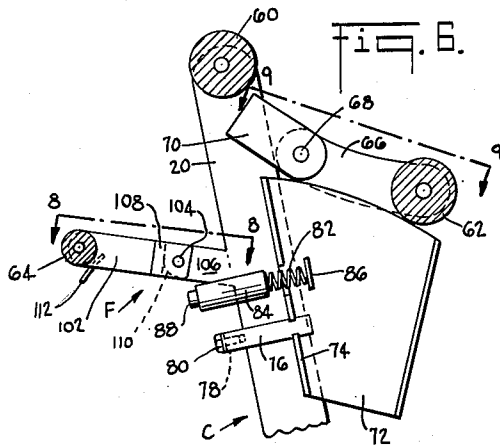
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4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE

2,633,731

FUR TREATING MACHINE

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Application September 9, 1950, Serial No. 183,941

54 Claims. (Cl. 69—27)

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The present invention relates to improvements in fur treating machines, those improvements being here illustrated in a machine of the same general type as that disclosed in Friedman Patent No. 2,477,448 of July 26, 1949, entitled "Fur Conditioning Machine."

In the use of the machine disclosed in the said Friedman Patent 2,477,448, an undesirable effort on the part of the operator was necessary in order to force the pressure belt against the drum with sufficient force to have a useful effect on the fur being treated. This not only led to excessive fatigue on the part of the operator, which in turn resulted in occasional damage to garments being treated, but also materially reduced the productivity of an operator, thus in effect increasing the cost of the equipment.

Another problem which has arisen in the use of the machines in question revolves about the fact that they are ordinarily employed for the treating and reconditioning of garments such as coats, capes and the like, which garments are provided with relatively flimsy and fragile linings. It sometimes happens that the linings, as well as inner attached belts or straps which hang loose, tend to entangle with and wrap themselves around the rotating rollers over which the pressure belt moves, toward which rollers the linings are oriented, such a situation resulting in the ripping or tearing of the linings from the garments. Even if the motor driving the belt over the rollers and hence causing the rollers to rotate were to be deenergized as soon as the entanglement was noticed, the momentum of the moving system is great enough so that rotation would nevertheless continue for an appreciable time, aggravating the damage. Moreover, the switch for deenergizing the motor is normally interlocked with the carriage carrying the rollers, the switch being opened to deenergize the motor only if the carriage is moved a substantial distance away from the drum. As a result, even if the operator should, immediately upon discovering the entanglement, remove his foot from the foot treadle, several seconds will elapse before the rotating system will come to a standstill, and in those several seconds considerable additional damage can result. This is a source of considerable cost to the user of these machines, not only because disentanglement of the lining from the machine may take an appreciable time, thus removing the machines from production and decreasing their output, but also because repair of the linings must be made at the expense of the concern carrying out the conditioning operation.

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From a constructional point of view, the prior machine, in mounting the driving motor for the belt fixedly on the frame and in providing a universal linkage between the motor and the movable carriage, required extra expense in initial manufacture and proved somewhat troublesome insofar as dependability and upkeep were concerned.

In the said prior machine, the carriage was more or less rigidly connected to the foot treadle upon which the operator pressed, and consequently all shocks to which the carriage was subjected while the machine was in use, such as those caused by changes in thickness between parts of the garment being treated, were transferred directly to the foot of the operator. This not only made for additional fatigue on the part of the operator but also hindered the application of constant pressure against the rotating drum for all parts of the garment. Such constant pressure is necessary if all parts of the garments are to be equally treated.

The present invention has for its prime object a general reorganization of the important parts of the carriage, the actuator, and the driving mechanism for the belt, to the end that the above disadvantages can be cured. The motor and the intermediate connections between the motor and the belt are all mounted to move together and to the same extent, thus permitting the employment of simple connections which are initially inexpensive, dependable in operation, and require but little upkeep. The carriage, instead of being mounted so as to pivot about a fixed axis within the frame, is pivotally connected to the actuator so as to pivot about an axis movable with the actuator, the carriage being directed toward the rotary drum which constitutes the fur treating element by sliding over inclined tracks on the frame. As a result the effort required on the part of the operator to move the carriage toward the fur treating element is materially decreased. Moreover, the track is resiliently mounted on the frame and the carriage slides over the track with a resilient member therebetween, and as a result shocks imparted to the carriage are to a large extent taken up by the resiliencies above referred to and hence are not transmitted in full force to the foot of the operator. As an additional feature, one of the guides over which the belt is movable may also be resiliently mounted, thus additionally serving to absorb shock and insulate the operator therefrom.

In order to provide for almost instantaneous cessation of rotation of a guide roller with which

a garment lining may become entangled, means are provided by which the belt may be almost instantaneously collapsed. Since only one of the guides over which the belt passes is positively rotated by the motor, and since that guide is so positioned that the garment being treated never comes near it, collapse of the belt will cause immediate cessation of rotation of the other guides, which are in the nature of idlers, and hence serious entanglements are completely avoided and those entanglements which do occur can be minimized through alert action on the part of the operator. Disentanglement can be effected by the moving belt in reverse by hand after it has been collapsed.

Different types of garments may require different belt tensions as the belt moves over the carriage. This poses a problem when the driving means for the belt is movable with and to the same extent as the carriage and when it is desired to utilize a direct and non-variable connection between motor and belt, since change in position of the guide rotated by the motor in order to vary the tension on the belt is, at first glance, inconsistent therewith. However, by mounting the motor and guide in the manner hereinafter described the position of the guide may be adjusted to any desired degree without affecting the drive thereto. Broadly considered, this result is achieved by utilizing a pair of driven members, one of which is operatively connected to the driving guide to rotate the latter, one of the driven members moving toward or away from a remote driving member to the same extent as but in an opposite direction from the other driven member, so that the length and effectiveness of an endless belt or sprocket chain passing over both driven members and the driving member can remain constant whatever the position of the driving guide.

To the accomplishment of the foregoing, and such other objects as may hereinafter appear, the present invention relates to the construction and arrangement of parts in a fur treating machine, as defined in the appended claims and as described in this specification, taken together with the accompanying drawings in which:

Fig. 1 is a side elevational view of one embodiment of the present invention, the carriage being in inoperative position, with part of the frame broken away;

Fig. 2 is a fragmentary view thereof showing the belt in collapsed condition;

Fig. 3 is a view similar to Fig. 1 but showing the position which the parts assume when the carriage is moved to operative position pressed against the fur treating element;

Fig. 4 is a front elevational view, partially in cross-section, of the machine with its parts positioned as in Fig. 1, the belt being removed from the carriage;

Fig. 5 is a fragmentary cross-sectional view showing the construction of the bearing for the driving member coaxial with the shaft which pivotally connects the actuator and the carriage;

Fig. 6 is a side elevational view on an enlarged scale of the upper portion of the carriage, taken along the line 6-6 of Fig. 4, showing the three guides there positioned and their manner of mounting, the left hand guide being shown in extended position;

Fig. 7 is a fragmentary side elevational view, taken from the opposite side from that of Fig. 6,

showing the left hand guide of Fig. 7 in collapsed position;

Fig. 8 is a top elevational view taken along the line 8-8 of Fig. 6;

Fig. 9 is a top elevational view taken along the line 9-9 of Fig. 6; and

Fig. 10 is a fragmentary side elevational view of the lower portion of the carriage on an enlarged scale, showing the driving connections for rotating the driving roller.

Broadly considered, the machine of the present invention comprises a frame generally designated A on which a fur treating element generally designated B is mounted. A carriage C is mounted in the frame A so as to be movable toward and away from the fur treating element B, a pressure belt D being mounted on the carriage so as to be pressed thereby against the fur treating element B, a fur garment being adapted to be interposed between the belt D and the fur treating element B when the machine is in use. When, as is here specifically illustrated, the pressure belt D takes the form of an endless belt which is moved over the carriage in the direction of its own length by a driving means E operatively connected thereto, means generally designated F is provided through which well nigh instantaneous collapse of the belt D on the carriage C can be achieved. It must be borne in mind that the collapsing means F could be employed even when a non-continuous or non-movable belt D is utilized and that many other aspects of the present invention could have great utility under the same circumstances.

The carriage C is mounted so as to be movable along an inclined track G which is fixed to the frame A, and an actuator H is operatively connected to the carriage C, and to the driving means E if present, in order to move them between an operative position in which the belt D is pressed against the fur treating element B (see Fig. 3) and an inoperative position in which the belt D is remote from the fur treating element B (see Fig. 1).

The frame A includes U-shaped side pieces 2 secured together by appropriate cross pieces 4, the fur treating element B in the form of a drum 6 being rotatably mounted at 8 between the extremities of the upper arms of the side pieces 2 and being driven in rotation by means of a motor 10 to which it is connected by belt 12 or the like. The drum 6 may take the conventional form of a hollow body having a cylindrical external fur conditioning surface 14 provided with inclined deep notches or depressions 16. The drum 6 is heated in conventional manner and as a result the cylindrical surface 14 exerts a pressing action upon a fur piece 18 (see Fig. 3) forced thereagainst. The notches 16, by agitating the fur fibers as the drum 6 is rotated, perform a brushing operation. In some of the well known embodiments of the drum 6, actual brushing elements in the form of bristles are applied to selected areas of the surface 14 of the drum 6. Insofar as the present invention is concerned, other types of fur treating elements B could be employed as well.

The carriage C is here illustrated in the form of a pair of spaced members 20 the lower extremities of which are pivotally mounted on shaft 22 carried by the inwardly extending ends 24 of spaced levers 26 pivotally mounted on shaft 28 journaled in upstanding legs 30 at the front of the frame A. The levers 26 extend out beyond the front of the frame A at the bottom

thereof and are bridged by a platform 32 constituting a foot treadle upon which the operator may step. This linkage, pivotally connected to the carriage C, constitutes the actuator H.

The front portion of the frame A is provided, at a point somewhat midway of its height, with a bar 34 rigidly secured in brackets 36 fastened to the side pieces 2, the bar 34 extending across the frame A and having tracks G in the form of shaped flat bars 38 pivotally secured thereto by means of collars 40, the bars 38 being inclined upwardly and inwardly toward the fur treating element B. They constitute the inclined track G. Brackets 42 extend inwardly from the side pieces 2 so as to overlie the upper ends of the bars 38, springs 44, the tension of which may be controlled by screws 46 passing through the brackets 42, being interposed between the brackets 42 and the bars 38. These springs tend to force the upper ends of the bars 38 away from the brackets 42, screws 48 secured to the bars 38 and having nutted ends 50 passing through lugs 52 on the brackets 42 and serving as positive stops to prevent the upper ends of the bars 38 from being moved too far away from the brackets 42. In view of the collar-bar connection 40-34 the bars 38 are consequently resiliently mounted on the frame A so as to be pivotable to a restricted extent about the bar 34, being normally urged in a clockwise direction thereabout as viewed in Fig. 1 but being movable in a counter-clockwise direction to a limited degree if sufficient force is applied thereto.

Each of the spaced members 20 constituting the main supporting frame of the carriage C is mounted inside the bars 38 and is provided, at a point along its length, with a wheel 54 rotatably mounted thereon, the carriage C being tilted toward the front of the machine with respect to the shaft 22 about which it is pivotable, so that wheels 54, connected to the spaced members 20 by means of shafts 56, are urged against the bars 38 by the weight of the carriage C. Hence when the carriage C is moved from its inoperative position, as shown in Fig. 1, to its operative position against the fur treating element B, as shown in Fig. 3, this being accomplished by counterclockwise pivoting of the levers 26, the shaft 22 about which the carriage C is pivotable is lifted and the carriage C slides along the bars 38, rotation of the wheels 54 facilitating that motion, until the operative position illustrated in Fig. 3 is achieved. When the carriage C is in its operative position any shocks exerted thereupon will be transmitted through the wheels 54 to the upper ends of the bars 38 and will tend to cause those bars 38 to pivot in a counterclockwise direction about the bar 34. Since some movement in that direction is permitted by the springs 44, much of the shock will be absorbed by those springs and hence will not be transmitted directly or in any great proportion to the foot treadle 32 upon which the operator presses with his foot in order to lift the carriage C. Since these shocks are transmitted through the wheels 54, it has been found desirable in many instances to make those wheels at least in part of a resilient material such as rubber, so that the wheels themselves will serve to cushion the shock. A further advantage of the use of rubber wheels 54 is that the operation of the carriage C in moving from operative to inoperative position or vice-versa is rendered much less noisy.

In order to assist in fixing the inoperative position of the carriage C, the bars 38 are pro-

vided with inwardly extending arms 57 on which the wheels 54 rest when the carriage C is in inoperative position.

For supporting and tensioning the pressure belt D on the carriage C, and for moving it thereover when that is desired, the carriage C carries a plurality of guides which, in the embodiment here disclosed, in which the belt D is in the form of an endless belt 59 adapted to be moved over the carriage C in the direction of its own length, comprise a plurality of rollers including a driving roller 58, an idler roller 60 opposed with respect thereto, and a pair of offset rollers 62 and 64 on either side of the opposed rollers 58 and 60. It may be stated at this point that the particular location of the rollers, and the designation of specific rollers as driving, opposed, and offset, may be varied widely, the illustrated embodiment showing but one possible mode of arrangement.

The idler roller 60 is rotatably mounted between the ends of the spaced members 20. The idler roller 62 is rotatably mounted between the extremities of arms 66 each pivotally mounted at 68 in projections 70 secured to the spaced members 20. Secured to and depending from the arms 66 are plates 72, these plates having inwardly extending flanges 74 carrying fingers 76 each having an outwardly extending flange 78 which carries a stud 80 overlying and adapted to be brought into contact with the edge of the spaced members 20. The stud 80 is adjustable in the flange 78 so as to fix the minimum degree to which the arms 66 carrying the roller 62 can pivot in a counterclockwise direction as viewed in Figs. 1 and 6. A spring 82 is active between a housing 84 mounted on the inner surface of each of the spaced members 20 and a lug 86 secured to the plate 72, the spring 82 tending to resiliently urge the arms 66 to pivot in a counter-clockwise direction, the tension of the spring 82 being adjustable by means of screw 88 extending out from the housing 84. The rollers 60 and 62 are so positioned relative to one another that when the carriage C is moved to its operative position (see Fig. 3) that portion of the belt D between the rollers 60 and 62 will tend to be pressed against and conform to a substantial area of the cylindrical external fur conditioning surface 14 of the drum 6. The resilient mounting of the roller 62 will further act to insulate the foot of the operator from shocks exerted on the carriage C, the springs 82 absorbing some of that shock.

The driving roller 58 is rotatably mounted between arms 90 pivotally mounted at 92 on extensions 94 from the spaced members 20. The arms 90 are provided with upward extensions 96 through which screws 98 are passable, the ends of the screws abutting against lugs 100 secured to the spaced members 20. The screws 98, when threaded through the upward extensions 96, will fix the pivotal position of arm 90 with respect to the extension 94, thus causing the roller 58 to move toward and away from the rollers 60 and 62. By appropriately positioning the roller 58 in this manner the tension on the belt D can be adjusted to correspond to desired conditions. When the upward extension 96 is threaded on the forward part of the screw 98 the arm 90 will pivot in a clockwise direction and hence the roller 58 will be moved toward the rollers 60 and 62, thus decreasing the tension in the belt D. When the screw 98 is rotated so that the upward extension 96 is threaded on the rearward portion thereof, the arm 90 will be pivoted in a counterclockwise direction, the roller 58 will move away from

the rollers 60 and 62, and the tension on the belt D will be increased.

The offset roller 64 is rotatably mounted between the ends of arms 102, those arms being pivotally mounted at 104 on extensions 106 projecting out from the spaced members 20 in a direction such as to make an acute angle with a line between the rotary axes of the opposed rollers 58 and 60. The arm 102 is provided with a bent portion 108 which, when the arm 102 is substantially in line with the extension 106, abuts against the end of that extension 106, so that the arm 102 cannot further rotate in a clockwise direction. However, the lower portion of the end of the extension 106 is cut away, as at 110, so that the arm 102 can freely fall to a substantially vertical position, as illustrated in Figs. 2 and 7, pivotal motion of the arm 102 to this substantially vertical position being in a direction away from the acute angle formed by the extension 106 and the line between the centers of the opposed rollers 58 and 60. When the arm 102 is in its position illustrated in Figs. 1 and 6, in which it is substantially in line with the extension 106, the roller 64 carried thereby is in an extended position such that the belt D is maintained in tension. The tension of the belt D, as determined by the positioning of the roller 58 and as maintained by the action of springs 82 active on the rollers 62, tends to retain the roller 64 in that extended position, since the roller 64, to attain its retracted position as illustrated in Figs. 1 and 6, must move in an overcenter manner, first reaching a position more remote from the line between the rollers 58 and 60 (the arm 102 would then be perpendicular to a line between the centers of the rollers 58 and 60) before it can reach the retracted position closer to the line between the rollers 58 and 60 than when it was in its extended position. It will be noted that when the roller 64 is in its retracted position it is so close to the line between the opposed rollers 58 and 60 that, whatever degree of play might exist in the means for tensioning the belt D, that degree of play would be insufficient to maintain the belt D in tensioned condition. It may be noted at this point that when the belt D is moved on the carriage C in the direction of its own length, it preferably moves in a clockwise direction, as viewed in Fig. 1, and motion of the belt D in that direction will further tend to retain the roller 64 in extended position.

Whenever it is desired to collapse the belt D on the carriage C in as rapid a manner as possible, as when the belts or lining of a fur piece 18 may become entangled with one of the rollers 60 or 62, it is merely necessary for the operator to press down strongly on that portion of the belt directly over the roller 64. The belt, being somewhat elastic, will give in response to this pressure and hence the roller 64 can, through that pressure, be moved over-center and to its retracted position. Compression of the springs 82 in response to the pressure exerted by the operator will further aid in permitting motion of the roller 64 from its extended to its retracted positions. When this has been accomplished the belt D will not only be slack but will not even be in contact with the driving roller 58 (see Fig. 2), and hence even if the driving roller 58 is still rotating the belt D will not be moved and the rollers 60 and 62, which are merely idler rollers, will no longer rotate.

After the entanglement has been cleared, the roller 64 may be again moved to extended position by causing the arms 102 to pivot in a clock-

wise direction, finger pieces 112 being provided for that purpose.

In order to rotate the driving roller 58 and thus cause the endless belt D to move over the carriage C in the direction of its own length a driven member in the form of gear 114 is drivingly connected to the roller 58 and is rotatably mounted on one end of the arm 90, a second driven member 116 being rotatably mounted on the other end of the arm 90 equally spaced from the pivotal axis 92 thereof with respect to the first driving member 114 but on the opposite side of the axis 92 therefrom. A driving member in the form of gear 118 is freely rotatably mounted on the end of shaft 22, a roller bearing 120 being interposed therebetween, the shaft 22 constituting the pivotal axis between the actuator and carriage C. The gear 118 is connected by means of set screw 122 for rotation with shaft 124, that shaft extending from gear reduction unit 126 driven by motor 128 via a belt drive 130 or the like. The motor 128 and the gear reduction unit 126 are both mounted on plate 132 which is in turn pivotally mounted on the same shaft 28 which constitutes the pivotal axis for the lever 26. A sprocket chain 134 (shown in phantom in Fig. 1 and omitted in Fig. 3) connects the driving member 118 and the driven members 114 and 116.

By using a pair of driven members 114 and 116 each equally spaced from and on opposite sides of the pivotal axis 92 of the arm 90 on which they are rotatably mounted, changes in the pivotal position of the arm 90, which changes are made in order to vary the tension of the belt D, do not affect the drive between the members 114, 116 and 118, since the member 116 will move toward or away from the member 118 to the same extent as, but in the opposite direction from, movement of the driven member 114. Hence the sprocket chain 134 need not be expansible, its length may remain constant, and its tension will not be appreciably varied despite different positioning of the roller 58.

Since the driving member 118 moves with and to the same extent as the carriage C when that carriage C is moved between operative and inoperative positions, connection between the members 114, 116 and 118 remains undisturbed, no matter in what position the carriage C may be placed. Moreover, since the motor 128, the gear reduction unit 126 and all intermediate connections between the motor 128 and the driving member 118 are operatively connected to the actuator H and move therewith and with the carriage C, no change in the connections in the entire line of drive from motor 128 to drive roller 58 takes place no matter what the position of the carriage C may be. Hence, comparatively expensive and undependable universal linkages such as were employed in the machine of Patent 2,477,448 are completely eliminated.

In order to aid the operator in lifting the carriage C to its operative position, and in order to cushion the fall of the carriage C to its inoperative position when the pressure of the operator's foot on the foot treadle 42 is released, a pair of counterbalancing springs 136, 136' are provided, one on each side, the spring 136 being connected between a hook 138 on the right hand bar 38 and a fixed arm 140 secured to the plate 132 on which the motor 128 and gear reduction unit 126 are mounted. The spring 136' is connected between a hook 138 on the left hand bar 38 and an extension of the shaft 22 which con-

stitutes the pivotal connection between the actuator H and the carriage C.

Since these springs 136 are of the extension type, and since their length decreases when the carriage C is moved from inoperative to operative position (compare Fig. 1 with Fig. 3) the operator would seem to be required to apply greater and greater pressure to the foot treadle 32 in such motion, the greatest amount of pressure being necessary when the belt D is actually pressed against the fur treating element B. However, the carriage mounting and the belt driving means are constructed to assist the operator in this operation, the driving means being effective to reduce the amount of pressure required to be exerted by the operator the carriage mounting being effective to ensure that the necessary force is at a minimum when the carriage C has reached its operative position.

It will be noted that the driven member 116 has a smaller diameter than the driving member 118. The driving member 118 is rotated in a clockwise direction, as indicated by the arrow 140 of Fig. 10, so that the sprocket chain 134 is tensioned between the driving member 118 and the driven member 116. Because of the difference in diameter between these two members the tension in the sprocket chain 134 will have a component perpendicular to a line between the centers of the members 116 and 118 and acting in a direction such as to tend to pivot the carriage C in a clockwise direction toward the fur treating element B. Hence rotation of the driving member 118, which, it will be remembered, is free to rotate with respect to the carriage C, will tend to urge the carriage C toward the fur treating element B. Indeed, the greater the resistance of the belt D to motion in the direction of its length, the greater will be the tension on the sprocket chain 134 and hence the greater will be the pivoting effect of the driving member 118 on the carriage C.

It will also be noted that as the carriage C approaches its operative position it is pivoted more and more in a clockwise direction with respect to its pivotal axis. Hence a smaller and smaller proportion of its weight will tend to pivot it in a counter-clockwise direction, and as a result the less force will be required on the part of the operator and the greater will be the proportional aiding effect of the rotation of the driving member 118.

The present embodiment, like the embodiment in Patent 2,477,448, utilizes a table 142 secured to the frame A and having an aperture 144 therein through which the carriage C is passable, the carriage normally assuming a position flush with or slightly below the top level of table 142 (see Fig. 1) so that fur pieces can be properly placed thereon, the carriage C then lifting the fur pieces above the table 142 when moved to its operative position as in Fig. 3.

The manner of operation and the advantages of the machine of the present invention will in the main be fully apparent from the preceding description. Energization of the motor 128 will cause the driving member 118 to rotate and this in turn will rotate the driving roller 58, causing the belt D to move over the guides 58, 60, 62 and 64 in a clockwise direction. The guide 58 may be adjusted in position, through manipulation of the screw 98, in order to adjust the tension of the belt D. The fur treating element B is rotated at a high speed by the motor 10. The fur piece 18 is placed upon the table 142 and aligned

in proper position. When fur treating operations are to start the operator steps on the foot treadle 142, thus causing the lever 26 to pivot in a counter-clockwise direction and lifting the carriage C, the carriage undergoing a complex motion along the guides 38 while at the same time pivoting about the shaft 22. The motor 128, gear reduction unit 126 and the driving member 118 will lift along with and to the same extent as the carriage C, pivoting about the shaft 28. Rotation of the driving member 118 by the motor 128 will urge the carriage C to pivot in a clockwise direction and will thus assist the operator.

When the carriage C has been moved to operative position, at which time the belt D between the rollers 60 and 62 will press the fur piece 18 against a substantial area of the fur treating element B (see Fig. 3), any shocks to which the carriage C might be subjected, as by reason of irregularities or discontinuities in the fur piece 18, will not be transmitted directly to the foot of the operator, but instead will be absorbed in large part by the resilience of the belt D between the rollers 60 and 62, by compression of the springs 82 which urge the roller 62 outwardly, by the resilient nature of the wheels 54 if they be so constructed, and by the springs 44 which urge the guides 38 in a clockwise direction.

Hence, since the operator need not exert as much force as might be expected, the motor 128 acting through the driving member 118 assisting him, and since shocks to which the carriage C may be subjected are to a large extent absorbed by the machine and not transmitted to him, operator fatigue is materially reduced, the operator is permitted to act in a freer and easier fashion, and hence productivity is increased.

Should any part of the fur piece 18, such as the lining, become entangled with the rollers 60 and 62 next to which it passes, immediate cessation of rotation of those rollers can be effective merely by pressing downwardly strongly on that portion of the belt between the rollers 64 and 60. An instantaneous impulse is sufficient to permit the roller 64, normally held in its extended position by the tension of the belt D and by the motion of the belt D over the guides in a clockwise direction, to move over-center to its retracted position, thus permitting the belt D to collapse and move out of driven engagement with the driving roller 58. Since the belt D is no longer urged in motion, the rollers 60 and 62, being idler rollers, will also cease rotation, and hence entanglement can be avoided or held down to an insignificant extent. Disentanglement may be easily achieved merely by manually moving the belt D in a reversed direction, the collapsed condition of the belt making this readily possible.

It will be noted that the belt is inclined between the rollers 64 and 60. This incline facilitates the placing of fur garments on the belts and at the same time keeps the gap between the opening 144 in the table 142 and the belt D at a minimum.

It will be apparent that many variations may be made in the specific design here disclosed without departing from the spirit of the invention as defined in the following claims.

I claim:

1. In a fur treating machine comprising a fur treating element and a pressure belt movable toward and away therefrom, the improvement which comprises a carriage movable toward and away from said fur treating element and having

a plurality of spaced guides, a belt positioned over said guides, means for tensioning said belt on said guides, said tensioning means having a limited degree of play, one of said guides being mounted on said carriage so as to be movable between an extended position in which the belt positioned thereover is tensioned by said tensioning means and a retracted position closer to said carriage than said extended position by an amount greater than the degree of play of said tensioning means, movement of said one of said guides to retracted position thus causing said belt to collapse on said carriage.

2. In a fur treating machine comprising a fur treating element and a pressure belt movable toward and away therefrom, the improvement which comprises a carriage movable toward and away from said fur treating element and having a plurality of spaced guides, a belt positioned over said guides, means for tensioning said belt on said guides, said tensioning means having a limited degree of play, one of said guides being mounted on said carriage so as to be movable in an over-center manner between an extended position in which the belt positioned thereover is tensioned by said tensioning means and a retracted position closer to said carriage than said extended position by an amount greater than the degree of play of said tensioning means, movement of said one of said guides to retracted position thus causing said belt to collapse on said carriage.

3. In a fur treating machine comprising a fur treating element and a pressure belt movable toward and away therefrom, the improvement which comprises a carriage movable toward and away from said fur treating element and having a plurality of spaced guides, a belt positioned over said guides, means for tensioning said belt on said guides, said tensioning means having a limited degree of play, one of said guides being mounted on said carriage so as to be movable between an extended position in which the belt positioned thereover is tensioned by said tensioning means and a retracted position closer to said carriage than said extended position by an amount greater than the degree of play of said tensioning means, movement of said one of said guides to retracted position thus causing said belt to collapse on said carriage, said belt and said tensioning means being so positioned with respect to said one of said guides that the tension of said belt normally tends to retain said one of said guides in its extended position, one of said belt and said tensioning means yielding to the application of pressure on said one of said guides to permit it to be moved to retracted position.

4. In a fur treating machine comprising a fur treating element and a pressure belt movable toward and away therefrom, the improvement which comprises a carriage movable toward and away from said fur treating element and having a plurality of spaced guides including an offset guide out of line with a pair of opposed guides, a belt positioned over said guides, means for tensioning said belt on said guides, said tensioning means having a limited degree of play, said offset guide being pivotally mounted on an arm extending from said carriage at an acute angle with respect to a line between said opposed guides, said offset guide being movable between an extended position substantially in line with said arm, in which position said belt is tensioned thereover by said tensioning means, and a retracted position pivotally displaced from said extended position in a direction away from said acute angle and

closer to said carriage than said extended position by a distance exceeding the degree of play of said tensioning means, movement of said offset guide to retracted position thus causing said belt to collapse on said carriage.

5. In a fur treating machine comprising a fur treating element and an endless pressure belt movable toward and away therefrom and also movable in the direction of its own length, the improvement which comprises a carriage movable toward and away from said fur treating element and having a plurality of spaced guides, an endless belt positionable over said guides, means for tensioning said belt on said guides, said tensioning means having a limited degree of play, means for moving said belt over said guides in a given direction, one of said guides being pivotally mounted on said carriage so as to be movable between an extended position in which the belt is tensioned by said tensioning means and a retracted position closer to said carriage than said extended position by a distance exceeding the degree of play of said tensioning means, movement of said one of said guides from extended to retracted position being opposite to the direction of movement of said belt over said one of said guides, movement of said one of said guides to retracted position thus causing said belt to collapse on said carriage, movement of said belt over said guides normally tending to retain said one of said guides in extended position.

6. In a fur treating machine comprising a fur treating element and an endless pressure belt movable toward and away therefrom and also movable in the direction of its own length, the improvement which comprises a carriage movable toward and away from said fur treating element and having a plurality of spaced guides, an endless belt positionable over said guides, means for tensioning said belt on said guides, said tensioning means having a limited degree of play, means for moving said belt over said guides in a given direction, one of said guides being pivotally mounted on said carriage so as to be movable in an over-center manner between an extended position in which the belt is tensioned by said tensioning means and a retracted position closer to said carriage than said extended position by a distance exceeding the degree of play of said tensioning means, movement of said one of said guides from extended to retracted position being opposite to the direction of movement of said belt over said one of said guides, movement of one of said guides to retracted position thus causing said belt to collapse on said carriage, movement of said belt over said guides normally tending to retain said one of said guides in extended position.

7. In a fur treating machine comprising a fur treating element and an endless pressure belt movable toward and away therefrom and also movable in the direction of its own length, the improvement which comprises a carriage movable toward and away from said fur treating element and having a plurality of spaced guides including an offset guide out of line with a pair of opposed guides, an endless belt positionable over said guides, means for tensioning said belt on said guides, said tensioning means having a limited degree of play, means for moving said belt over said guides in a given direction, said offset guide being pivotally mounted on an arm extending from said carriage at an acute angle with respect to a line between said opposed guides, said offset guide being movable between

an extended position substantially in line with said arm, in which position said belt is tensioned thereover by said tensioning means, and a retracted position pivotally displaced from said extended position in a direction away from said acute angle and closer to said carriage than said extended position by a distance exceeding the degree of play of said tensioning means, movement of said offset guide to retracted position thus causing said belt to collapse on said carriage.

8. A fur treating machine comprising a frame, a fur treating element thereon, a carriage, an inclined track on said frame oriented toward said element, an operative sliding connection between said carriage and said track, and an actuator operatively connected to said carriage for moving it along said track toward and away from said element.

9. The fur treating machine of claim 8 in which said track is resiliently mounted on said frame so as to take up shocks imparted to said carriage.

10. The fur treating machine of claim 8 in which the operative sliding connection between said carriage and said track comprises a resilient wheel rotatably secured to said carriage and rollable over said track, thus facilitating movement of said carriage toward and away from said element and taking up shocks imparted to said carriage.

11. A fur treating machine comprising a frame, a fur treating element thereon, a carriage, an inclined track on said frame oriented toward said element, an operative sliding connection between said carriage and said track, and an actuator pivotally mounted on said frame and pivotally connected to said carriage for moving it along said track toward and away from said element.

12. A fur treating machine comprising a frame, a fur treating element thereon, a carriage, an endless belt mounted on said carriage and movable thereover, a driving element operatively connected to said belt for moving it over said carriage, a motor operatively connected to said driving element for moving the latter, an actuator operatively connected to said carriage for moving it toward and away from said fur treating element, and an operative connection between said actuator and said driving element for moving the latter together with and to the same extent as the said carriage, thus maintaining constant the distance between said driving element and said carriage for all positions of said carriage.

13. A fur treating machine comprising a frame, a fur treating element thereon, a carriage, an endless belt mounted on said carriage and movable thereover, an actuator pivotally mounted on said frame and articulately connected to said carriage for moving it toward and away from said fur treating element, a driving element operatively connected to said belt for moving it over said carriage, a motor operatively connected to said driving element for moving the latter, said driving element being operatively connected to said actuator so as to be moved with and to the same extent as said carriage, thus maintaining constant with the distance between said driving element and said carriage for all positions of said carriage.

14. A fur treating machine comprising a frame, a fur treating element thereon, a carriage, an endless belt mounted on said carriage and movable thereover, driving means including a mo-

tor and a wheel rotated thereby, an operative connection between said wheel and said belt for moving the latter over said carriage, an actuator pivotally connected to said carriage for moving it toward and away from said element, said wheel being coaxial with the pivotal connection between said actuator and said carriage, and said driving wheel being operatively connected to said actuator for movement therewith and to the same extent as said carriage, thus maintaining constant the distance between said driving wheel and said carriage for all positions of said carriage.

15. A fur treating machine comprising a frame, a fur treating element thereon, a carriage, an endless belt mounted on said carriage and movable thereover, driving means including a motor and a wheel rotated thereby, an operative connection between said wheel and said belt for moving the latter over said carriage, an actuator pivotally connected to said carriage for moving it toward and away from said element, said wheel being coaxial with the pivotal connection between said actuator and said carriage, said actuator being pivotally mounted on said frame and said driving means being operatively connected to said actuator and pivotable on said frame about the same axis as said actuator, said driving wheel being moved by said actuator together with and to the same extent as said carriage, thus maintaining constant the distance between said driving wheel and said carriage for all positions of said carriage.

16. A fur treating machine comprising a frame, a carriage, a plurality of guides on said carriage, an endless belt positioned on and movable over said guides, an arm pivotally mounted on said carriage and extending on both sides of its pivotal axis, one of said guides being rotatably mounted on said arm to one side of said axis, a rotatable driven member on said arm and operatively connected to said one of said guides for simultaneous rotation therewith, a second rotatable driven member on said arm on the other side of said axis, said driven members being equally spaced from said axis, a rotatable driving member remote from said driven members, and a connector passing over said driving and driven members and connecting them for simultaneous rotation, pivotal motion of said arm on said carriage varying the tension exerted on said belt by said one of said guides but not disturbing the operative connection between said driving member and said one of said guides for moving said belt over said guides.

17. In the fur treating machine of claim 16, means for adjustably fixing the pivotal position of said arm on said carriage.

18. In the fur treating machine of claim 16, means for resiliently tensioning said belt on said guides, said tensioning means having a limited degree of play, another of said guides being mounted on said carriage so as to be movable between an extended position in which the belt positioned thereover is tensioned by said tensioning means and a retracted position closer to said carriage than said extended position by an amount greater than the degree of play of said tensioning means, movement of said one of said guides to retracted position thus causing said belt to collapse on said carriage.

19. In the fur treating machine of claim 16, a fur treating element on said frame, said carriage being movable toward and away from said element, and an actuator operatively connected to said carriage to so move it, said rotatable driving

member being operatively connected to said carriage so as to move with and to the same extent as said carriage.

20. In the fur treating machine of claim 19, a motor operatively connected to said rotatable driving member for rotating the latter, said motor being operatively connected to said actuator so as to move with said driving member.

21. In the fur treating machine of claim 16, a fur treating element on said frame, an inclined track on said frame oriented toward said element, an operative sliding connection between said carriage and said track, and an actuator operatively connected to said carriage for moving it along said track toward and away from said element, said rotatable driving member being operatively connected to said carriage so as to move with and to the same extent as said carriage.

22. In the fur treating machine of claim 21, a motor operatively connected to said rotatable driving member for rotating the latter, said motor being operatively connected to said actuator so as to move with said driving member.

23. In the fur treating machine of claim 16, a fur treating element on said frame, an inclined track on said frame oriented toward said element, an operatively sliding connection between said carriage and said track, and an actuator pivotally mounted on said frame and pivotally connected to said carriage for moving it along said track toward and away from said element, said rotatable driving member being coaxial with the pivotal connection between said actuator and said carriage and being operatively connected to said carriage so as to move with and to the same extent as said carriage.

24. In the fur treating machine of claim 23, a motor, and operative connections between said motor and said rotatable driving member for rotating the latter, said motor, said operative connections and said rotatable driving member being operatively connected to said actuator and mounted on said frame so as to be pivotable about an axis parallel to the pivotal axis of said actuator.

25. A fur treating machine comprising a frame, a carriage pivotally mounted therein, a rotatable driven member on said carriage, a rotatable driving-member, and a belt-type connector linking said driving and driven members for simultaneous rotation, said driven and driving members having different diameters so that the portion of said connector between said driving and driven members and tensioned when said driving member is rotated is non-parallel to a line between the centers of said driven and driving members, rotation of said driving member causing rotation of said driven member and also tending to cause said carriage to pivot.

26. A fur treating machine comprising a frame, a carriage pivotally mounted therein, a rotatable driven member on said carriage, a rotatable driving member mounted so as to be rotatable about the pivotal axis of said carriage, and a belt-type connector linking said driving and driven members for simultaneous rotation, said driven and driving members having different diameters so that the portion of said connector between said driving and driven members and tensioned when said driving member is rotated is non-parallel to a line between the centers of said driven and driving members, rotation of said driving member causing rotation of said driven member and also tending to cause said carriage to pivot.

27. A fur treating machine comprising a frame,

a carriage pivotally mounted therein, an arm pivotally mounted on said carriage and extending in opposite directions from its pivotal axis, a first driven member rotatably mounted on said arm to one side of said axis, a second driven member rotatably mounted on said arm on the other side of said axis, said driven members being equally spaced from said axis, a rotatable driving member mounted so as to be rotatable about the pivotal axis of said carriage, and a belt-type connector linking said driving member and said driven members for simultaneous rotation, said driving member and one of said driven members having different diameters so that the portion of said connector between said driving and driven members and tensioned when said driving member is rotated is non-parallel to a line between the centers of said driving member and said one of said driven members, rotation of said driving member causing rotation of said driven members and also tending to cause said carriage to pivot.

28. In the fur treating machine of claim 27, means for adjustably fixing the pivotal position of said arm on said carriage.

29. In the fur treating machine of claim 27, a fur treating element on said frame, an inclined track on said frame oriented toward said arm, an operative sliding connection between said carriage and said track, and an actuator pivotally connected to said carriage for moving it along said track toward and away from said element, said rotatable driving member being rotatable about the pivotal axis between said actuator and said carriage and being operatively connected to said carriage so as to move with and to the same extent as said carriage.

30. In the fur treating machine of claim 29, a motor operatively connected to said rotatable driving member for rotating the latter, said motor being operatively connected to said actuator so as to move with said driving member.

31. The fur treating machine of claim 29, in which said actuator is pivotally mounted on said frame.

32. In the fur treating machine of claim 29, said actuator being pivotally mounted on said frame, a motor, and operative connections between said motor and said rotatable driving member for rotating the latter, said motor, said operative connections and said rotatable driving member being operatively connected to said actuator and mounted on said frame so as to be pivotable about an axis parallel to that pivotal axis of said actuator.

33. A fur treating machine comprising a frame, a carriage pivotally mounted therein, a plurality of guides on said carriage, an endless belt positioned on and movable over said guides, an arm pivotally mounted on said carriage and extending in opposite directions from its pivotal axis, means for adjustably fixing the pivotal position of said arm on said carriage, one of said guides being rotatably mounted on said arm to one side of said axis, a rotatable driven member on said arm and operatively connected to said one of said guides for simultaneous rotation therewith, a second rotatable driven member on said arm on the other side of said axis, said driven members being equally spaced from said axis, a rotatable driving member mounted so as to be rotatable about the pivotal axis of said carriage, a belt-type connector linking said driving member and said driven members for simultaneous rotation, said driving member and one of said driven members having different diameters so that the portion of said

connector between said driving and driven members and tensioned when said driving member is rotated is non-parallel to a line between the centers of said driving member and said one of said driven members, pivotal motion of said arm on said carriage varying the tension exerted on said belt by said one of said guides but not disturbing the operative connection between said driving member and said one of said guides for moving said belt over said guides, rotation of said driving member causing rotation of said one of said guides and also tending to cause said carriage to pivot.

34. In the fur treating machine of claim 33, a fur treating element on said frame, an inclined track on said frame oriented toward said arm, an operative sliding connection between said carriage and said track, and an actuator pivotally connected to said carriage for moving it along said track toward and away from said element, said rotatable driving member being rotatable about the pivotal axis between said actuator and said carriage and being operatively connected to said carriage so as to move with and to the same extent as said carriage.

35. In the fur treating machine of claim 34, a motor operatively connected to said rotatable driving member for rotating the latter, said motor being operatively connected to said actuator so as to move with said driving member.

36. The fur treating machine of claim 34, in which said actuator is pivotally mounted on said frame.

37. In the fur treating machine of claim 34, said actuator being pivotally mounted on said frame, a motor, and operative connections between said motor and said rotatable driving member for rotating the latter, said motor, said operative connections and said rotatable driving member being operatively connected to said actuator and mounted on said frame so as to be pivotable about an axis parallel to the pivotal axis of said actuator.

38. A fur treating machine comprising a frame, a fur treating element thereon, guiding means on said frame and oriented toward said element, a carriage in said frame operatively connected to and movable along said guiding means toward and away from said element, a belt movably mounted on said carriage and adapted to engage with said element when said carriage is moved theretoward, driving means movably mounted on said frame and operatively connected to said belt for moving said belt over said carriage, and an actuator operatively connected to said carriage for moving it along said guiding means toward and away from said element and operatively connected to said driving means for moving it with respect to said frame corresponding to the motion of said carriage.

39. A fur treating machine comprising a frame, a fur treating element thereon, a carriage movably mounted in said frame below and to one side of said element, means on said frame and operatively connected to said carriage for constraining said carriage to translate along a pre-determined path simultaneously upwardly and sidewardly toward said element, a belt movably mounted on said carriage and adapted to engage with said element when said carriage is moved theretoward, driving means movably mounted on said frame and operatively connected to said belt for moving said belt over said carriage, and an actuator operatively connected to said carriage for imparting motion thereto along said pre-determined path and operatively connected to said driving means

for moving it with respect to said frame corresponding to the motion of said carriage.

40. A fur treating machine comprising a frame, a fur treating element thereon, a carriage movably mounted in said frame below and to one side of said element, means on said frame and operatively connected to said carriage for constraining said carriage to translate along a pre-determined path simultaneously upwardly and sidewardly toward said element, a belt movably mounted on said carriage and adapted to engage with said element when said carriage is moved theretoward, driving means movably mounted on said frame and operatively connected to said belt for moving said belt over said carriage, and an actuator pivotally connected to said carriage for imparting motion thereto along said pre-determined path and operatively connected to said driving means for moving it with respect to said frame corresponding to the motion of said carriage.

41. In a fur treating machine comprising a fur treating element and a pressure belt movable toward and away therefrom, the improvement which comprises a carriage movable toward and away from said fur treating element and having a plurality of spaced guides, a belt positioned over said guides, one of said guides being mounted on said carriage so as to be movable between an extended position in which the belt positioned thereover is tensioned and a retracted position closer to said carriage than said extended position, movement of said one of said guides to retracted position thus causing said belt to collapse on said carriage.

42. In a fur treating machine comprising a fur treating element and a pressure belt movable toward and away therefrom, the improvement which comprises a carriage movable toward and away from said fur treating element and having a plurality of spaced guides, a belt positioned over said guides, one of said guides being mounted on said carriage so as to be movable in an over-center manner between an extended position in which the belt positioned thereover is tensioned and a retracted position closer to said carriage than said extended position, movement of said one of said guides to retracted position thus causing said belt to collapse on said carriage.

43. In a fur treating machine comprising a fur treating element and a pressure belt movable toward and away therefrom, the improvement which comprises a carriage movable toward and away from said fur treating element and having a plurality of spaced guides, a belt which is at least somewhat extensively positioned over said guides in tensioned condition, one of said guides being mounted on said carriage so as to be movable between an extended position comparatively remote from said carriage and a retracted position closer to said carriage than said extended position, movement of said one of said guides to retracted position thus causing said belt to collapse on said carriage, the tension in said belt normally tending to retain said one of said guides in its extended position but said belt yieldably lengthening in response to the application of pressure on said one of said guides to permit it to be moved to retracted position.

44. In a fur treating machine comprising a fur treating element and a pressure belt movable toward and away therefrom, the improvement which comprises a carriage movable toward and away from said fur treating element and having a plurality of spaced guides including an offset guide out of line with a pair of opposed guides, a

belt positioned over said guides, said offset guide being pivotally mounted on an arm extending from said carriage at an acute angle with respect to a line between said opposed guides, said offset guide being movable between an extended position substantially in line with said arm, in which position said belt is tensioned thereover, and a retracted position pivotally displaced from said extended position in a direction away from said acute angle and closer to said carriage than said extended position, movement of said offset guide to retracted position thus causing said belt to collapse on said carriage.

45. In a fur treating machine comprising a fur treating element and an endless pressure belt movable toward and away therefrom and also movable in the direction of its own length, the improvement which comprises a carriage movable toward and away from said fur treating element and having a plurality of spaced guides, an endless belt positionable over said guides, means for moving said belt over said guides in a given direction, one of said guides being pivotally mounted on said carriage so as to be movable between an extended position in which the belt is tensioned and a retracted position closer to said carriage than said extended position, movement of said one of said guides from extended to retracted position being opposite to the direction of movement of said belt over said one of said guides, movement of said one of said guides to retracted position thus causing said belt to collapse on said carriage, movement of said belt over said guides normally tending to retain said one of said guides in extended position.

46. In a fur treating machine comprising a fur treating element and an endless pressure belt movable toward and away therefrom and also movable in the direction of its own length, the improvement which comprises a carriage movable toward and away from said fur treating element and having a plurality of spaced guides, an endless belt positionable over said guides, means for moving said belt over said guides in a given direction, one of said guides being pivotally mounted on said carriage so as to be movable in an over-center manner between an extended position in which the belt is tensioned and a retracted position closer to said carriage than said extended position, movement of said one of said guides from extended to retracted position being opposite to the direction of movement of said belt over said one of said guides, movement of one of said guides to retracted position thus causing said belt to collapse on said carriage, movement of said belt over said guides normally tending to retain said one of said guides in extended position.

47. In a fur treating machine comprising a fur treating element and an endless pressure belt movable toward and away therefrom and also movable in the direction of its own length, the improvement which comprises a carriage movable toward and away from said fur treating element and having a plurality of spaced guides including an offset guide out of line with a pair of opposed guides, an endless belt positionable over said guides, means for moving said belt over said guides in a given direction, said offset guide being pivotally mounted on an arm extending from said carriage at an acute angle with re-

spect to a line between said opposed guides, said offset guide being movable between an extended position substantially in line with said arm, in which position said belt is tensioned thereover, and a retracted position pivotally displaced from said extended position in a direction away from said acute angle and closer to said carriage than said extended position, movement of said offset guide to retracted position thus causing said belt to collapse on said carriage.

48. The fur treating machine of claim 38, in which said driving means is pivotally mounted on said frame.

49. The fur treating machine of claim 39, in which said driving means is pivotally mounted on said frame.

50. The fur treating machine of claim 40, in which said driving means is pivotally mounted on said frame.

51. A fur treating machine comprising a frame, a fur treating element thereon, a carriage movably mounted in said frame so as to be movable toward and away from said element, a belt movably mounted on said carriage and adapted to engage with said element when said carriage is moved theretoward, driving means movably mounted on said frame and operatively connected to said belt for moving said belt over said carriage, and an actuator operatively connected to said carriage for moving it toward and away from said element and operatively connected to said driving means for moving it with respect to said frame corresponding to the motion of said carriage.

52. The fur treating machine of claim 51, in which said driving means is pivotally mounted on said frame.

53. A fur treating machine comprising a frame, a fur treating element thereon, a carriage movably mounted in said frame below and to one side of said element and movable toward and away from said element, a belt movably mounted on said carriage and adapted to engage with said element when said carriage is moved theretoward, driving means movably mounted on said frame and operatively connected to said belt for moving said belt over said carriage, and an actuator pivotally connected to said carriage for imparting motion thereto toward and away from said element, said actuator being pivotally connected to said driving means for moving said driving means with respect to said frame corresponding to the motion of said carriage.

54. The fur treating machine of claim 53 in which said driving means is pivotally mounted on said frame.

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