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0 **D. EDGAR** 2
MACHINE FOR PERFORMING PUTTING-OUT OR ANALOGOUS
OPERATIONS ON HIDES OR SKINS
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2 Sheets-Sheet 1

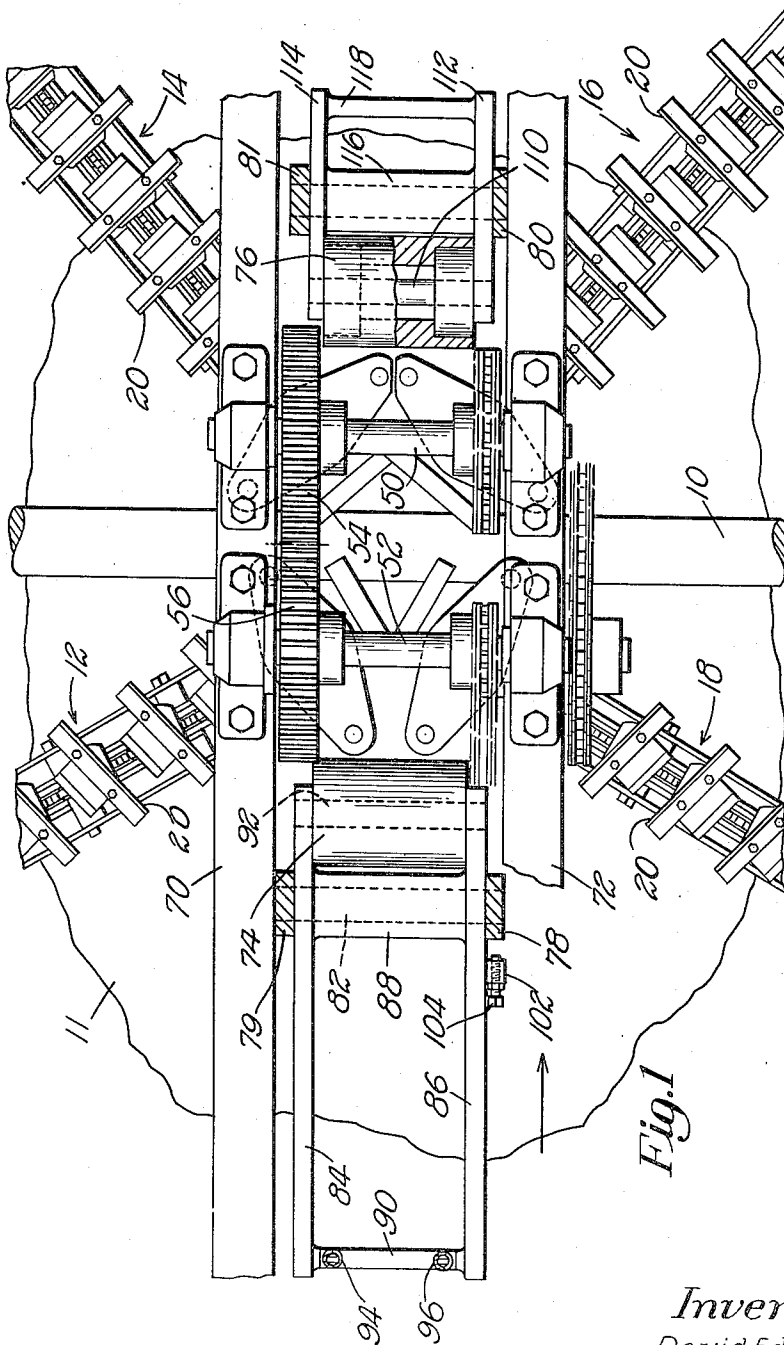


Fig. 1

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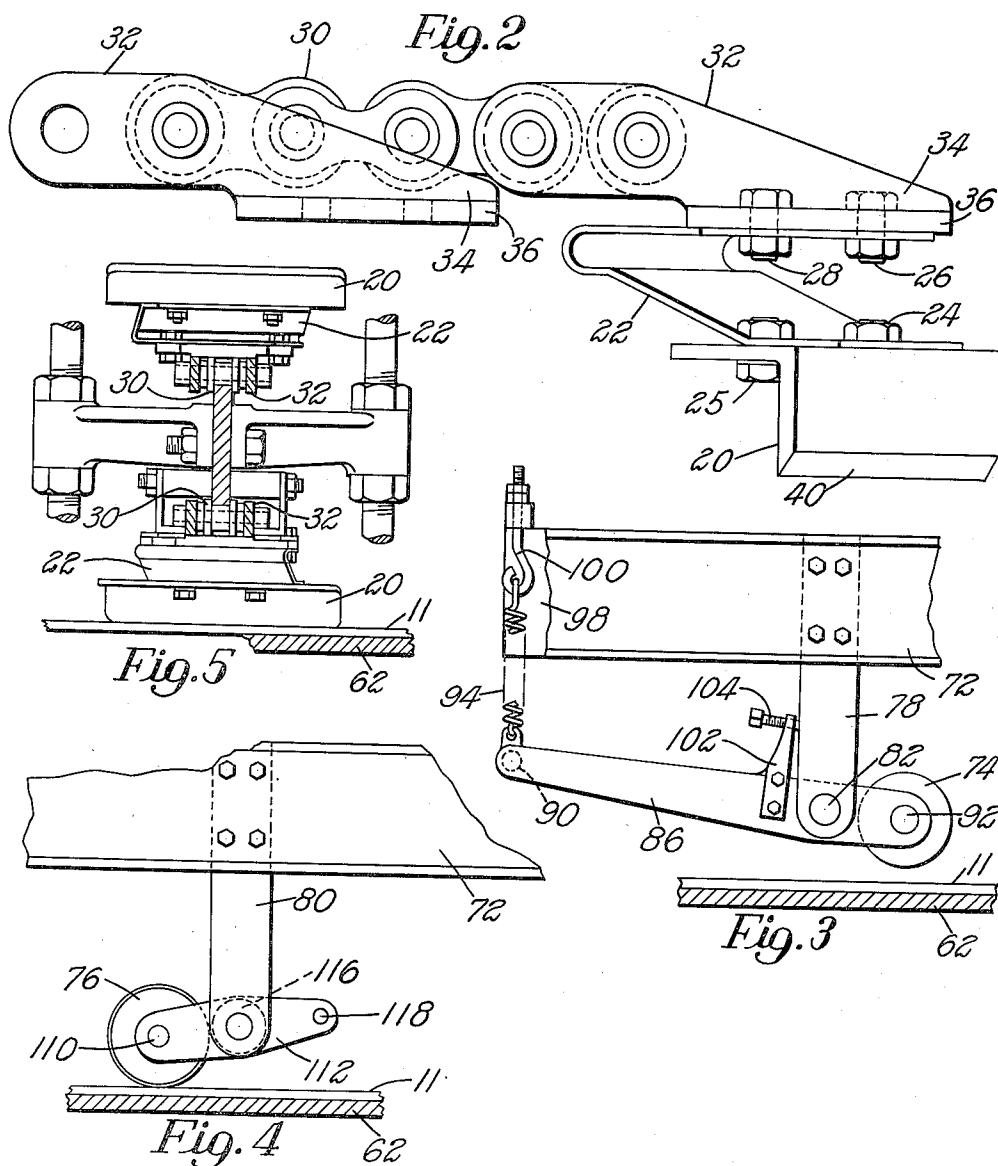
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UNITED STATES PATENT OFFICE

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MACHINE FOR PERFORMING PUTTING-OUT
OR ANALOGOUS OPERATIONS ON HIDES
OR SKINSDavid Edgar, Lynn, Mass., assignor to United
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11 Claims. (Cl. 69—46)

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This invention relates to machines for treating sheet materials, and more particularly to a machine for putting out hides and skins. The invention is herein illustrated as embodied in a machine of the same general type as that disclosed in United States Letters Patent No. 2,366,242, granted on January 2, 1945, in the name of David Edgar. The desired functions of such a machine are to remove water from hides consecutively presented in spread-out condition on a support, smooth the grain, and stretch and flatten the hides uniformly despite the irregular contours of such work pieces. It is to be understood that the term "hide" is used in this specification and in the appended claims to include both hides and skins. Although the invention is principally directed to a machine for putting-out, it is clear that fleshing or dehairing may be performed by that same machine.

Machines of the type illustrated in the patent referred to perform the putting-out operations successfully but some difficulties are pronounced when certain types of hides are treated. When a work piece is particularly soft or flexible, there is a tendency for the machine to pull the work piece bodily to one side or the other with a consequent lack in uniformity of treatment and possible folding and consequent damage. This tendency is accentuated when an operator is careless in placing a given hide on the work support or conveyor belt used for introducing the work into the machine in such a manner that work is not fed into the approximate center of the treatment zone. The spreading action of the tools is thus not availed of to the extent desired. In a given situation wherein the work is fed too much to one side of the treatment zone, some of the tools employed may exert an excessive pull on the hide and other tools which are supposed simultaneously to treat that hide may completely lose contact with the hide. Such action is obviously not desirable. It has been noted also that variations in thickness of a given work piece sometimes gave rise to irregular treatment. In addition, as the major volume or portion of a hide is in its central section, most of the water to be removed is found in that section, and for this reason, some undesired water content was not removed from the hide even when the action of the tools was uniformly exerted on all parts of the work piece.

It is an object of the present invention to provide a machine in which the above-mentioned difficulties are avoided—a machine in which a hide in spread-out condition may be conveyed through a treatment zone, treated substantially uniformly by tools having a spreading action, and rendered free of excess water in its central section.

A feature of the invention is a roller, preferably covered with a soft or absorbent material, which

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is arranged directly in front of the work treating and spreading zone of the machine and beneath which a work piece is pressed as it is fed to that zone. Another feature is a roller, also preferably covered with a soft or absorbent material, arranged directly in back of the work treating zone and adapted to press the work piece against its support as it is discharged from that zone. Still another feature resides in the resiliently mounted tools arranged to operate in the treating zone and acting outwardly in diverging directions to create a uniform spreading effect on the work piece.

The above and other features of the invention, including novel details of construction and combinations of parts will now be more particularly described in connection with the accompanying drawings and pointed out in the claims.

In the drawings,

Fig. 1 is a plan view, partially in section, of the main elements of the machine as located in the work treatment zone;

Fig. 2 is an elevational view of one of the work treating tools and its manner of support;

Fig. 3 is an elevational view of one of the rollers shown in Fig. 1;

Fig. 4 is an elevational view of another roller also shown in Fig. 1; and

Fig. 5 is a sectional view through any one of the sets of diverging working tools.

In order to simplify and explain the disclosure it may be said that the present invention is illustrated as incorporated in a machine substantially similar in all respects to the machine disclosed in Patent No. 2,366,242 except for the omission of the bladed work treating tools along the median line of the conveyor belt, the substitution for those tools of two felt-covered rolls, and a change in the mounting for the work treating tools. The novel cooperation of the parts herein disclosed in a machine of the type considered is such as to contribute to smoothness of operation of the machine and more uniform treatment of the work as well as a better removal of the water from the work.

As disclosed in the Patent No. 2,366,242 an endless conveyor belt is utilized with one horizontal run thereof being supported by a vertically movable table by means of which a given work piece in spread-out condition may be fed through a treatment zone. Sets of putting-out blades are mounted on the links of power-driven endless chains and these sets are arranged to operate in diverging directions upon a work piece supported by the conveyor belt and table when the table is in raised position. The sets of tools are placed in what may be termed an X-formation to bring about the uniform spreading action on each work piece.

As in the machine of the patent, a holding roll (Fig. 1) is preferably but not necessarily

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utilized. If used, it is mounted to extend through the work treatment zone of the machine and to rest upon a work piece being fed beneath it on a conveyor belt 11. This holding roll 10 is not essential when the features of the present invention are used but its use is preferred as it definitely contributes to the proper holding of the work piece in position on and in relation to the conveyor belt 11 during treatment thereof.

The diverging sets 12, 14, 16 and 18 are provided with blades 20, each blade being attached by means of a thin metal plate 22 (Fig. 2) and bolts 24, 25, 26 and 28 to an endless chain 30. Every other set of side links 32 is of special construction and is adapted to support a blade 20. Two of such sets are shown in Fig. 2 and each of such sets is elongated to form an extension 34 and supporting base 36 to which the spring 22 may be attached by the bolts 26 and 28. The lower edge 40 of the blade 20 is beveled to form a cutting or putting-out edge and the arrangement of each blade with respect to its chain 30 is such that the water contacting that blade 20 will flow outwardly—that is, to one side of the chain and towards the edge of the conveyor belt 11. This flow is brought about by locating the blade 20, which is in the form of an angle bar, in such position that it is at a slight angle with the chain 30 as considered in the plan view of Fig. 1. All the blades 20 of a given chain 30 are in parallel relation as shown in Fig. 1 but it is to be understood that Fig. 1 shows the blades 20 on the upper or idle runs of the chains and that the inclination of the blades 20 with respect to the lower runs will be the reverse of that shown in Fig. 1 for the upper blades.

As in the patented machine, the sets 12, 14, 16 and 18 are driven by means of shafts 50 and 52, gears 54 and 56 and other elements, the latter not being shown in the present drawings.

Also, as in the machine of the patent, the upper run of the endless conveyor belt 11 is supported on a table 62 (Figs. 3, 4 and 5) which is vertically movable to press or support a work piece on the conveyor belt 11 against the blades 20 when the table 62 is in raised position.

The machine is provided with two stationary and horizontal frame members 70 and 72 (Fig. 1) which serve as supports for the inner ends of the tool sets 12, 14, 16 and 18. These members 70 and 72 also guide two felt-covered rolls 74 and 76 by means of downwardly extending brackets 78, 79, 80 and 81. The brackets 78 and 79 are each bolted to a frame member 70 or 72 and at their lower ends they support a shaft 82. Two levers 84 and 86 are joined together by a hub 88 journaled on the shaft 82 and also by a bar 90 and a shaft 92 upon which the roller 74 is journaled. Springs 94 and 96 (Fig. 1) are attached at their lower ends to the bar 90 and at their upper ends to hooks (only one hook 100 is shown in the drawings) attached to a stationary portion 98 (Fig. 3) of the main machine frame. An arm 102 is attached to the lever 88 and this arm is provided at its upper end with a stop screw 104 to constitute an adjustable stop arranged to contact the bracket 78.

The roller 76 is also felt-covered as heretofore explained and it is journaled on a shaft 110 attached to the two levers 112 and 114 which levers are joined together by means of a hub 116 and a bar 118. The roller 76 is constructed and arranged to rise and fall with the table 62, resting at all times either on the belt 11 or a work piece being discharged as will be further explained.

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In operation a work piece (not shown) is placed upon the conveyor belt 11 and is fed through the work treating zone, i. e., beneath the work treating tool sets 12, 14, 16 and 18 in the direction indicated by the arrow in Fig. 1. In beginning the treatment of a work piece the work table 62 is assumed to be in its lowered position (Fig. 3). The leading edge of the work piece therefore easily passes beneath the roller 74 without that roller interfering with its spread-out condition. The roller 74 is held clear of the leading portion of the work piece because of the action of the stop member or stop screw 104. When the work piece has entered to a substantial extent into the zone of all four work treating tool sets, then the table 62 will rise and press the work piece against the tools 20 which have already been set in motion. Each thin metal plate or spring 22 will yield slightly as the work is pressed against the corresponding blade 20. The springs 22, thus loaded, will hold the blades 20 with sufficient force against the work to bring about the desired putting-out action. When the table rises the rollers 74 will press the work piece against the conveyor belt and displace some of the water from the central portion of the work piece, the springs 94 and 96 aiding in bringing about the requisite pressure. The holding roll 10 is preferably used to assist in maintaining the proper position of the work piece during its treatment.

The roller 76 is free to move up and down with the table and no clearance need be provided between the conveyor belt and the roller 76 for entrance of the leading edge of the work piece as the tool sets 14 and 16 maintain the leading portions of the work piece in stretched-out condition. The work piece therefore enters the bite between the roller 76 and the conveyor 60 without undue distortion and the roller 76 serves to displace and remove still more water from the central portion of the work piece.

When the work piece has been adequately treated by the blades 20 and leaves the zone of effective action by the sets 12 and 18, the table 62 is caused to lower (the upper run of the belt 11 lowering with it) and the work piece is discharged from the machine with the absorbent roller 76 continuing its water removal action until it crosses the trailing edge of the work piece.

The water squeezed out of the work piece by the bladed tools and the rollers 74 and 76 remains on the conveyor belt and is transferred away from the work treating zone before the next work piece is introduced for treatment. This water is removed from the belt by a suitable scraper (not shown) or by some other means located at the work discharge end of the machine. The absorbent material of rollers 74 and 76 does remove some water from a given work piece by its absorbent action and then deposits that water on the belt 11 but the primary purpose of the absorbent material is to cushion the rollers and avoid injury to the hide surfaces as the rollers press out or squeeze out the water by their mechanical action.

With a machine such as disclosed the spring loaded blades 20 and the resiliently mounted rollers 74 and 76 all cooperate to maintain the spread-out condition of the work piece during treatment and without undue displacement thereof, and this action is had despite variations in thicknesses or other inequalities of the different portions of the work treated.

Having described my invention, what I claim

as new and desire to secure by Letters Patent of the United States is:

1. In a machine for treating sheet material, a frame, a work-feeding means on said frame having a supporting surface for a work piece to be treated, means for moving said surface substantially horizontally and in a given direction beneath a work treatment zone, tools mounted on said frame to impart a spreading effect on said work piece from a central portion of said zone, and an absorbent roller arranged directly in front of said central portion yielding to contact said work piece and resist bodily displacement of the work piece from the line of feed.

2. In a machine for treating sheet material, a frame, a work-feeding means on said frame having a supporting surface for a work piece to be treated, means for moving said surface substantially horizontally and in a given direction beneath a work treatment zone, tools mounted in X formation on said frame to impart a spreading effect on said work piece from a central portion of said zone, and absorbent rollers arranged directly in front and in back of said central portion yielding to contact said work piece as it passes through said zone.

3. In a machine for treating sheet material, a frame, a work-feeding means on said frame with a supporting surface for a work piece to be treated, means for moving said surface in a given direction beneath a work treatment zone, tools mounted in X formation on said frame to spread out said work piece from a central portion of said zone, and a roller with an absorbent covering arranged directly in front of said central portion to contact and yieldingly press said work piece against said surface as it passes through said zone.

4. In a machine for treating sheet material, a frame, a work-feeding means on said frame having a supporting surface for a work piece to be treated, means for moving said surface substantially horizontally and in a given direction beneath a work treatment zone, spring-loaded tools mounted on said frame to impart a spreading effect on said work piece from a central portion of said zone and in diverging directions, and a roller arranged directly in front of said central portion to press said work piece against said surface and resist bodily displacement of the work piece from the line of feed.

5. In a machine for treating sheet material, a frame, a work-feeding means on said frame having a supporting surface for a work piece to be treated and a vertically movable table upon which said work-feeding means is arranged to rest, means for moving said work-feeding means over and in contact with said table beneath a work treatment zone, tools mounted on said frame to impart a spreading effect on said work piece from a central portion of said zone, a roller arranged directly in back of said central portion yielding to press said work piece against said surface, and said roller being movable vertically with said table.

6. In a machine for treating sheet material, a frame, a work-feeding means on said frame comprising one run of an endless conveyor and a vertically movable table upon which the said run rests for supporting a work piece, means for moving said run over said table and beneath a work treatment zone, tools mounted in X formation on said frame to impart a spreading effect on said work piece from a central portion of said zone, a roller with an absorbent covering ar-

ranged directly in back of said central portion yielding to press said work piece against said run, and said roller being movable vertically with said table.

7. In a machine for treating sheet material, a frame, a work-feeding means on said frame comprising a conveyor belt and a vertically movable table backing up one run of said belt to support a work piece, means for moving said run over the table and beneath a work-treatment zone, tools mounted on said frame to move in diverging directions and impart a spreading effect on said work piece from a central portion of said zone, rollers with absorbent coverings arranged directly in front and in back of said central portion yielding to press said work piece against said belt and one of said rollers being arranged to move vertically with said table.

8. In a machine for treating sheet material, a frame, sets of individual tools mounted thereon in X formation, each set being arranged to perform work outwardly in said X formation, a conveyor belt adapted to support pieces of work for successive presentation to the sets of tools, a vertically movable table over which the conveyor belt is arranged to slide, said table being adapted to be raised and thereby serve as a backing-up member during treatment of the work pieces by said tools, means to move the conveyor during the work-treating operation, and absorbent covered rollers arranged directly in front and in back of said X formation yielding to press a work piece against said conveyor when said table is in its raised position.

9. In a machine for treating sheet material, a frame, sets of individual tools mounted thereon in a work treating zone and in X formation, each set being arranged to perform work outwardly in said zone, work-feeding means successively to support work pieces in said zone including a table which is vertically movable, said table being adapted to serve as a backing-up member during treatment of the work pieces by said tools, and an absorbent roller with its axis transverse to the line of feed and arranged directly in back of said tools yielding to press a work piece being treated and to raise and lower with said table.

10. In a putting out machine comprising a frame, a vertically movable table mounted on said frame, sets of putting out tools mounted parallel to said table for diverging movement in a horizontal plane, a conveyor belt for transferring a spread-out hide across the surface of the table, rollers covered with absorbent material with their axes transverse to the line of feed and yieldingly movable in a vertical direction to resist bodily displacement of the work piece from the line of feed when the table is raised to establish contact between the tools and said hide.

11. A machine of the type described in claim 10, in which each tool is supported by a yielding thin metal plate.

DAVID EDGAR.

REFERENCES CITED

The following references are of record in the file of this patent:

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Number	Name	Date
1,920,341	Ballard	Aug. 1, 1933
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