

No. 701,080.

Patented May 27, 1902.

F. J. PERKINS.
MACHINE FOR TREATING HIDES OR SKINS.

(Application filed Mar. 7, 1902.)

(No Model.)

3 Sheets—Sheet 1.

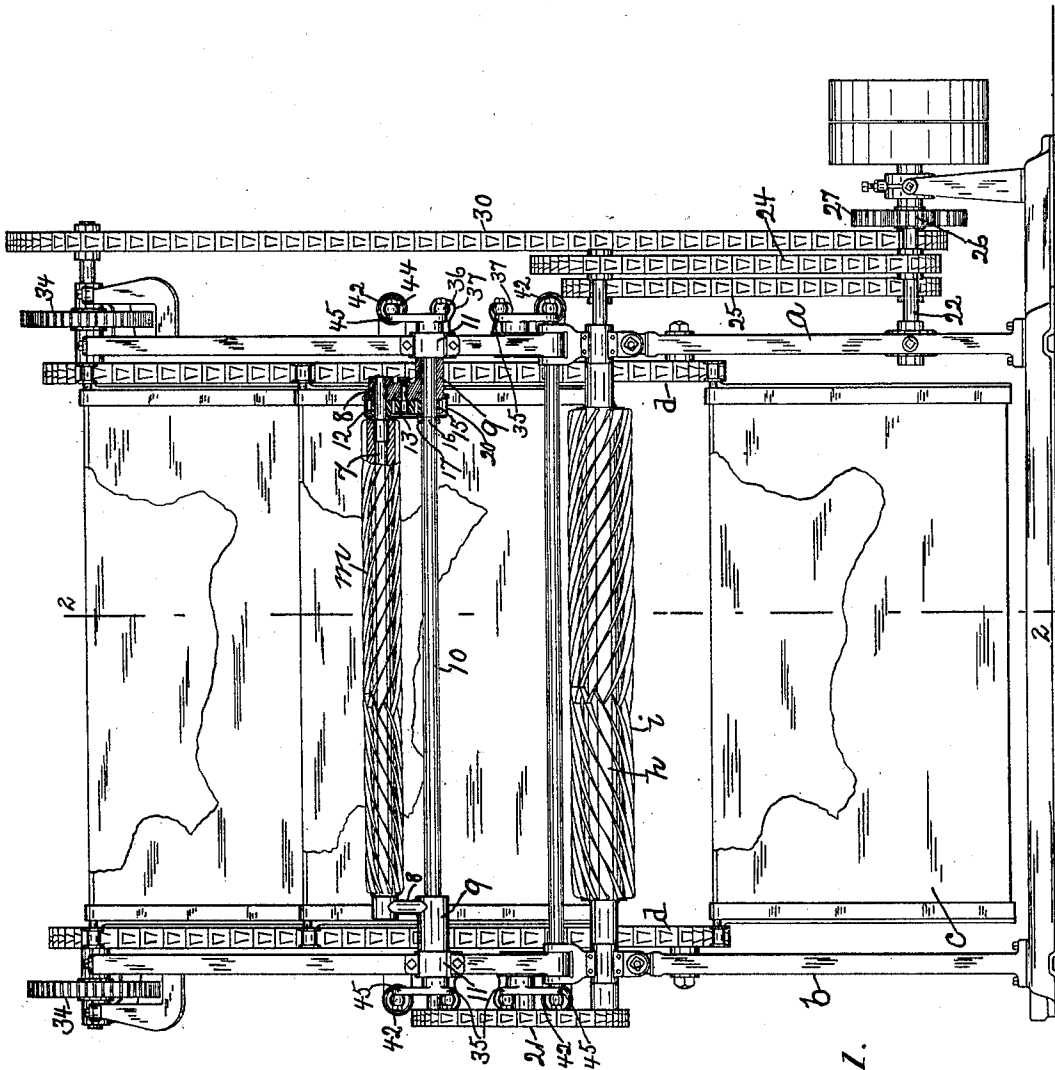


Fig. 1.

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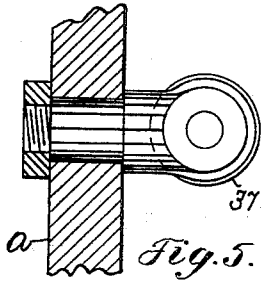


Fig. 5.

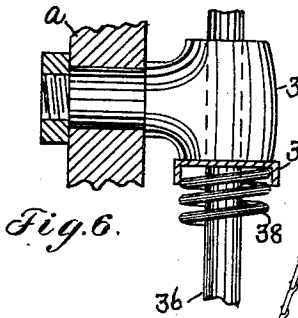


Fig. 6.

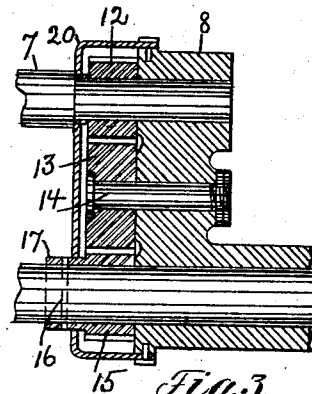


Fig. 3.

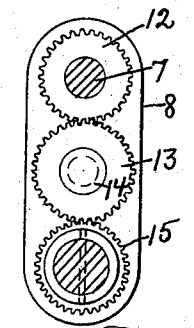


Fig. 4.

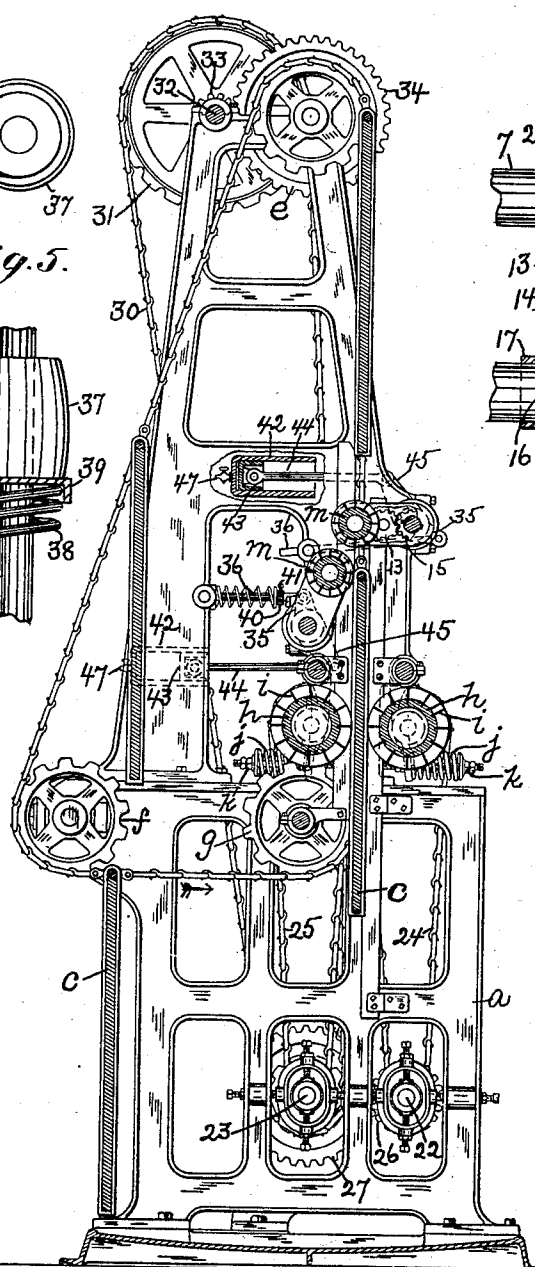


Fig. 2.

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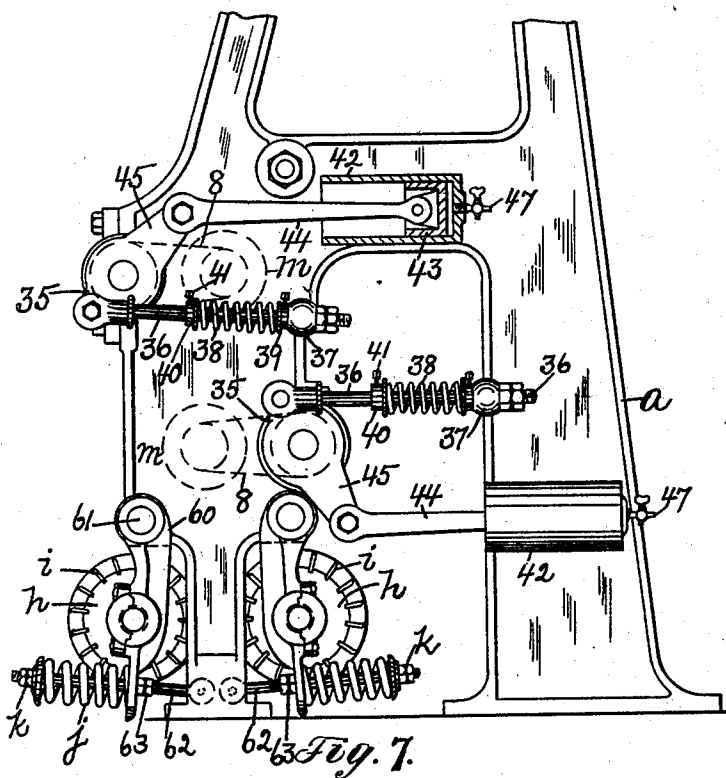
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

FRANKLIN J. PERKINS, OF WOBURN, MASSACHUSETTS, ASSIGNOR TO
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MACHINE FOR TREATING HIDES OR SKINS.

SPECIFICATION forming part of Letters Patent No. 701,080, dated May 27, 1902.

Application filed March 7, 1902. Serial No. 97,099. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN J. PERKINS, a citizen of the United States, residing in Woburn, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Machines for Treating Hides or Skins, of which the following description, in connection with the accompanying drawings, is a specification, like letters and numerals on the drawings representing like parts.

This invention relates to machines for treating hides, skins, and leather, and more particularly to machines of that class in which the hide or skin is folded over one edge of a substantially flat support or table.

The invention has for its object to provide a machine of the class referred to with which the entire hide or skin on the table or support may be most efficiently treated in a uniform manner without shifting the skin on the table and without plaiting or otherwise injuring the skin. For this purpose I employ one or more operating cylinders or rolls, provided with helically-arranged blades, vanes, or working edges, of a construction suitable for the particular work to be performed by the machine and mount said operating rolls or cylinders in movable supports which are arranged with relation to the path of movement of the table or support so that when in their normal position the operating cylinders or rolls are in the path of movement of the table or support and in position to be engaged by the portion of the hide or skin on the end of said table or support. The operating roll or cylinder is positively driven or rotated and is maintained in motion while its position with relation to the table and to the hide or skin thereon is being changed. The positively-driven bladed roll or cylinder may and preferably will act not only on the portion of the hide or skin on the edge or end of the table or support, but also on the portion of the hide or skin lying against the side of said table or support, with the result that this latter portion of the hide or skin is successfully treated without plaiting or otherwise injuring the hide or skin at the shanks.

The machine is capable of use for unhair-

ing, fleshing, putting out, &c., and while adapted for such uses it is particularly efficient for putting out hides and skins, in which operation it is desirable to remove or express all the liquor from the skin.

In practice the hide or skin is laid over the table, with the backbone portion lying on or over the edge of the table. This portion of the hide or skin is thicker than the sides, and in machines as heretofore constructed and known to me for putting out the hide or skin without shifting the same it has been substantially impossible to properly express or work out the liquor from the thicker portion lying on the edge or end of the table and also to further work out the liquor from the portion of the hide or skin lying against the face or side of the table owing to the liability of the operating-tool leaving a streak across the portion of the skin lying against the side of the table if the said tool is removed from contact with said portion of the skin before the whole side of the skin has been treated by said tool, and, further, because if the operating-tool is allowed to remain in contact with and operate upon the whole side of the hide or skin the said tool will form plaits or folds at the shank portions of the hide or skin, which plaits or folds necessitate further treatment of the hide or skin to remove them, and which in some hides or skins—such, for instance, as chrome-tanned skins—are exceedingly difficult and oftentimes impossible to remove. These difficulties or objections are overcome in accordance with this invention by means of the positively-driven cylinder or roll provided with helically-arranged blades or working edges, which is mounted so that it not only can act on the backbone portion of the hide or skin lying on the edge of the table, but also can remain in engagement with and operate upon the whole area of the side of the hide or skin without plaiting or folding the shank portions or otherwise injuriously acting on the hide or skin, with the result that the hide or skin is most effectively and uniformly treated.

The invention is herein shown as embodied in one form of machine in which a plurality of tables or supports are connected to an end-

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less carrier and in which a pair of bladed cylinders or rolls, which may be designated the main "operating-rolls," are disposed on opposite sides of the path of movement of the table to act on the sides of the hide or skin lying against the opposite sides or faces of the table, while a pair of smaller-bladed cylinders or rolls, which may be designated "auxiliary" rolls, are located beyond or above the first pair of rolls and are normally projected into the path of movement of the table or support, so as to be successively engaged by the portion of the hide or skin lying on or over the edge of the table or support and forced or moved backward in opposite directions by the traveling table or support, so as to effectively work out this portion of the hide or skin, the auxiliary set of rolls being rotated by power, as will be described. These and other features of this invention will be pointed out in the claims at the end of this specification.

Figure 1 is a rear elevation of a machine embodying this invention; Fig. 2, a vertical section of the machine shown in Fig. 1, taken on the line 2 2 and looking toward the right; Figs. 3 to 6, details to be referred to; and Fig. 7, a detail in elevation, to be referred to.

The machine herein shown as embodying this invention comprises side frames or uprights *a b*, between which are arranged tables or supports *c*, herein shown as four in number, each of which is pivoted to endless carriers or link chains *d*. The endless carriers or link chains *d* are passed about suitable sprocket-wheels *e f g*, suitably mounted on the side frames *a b* and arranged in the present instance substantially in the form of a triangle, with the sprocket-wheels *e g* in a substantially vertical plane, so that the tables or movable supports travel upward in a substantially vertical path at the rear of the machine. Disposed on opposite sides of the vertical path of movement of the tables are two main operating cylinders or rolls *h*, provided with helically arranged blades or working edges *i*, of any suitable construction, such as now commonly used for putting out, fleshing, unhairing, &c. The main operating-rolls *h* are suitably supported to move toward and away from the path of movement of the table, and, as herein shown, each roll *h* is supported at its ends by hangers or arms 60, mounted to swing on a pivot shaft or rod 61, supported by the side frames *a b*. Each roll *h* is held in yielding engagement with the hide or skin as the table passes between them by suitable means, shown as a spiral spring *j*, encircling a rod 62, (see Fig. 7,) which is inserted through a suitable hole or slot in the end of the hanger 60 and is pivotally secured to a side frame. The rod 62 is provided with a threaded portion, which is engaged by nuts 63, forming a stop to limit the movement of the hanger or arm 60 by the springs *j*, and thereby position the roll *h* with relation to the path of movement of the table. The tension or

force of the spring *j* can be regulated by means of adjusting-nuts *k*. The main operating rolls or cylinders act on or treat the sides or portions of the hide or skin lying against the opposite sides of the table, and to treat or act on the portion of the hide or skin lying over or on the table without shifting the hide or skin I have provided, as shown in the present instance two auxiliary rolls or cylinders *m*, provided with helically-arranged blades or working edges, and, in fact, similar in all respects to the main operating-rolls, except as to size, the auxiliary rolls being by preference of smaller diameter. The auxiliary rolls *m* are normally supported in the path of movement of the table or support, so as to be engaged by the portion of the skin lying on the end or edge of the table, and when so engaged are forced or moved backward or laterally with relation to said table, so as to act upon or treat that portion of the hide or skin lying on the edge of the table. The action of the auxiliary operating-roll is rendered most effective by rotating said roll by power while permitting it to be moved laterally with relation to the table, and this may be accomplished by mechanism, as herein shown and as will now be described. Each auxiliary operating-roll *m* is fast on a shaft 7, journaled in cranks or arms 8 of hubs or sleeves 9, loosely mounted on a shaft 10 and extended through and supported by suitable boxes 11, attached to the side frames *a b*. The shaft 7 of the auxiliary roll *m* has fast on it a pinion or gear 12, (see Figs. 3 and 4,) which meshes with an intermediate gear or pinion 13, loose on a stud or pin 14, carried by one of the cranks or arms 8, the said intermediate pinion being rotated by a pinion or gear 15, rendered fast on the shaft 10, which may be accomplished, as shown, by means of a pin 16, extended through the hub 17 of the gear or pinion 15. (See Figs. 3 and 4.) The gearing referred to may and preferably will be inclosed by a casing or cover 20, secured to the crank or arm 8.

The shaft 10 is rotated by power and may be driven, as shown, from a main operating-roll *h* in any suitable manner, as by a link chain 21, (see Fig. 1,) and the main operating-rolls *h* may be driven from a main shaft 22 and counter-shaft 23 (see Figs. 1 and 2) by link chains 24 25, the counter-shaft 23 being driven from the main shaft 22 by suitable gears 26 27. The endless carrier *d*, as herein shown, is driven from the shaft 23 by a link chain 30, passed about a sprocket-wheel 31 on a shaft 32, supported in bearings at the upper end of the side frames and provided at its opposite ends with pinions 33, which mesh with gears 34 on the shafts of the sprocket-wheels *e*.

The auxiliary operating rolls or cylinders *m* are held in engagement with the hide or skin on the table or support with a yielding and adjustable pressure, and for this pur-

pose preferably each hub or sleeve 9 is provided with a crank or arm 35, to which is pivotally connected one end of a rod 36, which has its other end extended through a movable guide 37, pivotally secured in a side frame, (see Figs. 5, 6, and 7,) the said rod being encircled by a spiral spring 38, which is seated at one end in a cup-shaped washer 39 and at its other end bears against a washer 40, which is adjustably secured on the rod 36 by a set-screw 41 or in any other suitable manner. The spring 38 is compressed as the roll-carrying crank or arm 8 is moved by the table or support from its normal position substantially at right angles to the path of movement of the table to a position substantially parallel with said path of movement, and the said spring assists to return the roll-carrying arm back into its normal position. The return movement of the roll is retarded or regulated, so as to avoid shocks, as herein shown, by means of a dash-pot, the cylinder 42 of which is suitably secured to the framework of the machine and the piston 43 of which is provided with a piston-rod 44, pivoted at one end to the piston 43 and at its other end to a crank or arm 45, extended from the hub 9, as herein shown, substantially diametrically opposite to the crank 35. The cylinder 42 is provided, as shown, with petcock 47, controlling the admission and exit of air into and from said cylinder. By reference to Fig. 2 it will be seen that when the operating-roll *m* is moved from its normal position (represented by the upper roll in Fig. 2) to that substantially at right angles thereto, as represented by the lower roll *m* in said figure, air is drawn into the cylinders 42, which cushions the return movement of the roll into its normal position.

In operation with the machine herein shown a hide or skin is placed over the table or support at the front of the machine, with the backbone of the hide or skin lying over the upper end or edge of the table, which latter is carried backward toward the rear of the machine and then upward, as clearly represented in Fig. 2. The hide or skin lying on the table or support on its movement in a vertical path in the machine herein shown is first presented to the action of the main operating rolls or cylinders *h*, which put out or otherwise treat the sides of the hide or skin lying against the opposite faces of the table. The table on its upward travel engages the lowermost of the auxiliary rolls *m*, which, as above stated, projects across the path of movement of the table and which is turned backward and upward by the table. While the auxiliary roll *m* is in engagement with the hide or skin on the table, the said roll is positively rotated and puts out, unhairs, or otherwise treats that portion of the hide or skin lying on the end or edge of the table and which is not acted upon by the main operating-rolls. As soon as the upper edge of the table has passed beyond the lowermost aux-

iliary roll it engages the uppermost auxiliary roll *m* and forces it upward and backward in an opposite direction, which latter roll in its turn acts to put out, unhair, or otherwise treat the portion of the skin lying over the edge of the table. When the auxiliary rolls have been moved into a plane substantially parallel with the path of movement of the table, the pressure of the springs 38 has been increased, so that the pressure of the auxiliary rolls upon the hide or skin lying against the opposite sides of the table is substantially equal to the pressure of the auxiliary roll upon that portion of the hide or skin lying over the edge of the table when the auxiliary roll is in its starting or normal position, the weight of the roll in this latter instance compensating for the loss of power or pressure in the spring. The auxiliary operating-rolls *m* during the movement of the table by or past them may and preferably will remain in contact with the sides of the hide or skin, and having blades or working edges which are helically arranged similar to the blades of the main operating-rolls the said auxiliary rolls put out, unhair, or otherwise treat the sides of the hide or skin without danger of plaiting, folding, or otherwise injuriously acting upon the shank portions of the hide or skin, which is an important feature practically.

I prefer to have the auxiliary operating-rolls act upon the sides of the skin as well as that portion which lies over the end or edge of the table, as in this case danger of a dark streak being left in the sides of the hide or skin when the latter is put out is avoided.

When the machine herein shown is employed for the purpose of putting out the hide or skin, a superior result is obtained at the thicker portion or backbone of the hide or skin lying over the edge of the table, due to the action of the bladed cylinder or roll, which is positively rotated, while at the same time it is moved laterally with relation to the path of movement of the table, a result which is not obtained by the mere dragging or wiping of a non-rotatable surface over the edge of the table after the manner shown and described in another application, Serial No. 93,126, filed by me February 8, 1902.

I do not in this application claim, broadly, the idea of working or operating upon that portion of the hide or skin lying over the edge of the table by means of a suitable tool and without shifting the skin on the table, as the same forms the subject-matter of my application, Serial No. 93,126, filed February 8, 1902.

Having herein shown one embodiment of this invention which I may prefer, I do not desire to limit my invention to the particular construction shown.

I claim—

1. A machine of the character described, comprising a substantially flat support over the end of which a hide or skin may be folded to lie against the face of the support, an op-

erating-roll normally in the path of movement of the said table or support and adapted to act upon that portion of the skin which lies on the end of the support without shifting the said skin and for treating the portion of the skin lying on the side of the support, instrumentalities for making the said support and the said roll relatively movable, and means for rotating said roll while the latter is in engagement with the hide or skin.

2. A machine of the character described, comprising a work-support having approximately flat faces and an end, whereby a skin or hide may be doubled over the said end to lie against said faces, and one or more operating-rolls provided with helically-arranged blades or working edges located with relation to said work-support to engage and treat that portion of the hide or skin which is on the end of the support, means for moving one of said parts bodily with relation to the other, means for holding the said roll in engagement with the hide or skin with a yielding pressure, and means for rotating said roll, substantially as described.

3. A machine of the character described, comprising a movable work-support over which the hide or skin is folded, means for moving said support, a rotatable member provided with helically-arranged working edges located in the path of movement of said support for treating that portion of the hide or skin which lies on the end of the support and for treating that portion of the hide or skin lying against the side of the support without shifting the skin and without plaiting the shank portions of the skin, and means for operating said roll by power, while it is in engagement with said hide or skin.

4. A machine of the character described, comprising a work-support having two substantially flat faces, whereby a hide or skin may be folded about the end of the support to lie against said flat faces, and means for treating the entire exposed area of said hide or skin, said means including power-driven rotatable rolls having helically-disposed working edges located with relation to said support to engage and act on the portion of the hide or skin folded about the end of the support, substantially as described.

5. A machine of the character described, comprising a traveling support, rotatable rolls normally intersecting the path of movement of said work-support in different planes at an angle to the path of movement of said support and provided with helically-disposed working edges, said rolls being movable in opposite directions out of the path of movement of said support, and means for rotating said rolls during the movement of the same with relation to the said support, substantially as described.

6. A machine of the character described, comprising a movable work-support over which a hide, or skin is adapted to be folded, a rotatable roll having peripheral working

edges, pivotally-mounted cranks or arms extended laterally with relation to the path of movement of said work-support and supporting said roll in position to act on the portion of the hide or skin folded over the edge of the work-support, gearing for rotating said roll movable with the cranks or arms, and means for driving said gearing.

7. A machine of the character described, comprising a movable work-support over which a hide or skin is adapted to be folded, means for moving said support, a rotatable working member located in the path of movement of the said support to act on the portion of the hide or skin lying on the edge of the support, pivotally-mounted supports for said rotatable working member, means movable with said pivotally-mounted supports for rotating said working member, and means for engaging said working member with the hide or skin with a yielding pressure.

8. A machine of the character described, comprising a movable work-support over which a hide or skin is adapted to be folded, a rotatable roll provided with helically-arranged working edges, cranks or arms supporting said roll and pivotally mounted to move in the arc of a circle which intersects the path of movement of the work-support, gearing movable with said cranks or arms for rotating said roll, a spring to hold the operating-roll in engagement with the hide or skin with a yielding pressure, a rod on which said spring is placed, and a pivotally-mounted guide for said rod.

9. A machine of the character described, comprising a movable work-support over which a hide or skin is adapted to be folded, main operating cylinders or rolls to act on the sides of the hide or skin, means for rotating said cylinders or rolls, auxiliary operating cylinders or rolls for operating on the portion of the hide or skin lying on the edge or end of the table, supports for said auxiliary cylinders or rolls movable laterally with relation to the path of movement of said work-support, and mechanism for rotating said auxiliary rolls movable with the supports therefor.

10. A machine of the character described, comprising a movable work-support over which the hide or skin is adapted to be folded, a rotatable roll to act on the portion of the hide or skin on the edge or end of the table, pivotally-mounted hubs having cranks or arms which support said roll, mechanism movable with said cranks or arms for rotating said roll, means for holding the said roll in engagement with the hide or skin with a yielding pressure, and means for retarding the movement of the said roll into the path of movement of said work-support.

11. A machine of the character described, comprising a movable work-support over which the hide or skin is adapted to be folded, a rotatable roll to act on the portion of the hide or skin on the edge or end of the table,

pivotaly-mounted hubs 9 having cranks or arms which support said roll, gearing movable with said cranks or arms for rotating said roll, a second set of cranks 35, 45 extended from said hubs, a rod pivotaly connected with the crank 35, a pivotaly-mounted guide into which the free end of said rod is extended, a spring encircling said rod, a dash-pot provided with a piston, and a pis-

ton-rod pivotaly connected with said piston and with the crank 45.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANKLIN J. PERKINS.

Witnesses:

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