J. W. McDONALD.

Machine for Unhairing and Scouring Hides and Skins.

No. 210,797. Patented Dec. 10, 1878.

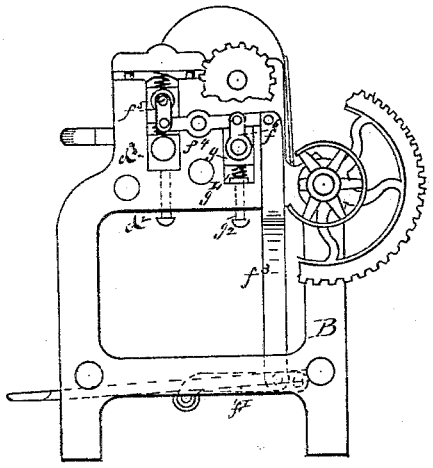

Fig. 1

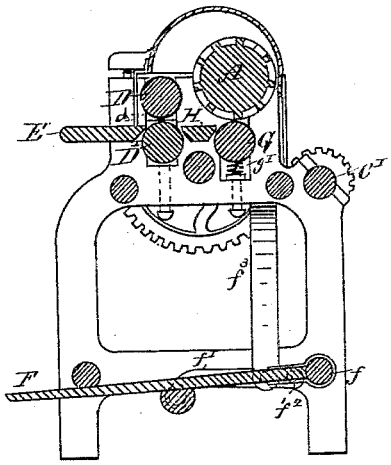

Fig. 2.

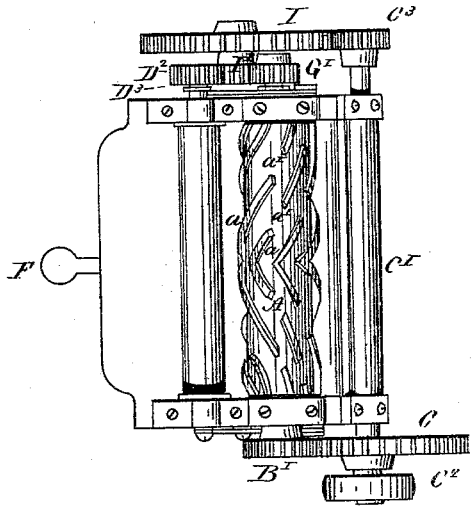

Fig. 3.

WITNESSES

Geo. Y. Walker

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INVENTOR

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UNITED STATES PATENT OFFICE.

JAMES W. McDONALD, OF WOBURN, ASSIGNOR OF ONE-HALF HIS RIGHT TO THOS. WM. CLARKE, OF BOSTON, AND F. F. RAYMOND, 2D, OF NEWTON, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR UNHAIRING AND SCOURING HIDES AND SKINS.

Specification forming part of Letters Patent No. **210,797**, dated December 10, 1878; application filed October 11, 1878.

To all whom it may concern:

Be it known that I, JAMES W. McDONALD, of Woburn, in the county of Middlesex, in the Commonwealth of Massachusetts, have invented an Improvement in Unhairing and Scouring Machines, of which the following is a specification:

This invention has for its object the following-described improvement in unhairing and scouring machines, consisting, first, in the peculiar scouring-roll employed; second, in the arrangement for effecting the release of the skin or hide from the feeding-rolls, and from between the scouring and supporting rolls, when the same may be necessary owing to the skin or hide becoming folded in its presentation to the feed-rolls or to the scouring-rolls; third, in the organized machine, consisting in the combination of the supporting-table, feed-roll, bed, scouring and supporting rolls, arranged in relation to each other to operate substantially in the manner hereinafter described in the drawing.

Figure 1 is a side elevation of my device. Fig. 2 is a central vertical section of the same. Fig. 3 is a plan.

Heretofore it has been customary to unhair hides by a knife or some like tool in the hands of the operator, although machinery has been invented for doing this work automatically. Among the machines may be mentioned that which presents the skin to the scouring-roll upon an endless band or apron, which passes between the feed-rolls and over a supporting-roll between it and the scouring-roll, as shown and described in Patent No. 184,175, to L. and E. M. Roberts, November 7, 1876, and also the machine patented to me February 5, 1878, No. 200,078, and the invention herein described as an improvement upon the said last-named device.

I have found, however, that for scouring purposes a scouring-roll should be provided which can reach and operate upon all portions of the hide presented to it, and that the roll shown and described in said last-named patent, having continuous parallel blades, is not adapted to do this work so successfully as the roll which is herein described, although the said roll answers very nicely for the purposes of unhairing the hide.

I have also found that it is desirable to open the feed-rolls and lower the supporting-roll in relation to the scouring-roll, so that the hide or skin may be withdrawn by the operator if it is folded or otherwise improperly presented to the scouring-roll.

The scouring-roll A is provided with the system of spiral projections or blades *a*, projecting from the circumference of the roll and conversely arranged thereon from the longitudinal center of said circumference. These spiral projections do not extend to the edge of the roll, as in the roll shown and described in the two patents above referred to, but are broken, as it were, at certain points, as shown at *a'*.

It will be observed that in shaping these projections, and in providing the roll with the system of recesses *a'* on the line of the spiral blades or knives, the blades are so arranged that not more than two recesses ever come in line; and it is desirable that the recesses and the projections should alternate regularly. This scouring-roll is supported upon the frame B, and is provided with the driven cog B', which is driven by the driving-cog C. The driving-cog C is fastened to the shaft C^1, which carries outside the driving-cog C the pulley C^2, and upon its other end the small driving-cog C^3.

The feed-rolls D D^1 are located in front of the table E. The upper feed-roll, D, is provided with a vertical movement in its bearings *d*, in which it is floated between the springs, much in the same way that the same roll is described as floated in the prior patent to me. I provide, however, means by which the operator may lift the roll. This is effected by means of the treadle F, which is pivoted at *f*, is provided with the arms f^1, which are pivoted at f^2 to the frame of the machine, and which lay hold of the connecting-bars f^3, which operate the levers f^4, pivoted to the side of the frame, as shown, and operating, through the links f^5, the boxes carrying the feed-roll

D, and, through the link f^6, upon the other end of the lever, the boxes carrying the supporting-roll G.

The machine is further provided with the bed H, which performs the same duty as the bed in the machine described in my prior patent. The boxes g, carrying the supporting-roll G, are supported upon the springs g^1, and the degree of tension upon these springs may be adjusted by means of the set-screws g^2, which compress or relieve the springs supporting the boxes, as occasion requires, it being found in practice that in some instances it is desirable to have the boxes yield unequally, so that a hide or skin which is thicker at one end than at the other will be firmly held against the scouring-roll, while at the same time, by the increased tension of the spring, the thin portion of the head or skin is closely held against the said roll.

The feeding-rolls, together with the supporting-roll, are positively actuated by means of the gearing I I′ G′ D^2 D^3. (Not shown.)

The set-screws d^2 serve to lift the boxes d^3, supporting the lower feed-roll, D^1, when the same may be necessary to secure a proper adjustment of that roll in relation to the inner edge of the table and to the upper feed-roll.

The operation of my machine is as follows: A hide or skin is arranged upon the table by the operator, and presented to the feed-rolls D D^1, and by them fed over the bed to the supporting-roll G, which is positively actuated and revolved in the same direction as the lower feed-roll, and to the scouring-roll, which, preferably, is arranged immediately above the same.

The relation of the supporting-roll to the scouring-roll is regulated by means of the springs supporting its boxes and by means of the treadle F.

It will be observed by thus providing a yielding support or bed for the hide to be scoured, or for the skin to be unhaired, and by also providing a scouring-roll which shall possess a surface so shaped as to conform to any irregularity in the surface of the hide or skin caused by variations in its thickness, that a great improvement has been effected over the stiff arbitrary mechanism formerly employed.

I am aware that Patent No. 119,743, granted Owen Coogan October 10, 1871, shows and describes a machine for boarding, pebbling, and glossing leather, which employs two boarding-rolls, so arranged that they revolve in the same direction, and can be separated from each other for the purpose of introducing the ends of a folded sheet of leather supported upon a board in order that said sheet of leather may be moved in opposite directions.

I am also aware that Patent No. 184,175, granted T. and E. M. Roberts November 7, 1876, for machinery for dehairing and working out hides, shows and describes a pressure-roll for holding a hide firmly against the scouring-roll while the same is being dehaired, arranged below said scouring-roll, and is provided with a vertical adjustment in relation to it.

I am further aware that Patent No. 193,412, granted B. F. Larrabee, assignor to Richard Harrington, July 24, 1877, shows and describes an improvement in machinery for unhairing, scouring, &c., in which a drum, which also acts as a feed-roll, is provided with a movement upon the arc of a circle to and from the scouring-roll without changing its relative position to the other feed-roll, so that the same are not at any time separated, nor is any means shown for separating them and holding them apart.

But neither the boarding, pebbling, and glossing machine of Coogan, with its rolls revolving in the same direction to carry the end of a folded sheet of leather in an opposite direction, nor the device in the Roberts machine for pressing a hide against a pressure-roll, nor the mechanism shown in the Harrington patent for pressing a hide against a knife-cylinder without changing its relative position to the other feed-roll constitute the spirit of my invention, and neither of the three patents show or describe two feed-rolls for feeding a hide or skin to a scouring-roll so arranged in relation to each other and to the scouring-roll that one of said rolls may be lifted from the other and held apart while a hide which has been improperly fed is drawn back by the operator before it has passed the scouring-roll to be properly fed to the said scouring-roll, which constitutes the spirit of my invention.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a machine for unhairing and scouring hides or skins, the combination, with feed-rolls and a supporting-roll, of a lever and intermediate mechanism whereby, by a single movement of the lever, the feed-rolls are separated and the supporting-roll is adjusted with reference to the scouring-roll, all substantially as set forth.

2. In machines for unhairing, working, and scouring skins and hides, the combination of the feed-rolls D D^1, one of which can be separated and held apart from the other, and a scouring-roll and a supporting-roll, G, which can be moved and held from said scouring-roll, all arranged to operate substantially as and for the purposes described.

3. A scouring-roll provided with a series of spiral elevations, a, and depressions a', substantially as described.

4. The combination of the table E, feed-rolls D D^1, bed H, supporting-roll G, and scouring-roll, all arranged to operate substantially as described, and each part provided with the particular adjustment set forth.

JAMES W. McDONALD.

Witnesses:
GEO. A. CONN,
CHAS. W. NUTE.