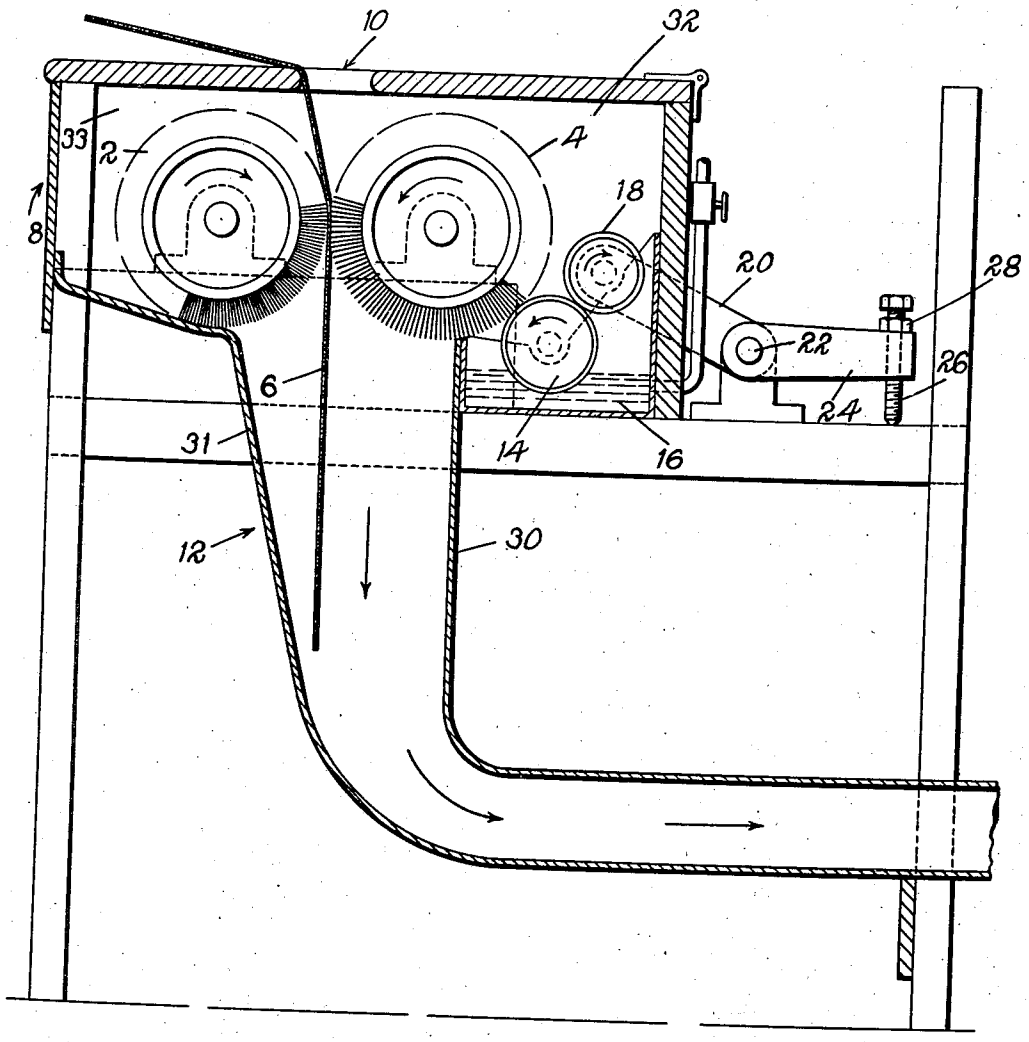
Feb. 25, 1941. R. A. RUEDEBUSH 2,232,805

BRUSHING MACHINE

Filed April 8, 1938



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Patented Feb. 25, 1941

2,232,805

UNITED STATES PATENT OFFICE

2,232,805

BRUSHING MACHINE

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Application April 8, 1938, Serial No. 200,954

4 Claims. (Cl. 15—7)

This invention relates to brushing machines and is illustrated as embodied in a machine for brushing surfaces of tanned hides and skins to effect removal of dust therefrom.

One of the difficulties encountered in brushing operations upon tanned skins and other leather articles resides in the fact that the brushing operation produces a charge of static electricity on the surface of the leather with an opposite charge on the bristles of the brush and on dust particles swept from the surface of the leather in the brushing operations. The result is that dust mechanically brushed from the surface of the leather is immediately re-attracted to that surface and clings firmly thereto. Thus the surface remains dusty in appearance and hence the object of the operation is defeated.

In a prior art construction, leather is passed through a chamber in which brushes are arranged to operate on the leather, the chamber being for the purpose largely of containing moisture, either vaporized or in the form of steam, to prevent the formation of static electricity. This object is accomplished. However, since the dust must be carried away from such a chamber by means of a suction apparatus, it is clear that a great deal of moisture, either vaporized or in the form of steam, must be supplied. It has heretofore been proposed to provide a sprinkler to moisten the brushes in a leather brushing machine. However, in this case the results are far from satisfactory since the suction device used to carry off the dust also carries away the moisture and prevents any uniformity in the application of moisture to the brushes.

It is an object of this invention to provide a brushing machine which will be especially simple in construction and highly efficient in operation and one in which, moreover, the amount of moisture applied to the brushes may be regulated so effectively as to suit the requirements of different classes of work pieces and also variations in the condition of the atmosphere.

It is an important feature of the invention that moisture is applied to a rotary brush in a brushing machine by means of a roll which rotates in contact with the periphery of the rotary brush, the roll receiving moistening liquid from a reservoir and carrying it to the surface of the brush in a predetermined uniform amount. To secure application of the desired amount there is conveniently provided a second roll which rotates in contact with the brush supplying roll, the amount of moisture carried by the supply roll being determined through proper adjustment of the pressure between the surfaces of the two rolls. By the application of moisture in a predetermined uniform amount to the brush, not only is the generation of a static charge on the leather prevented but there is secured a marked increase in efficiency of the brush as a mechanical dust-removal device.

With these and other important features and objects in view, the invention will now be described in detail in the specification and then pointed out in the appended claims.

In the drawing there is shown in end elevation, and partly in section, a leather brushing machine illustrating one embodiment of the invention.

In the illustrated machine, which is designed particularly for brushing operations upon tanned hides and skins and other similar pieces of leather, there is provided a pair of brushes 2 and 4 rotating in opposite directions and adapted to engage rather firmly with opposite surfaces of a piece of leather 6 introduced between them. It will be readily understood that the leather is quickly fed into place as a preliminary to the brushing operation, since the brushes act also as feeding means. It is when the work piece 6 is retracted by the operator that brushing of its surfaces takes place. During brushing of the leather piece 6 by the brush 4, the brush 2 serves as a backing member to support the leather for the brushing operation.

In order to provide the desired draft of air to carry away the dust, it is preferable to enclose the brushes in a chamber such as that shown at 8 with an opening at 10 for the introduction of a work piece. Below the brushes is the upper open end of an air duct 12 through which air is drawn by means of a fan or other blower (not shown).

During the brushing operation a charge of static electricity would be produced on both surfaces of the leather 6, due to the friction of the brushes on said surfaces, if provision were not made to prevent the same. Accordingly, I have provided a roll 14 arranged to be driven to rotate in contact with the surface of the brush 4 to carry water from a reservoir 16 in which the roll 14 is arranged to dip. The application of a suitable amount of moisture to the brushes obviates the formation of the static charge. Furthermore, the moist brushes, provided the moisture be properly regulated, add substantially to the efficiency of the brushing operation.

Preferably the roll 14 rotates in the same direction as the brush 4, thereby providing an arrangement wherein the contacting surfaces of the brush 4 and roll 14 move in opposite directions thereby assuring a more complete removal of the moisture from the surface of the roll 14. To regulate to a nicety the amount of moisture carried by the roll 14 to the brush 4 there is provided a second roll 18 carried by arms 20, one at each end of the roll 18. Secured to a shaft 22 to which the arms 20 are rigidly connected is an arm or lever 24 which may be adjusted to press the roll 18 with the desired pressure against the roll 14. A simple construction for this purpose is provided by a screw threaded bolt 26 which may be adjusted in the outer end of the lever 24 and then secured in adjusted position, as by a lock nut 28. Preferably there are two levers 24 with their adjusting screws or bolts 26, one adjacent each end of the roll 18. This arrangement of the rolls provides for the application of a predetermined amount of moisture to the brush 4. While in the illustrated machine, the rolls 14 and 18 are each covered by a layer of rather firm rubber, it will be understood that only one of the rolls may be thus covered, preferably the roll 18.

Since the moisture is applied directly to the brush 4 in a part of the chamber 8 not subjected to any direct draft of air, there is no interference with the application of the moisture, so that the latter may be uniformly applied to the brush 4. To insure that no draft of air will interfere with the proper application of the moisture to the brush, the rear wall 30 of the conduit 12 is carried up into a position where the brush 4 contacts lightly with the upper edge of the wall, thus closing off and providing a compartment 32 of that part of the chamber 8 about the reservoir 16 and rolls 14 and 18.

The described arrangement is particularly applicable to the brushing of one surface only of the leather, it being clear that where both surfaces are to be specially brushed a moisture applying mechanism will also be supplied in connection with the other brush 2. As shown, the front wall 31 of the conduit 12 is carried up to contact lightly with the brush 2 thus providing a compartment 33 wherein the moisture applying means may be located.

In operating the illustrated machine, the brushes 2 and 4, driven by connections to any suitable source of power, will feed in a piece of work such as a tanned skin 6 to a desired point corresponding to approximately one-half of the work piece. Following this the work piece is pulled out of the opening 10 while the brushes 2 and 4 continue to brush its opposite surfaces. The skin is then reversed and reintroduced for treatment of the second half (approximately) thereof. It is to be understood that the operator may adjust the pressure between the rolls 18 and 14 to suit the type of leather being brushed and to make due allowance for the temperature and humidity of the air passing through the machine and out through the exhaust system by which the dust is carried away.

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 brushing dust from surfaces of tanned hides and skins, a rotary brush positioned to brush a surface of a hide or skin as the latter is being moved past the brush, a backing member located in close juxtaposition to the brush to support the hide or skin in position for the brushing operation, a roll in contact with said brush to apply liquid thereto to increase the efficiency of the brush in the mechanical removal of dust from the surface of the leather and to prevent the generation of a static electrical charge on the surface of the leather, a reservoir for a liquid to be applied to said brush by said roll, said roll and reservoir being located at one side of the path of travel of the hide or skin past said brush, and means for regulating the amount of liquid carried by the roll into contact with the rotary brush.

2. In a machine for brushing dust from the surfaces of tanned hides and skins, a pair of rotary brushes arranged to have their cylindical surfaces substantially in contact with each other and operative to brush the surfaces of a hide or skin while the latter is being moved between and past the brushes, a roll in contact with one of said brushes to apply liquid thereto to prevent the generation of a static electrical charge on the surface of the hide or skin contacted by said one of the brushes, means for supplying liquid to said roll and thence to said one of the brushes in a predetermined amount sufficient to eliminate static from said surface of the leather, and a suction conduit having an opening adjacent to said one of the brushes to carry away dust-laden air.

3. In a brushing machine, a rotary brush, a chamber in which the brush is located, an opening in the chamber wall through which a work piece may be introduced for the brushing operation, an exhaust conduit to carry away the dust-laden air, the exhaust conduit having a wall the upper end of which contacts the brush whereby a compartment is formed in the chamber at one side of the brush, a reservoir for a liquid located in the compartment, a roll turning in the reservoir and located in contact with the rotary brush, and a member arranged to co-operate with said roll to regulate the amount of liquid carried by the roll to the brush.

4. In a brushing machine, a pair of rotary brushes, a chamber enclosing the brushes, said brushes being substantially in contact with each other and arranged to rotate in opposite directions to draw a piece of work downwardly between them, an opening in the chamber wall above the line of contact between said rotary brushes, a conduit located opposite said opening to receive the fed-in part of the work piece and to draw dust-laden air away from said brushes, said conduit having walls the upper edges of which are substantially in contact with said brushes whereby a compartment is formed in the chamber back of each brush through which a forced draft of air does not pass, a reservoir for a liquid located in one of said compartments, a roll positioned to turn in the liquid in the reservoir and in contact with the adjacent rotary brush, and a member to regulate the amount of liquid applied to the rotary brush by said roll.

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