

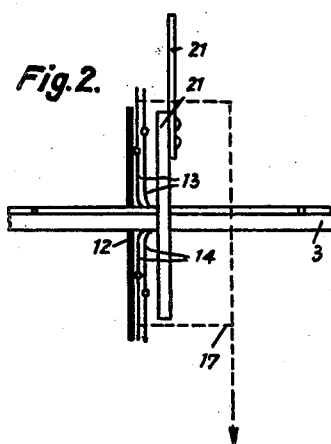
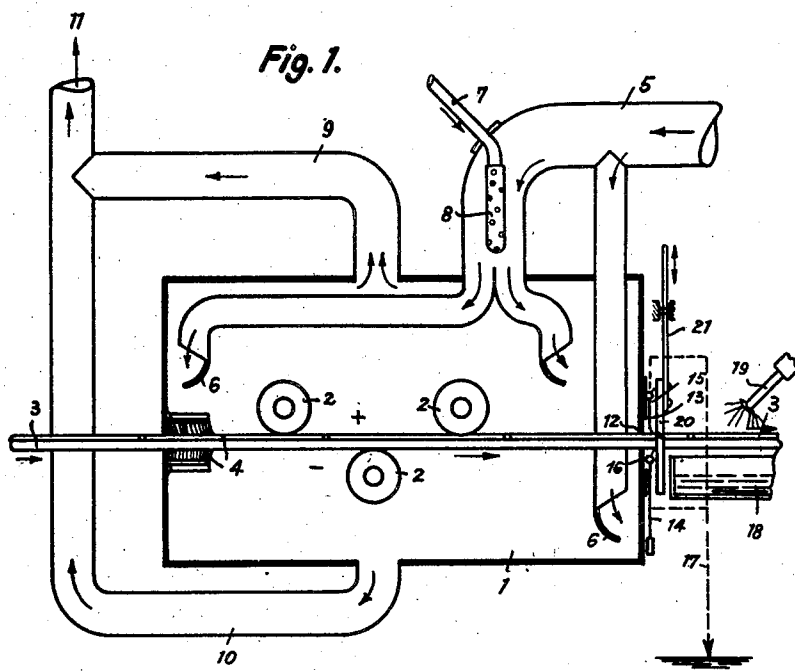
June 24, 1930.

F. HAUSMANN

1,766,512

METHOD AND DEVICE FOR COMPENSATING ELECTRICITY ON HIDES

Filed June 23, 1928



Fritz Hausmann
Inventor
By Moses and Nolle
Attorneys

UNITED STATES PATENT OFFICE

FRITZ HAUSMANN, OF OFFENBACH-ON-THE-MAIN, GERMANY, ASSIGNOR TO THE FIRM
LEDERWERKE BECKER & CO., OF OFFENBACH-ON-THE-MAIN, GERMANY

METHOD AND DEVICE FOR COMPENSATING ELECTRICITY ON HIDES

Application filed June 23, 1928, Serial No. 287,867, and in Germany August 25, 1927.

This invention relates to a method and means for preparing hides and skins for dyeing or a like operation in which a liquid is applied to them, and particularly to the removal of dirt and dust from the surfaces to be treated.

To this end provision is made of brushes for rubbing and brushing the opposite sides of the leather to remove the dirt and dust. The brushing and rubbing, however, result in the production of a positive charge of static electricity on one side of the leather, and a negative charge on the other. The dust particles removed also become charged with static electricity, the charges on the dust particles being of the opposite sign from the charges on the face of the leather from which they have been removed. If the work were done in a dry atmosphere, therefore, the dust particles would tend to return to the leather because of the charges which they, themselves, carry, and also because of the charges on the leather. The dust would also tend to return to the upper surface of the leather under the action of gravity.

In accordance with the present invention provision is made for assuring the complete removal of the dust and dirt rubbed off by the brushes and for discharging the static electricity on the leather so that the leather may not attract dust either from the atmosphere in the brushing chamber, or from the outside atmosphere upon emerging from the brushing chamber.

To these ends the leather is fed through an enclosed brushing chamber where the brushing is done, and provision is made of a suction conveyor for conducting away the dusty air in the chamber. Provision is also made of means for replacing the removed air with fresh clean air, and of means for introducing steam into the chamber to render the atmosphere in which the brushing is done conductive. The fact that the atmosphere in the brushing chamber is conductive results in the discharging of the static electricity on the dust particles and, in a measure, in the discharging of the static electricity on the leather. The dust particles, therefore, instead of returning to the leather,

are swept away by the air stream, so that the leather is completely freed of dust and dirt.

Adjacent the exit opening of the brushing chamber provision is made of electrical contact brushes which engage the opposite faces of the leather, and which are in electrical contact with one another, and with the ground. The positive and negative charges on the opposite faces of the leather are thus caused to neutralize one another, and, in so far as there may be any failure of neutralization, the surplus charge is conducted to the ground so that the leather emerges from the brushing chamber completely freed of static electricity, both faces of the leather being at ground potential.

The dye, which may consist of lac or other chemical with which the leather is to be treated, is sprayed on the leather immediately upon its emergence from the brushing chamber. In order to prevent the accumulation of an insulating coating upon the conductive discharge brushes or lamellae provision is made of a shield between the sprayer and such lamellae.

Other objects and advantages will hereinafter appear.

In the drawings forming part of this specification:

Figure 1 is a fragmentary, sectional, side elevation of apparatus embodying features of the present invention; and

Figure 2 is a fragmentary, detail elevation of a modified arrangement of the conductive brushes or lamellae.

In a brushing chamber (1) there are three rotary brushes (2) arranged so as to engage the upper and lower surfaces of a hide spread over frames and gliding on the known tracks (3). At the entrance of the said chamber stationary brushes (4) of the ordinary type are provided. A conduit (5) supplies fresh air through branches to the upper and the lower portions of the brushing chamber and furnishes fresh air to the chamber. In the said conduit (5) for supplying fresh air a steam pipe (7) is fitted with a nozzle piece (8), through which steam is conducted to the brushing chamber along with the fresh air.

At the upper and the lower side of the brushing chamber there are delivery pipes (9 and 10) leading to a suction ventilator (11). The frame covered with the hides leaves the brushing chamber at the aperture (12). In front of the said aperture (12) thin metal plates or slips (13, 14) are pivotally mounted on pins or shafts (15 and 16). The upper lamellæ (13) are carried off to the right through the movement of the hide and are held in sliding engagement with the upper surface of the hide by their own weight, while the slips (14) hang downward and are likewise maintained by their own weight in sliding engagement with the lower side of the hide while it is moving. For safety, the lamellæ (13 and 14) may also be arranged in layers beside one another (Fig. 2) so that the discharge of electricity will surely be effected completely. The lamellæ (13 and 14) are electrically connected with each other and also mutually discharged to ground through the conductor (17). The hide runs from the brushing chamber on the track (3) to the spraying room over the tank (18). The lac sprayer (19) squirting the lac on the hide from above, would gradually coat the lamellæ (13) and partly also the slips (14) with a lac layer having an insulating action, by which the discharge might be impaired. For avoiding such impairment, a protective shield (20) is provided, that may be moved with the hand or automatically by means of a lever or drawing contrivance (21). Automatic regulation of the movement of the said shield (20) can be obtained by arranging the end of the lever (21) to be moved by an electro-magnet or any other mechanical devices, so as to allow the hide to pass through when being conducted from the brushing chamber into the injection room, after which it will again place itself automatically against the lamellæ and slips (13 and 14) while the hide is being treated in the two chambers.

The operation of the device is as follows:

On the sliding track (3) the frames covered with the hides are conveyed, by means of a drawing roller contrivance or the like, to the brushing chamber (1) through the brushes (4). When the hide is moving through this room, the rotary brushes (2) are in engagement with, and operate upon the upper and lower surfaces of the hide. The electricity already existing and particularly produced through the brushes (2 and 4) is absorbed in the brushing chamber (1) by the ionized air saturated with water vapour and leaving at 6, and is carried off by the ventilator through the suction conduits (9 and 10). The frames on the track (3) are advanced step by step, the surface of the hide being sprinkled with lac by the lac sprayer (19) in an interval between successive steps. The protective piece (20) is

opened manually or automatically while the frame is moving from the brushing chamber to the injection room, and the lamellæ and slips (13 and 14) will slide on the hide, and will discharge the electricity still carried by the hide surfaces through the ground circuit (17). After the frame has been passed over from the brushing chamber (1) to the injection room, the protective piece (20) will close again automatically, and the same process will be repeated.

As to the ionization of the atmosphere or otherwise rendering it conductive, this may be produced by any other means beside steam, as, for example, through ultra-violet radiation of quartz lamps.

I claim as my invention:

1. The method of treating hides which comprises brushing the hides in a closed chamber containing a conductive atmosphere, drawing off the removed dust, conducting away the static electric charge on the hide produced by brushing, and immediately thereafter applying a treating material to the hide.

2. The method of preparing a hide for dyeing or like treatment, which comprises brushing the hide in an enclosed chamber, rendering the atmosphere in said chamber conductive and conveying away the dust removed from the hide.

3. The method of freeing a hide from dust, which comprises brushing the dust from the hide, discharging the static electric charges thus produced on the dust particles and on the hide to prevent re-attraction of the dust to the hide, and conveying the dust away.

4. The method of freeing a hide from dust in preparation for a subsequent operation in which it is required to be dust-free, which comprises passing the hide through a brushing chamber, removing the dust by brushing and suction, and maintaining a conductive atmosphere in the chamber to facilitate such removal.

5. In an apparatus for cleaning leather, in combination, a chamber, means in the chamber for brushing the leather, means for sucking away the dust-laden air from the chamber, and means for introducing steam and fresh air into the chamber to maintain a conductive atmosphere therein.

6. In an apparatus for treating leather, in combination, a chamber, means in the chamber for brushing the leather, means for introducing steam into the chamber to facilitate the removal of the dust, and means for drawing the steamy dust-laden air out of the chamber.

7. In an apparatus for treating leather, in combination, means for freeing the leather of dust, comprising brushes, means for discharging from the leather the static electric charges formed by the brushing means, con-

ductive brushes contacting the faces of the leather for discharging static electricity from such faces, and means for depositing treating material on the surface of the leather.

8. In an apparatus for treating leather, in combination, a chamber, means including brushes for freeing the leather of dust while it is in the chamber, conductive brushes outside the chamber engaging the leather for eliminating static electricity from the faces thereof, means for spraying the leather, and shielding means interposed between the spraying means and the conductive brushes for preventing the deposit of the spraying material on the conductive brushes.

9. In an apparatus for treating leather, in combination, a chamber, means including brushes for freeing the leather of dust while it is in the chamber, conductive brushes outside the chamber engaging the leather for eliminating static electricity from the faces thereof, means for spraying the leather, and shielding means interposed between the spraying means and the conductive brushes for preventing the deposit of the spraying material on the conductive brushes, said shielding means standing normally in an effective shielding position in which the passage of a hide is obstructed, and being operable to a non-obstructing position to permit the passage of a hide from the chamber into position for spraying.

10. In an apparatus for treating leather, in combination, a chamber, means for feeding a hide through the chamber, means in the chamber for brushing the hide, means for introducing steam and fresh air into the chamber, means for drawing off the steamy dust-laden air from the chamber, and conductive brushes pivotally mounted just beyond the exit opening of the chamber and adapted by their own weight to maintain sliding engagement with the hide.

In testimony whereof I have affixed my signature this 2d day of June, 1928.

FRITZ HAUSMANN.

50

55

60

65