

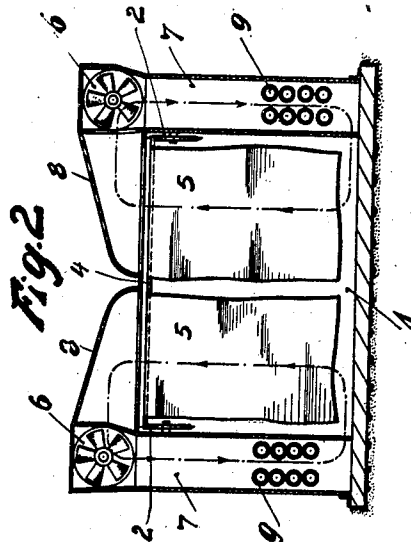
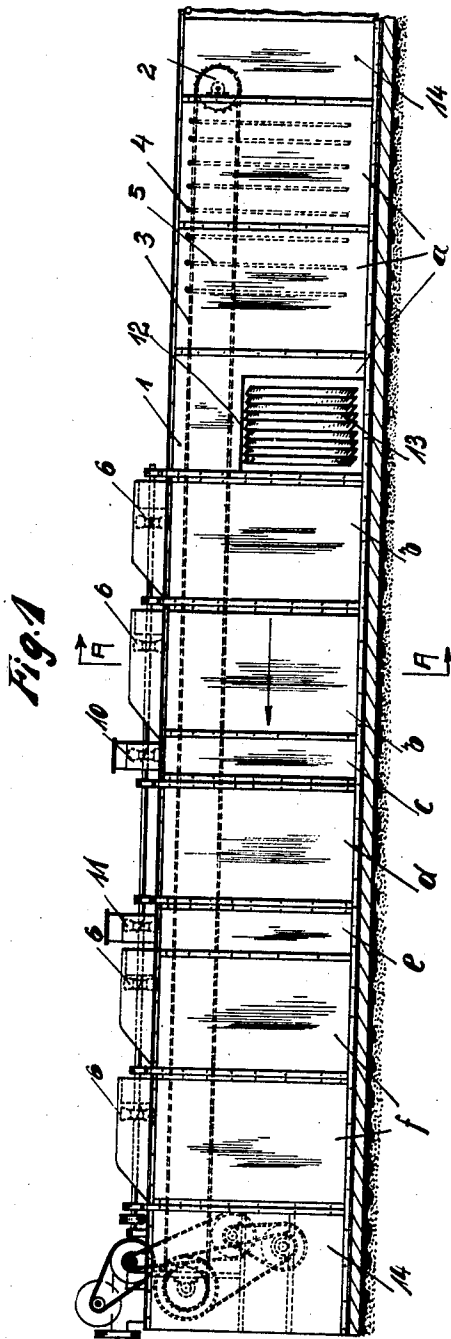
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DRYING OF BARK TANNED LEATHER

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DRYING OF BARK TANNED LEATHER

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8 Claims. (Cl. 34—12)

This invention relates to a method and device for drying bark tanned leathers and the like.

When bark tanned leathers or the like are dried, it often happens that they turn black, owing to oxidation, and the invention proposes to eliminate this trouble by providing a method and a device by means of which a high grade leather of uniform fairness will be produced without requiring much attention. The main feature of the invention is that the leather on having passed a samming room in which no considerable motion of air takes place is exposed in a preliminary drier to low yet gradually rising temperatures and transverse air circulation of specific low pressure, conducted through an unheated zone without air circulation, and then treated in a re-drying room, in which high temperatures decreasing towards the outlet and transverse air circulation of high specific pressure prevail. The samming, preliminary drying, neutral and re-drying spaces are combined to form a joint duct, and air discharge means are provided at both the inlet and outlet of the neutral zone, through which a large part of the moist air can escape from the preliminary and re-drying rooms.

By way of example, one form of the device for carrying out the invention is illustrated in the accompanying drawing, in which Figure 1 is a side view thereof and Fig. 2, a cross section on the line A—A, of Fig. 1.

Referring to the drawing, the device comprises a long channel-like casing 1 on the ceiling of which an endless chain 3 is arranged to the right and left and passed over the pulleys 2. The two chains 3 are interconnected by the removable cross pieces 4 from which the leather pieces to be dried are suspended which are slowly conducted through the channel-like casing 1 by the endless chains 3 in the direction of the arrows in Fig. 1. The casing 1 is subdivided into the zones a, b, c, d, e and f. In the zones b and f, to the right and left, several fans 6 are disposed on the casing 1 and at the top end of chimneys 7 laterally arranged on the casing 1 and communicating with the inside of the latter through their power part. From the fans 6 extend horizontal suction ducts 8 which open into the ceiling of the casing 1. As indicated in Fig. 2, the rotation of the fans 6 will cause air circulation in the casing 1 within a plane fixed by the fans to be transverse to the casing. The chimneys 7 contain the heating pipes 9 for heating the transversely circulating air, the heating being quite low in the zone b but increases towards the end. In the zone f,

the heating effected by the members 9 is considerable, though the temperature decreases towards the outlet of this zone. In the zones c, d, e located between the zones b and f neither heating nor air circulation take place. In the zones c and e, the casing 1 carries the air discharging devices 10 and 11. In the zone a, the air is also neither heated nor transversely circulated. Since the leather entering first the samming zone a is not exposed to heat and circulating air, oxidation is impossible, and the low heat and slight air circulation found in the preliminary drying zone b also fail to have a detrimental effect upon the leather. Water vapor escaping in the samming zone a and particularly in the preliminary drying zone b will be largely removed in the zone c by the discharge device 10 which produces an air current in the longitudinal direction of the casing 1, which assists the drying work carried on by the air circulation in zone b proceeding in transverse direction to the casing. The leather coming out of the preliminary drying zone b is rendered so insensitive by this preparatory work, that it can be exposed without hesitation to high degrees of heat for completing the drying step. Water vapor produced in the zone f is driven out by the discharge device 11 whereby in this zone an air current in the longitudinal direction of the casing 1 will be produced, which moves in a direction opposite to that of the current produced by the device 10, the two air currents, which by the cooperation of the air movers 6 and 10 and 6 and 11 are passed in spiral lines through the casing 1, being prevented from striking each other by the neutral zone d which is interposed between the preliminary drying zone b and the re-drying zone f. Furthermore, the unheated neutral zone d prevents radiation of heat from the zone f to the zone b. The length of the zones of the drier depends on the requirements that have to be complied with, it being particularly important to give the samming zone a its proper length which is determined chiefly by the kind of leather to be dried. The motion of air which takes place exclusively in the longitudinal direction of the casing 1 can be regulated in the samming zone a by providing a more or less tightly closing curtain at the entrance thereof and installing at the outlet, that is, where the samming step a meets the preliminary drying step b, special adjustable air supplying means consisting preferably of simple openings 12 in the wall of the zone a, which are fitted with the adjustable shutters 13.

A smaller chamber 14 for securing the leather 110

pieces to the conveyor or removing them therefrom is provided in the usual way at the inlet and outlet of the casing 1.

I claim:—

1. A method of drying bark tanned leathers and the like, comprising in steps: passing the leathers through an unheated samming space in which no substantial circulation of air takes place, the said space being under ordinary atmospheric conditions; then conveying the leathers into a space in which they are subjected to the action of an artificially produced air circulation and of heat which produces an air temperature above atmospheric temperature, the temperature and likewise the pressure of the air being gradually increased; then passing the leathers into a space in which they are exposed to the action of air at a much higher temperature and pressure; and finally subjecting the leathers to gradually diminishing air temperatures and pressures until atmospheric conditions are reached.

2. A device for drying bark tanned leathers and the like, comprising in combination: a long channel open at both ends and subdivided into zones extending in longitudinal sequence from one end to the other end thereof; two chains extending parallel to one another along the two sides of the upper wall of said channel from one end to the other end thereof; a driving gear for slowly moving said chains; leather holding means carried by said chains; a first zone within said channel located adjacent to the entry thereof and containing air which is substantially at rest and at atmospheric temperature; a second zone adjoining said first zone; means for heating the air in said second zone; means for producing a longitudinal air current in said second zone; a third zone adjoining said second zone; a fourth zone adjoining said third zone; means for heating the air in said fourth zone; means for producing a longitudinal air current in said fourth zone; an air suction device between said second and third zones; and an air suction device between said third and fourth zones, substantially as and for the purposes set forth.

3. A device for drying bark tanned leathers and the like, comprising in combination: a long channel open at both ends and subdivided into zones extending in longitudinal sequence from one end to the other end thereof; two chains extending parallel to one another along the two sides of the upper wall of said channel from one end to the other end thereof; a driving gear for slowly moving said chains; leather holding means carried by said chains; a first zone within said channel located adjacent to the entry thereof and containing air which is substantially at rest and at atmospheric temperature; a second zone adjoining said first zone; means for heating the air in said second zone; means for producing a longitudinal air current in said second zone; a third zone adjoining said second zone; a fourth zone adjoining said third zone; means for heating the air in said fourth zone; means for producing a longitudinal air current in said fourth zone; an air suction device between said second and third zones; and an air suction device between said third and fourth zones; said means for producing a longitudinal air current in said fourth zone being adapted to circulate the air under greater pressure than said means for producing a longitudinal air current in said second zone; substantially as and for the purposes set forth.

4. A device for drying bark tanned leathers

and the like, comprising in combination: a long channel open at both ends and subdivided into zones extending in longitudinal sequence from one end to the other end thereof; two chains extending parallel to one another along the two sides of the upper wall of said channel from one end to the other end thereof; a driving gear for slowly moving said chains; leather holding means carried by said chains; a first zone within said channel located adjacent to the entry thereof and containing air which is substantially at rest and at atmospheric temperature; a second zone adjoining said first zone; means for heating the air in said second zone; means for producing a longitudinal air current in said second zone; a third zone adjoining said second zone; a fourth zone adjoining said third zone; means for heating the air in said fourth zone; means for producing a longitudinal air current in said fourth zone; an air suction device between said second and third zones; and an air suction device between said third and fourth zones; said means for heating the air in said fourth zone being more powerful than said means for heating the air in said second zone; substantially as and for the purposes set forth.

5. A device for drying bark tanned leathers and the like, comprising in combination: a long channel open at both ends and subdivided into zones extending in longitudinal sequence from one end to the other end thereof; two chains extending parallel to one another along the two sides of the upper wall of said channel from one end to the other end thereof; a driving gear for slowly moving said chains; leather holding means carried by said chains; a first zone within said channel located adjacent to the entry thereof and containing air which is substantially at rest and at atmospheric temperature; a second zone adjoining said first zone; means for heating the air in said second zone; means for producing a longitudinal air current in said second zone; a third zone adjoining said second zone; a fourth zone adjoining said third zone; means for heating the air in said fourth zone; means for producing a longitudinal air current in said fourth zone; an air suction device between said second and third zones; and an air suction device between said third and fourth zones; said means for heating the air in said second zone being arranged so as to increase the heating effect from the entrance thereof to the outlet, and said means for heating the air in said fourth zone being arranged so as to cause the temperature to decrease from the centre of the zone towards both ends thereof; substantially as and for the purposes set forth.

6. A device for drying bark tanned leathers and the like, comprising in combination: a long channel open at both ends and subdivided into zones extending in longitudinal sequence from one end to the other end thereof; two chains extending parallel to one another along the two sides of the upper wall of said channel from one end to the other end thereof; a driving gear for slowly moving said chains; leather holding means carried by said chains; a first zone within said channel located adjacent to the entry thereof and containing air which is substantially at rest and at atmospheric temperature; a second zone adjoining said first zone; means for heating the air in said second zone; means for producing a longitudinal air current in said second zone; a third zone adjoining said second zone; a fourth zone adjoining said third zone; means for heat-

ing the air in said fourth zone; means for producing a longitudinal air current in said fourth zone; an air suction device between said second and third zones; an air suction device between said third and fourth zones; and pipes extending from the centre of the upper wall of said channel nearly to the bottom thereof and enclosing said means for producing longitudinal air currents and said heating means, substantially as and for the purposes set forth.

7. A device for drying bark tanned leathers and the like, comprising in combination: a long channel open at both ends and subdivided into zones extending in longitudinal sequence from one end to the other end thereof; two chains extending parallel to one another along the two sides of the upper wall of said channel from one end to the other end thereof; a driving gear for slowly moving said chains; leather holding means carried by said chains; a first zone within said channel located adjacent to the entry thereof and containing air which is substantially at rest and at atmospheric temperature; a second zone adjoining said first zone; means for heating the air in said second zone; means for producing a longitudinal air current in said second zone; a third zone adjoining said second zone; a fourth zone adjoining said third zone; means for heating the air in said fourth zone; means for producing a longitudinal air current in said fourth zone; an air suction device between said second and third zones; an air suction device between said third and fourth zones; and pipes extending from the centre of the upper wall of said channel nearly to the bottom thereof and enclosing said means for producing longitudinal air currents and said heating means; air inlet openings being

provided in the wall of said first zone at the part where it meets said second zone; substantially as and for the purposes set forth.

8. A device for drying bark tanned leathers and the like, comprising in combination: a long channel open at both ends and subdivided into zones extending in longitudinal sequence from one end to the other end thereof; two chains extending parallel to one another along the two sides of the upper wall of said channel from one end to the other end thereof; a driving gear for slowly moving said chains; leather holding means carried by said chains; a first zone within said channel located adjacent to the entry thereof and containing air which is substantially at rest and at atmospheric temperature; a second zone adjoining said first zone; means for heating the air in said second zone; means for producing a longitudinal air current in said second zone; a third zone adjoining said second zone; a fourth zone adjoining said third zone; means for heating the air in said fourth zone; means for producing a longitudinal air current in said fourth zone; an air suction device between said second and third zones; an air suction device between said third and fourth zones; pipes extending from the centre of the upper wall of said channel nearly to the bottom thereof and enclosing said means for producing longitudinal air currents and said heating means; air inlet openings being provided in the wall of said first zone at the part where it meets said second zone; a screen member at the inlet end of said first zone; and adjustable shutters in said air inlet openings; substantially as and for the purposes set forth.

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