

J. B. KOOGLER.
TANNING APPARATUS.
APPLICATION FILED JULY 12, 1909.

957,350.

Patented May 10, 1910.

FIG. 1.

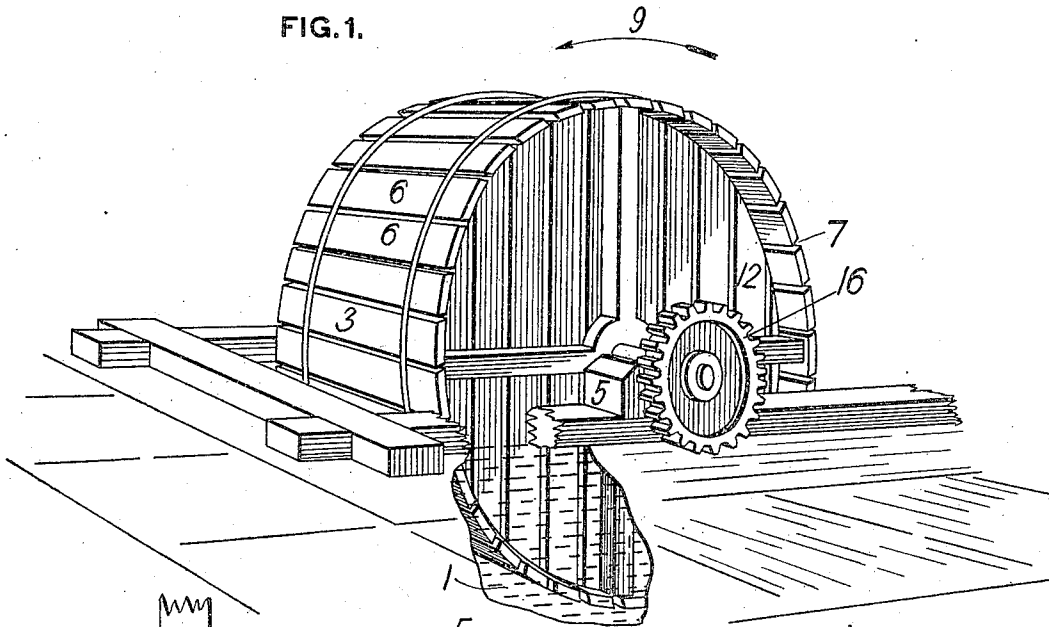


FIG. 2.

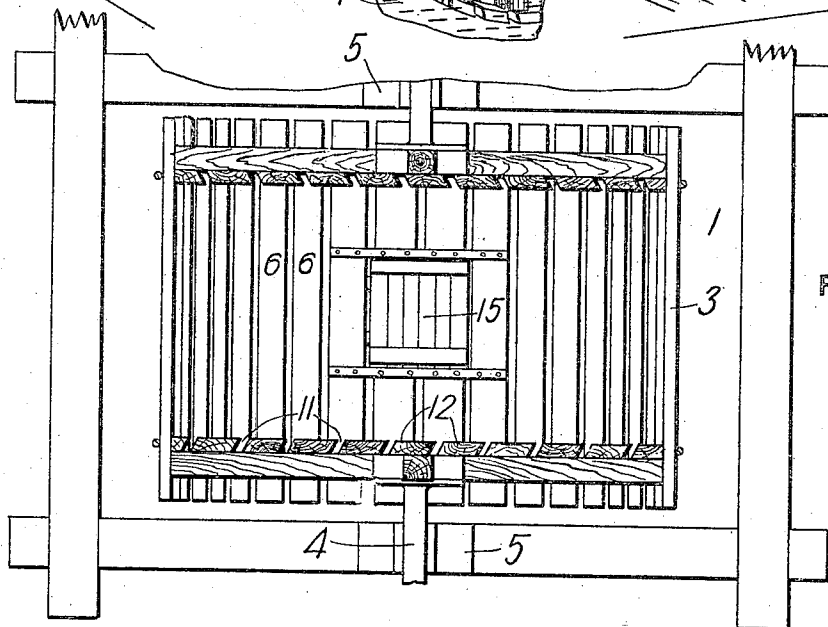
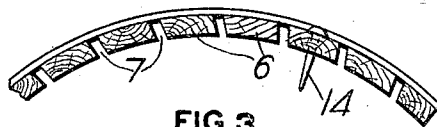


FIG. 3



WITNESSES

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TANNING APPARATUS.

957,350.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN B. KOOGLER, a resident of Indiana, in the county of Indiana and State of Pennsylvania, have invented a new and useful Improvement in Tanning Apparatus, of which the following is a specification.

This invention relates to tanning apparatus, and more particularly to the tanning vat with stirring mechanism for the hides contained therein.

The object of the invention is to provide apparatus for this purpose whereby the temperature due to the reaction of the tanning liquor on the hides can be controlled and maintained below the point where it injuriously affects the hides or leather, whereby the hides are prevented from massing or balling and hence a uniform tanning effect is secured, and whereby a sufficient quantity of tanning liquor can be used to tan any reasonable amount of hides.

Generally stated, the invention consists in providing a vat with a drum rotatably mounted to dip therein and provided with openings so arranged as to cause a good circulation of liquor through the drum, and also provided with means for stirring the hides contained therein and preventing the same from balling or massing.

In the accompanying drawing Figure 1 is a perspective view of the apparatus partly broken away; Fig. 2 is a horizontal section through the drum; and Fig. 3 is a transverse vertical section of a portion of the drum.

In the drawings the vat or tank is indicated at 1. This may be of any desired construction, shape or size. It is adapted to contain the tanning liquor indicated therein. The liquor will be of any desired composition, such as ordinarily used in tanning.

3 indicates the drum for containing the hides to be tanned. This is provided with a central longitudinal axle 4 suitably mounted in bearings 5 on or in the end walls of the vat or tank so that the drum as it rotates dips down in the liquor in the tank, being immersed nearly half its diameter in said liquor. The side or periphery of the drum is provided with a series of openings to permit the liquor to flow through the same, this being most conveniently accomplished by forming the periphery by means of a series of longitudinal strips or staves

6, leaving between the same the gaps or slots 7. To facilitate the entry of the liquor through these slots the edges of the strips or staves 6 are beveled so as to provide inclined slots therethrough, this beveling being from the outside to the inside rearwardly with reference to the direction of rotation of the drum, the direction of rotation being indicated by the arrow 9. Consequently when the periphery passes down into the liquor in the tank or vat it induces a flow of liquor from the outside into the drum, the inclined openings reducing resistance to the inward flow of the liquor to a minimum. The outflow of liquor from the interior of the drum is through the heads, these also being provided with openings, preferably in the form of slots 11 formed between slats or boards 12 forming the heads. The edges of these boards or slats likewise are beveled so as to form inclined outlet passages, the inclination being in a direction to offer the least resistance to the outflow of the liquor. Naturally as the drum rotates the liquor inside of it is carried somewhat upwardly on the side of the drum which is emerging from the liquor. This causes a rush toward the center of the drum and the incline of the slots is so arranged as to bring the slots more directly in line with this flow of the liquid. The consequence is that in the rotation of the drum a strong circulation of liquor therethrough is induced by the mere rotation of drum while partly dipping into the liquor. Consequently there is a strong action of the liquor on the hides, and the temperature due to the reaction of the liquor on the hides is kept low by the constant change of the liquor. In this way a rise of temperature which might injure the leather is entirely avoided.

The out-flow of the liquor is through both ends or heads of the drum. Consequently the edges of the hides are carried toward the heads of the drums by this out-flowing current and the hides are prevented from massing or balling or tangling as is the case with drums having the out-flow through the periphery. As a result the hides are kept in a comparatively spread out condition so that the liquor reacts uniformly over the entire surface of the hides and gives a uniform tanning effect. This also makes the hides easier to remove from the drum than when

balled up, and the labor of separating the balled or tangled hides is also avoided. To agitate the hides and assist in keeping them from massing or balling, the interior of the drum is provided at intervals with inwardly projecting prongs or spikes 14 which catch the hides and carry them up somewhat. The apparatus described is also capable of handling large quantities of hides at a single operation and can contain sufficient liquor to tan any reasonable amount of hides. The hides can be inserted into and removed from the drum through any suitable opening, the drawing showing for this purpose a door 15 in the periphery of the drum.

The drum may be rotated by any suitable mechanism, the drawing indicating merely a toothed wheel 16 on the axle of the drum, which can be connected to any suitable source of power. If desired, more than a single drum may be connected to the axle 3, it being preferred to have two drums on the axle with the driving gear 16 between the same so as to balance the strains on the axle.

The apparatus described is of very simple construction, easy to operate, not liable to derangement, and by means thereof large quantities of hides can be quickly and uniformly treated, and the temperature of the tanning liquor controlled within safe limits.

What I claim is:

1. Tanning apparatus comprising a vat or tank for the tanning liquor, a rotary drum mounted to dip deeply into the liquor in said tank or vat and being provided with a substantially smooth outer or peripheral surface, and means for rotating said drum, said drum being provided with openings in its periphery and its ends or heads so arranged as to induce circulation inwardly through the periphery and outwardly through both ends or heads.

2. Tanning apparatus comprising a tank or vat for the tanning liquor, a rotary drum

mounted to dip into said tank or vat, and means for rotating said drum, said drum being provided with inclined openings through its periphery and ends or heads, the said openings in the periphery being inclined from the outside to the inside rearwardly with reference to the direction of rotation of the drum and those through the heads being inclined in the direction of the back flow of liquor in the drum.

3. Tanning apparatus comprising a tank or vat for the tanning liquor, a rotary drum mounted to dip into said tank or vat, means for rotating said drum, said drum being provided in its periphery and its ends or heads with inclined openings arranged to induce circulation inwardly through the periphery of the drum and outwardly through both ends or heads, and inwardly projecting spikes or prongs arranged on the walls of said drum.

4. Tanning apparatus comprising a vat or tank for the tanning liquor, a rotary drum mounted to dip into the liquor in said tank or vat, and means for rotating said drum, said drum being provided in its periphery with openings for the in-flow of the liquor and in its heads with openings extending into proximity to the center of said heads for the out-flow of the liquor.

5. Tanning apparatus comprising a vat or tank for the tanning liquor, a rotary drum mounted to dip into the liquor in said vat or tank, and means for rotating said drum, said drum being provided in its periphery with openings for the in-flow of the liquor and in its heads with long slots for the out-flow of the liquor.

In testimony whereof, I have hereunto set my hand.

JOHN B. KOOGLER.

Witnesses:

JOHN MANNER,
J. A. CRUSSMAN.