No. 858,103. PATENTED JUNE 25, 1907.

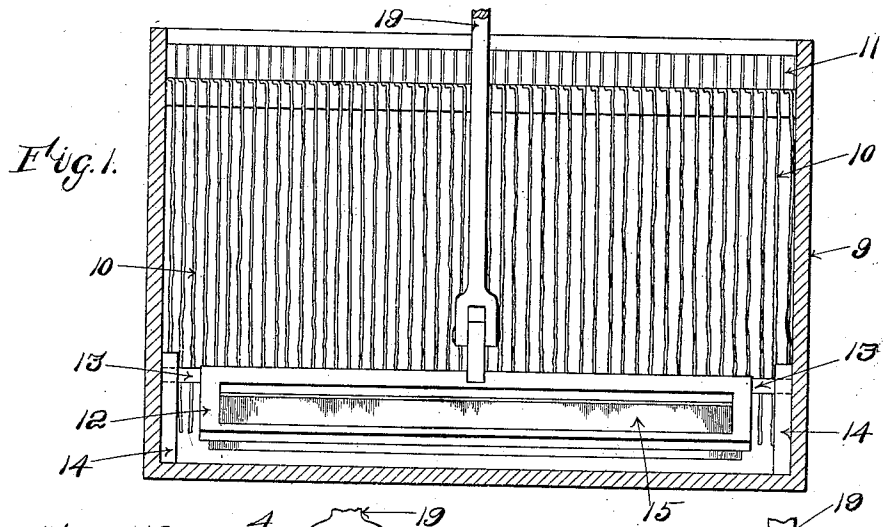
G. PLACE.

APPARATUS FOR MIXING LIQUOR IN TAN VATS.

APPLICATION FILED SEPT. 25, 1906.

2 SHEETS—SHEET 1.

Fig. 1.



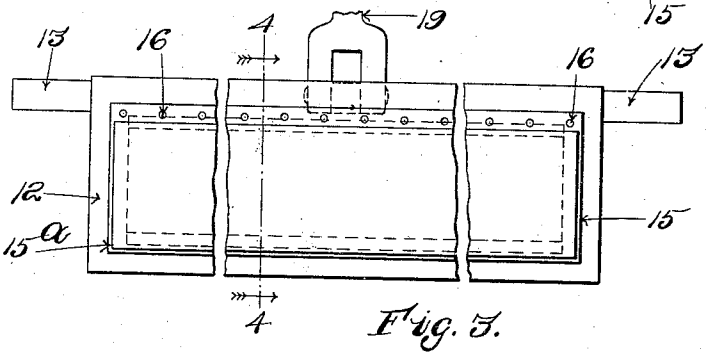


Fig. 3.

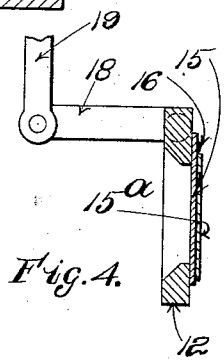


Fig. 4.

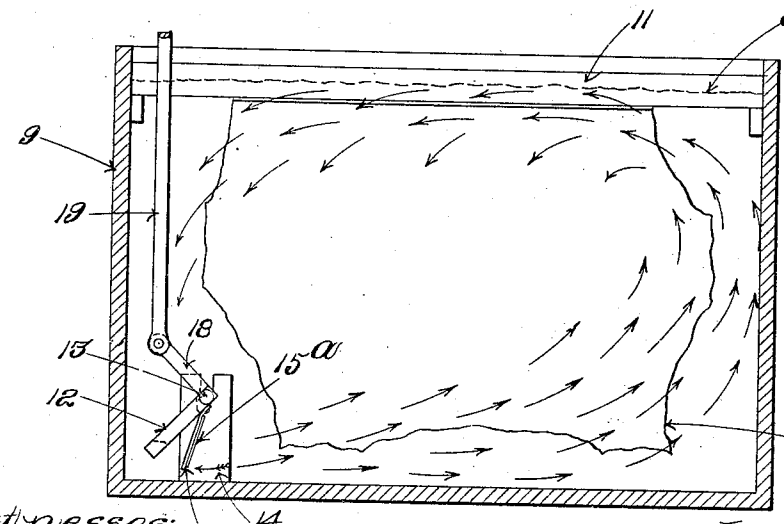


Fig. 2.

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THE NORRIS PETERS CO., WASHINGTON, D. C.

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APPARATUS FOR MIXING LIQUOR IN TAN VATS.

APPLICATION FILED SEPT. 25, 1906.

2 SHEETS—SHEET 2.

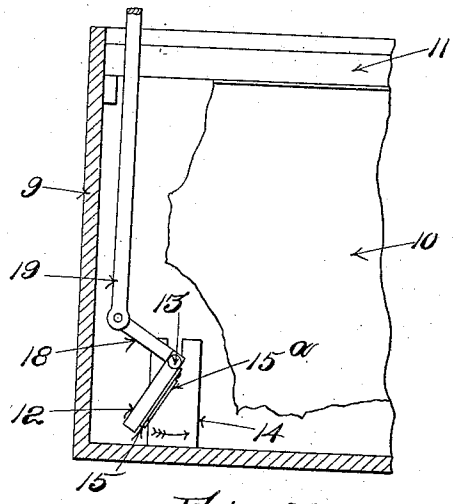


Fig. 5.

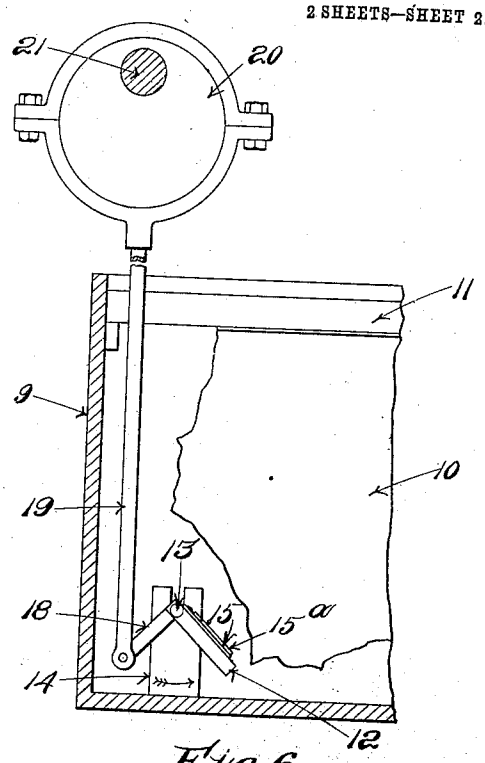


Fig. 6.

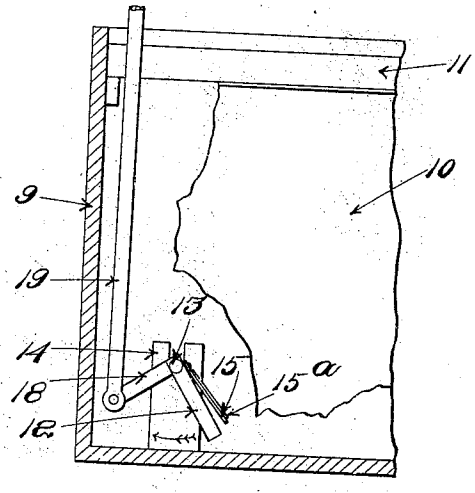


Fig. 7.

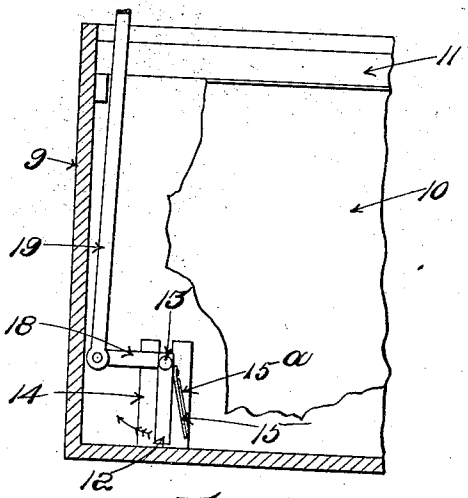


Fig. 8.

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UNITED STATES PATENT OFFICE.

GRIFFIN PLACE, OF WOBURN, MASSACHUSETTS.

APPARATUS FOR MIXING LIQUOR IN TAN-VATS.

No. 858,103. Specification of Letters Patent. Patented June 25, 1907.

Application filed September 25, 1906. Serial No. 336,159.

To all whom it may concern:

Be it known that I, GRIFFIN PLACE, a citizen of the United States, residing at Woburn, county of Middlesex, and State of Massachusetts, have invented a certain new and useful Improvement in Apparatus for Mixing Liquor in Tan-Vats, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to means for keeping the liquor in tan vats in circulation so as to act equally upon all parts of the skin. When the liquor is left quiescent, the stronger portion sinks to the bottom and the weaker portion rises to the top, so that the skin is tanned unequally. If the liquor be stirred, and the agitating device is such as to produce counter-currents or cross-currents or circulation around a vertical axis, the effect is to cause the suspended hides to sway and to contact more or less with each other and thus at the points of contact there will be produced spots on the skin.

The object of the present invention is to provide an agitating apparatus by which the liquor is kept in continuous circulation around a horizontal axis, the portion at the bottom moving in one direction lengthwise of the suspended skins toward the opposite end of the vat, then rising and returning in the opposite direction to the first end of the vat; thence down and around again in the same way so that the strong liquor cannot settle at the bottom but the tannic action will be just as strong on the upper half of the skin as on the lower half, and the circulation being lengthwise of the skins and with equal force between all of them instead of broad side to them, they will be kept from swaying into contact with each other.

The invention will be fully understood from the following description taken in connection with the accompanying drawings, and the novel features are pointed out and clearly defined in the claims at the close of the specification.

In the drawings,—Figure 1 is a vertical section transversely of the vat, showing a vat with my apparatus attached. Fig. 2 is a vertical section at right angles with Fig. 1, the skin being partly broken away to more clearly show the agitating apparatus, the agitating apparatus being shown in the position that it will occupy just at the end of the back stroke of the paddle. Fig. 3 is an enlarged detail elevation of the paddle when the valve is closed. Fig. 4 is a cross-section on line 4—4 of Fig. 3. Fig. 5 is a section on the same line as Fig. 2, partly broken away, showing the paddle with the valve closed as it will be just at the beginning of the for ward stroke. Fig. 6 is a section on the same line as Fig. 2, showing the parts in position at the end of the forward stroke; also showing the eccentric which actuates the vertical rod which drives the agitator. Fig. 7 shows the parts in the position just after the beginning of the return stroke. Fig. 8 shows the parts in position when the paddle is half way back but still in motion, so that the valve is open.

Referring to the drawings,—9 represents the vat in which the hides 10 are suspended from cross-strips 11 parallel with each other in the usual manner. The liquor usually nearly fills the vat, as indicated by the dotted line 2—2. Extending crosswise of the vat near one end, in the lower part thereof and transversely of the direction in which the hides extend, is a paddle or agitator which is pivoted so that it may be oscillated back and forth. As shown in the drawings, it has a frame 12 provided with pivot pins 13 at each end near the upper edge which are journaled in standards 14 on the inside walls of the vat. There should be sufficient clearance below the paddle so that it can swing freely, without, however, leaving very much extra space below it, and the pivot bearings should be sufficiently far away from the corner of the vat behind it so as to give room for the paddle to swing through the required arc; preferably, say about forty-five degrees on each side of the vertical.

The paddle is provided with a clapper-valve 15 secured along its upper edge to the frame 12 of the paddle on the forward side thereof and is free on the lower side and at the ends except where it is secured at the upper corners, so that it will swing open as the paddle swings backward and be closed as it swings forward. The preferred form of construction is to have a rectangular skeleton frame and to form the valve 15 with a backing of leather or some other flexible material which entirely covers the opening of the frame 12 and laps over the edges of the opening on all sides, and is secured at the upper edge as by a row of nails 16 or other suitable means. In order to give weight to the valve and prevent the leather from curling, it has preferably a front facing 15[a] of wood, or

other suitable material. This facing should not come quite to the line of nails 16, because it is intended that the valve should have a hinge action and this is obtained by the flexibility of the leather. The paddle frame 12 is rigidly connected with a rocker-arm 18, the rocker-arm 18 being pivoted to the vertical reciprocating rod 19 which may be reciprocated in any suitable manner, the means shown in the drawings, see Fig. 6, being an eccentric 20 driven by a rod 21. It is obvious that there are other well known means for giving vertical reciprocation to the rod 19, and I should regard any such as coming within the scope of my invention.

When the vertical rod 19 begins to descend, as shown in Fig. 5, after the paddle has completed its backward stroke, the resistance of the liquor will cause the valve 15 to be held closed, and it will be kept closed throughout the forward stroke, as shown in Fig. 6. The forward movement of the paddle will set up a current in the lower portion as shown by the arrows in Fig. 2, and the liquor striking against the wall at the forward end of the vat will be deflected upward and a return current produced in the upper portion until it strikes the rear wall when it will descend and circulate forward again. When the paddle has completed its forward stroke and starts to return, the pressure of the resisting current will open the valve, as shown in Fig. 7, and keep it open through the position shown in Fig. 8, until the end of its rear stroke, Fig. 2 showing it approaching the end of its rear stroke. The opening of the valve in the rearward movement of the paddle will allow the current of liquor to pass through in the direction in which it started, and the next forward movement of the paddle will again give an impetus to the current. Thus, as long as the apparatus is in action, there will be a continuous current in the direction shown in the arrows in Fig. 2.

The paddle should be mounted as near the rear wall of the vat as is practicable, so that as large a portion as possible of the liquor shall be subject to the action of the forward stroke of the paddle.

I do not intend to limit myself to the particular means shown and described for oscillating the paddle, as it is obvious that some other means than a vertically reciprocating rod might be employed to oscillate the paddle. It is also obvious that instead of having the clapper-valve 15 made in part of flexible material, it might be made of rigid material and hinged along its other edge. In fact the construction shown in the drawings in which it is represented as made of flexible material gives a hinge action even when it is secured by nails as shown. The leather backing is preferable, however.

I claim as my invention:

1. In combination with a tan vat, a valved paddle extending crosswise of the vat adjacent to one end and near the bottom thereof at right angles with the planes in which the skins are to be suspended, said paddle being pivoted at its upper edge on a horizontal axis, and means for oscillating the paddle on said axis, the arc of movement of the paddle at each stroke extending each side of the vertical plane passing through the axis.

2. In combination with a tan vat, a valved paddle extending crosswise of the vat adjacent to one end and near the bottom thereof at right angles with the planes in which the skins are to be suspended, said paddle being pivoted at its upper edge on a horizontal axis and means for oscillating the paddle on said axis, the arc of movement of the paddle at each stroke extending each side of the vertical plane passing through the axis, the paddle being provided with a valve which is closed by the resistance of the liquid when the paddle swings away from the most adjacent side of the vat and which is opened by the resistance of the liquid on the return stroke.

3. In combination with a tan vat, a valved paddle extending crosswise of the vat adjacent to one end and near the bottom thereof at right angles with the planes in which the skins are to be suspended, said paddle being pivoted at its upper edge on a horizontal axis, and means for oscillating the paddle on said axis, the arc of movement of the paddle at each stroke extending each side of the vertical plane passing through the axis, the paddle comprising an open frame and a clapper-valve on the forward side thereof covering the opening in the paddle, said valve being hinged on its upper edge to the frame on the upper side of the opening and free on its other edges and being closed by the resistance of the liquid when the paddle swings away from the most adjacent side of the vat and being opened by the resistance of the liquid on the return stroke.

4. In combination with a tan vat, a valved paddle extending crosswise of the vat adjacent to one end and near the bottom thereof at right angles with the planes in which the skins are to be suspended, said paddle being pivoted at its upper edge on a horizontal axis, and means for oscillating the paddle on said axis, the arc of movement of the paddle at each stroke extending each side of the vertical plane passing through the axis, the paddle comprising an open frame and a clapper-valve on the forward side thereof covering the opening in the paddle, said valve being hinged on its upper edge to the frame on the upper side of the opening and free on its other edges and being closed by the resistance of the liquid when the paddle swings away from the most adjacent side of the vat and being

opened by the resistance of the liquid on the return stroke, and vertical standards at each end of the vat having bearings in which the paddle is pivoted.

5. In combination with a tan vat, a valved paddle extending crosswise of the vat adjacent to one end and near the bottom thereof at right angles with the planes in which the skins are to be suspended, said paddle being pivoted at its upper edge on a horizontal axis, and means for oscillating the paddle on said axis, the arc of movement of the paddle at each stroke extending each side of the vertical plane passing through the axis, the paddle comprising an open frame pivoted at its upper corners in bearings at the sides of the vat and provided with a clapper-valve on the forward side, said valve being formed of flexible material secured along its upper edge to the portion of the frame above the opening therein and free at its other edges.

6. In combination with a tan vat, a valved paddle extending crosswise of the vat adjacent to one end and near the bottom thereof at right angles with the planes in which the skins are to be suspended, said paddle being pivoted at its upper edge on a horizontal axis, and means for oscillating the paddle on said axis, the arc of movement of the paddle at each stroke extending each side of the vertical plane passing through the axis, the paddle comprising an open frame pivoted at its upper corners in bearings at the sides of the vat and provided with a clapper-valve on the forward side, said valve being formed of flexible material secured along its upper edge to the portion of the frame above the opening therein and free at its other edges and provided with a facing of more rigid material below the line where the said flexible material is secured to the frame.

7. In combination with a tan vat, a valved paddle extending crosswise of the vat adjacent to one end and near the bottom thereof at right angles to the planes in which the skins are to be suspended said paddle being pivoted at its upper corners on a horizontal axis, means for oscillating the paddle on said axis back and forward past a vertical plane, said oscillating means comprising a vertically reciprocating rod and a connecting arm, one end of which is pivotally connected with the lower end of said rod and the other end is rigidly connected with the upper edge of said paddle near the middle thereof, the paddle comprising an open frame provided with a clapper-valve on the forward side hinged at its upper edge to said frame and free at its other edges, whereby the valve is closed when the paddle swings forward and opened when it swings backward.

In testimony whereof I affix my signature, in presence of two witnesses.

GRIFFIN PLACE.

Witnesses:
WILLIAM A. COPELAND,
ALINE TARR.