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TANNING MACHINERY.

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To all whom it may concern:

Be it known that we, GUIDO C. VOGEL and CHARLES P. BOSSERT, citizens of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Tanning Machinery, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

Our invention relates to tanning machinery, and has particular reference to an improved construction employed in handling hides in the vats where the tanning processes are conducted. It has been customary in this class of apparatus to employ vats in which the hides are soaked in the various chemical solutions used in the process of tanning. The solutions within these vats have been agitated by means of mechanically operated paddle-wheels. When it has been desired to remove hides from one vat to another, the hides are handled by means of hooks or some similar manually operated tools. This method of operation has been open to several objections. Much time and labor is consumed by handling the hides manually and there has been a considerable waste of the tanning solutions in so removing the hides.

By our improved system, the hides are placed in a cage having an open top and this cage with its contained hides is placed within a vat, the top of the cage fitting sufficiently close to the interior of the vat so that there is no opportunity for the hides to escape outside and below the top of the cage. This cage is provided with perforations to allow free flow of fluid between the vat and the inside of the cage. The fluid within the cage is agitated by means of the mechanically driven paddle-wheel according to the usual system except that instead of being stationary, means are provided for bodily removing the paddle-wheel and its attached driving mechanism from their normal positions above the vat and its contained cage. When it is desired to remove the hides from one vat to a second, the paddle-wheel is first removed from its normal position and the cage is then lifted from the vat by means of a hoist on a traveling crane. After allowing the vat solution to escape from the cage through the perforations, the cage is then carried by the crane to a second

vat and lowered into the same. The traveling crane is then disengaged from the cage, a paddle-wheel is moved into position and the operation continued as above described. In order to understand these and other advantages of our improved apparatus, reference should be made to the accompanying drawings in which,

Figure 1 is a side elevation of our improved apparatus, the tanning vats being shown in section, Fig. 2 is a sectional view taken on line 2—2 of Fig. 1.

A vat 1 is provided which is adapted to be filled with a tanning solution approximately to the height of brace 2. A second vat 3 is similarly adapted to contain a tanning solution, the two vats being separated by the partition 4. Within each vat is provided a cage 5, the outside of which is preferably of a convex shape. On the top edges of the cage 5 are provided steel projections 6 which are adapted to cooperate with the blocks 7 on the inside of the vat 1 for supporting the cage within the vat. Similarly to the ends of the cage 5 are rigidly fastened angle irons 34 which rest on blocks 35, fastened to the interior of the vat. The bottom of the cage 5 is provided with perforations 8 through which there is free flow of fluid between the vat and the interior of the cage. The sides of the cage 5 are provided with upward extensions 9 to which are attached plates 10, the object of which will be described in detail hereafter. Approximately on a line with the top of the vats, are provided rails 11. These rails are adapted to support the movable frame for the paddle-wheel 12. The supporting frame for this paddle-wheel consists of channel irons 13, rigidly joined together and to which the wheels 14 are suitably attached. On this frame is mounted the motor 15 having the pinion 16 rigidly mounted on its shaft. The pinion 16 is in mesh with gears 17 which in turn is rigidly mounted on the shaft 18 provided with suitable bearings. On the end of shaft 18 is a bevel pinion 19 in mesh with the bevel gear 20, rigidly mounted on the paddle wheel 12. The paddle-wheel itself is mounted on shaft 21 suitably provided with bearings 22. The periphery of the paddle-wheel is provided with a number of blades 23. The lower part of the paddle-wheel is normally immersed in the tanning solution of the vat. When the paddle-wheel is revolved it is evident that the tanning solution within the

cage will become agitated, and on account of the circular shape of the bottom of the cage, the hides will be constantly moved and the solution will attain ready access to all parts of the hide.

The upper part of the partition 4 is provided with an auxiliary movable partition 25 which rotates on the pivot 26. On the upper edge of the partition 25 is provided a bolt, for the sake of simplicity not shown on the drawing, the object of which is to securely hold the partition 25 in its normal vertical position. When it is desired to remove the hides from one vat to another the partition 25 is first moved from its vertical to its horizontal position. The paddle wheel 12 and its associated driving mechanism is then moved from its position above the vat 1 to a position above vat 3, the lowered horizontal position of the partition 25 giving sufficient room for the lower part of the paddle wheel 12 to clear the upper edge of the partition 4. The paddle wheel and its attached mechanism may be readily pushed by hand or manually operated by attaching a suitable crank to a square projecting hub 27 of the wheel 14. If desired a motor can readily be mounted on the frame work provided by the channel irons 13, this motor being adapted to move the frame supporting the paddle-wheel and its driving mechanism. After the paddle-wheel has been moved from its position above the vat 1 a bar 28 may be inserted in openings 29 of the plates 10. The traveling crane 30 which operates on the tracks 31 is then moved into a position above the vat and two hoists 32 provided at their ends with hooks 33 lowered in such manner that the hooks 33 engage the bar 28. The hoist is then raised, bringing with it the cage 5 with the hides contained therein. After allowing the tanning solution to drain from the cage, the traveling crane is moved to a position above the vat in which it is desired to conduct the succeeding operation, the cage is lowered into its position within the vat, the hooks 33 are removed from engagement with the bar 28, the bar 28 is withdrawn from its connection with the cage 5, the traveling crane 30 is moved away, a paddle-wheel and its supporting frame is moved into position and the tanning operation again proceeds as described above.

It is evident that many variations may be made from the detailed construction of the exact form of tanning machinery which we have described without departing from the spirit of our invention.

What we claim as new and desire to claim by Letters Patent is:

1. In combination, a plurality of vats adapted to contain fluid, a cage adapted to contain hides, supporting means for said cage in each of said vats, a mechanically actuated paddle for agitating the fluid

within said cage, means for moving said paddle in a horizontal plane, and movable partitions between said vats, each partition in its normal position adapted to prevent the flow of fluid from one vat to another and in its alternate position adapted to allow the horizontal movement of said paddle from one vat to another.

2. In combination, a plurality of vats adapted to contain fluid, a removable cage adapted to contain hides, supporting members for said cage in each of said vats, a mechanically actuated paddle for agitating the fluid within said cage, means for moving said paddle in a horizontal plane, movable partitions between said vats, each partition in its normal position adapted to prevent the flow of fluid from one vat to another and in its alternate position adapted to allow a horizontal movement of said paddle from one vat to another, and means for removing said cage from said vat.

3. In a tanning system, the combination of a plurality of vats for containing tanning solution, a removable hide cage having a curved bottom adapted to fit within said vats, perforations in said cage for allowing free passage of tanning solution between said vats and the inside of said cage, means for supporting said cage within said vats, a crane for transferring said cage from one vat to another, a power actuated paddle wheel for agitating the solution within one of said vats, a traveling frame for supporting said paddle wheel and moving the paddle wheel from one vat to another, and vertical partitions between said vats for normally keeping separate the tanning solutions in said vats, the upper portions of said partitions being rotatable from a vertical to a horizontal plane to allow movement of said paddle wheel from one vat to another.

4. In combination, a single vat structure comprising a plurality of cells, a movable partition between two of such cells adapted to normally prevent the free flow of solution from one cell to the other, and means for agitating the solution in one of such cells, such agitating means movable horizontally to the other of such cells when the movable partition is displaced from its vertical position.

5. In combination, a single vat structure comprising a plurality of cells, a movable partition between two of such cells adapted to normally prevent the free flow of solution from one cell to the other, means for agitating the solution in one of such cells, such agitating means movable horizontally to the other of such cells when the movable partition is displaced from its vertical position, and a removable cage in each of such cells adapted to contain and remove hides from such cell as desired.

6. In combination, a single vat structure

comprising a plurality of cells, a movable partition between two of such cells adapted to normally prevent the free flow of solution from one cell to the other, means for
 5 agitating the solution in one of such cells, such agitating means movable horizontally to the other of such cells when the movable partition is displaced from its vertical position, and a removable cage in each of such
 10 cells adapted to contain and remove hides from such cell as desired, such cages having cylindrical bottoms to facilitate the agitation of the hides and provided with openings in their walls to permit the ready flow
 15 of the solution therethrough.

7. In combination, a vat consisting of two cells, such cells being partially separated by a permanent partition between them, such vat thus formed adapted to contain solution
 20 of a depth to pass from one cell to the other over such partition, agitating means supported over the vat and adapted to extend into the solution, such agitating means being movable horizontally from one cell to the
 25 other, and a removable partition located above the permanent partition and adapted to normally prevent agitation occurring in one cell from extending to the other, such removable partition lying in the path of the
 30 agitating means which may be moved from one cell to the other only by the removal of the movable partition.

8. In combination, a vat consisting of two cells, such cells being partially separated by
 35 a permanent partition between them, such vat thus formed adapted to contain solution of a depth to pass from one cell to the other over such partition, agitating means supported over the vat and adapted to extend
 40 into the solution, such agitating means being movable horizontally from one cell to the

other, a removable partition located above the permanent partition and adapted to normally prevent agitation occurring in one cell from extending to the other, such removable
 45 partition lying in the path of the agitating means which may be moved from one cell to the other only by the removal of the movable partition, and a removable cage in each of such cells adapted to contain and remove
 50 hides from such cell as desired.

9. In combination, a vat consisting of two cells, such cells being partially separated by a permanent partition between them, such vat thus formed adapted to contain solution
 55 of a depth to pass from one cell to the other over such partition, agitating means supported over the vat and adapted to extend into the solution, such agitating means being movable horizontally from one cell to the
 60 other, a removable partition located above the permanent partition and adapted to normally prevent agitation occurring in one cell from extending to the other, such removable partition lying in the path of the agitating
 65 means which may be moved from one cell to the other only by the removal of the movable partition, and a removable cage in each of such cells adapted to contain and remove
 70 hides from such cell as desired, such cages having cylindrical bottoms to facilitate the agitation of the hides and provided with openings in their walls to permit the ready flow of the solution therethrough.

In witness whereof, we hereunto subscribe
 our names, this 30th day of April, A. D. 1909.

GUIDO C. VOGEL.
 CHARLES P. BOSSERT.

Witnesses:

M. SCHIEBERT,
 F. SCHOEPEL.