

(No Model.)

2 Sheets—Sheet 1.

W. T. HARRISON.
APPARATUS FOR TANNING.

No. 538,911.

Patented May 7, 1895.

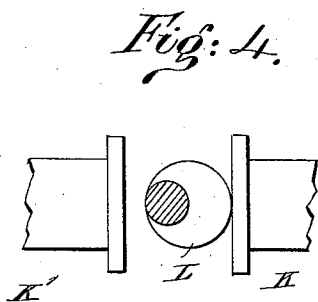
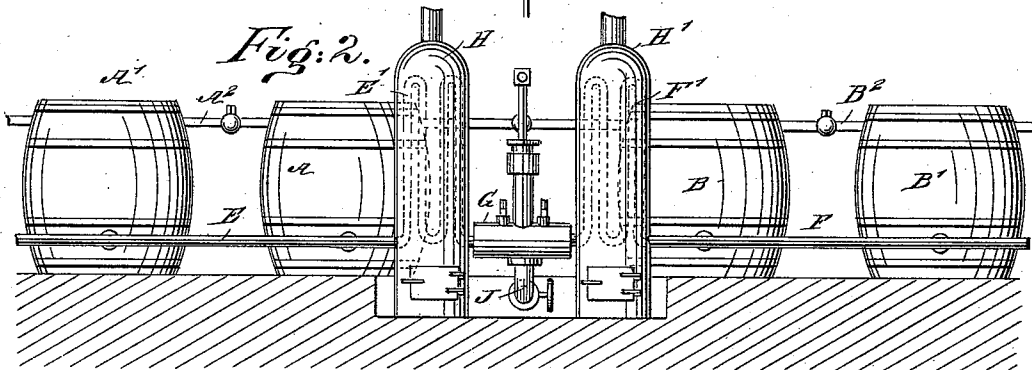
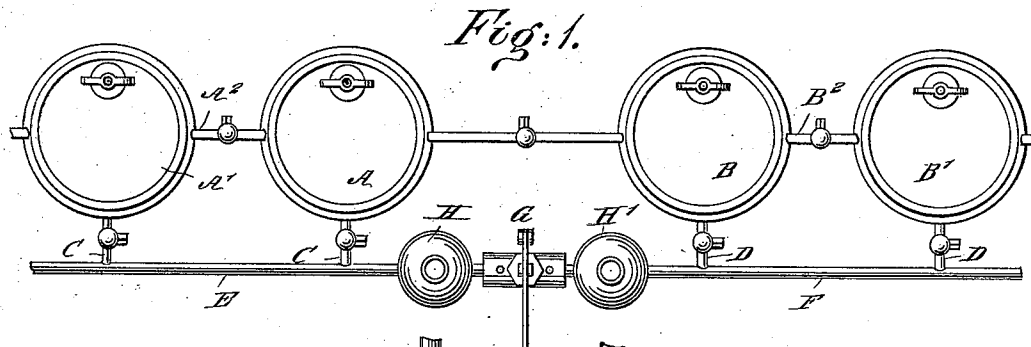
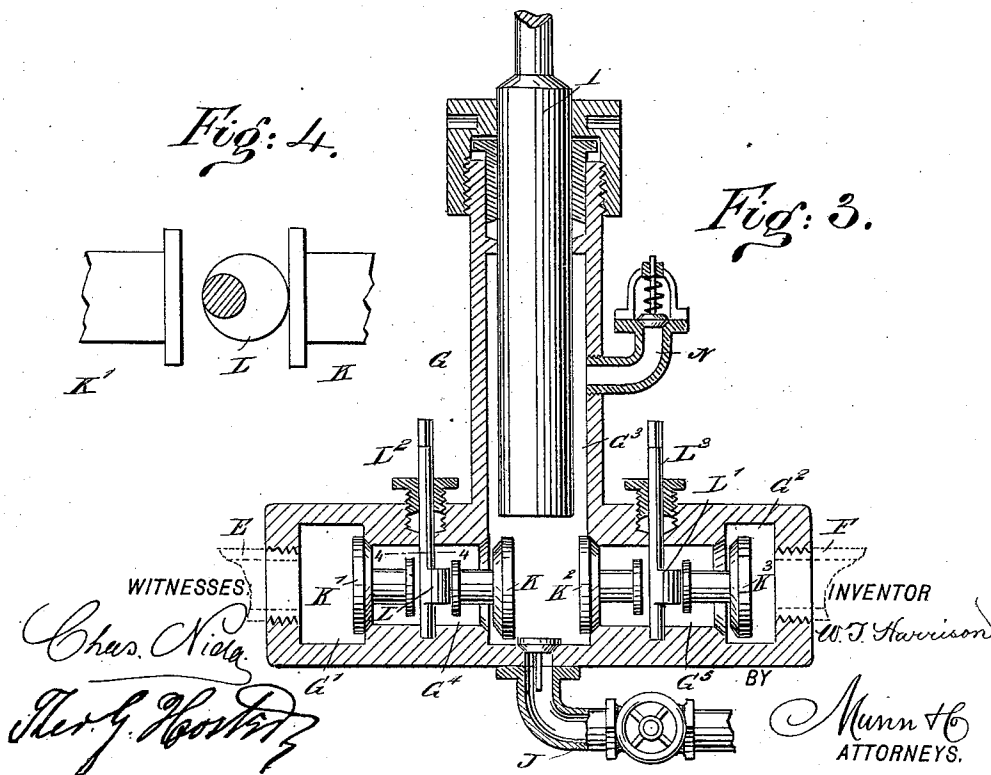


Fig: 3.



(No Model.)

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Fig. 5.

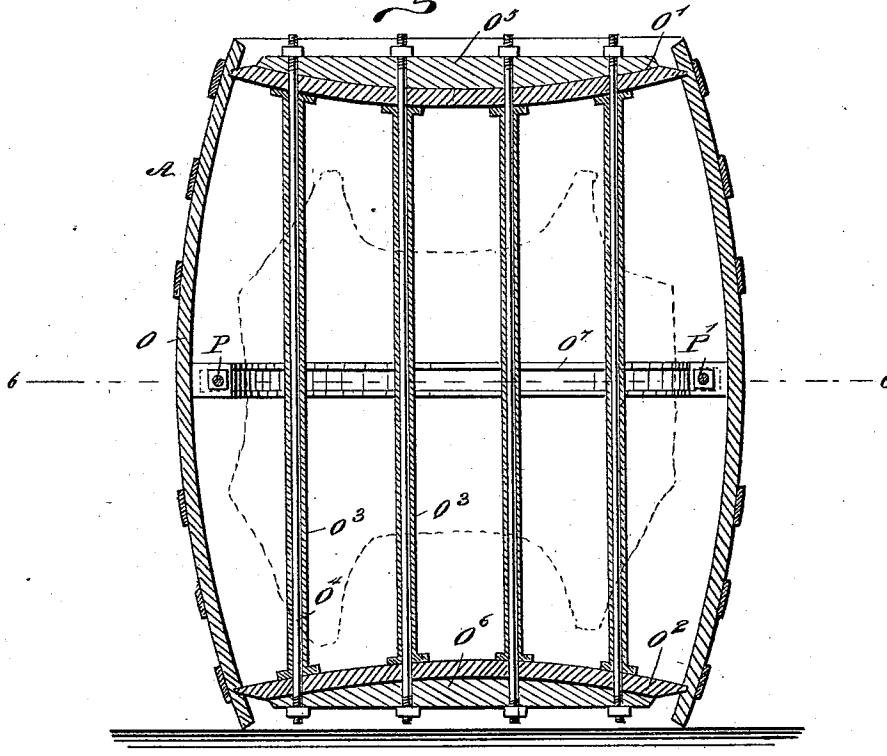
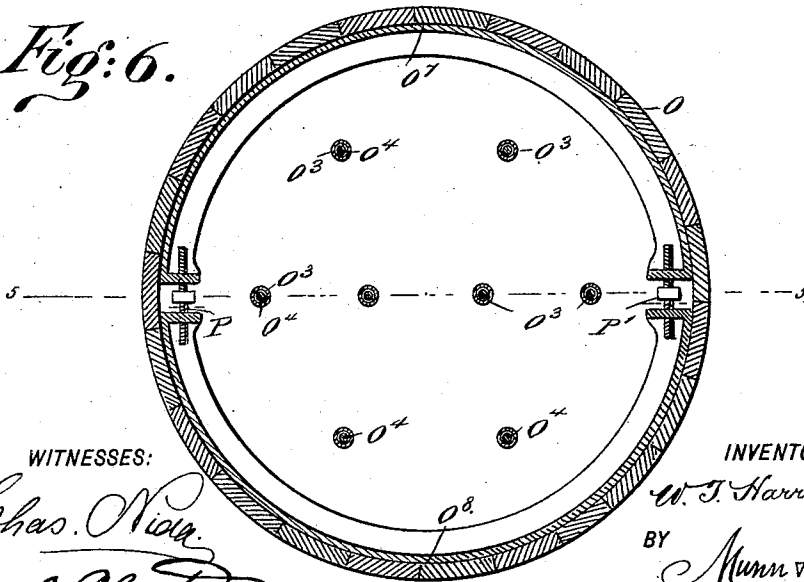


Fig. 6.



WITNESSES:

Chas. Nida.
Thos. G. Hoster.

INVENTOR

W. T. Harrison

BY

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UNITED STATES PATENT OFFICE.

WILLIAM T. HARRISON, OF POOLER, GEORGIA.

APPARATUS FOR TANNING.

SPECIFICATION forming part of Letters Patent No. 538,911, dated May 7, 1895.

Application filed October 13, 1894. Serial No. 525,768. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM T. HARRISON, of Pooler, in the county of Chatham and State of Georgia, have invented new and useful Improvements in Tanning Apparatus, of which the following is a full, clear, and exact description.

This invention relates to certain improvements in that class of tanning apparatus, of which the apparatus shown and described in Letters Patent of the United States No. 514,549, granted to me February 13, 1894, is a type, and the invention consists in an apparatus comprising sets of closed vessels and a pump for alternately drawing the tanning liquor from one set of vessels to fill the other, and vice versa.

The invention also consists in certain parts and details, and combinations of the same, which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of the improved apparatus. Fig. 2 is a side elevation of the same. Fig. 3 is an enlarged sectional side elevation of the reversing-pump. Fig. 4 is an enlarged sectional plan view of part of the same on the line 4 4 of Fig. 3. Fig. 5 is an enlarged sectional side elevation of one of the tanning vessels or casks, the section being taken on the line 5 5 of Fig. 6; and Fig. 6 is a sectional plan view of the same on the line 6 6 of Fig. 5.

In tanning apparatus as heretofore constructed, and in such for instance as shown and described in the patent above referred to, the hides are not perfectly tanned, as part of the weak tannic acid and the watery portion of the tanning liquor remained in the pores of the hide, and consequently streaky and untanned portions are found in the hide.

To avoid the above described serious objection, and to insure a perfect and uniform tanning of all the parts of the hides, is the object of the present invention.

As illustrated in Figs. 1 and 2, a set of tanning vessels A, A', in the form of casks of vats are provided, and connected with each other by a valved pipe A², and a similar set of tanning vessels B, B' connected with each

other by a valved pipe B², the said sets of vessels A, A' and B, B' being connected by valved branch pipes C and D respectively with pipes E and F respectively, formed in the coils E', F' respectively, to connect with a reversing pump G, preferably of the construction shown in Fig. 3.

The coils E' and F' pass through heaters H and H' respectively, of any approved construction, and adapted to heat the tannic acid or other tanning liquor passing through the coils previous to discharging the liquor into the respective set of vessels A A' or B B'.

The pump G is provided with a suitable plunger I, operated by hand or power, and with a suction pipe J connected with a source of tanning liquor supply. The suction pipe J has a valve and opens into a cylinder G³, in which operates the plunger I, and the pipes E and F open into the chambers G' and G² respectively connected by chambers G⁴ and G⁵ respectively with the cylinder G³, on opposite sides thereof, as plainly shown in Fig. 3. The chamber G⁴ is provided at its ends with valve seats for the valves K and K' adapted to open in opposite directions, and similar valve seats are formed at the ends of the chamber G⁵, to be engaged by the valves K² and K³.

Between the valves K and K' is arranged a stem L² and a similar stem L³ is located between the valves K² and K³, the said stems being mounted to turn in suitable bearings in the casing of the pump, and on these stems are mounted cams or projections L, L', respectively, adapted when the stems are turned to alternately engage and unseat the valves between which the stems are arranged. The outer ends of said stems are provided with squares adapted to be engaged by wrenches or other tools for moving the wings in such a position as to cause a positive unseating of either the valves K or K' by the cam L, or an unseating of either of the valves K² K³ by the cam L'.

Now when the plunger I is set in motion and the cams L and L' are in the position illustrated in Fig. 3, then the liquid entering the cylinder G³ is forced through the open valve K and the valve K' into the pipe E, and when the said cams L and L' are turned into a reverse position, then the liquor entering the

cylinder G^3 is forced past the valves K^2 and K^3 into the pipe F .

In starting the apparatus, one set of vessels, say the vessels A and A' , are filled with a tanning liquor from the liquor supply with which the suction pipe J is connected, and as soon as the vessels A and A' containing the hides to be tanned are filled with liquor, then the valve in the suction pipe J is closed and remains so until the process is completed and the hides in both sets of vessels A , A' and B , B' are tanned. Now it will be seen that the hides contained in the vessels A and A' are subjected to the action of the tanning liquor heated before entering the said vessels by passing through the coil E' in the heater H . The hides are thus subjected to the tannic acid for a suitable length of time, and then the operator reverses the positions of the cams L and L' , and starts up the pump G so that the tanning liquor is drawn from the vessels A , A' , and forced through the cylinder G^3 , past the valves K^2 , K^3 into the pipe F , to fill the vessels B , B' also containing hides to be tanned.

In drawing the tanning liquor from the vessels A , A' , a vacuum is formed in the latter, and consequently any weak liquor or watery portion of the tanning liquor contained in the pores of the hides runs off from the latter, so that a successful tanning of the hides is accomplished. In the meantime the hides in the vessels B and B' are subjected to the action of the liquor for a certain length of time and then the position of the cams L and L' is again reversed, and the pump G started to pump the liquor from the said vessels B , B' back into the vessels A , A' , to create a vacuum in the said vessels B and B' , to remove all the watery portion and the weak liquor from the hides contained in the said vessels B and B' .

The above described operation is repeated as many times as deemed necessary, that is, the hides are alternately subjected to the action of the tanning liquor and a complete vacuum, so that a perfect and uniform tanning of the hides is obtained.

In order to prevent air from passing into the vessels A , A' , B , B' , and also to prevent collapse thereof while a vacuum is formed therein as above described, I prefer to construct the said vessels in the manner shown in detail in Figs. 5 and 6. Each of the vessels is formed of a body portion O , made of staves set up as in the case of barrels, and closed at their ends by heads O' and O^2 , con-

nected with each other by tubes O^3 , through which pass bolts O^4 having nuts on their outer ends abutting against reinforcing strips O^5 and O^6 secured on the heads O' and O^2 at the outside thereof, as plainly indicated in Fig. 5. In the middle portion of the body O are arranged the ring sections O^7 and O^8 , fitting against the inner surface of the body O , and connected with each other at their adjacent ends by screw rods P and P' adapted to force the ends of the sections from each other, to firmly abut the sections against the inner face of the body, so as to prevent the atmospheric pressure from crushing the body O at the time a vacuum is formed in the vessels in the manner above described.

It will be seen that a vessel reinforced in the manner described, will permit of making it perfectly air tight at the chines, as any amount of packing can be introduced, and furthermore the vessel is perfectly safe at the time the vacuum is formed.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a tanning apparatus, the combination of two vessels, a pump, pipes affording communication between each vessel and the supply and discharge ports of the pump, an independent supply pipe adapted for communication with the pump, and valves in said pipes, substantially as set forth.

2. An apparatus for tanning hides, comprising sets of vessels containing the hides to be tanned, and of which one set is filled at a time with the tanning liquor, a reversing pump for pumping the said liquor from the filled vessels into the empty ones and from the latter into the first vessels, and heaters for heating the liquor as it is discharged from the pump to the vessels, substantially as shown and described.

3. A tanning apparatus provided with a vessel having a body and heads, a sectional ring engaging the inner face of the said body at the middle thereof, and screws for spreading the said ring sections apart, as set forth.

4. In a tanning apparatus, a vessel comprising a circular body and heads, tubes arranged between the heads, bolts passing through the tubes and secured to said heads, and an expansible ring arranged interiorly in the circular body, substantially as set forth.

WILLIAM T. HARRISON.

Witnesses:

J. FLEMING, Jr.,
W. H. WALL.