

(No Model.)

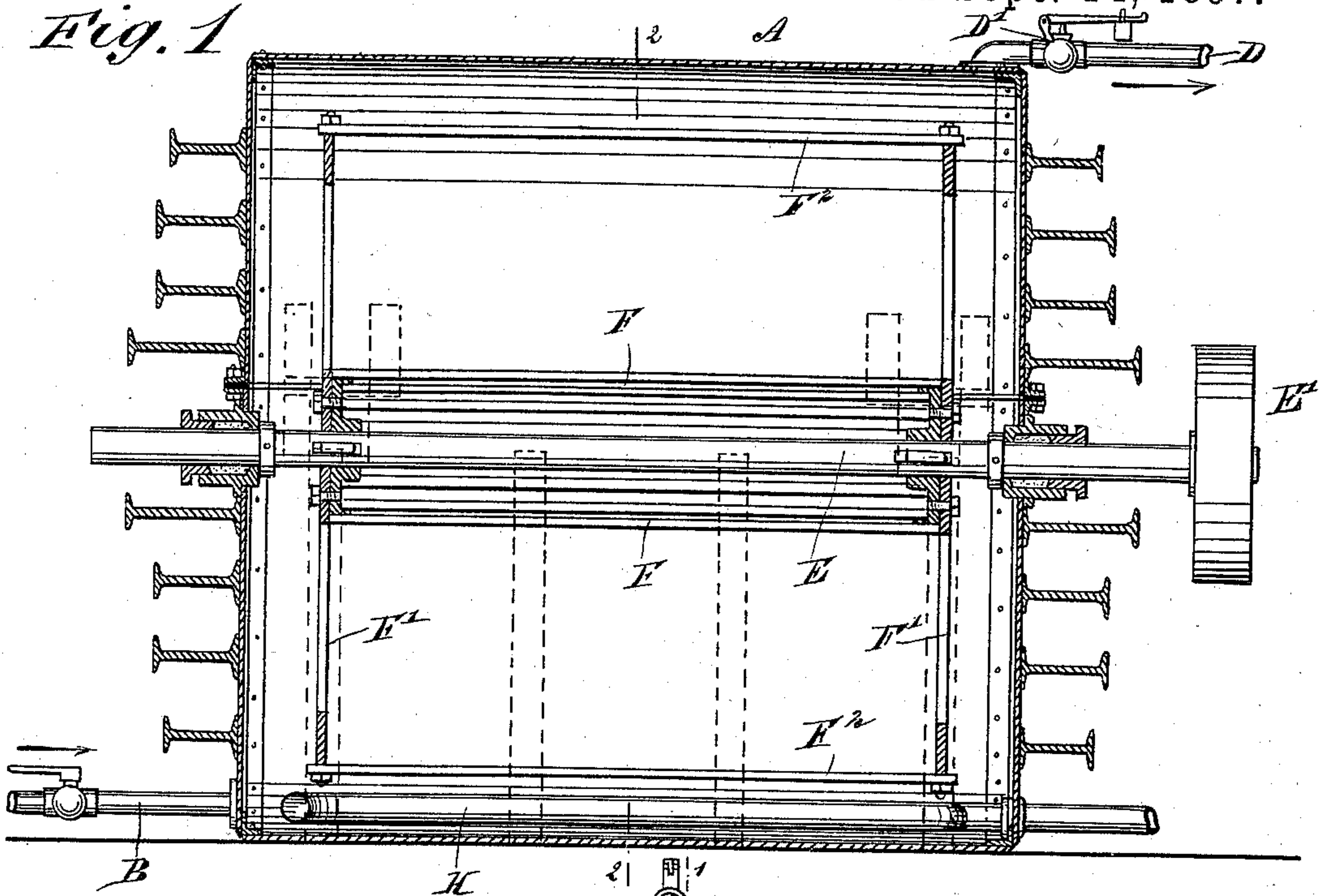
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C. O. SHAW  
TANNING.

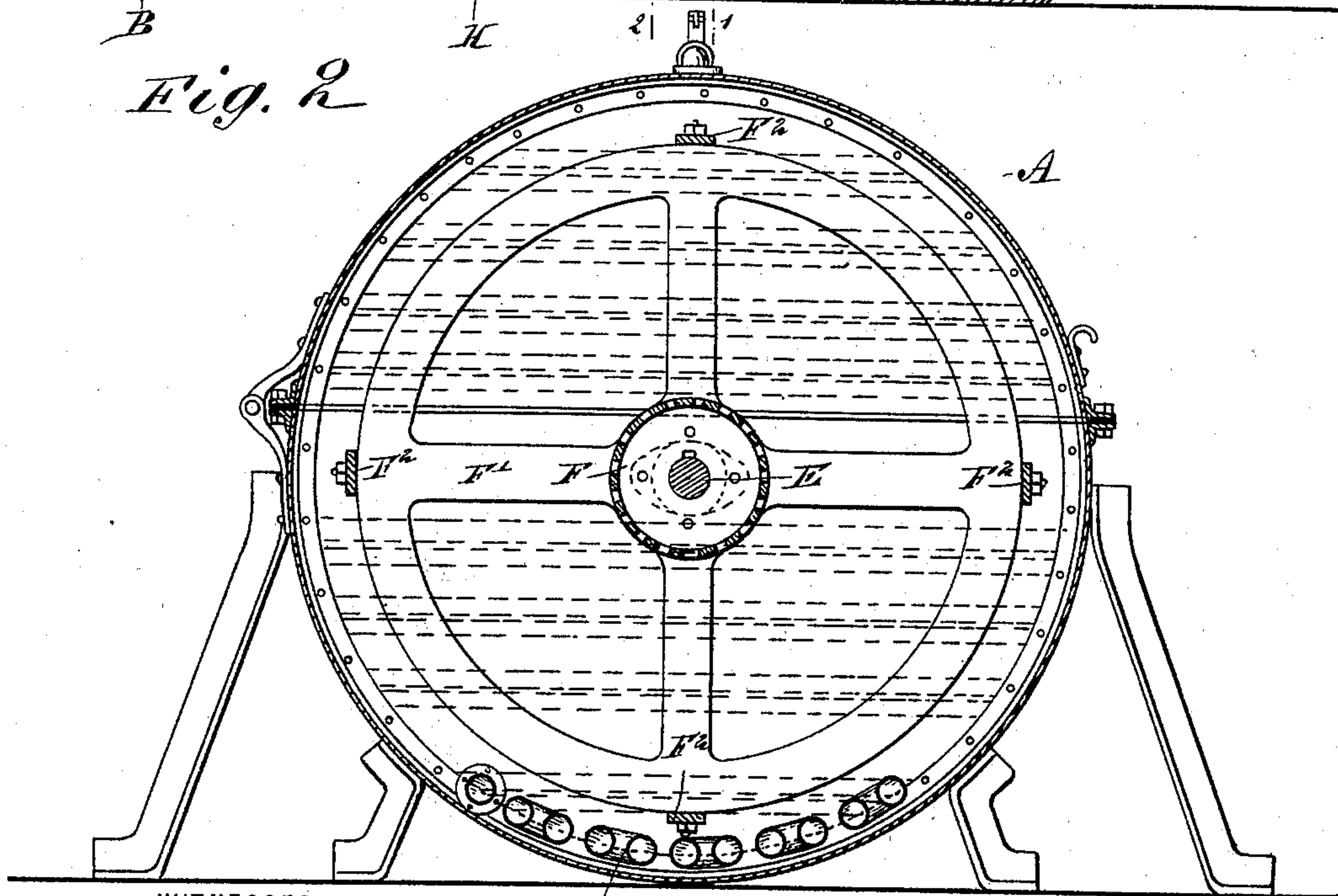
No. 590,170.

Patented Sept. 14, 1897.

*Fig. 1*



*Fig. 2*



WITNESSES:

*C. Neveu*

*Theo. G. Hostetler*

INVENTOR

*C. O. Shaw*

BY

*Munn*  
ATTORNEYS.

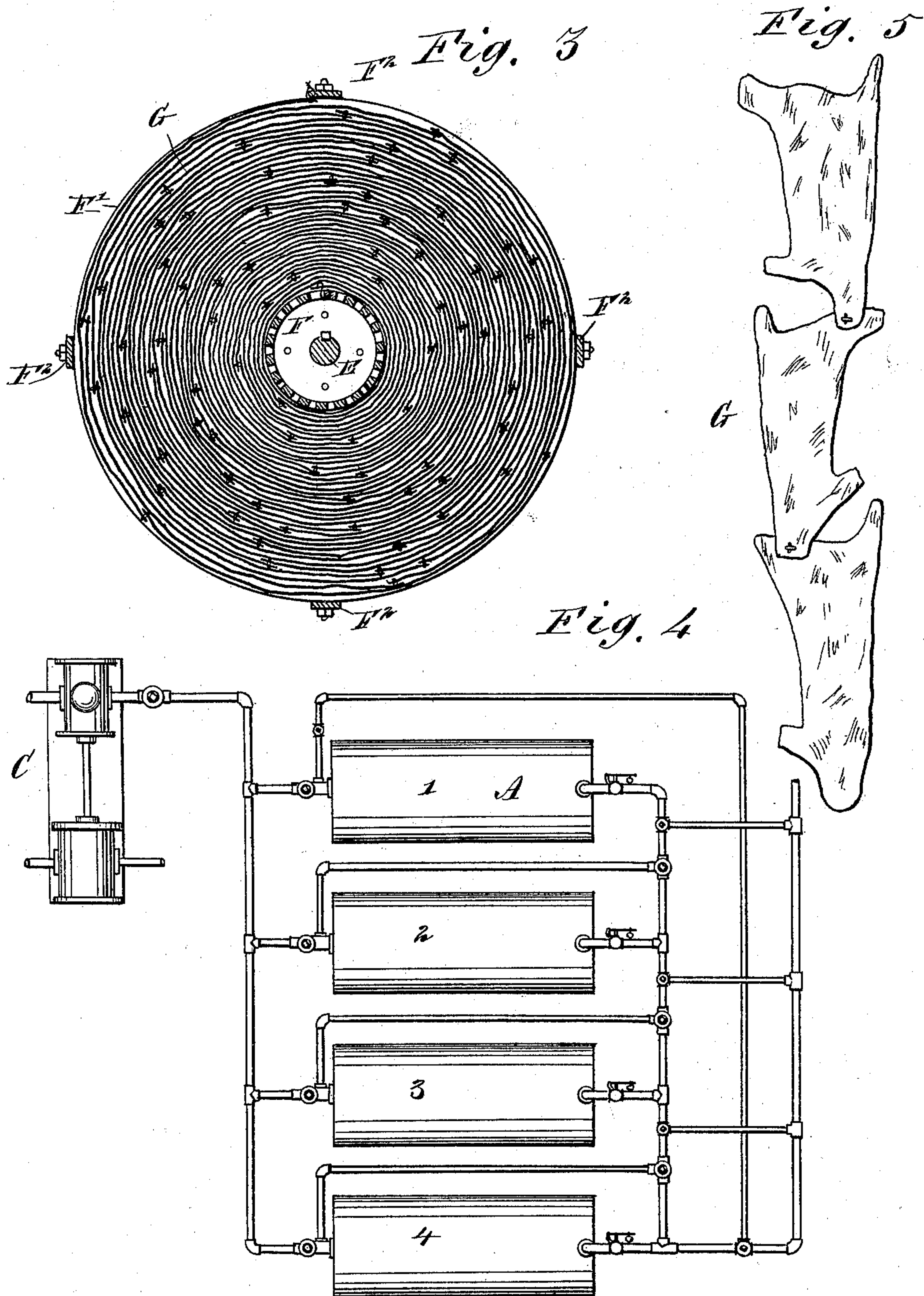
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WITNESSES:

*C. Neveu*

*Rev. G. Hoster*

INVENTOR

*C. O. Shaw*

BY

*Wm. H. Shaw*  
ATTORNEYS



# UNITED STATES PATENT OFFICE.

CHARLES O. SHAW, OF CHEBOYGAN, MICHIGAN.

## TANNING.

SPECIFICATION forming part of Letters Patent No. 590,170, dated September 14, 1897.

Application filed June 2, 1896. Serial No. 593,970. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES O. SHAW, of Cheboygan, in the county of Cheboygan and State of Michigan, have invented new and useful Improvements in Tanning, of which the following is a full, clear, and exact description.

The object of the invention is to provide certain new and useful improvements in tanning, whereby hides for heavy leather are properly tanned in a comparatively short time without any waste or loss of the tanning liquor.

The invention consists principally of a casing connected with the liquor-supply and having a liquor-outlet and a reel mounted to turn within the said casing and provided with a slatted hub, spider heads, and fastening-bars connecting the heads with each other and forming with the said hub a space for receiving the connected hides.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

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

Figure 1 is a sectional side elevation of the improvement on the line 1 1 of Fig. 2. Fig. 2 is a transverse section of the same on the line 2 2 of Fig. 1. Fig. 3 is a cross-section of the reel filled with hides. Fig. 4 is a reduced plan view of the improvement, showing a series of casings connected with the common liquor-supply; and Fig. 5 is a face view showing the connected hides.

The improved apparatus for treating the hides, as illustrated in Figs. 1, 2, and 3, is provided with a casing A, preferably made of metal and in two parts hinged and bolted together to permit of conveniently opening the casing to introduce and remove the hides.

The casing A is provided at one end and near the bottom with a liquor-supply pipe B, preferably connected with a suitable pump C or similar machine for forcing the liquor under pressure into and through the casing A, containing the hides, the said casing being also provided with an outlet-pipe D for carrying off the liquor after it has circulated

through the hides, as hereinafter more fully described.

The pipe D is provided with suitable weighted valves D' to maintain the desired pressure of the liquor within the casing A. In the casing A is arranged a reel secured on a shaft E, mounted to turn in suitable bearings held on the heads of the casing A, said bearings being provided with suitable stuffing-boxes to prevent leakage of the liquor along the shaft. One outer end of the shaft E is provided with a pulley E', connected by a belt with suitable machinery for imparting a rotary motion to the said shaft E to revolve the reel within the casing.

The reel is provided with a slatted hub F and with suitable heads F', connected with each other at their peripheral ends by cross-bars F<sup>2</sup>, which form, with the periphery of the hub F, a space for the reception of the hides G, the latter being connected with each other, as illustrated in Fig. 5, to permit of conveniently winding the connected hides on the hub F of the reel to fill the space between the hub and the bars F<sup>2</sup>.

It is understood that in placing the hides in position on the reel the bars are preferably removed and put in place after the reel is filled to securely hold the hides in position.

In the bottom of the casing A is arranged a coil of pipe H, connected with a suitable steam-supply to permit of heating the tanning liquor contained in the casing A to any desired degree to hasten the tanning of the hides held on the reel. By subjecting the tanning liquor to heat additional weight is given to the hides, as the tanning liquor is then in condition to penetrate the hides more thoroughly. Now it will be seen that when the reel is filled with hides and the casing is closed and the pump C is set in motion the tanning liquor is forced into the casing A and heated therein by the heat emanating from the steam-coil H, the heated liquor circulating through the hides held on the reel to insure a proper tanning thereof. It is understood that by revolving the reel the hides in moving through the tanning liquor are thoroughly acted upon by the tanning liquor, so that all the hides are subjected to a uniform treatment and action by the tanning liquor.



In practice I prefer to employ a series of casings A—for instance, as shown in Fig. 4. Four such casings A, numbered 1, 2, 3, and 4, are arranged one alongside the other and all are connected with the pump C and connected with each other at the inlet and outlet pipes B and D to permit of passing the tanning liquor first through the vessel 1 to act on the hides therein, and then to pass through the casing No. 2 and through No. 3 and finally through No. 4 before passing the liquor through the general outlet-pipe D'. It is understood that the hides in No. 1 are those on which the tanning process is nearest completed, and so on to No. 4, in which are the fresh or greenest hides on which the tanning is just begun. In this manner I am enabled to first subject the green hides to the action of the liquor in one tank, No. 4, containing the weakest liquor, and then I can circulate a stronger liquor through this tank by cutting out of the circuit, when sufficiently tanned, No. 1, changing the valves of the inlet and outlet pipes B and D accordingly, so that No. 2 now first receives the liquor from pump C and so that each set of hides is treated successively to liquor coming from a casing until the hides are treated to liquor which has already passed through three of the casings. The valves in the outlet-pipe D are understood to be three-way, thus opening into one and at the same time cutting off from another casing A. By this arrangement I am enabled to more fully utilize the strength of the tanning liquor and at the same time apply the weaker liquor first to the fresher or greener hides. The liquor, at the same time increasing in strength, is applied to the reels containing the older or more advanced hides, as above described. It is, however, understood that but one strength of the liquor has to be used or manufactured and forced by the pump to the first casing, as a grading of the strength of the liquor is done by passing from one casing to the other, by which process the strength is absorbed from the liquor by the hides as the liquor passes through succeeding casings.

When the hides in the last casing are tanned, then this casing is cut out and the reel is stopped and the stock is removed and the reel is refilled, and this casing then becomes No. 4, and the casing formerly No. 2 becomes No. 1, and into it the liquor is first pumped from the pump C.

It will be seen that by the arrangement described I am enabled to properly tan a large

number of hides at the same time and without any loss of liquor, also that by properly adjusting the weighted valves D', I am able to maintain in casing No. 1 any desired pressure, also in No. 2, and so on to No. 4, it being of course understood that the pressure is always heaviest in the casing which receives the liquor first from the pump, and so on to the last number, which contains the greenest hides and where the pressure would be the slightest. I am also able to maintain a very moderate degree of heat in the casing containing the green hides, the temperature being increased till highest at casing No. 1, containing the oldest hides.

It will furthermore be seen that I am able to overcome the objectionable features of other systems of drum or wheel tanning by the fact that I hold the hides in a fixed and well-smoothed-out position till tanned firm, the motion of circulating the tanning liquor through the same being gently done, while in other systems the hides being stirred about, as it were, become softened and wrinkled or curled and do not present a well-laid-out appearance when removed tanned from the drums.

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

1. A machine for washing hides having a stationary exterior shell, a shaft revolubly mounted in the shell, a reel fixed on the shaft, the reel having cross-bars and heads, and a circular hub inclosed by the reel, the hub extending parallel with the shaft from one head to the other and being formed of separated slats through which liquid may freely circulate, substantially as described.

2. A machine for washing hides, the machine having a stationary and circular exterior shell provided with inlet and outlet orifices, a shaft revolubly mounted within and axially coincident to the shell, two spider heads fixed to the shaft, cross-bars extending from one head to the other, the head and cross-bars forming a reel, and a circular hub located within the reel and surrounding the shaft, the hub extending from one head to the other and being formed of separated slats so that liquid may pass freely through the hub, substantially as described.

CHARLES O. SHAW.

Witnesses:

GEO. W. BELL,  
S. J. PIKE.