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Patented July 25, 1899.

J. R. & J. S. BROWN.
APPARATUS FOR TREATING HIDES.

(Application filed Nov. 9, 1898.)

(No Model.)

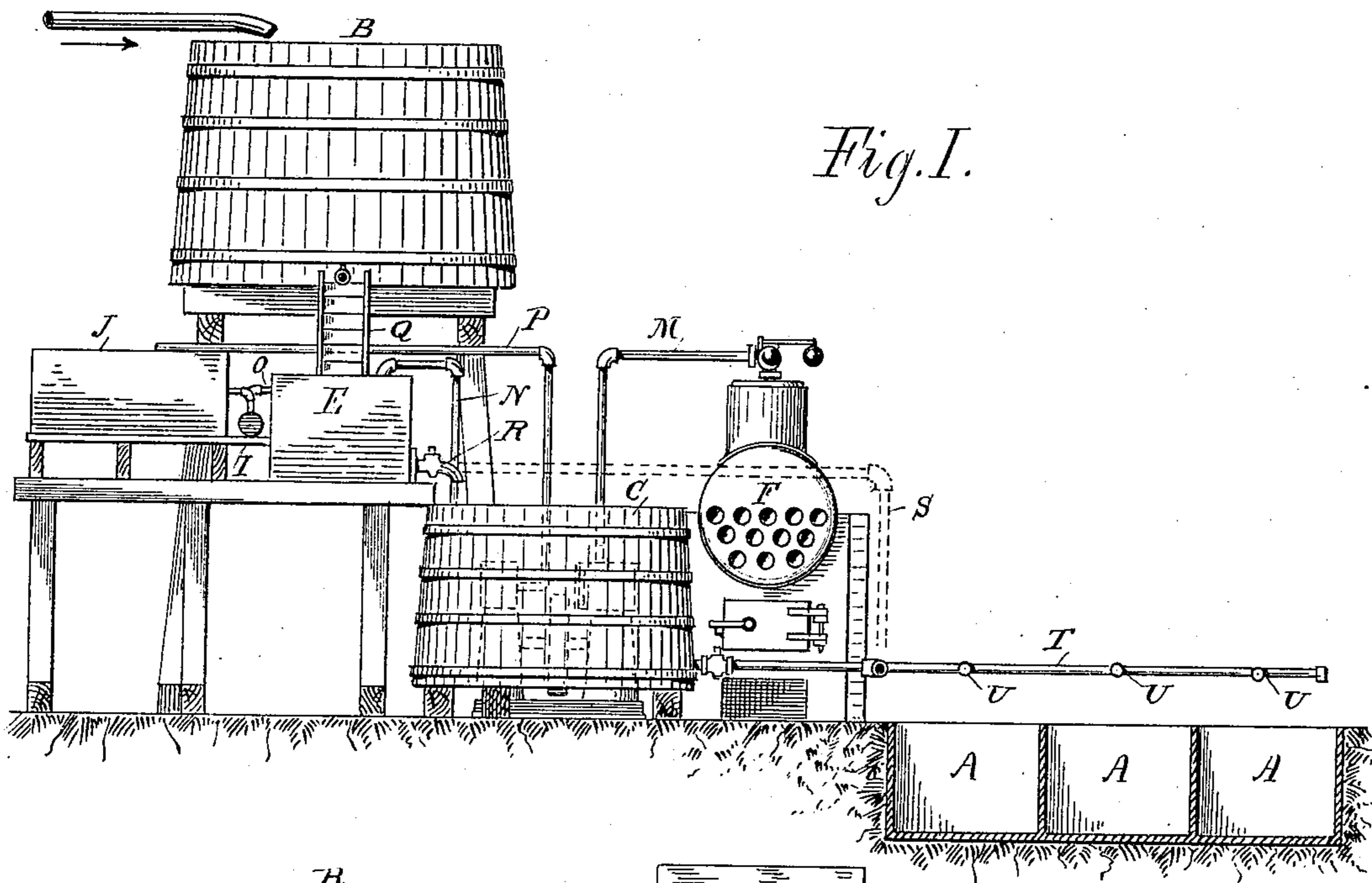


Fig. I.

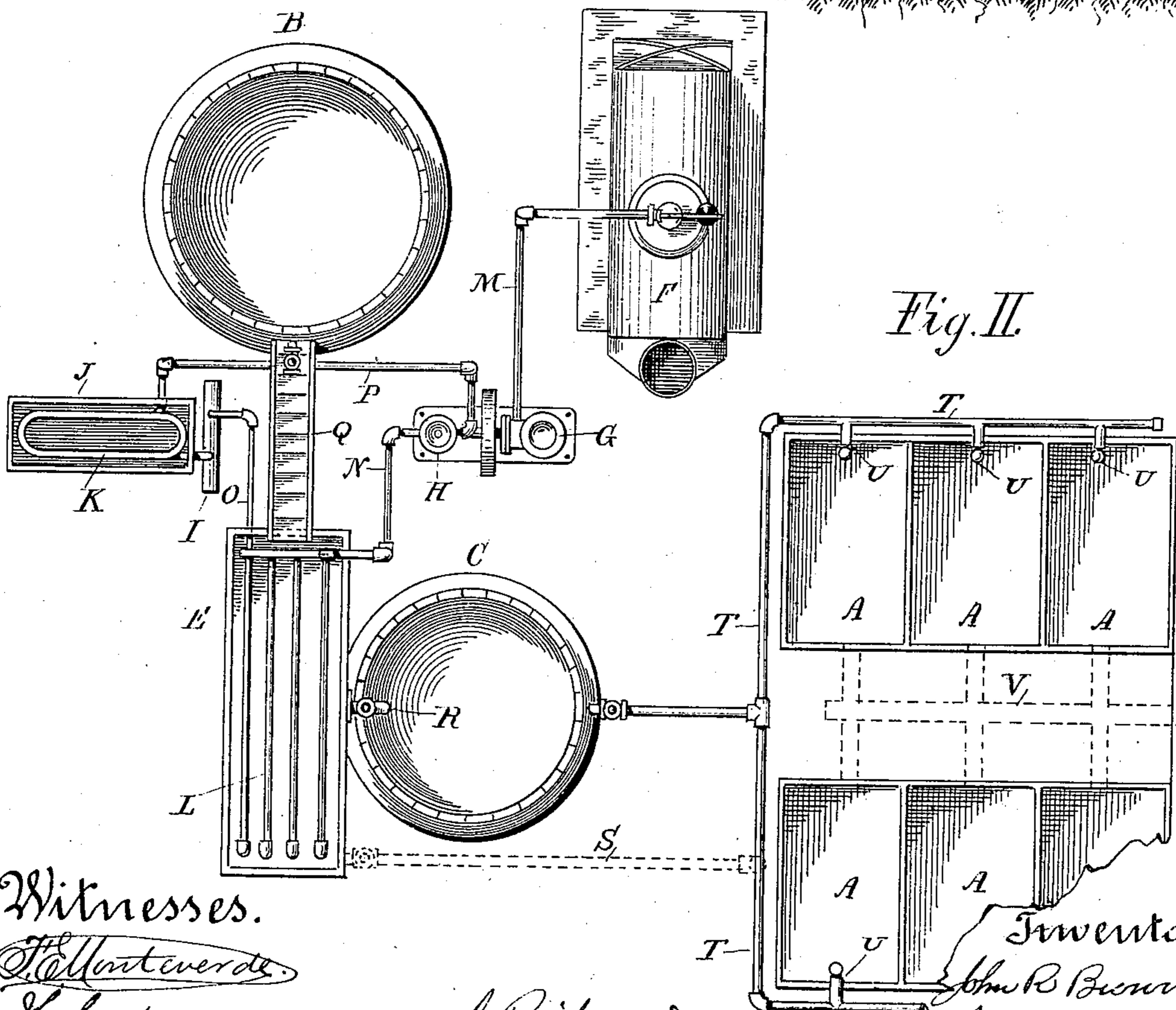


Fig. II.

Witnesses.

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APPARATUS FOR TREATING HIDES.

SPECIFICATION forming part of Letters Patent No. 629,490, dated July 25, 1899.

Application filed November 9, 1898. Serial No. 695,970. (No model.)

To all whom it may concern:

Be it known that we, JOHN R. BROWN, of Oakland, and JOHN S. BROWN, of Alameda, county of Alameda, in the State of California, have invented certain new and useful Apparatus for Treating Hides; and we hereby declare the following to be a full, clear, and exact description of our invention and manner of applying the same.

Our invention relates to the preliminary processes of treating hides, softening and depilating them preparatory to their use in the several forms known as "rawhide products," or for tanning to produce leather, and is complementary to our application for Letters Patent for a process of treating hides filed on the 20th day of July, 1898, and serially numbered 683,988.

Our present invention consists in providing, in connection with suitable receptacles in which the hides can be soaked and limed for depilation, a refrigerating apparatus for cooling the water employed in these processes, and means to store, convey, and apply the water so cooled to the receptacles and the hides therein, whereby these preliminary processes, commonly called "soaking" and "liming," can be carried on at a low and uniform temperature for certain useful objects herein-
after explained.

The objects of our invention are to soak and soften the hides, also to depilate them without injuriously dissolving out the gelatinous matter therein, and to attain certain results in respect to the time required and the effect upon the hides being treated irrespective of the seasons and climate. To these ends we employ apparatus as illustrated in the drawings herewith, forming a part of this specification, in which drawings—

Figure I is a side elevation of soaking and depilating apparatus for treating hides according to our invention. Fig. II is a plan view of the same apparatus.

Similar letters of reference are applied to corresponding parts in the two figures of the drawings.

In the treatment of hides the first processes are what are technically called "soaking" and "liming." The first consists in immersing the hides in water, so that by capillary

action and gravity-pressure the body of the hides becomes saturated with water, softened, and swelled. This water is frequently changed to remove the salt, blood, and other impurities. This water, if maintained at a temperature of 60° or more, dissolves out and carries away the gelatinous matter in the hides, which it is desirable to retain in as full a manner as possible. If, however, the water, as in our apparatus, is maintained at a temperature of 45° or lower than this, the gelatinous matter is coagulated and becomes fixed in the pores of the hides and is not washed out or lost. After the hides are thus soaked or softened the second process, that of depilation or removing the hair, is commenced by immersing the hides in a solution of lime, where the same conditions exist in respect to dissolving out the gelatinous matter from the hides and there is the same requirement for a low and controllable temperature as in the soaking process. The action of the lime is intensified by this low temperature and also is promoted by a change of the solution, dilution being prevented by the addition of fresh lime to maintain a constant or nearly constant strength of the solution until the hair is loosened and can be removed by the usual processes. To attain a uniform low temperature irrespective of seasons, climatic conditions, or the temperature of the original water-supply demands a means of artificial cooling operating with and integral with the plant, these parts being coöperative and interdependent. After the hides have been soaked or softened and the hair removed they are ready for use as rawhide or for various purposes by working or breaking and other treatment or for tanning to produce leather, the latter being a separate process in name and in fact, and one in which our improved apparatus may or may not be used, and with results that our present experience does not enable us to set forth.

Referring now to the drawings and the particular manner of applying our improved apparatus, the receptacles A, preferably in the form of tanning-vats, are of the usual construction, preferably set in the earth for convenience and to better insulate them from the effect of external temperature.

B is a water-supply tank filled from any

suitable source at the normal temperature of the service.

C is a tank containing a supply of cold water, acting as a receiver from the refrigerating-tank E, which tank C affords an extra supply in case there is required at any time a quantity greater than can be drawn at once from the refrigerating-tank E.

The drawings show a common refrigerating apparatus for operating by means of ammonia, F being a boiler supplying steam to an engine G, which operates a pump H for forcing and compressing the ammonia.

I is a retort or tank to contain anhydrous ammonia, and J a condenser-tank containing coils of pipe K for condensing the ammonia on its passage from the coils or manifold of pipes L in the tank E.

The tank J and the ammonia-condensing apparatus therein are usually placed outside of a building and in as cool a place as is available. The tanks E and J are shown rectangular; but these can be cylindrical, the same as the tanks B and C, and of any required size which the amount of refrigeration or the quantity of cold water may require.

M is a steam-pipe connecting to the engine G, and N a pipe leading from the pump H to the manifold pipes L in the tank E.

O is a pipe connecting from the refrigerating-tank E through the retort I to the coils K in the condensing-tank J, and P a pipe from these coils to the pump H, thus making the usual circuit for apparatus of this kind.

In winter or when the atmosphere is colder than the supply-water this can be led down over a series of riffles Q, that will considerably lower the temperature of the water and save the expense of refrigeration accordingly.

The chilled water after it is reduced to a temperature of 45° Fahrenheit or lower is discharged from the tank E by means of a cock R into the receiving-tank C, which contains a volume sufficient to fill one or more of the receptacles A at one time, or if a less quan-

tity is required it can be conveyed directly from the refrigerating-tank E to the distributing-pipes T by a separate pipe. (Indicated by the dotted lines at S.) From these pipes T the chilled water is discharged into the receptacles A by nipples at U and by reason of its low temperature tends to sink and uniformly permeate the hides.

In case of variation in the temperature of the contents of the receptacles A water from the top or bottom can be drawn off in the usual manner by means of draining-conduits (indicated by dotted lines V in Fig. II) and a fresh supply of cold water added.

It will be understood that any of the well-known forms of refrigerating apparatus can be employed to cool the water and also that the several parts of the plant can be arranged and connected in various ways to accommodate the room available and other local conditions. We have shown a compact arrangement in these drawings to enable plainer description of the various parts and their connections when in use.

Having thus explained the nature and objects of our invention and shown a practical means of applying the same, what we claim as new, and desire to secure by Letters Patent, is—

In soaking and depilating apparatus for hides, the combination of one or more receptacles for the hides under treatment, means for furnishing a water-supply for said treatment, refrigerating means for cooling said water-supply preliminary to said treatment, and means for conveying the cooled water in regulated quantity into contact with the hides under treatment in said receptacle or receptacles, substantially as specified.

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Witnesses:

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