

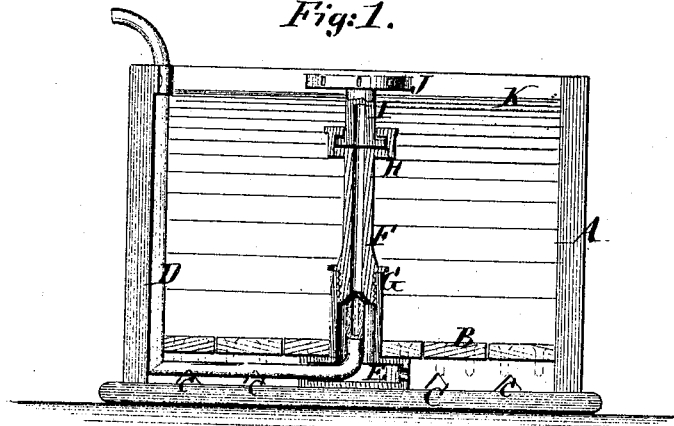
*H.C. Crowell,*

*Leaching Appar.*

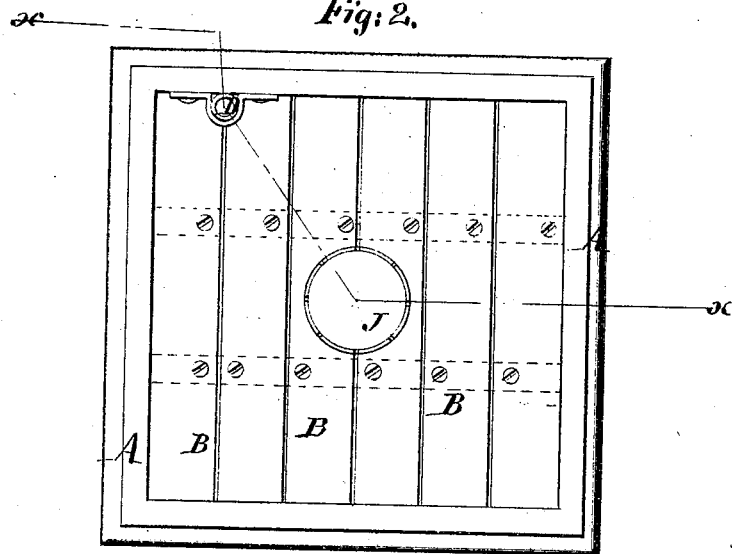
*No. 111,730.*

*Patented Feb. 14, 1871.*

*Fig: 1.*



*Fig: 2.*



**Witnesses:**

*M. Vorlaender*  
*S. S. Mahler*

**Inventor:**

*H.C. Crowell*  
**PER** *Munn & Co*  
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# UNITED STATES PATENT OFFICE.

HILEN C. CROWELL, OF MORGAN, OHIO.

## IMPROVEMENT IN APPARATUS FOR LEACHING BARK, &c.

Specification forming part of Letters Patent No. **111,730**, dated February 14, 1871.

*To all whom it may concern:*

Be it known that I, HILEN C. CROWELL, of Morgan, in the county of Ashtabula and State of Ohio, have invented a new and useful Improvement in Leaching Apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to improvements in leaching apparatus, and consists in the construction and arrangement of a steam-pipe, hollow vertical standard with a revolving top and a perforated false bottom, as hereinafter described, whereby a circulation of the tanning liquid may be maintained in the tank, from all sides to the center thereof, by the introduction or injection of steam.

In the accompanying drawings, Figure 1 represents a vertical section of the apparatus on the line *xx* of Fig. 2. Fig. 2 is a top or plan view.

Similar letters of reference indicate corresponding parts.

A is a leach or tank of any desired shape and size.

B is a false bottom, which is raised from the true bottom on timbers, which are seen in dotted lines in Fig. 2. On the under side of these timbers notches or recesses C are cut, so that the liquid can readily flow beneath them. The false bottom B is sufficiently open to allow the liquid to pass up or down through it.

D is a steam-pipe, which connects with a steam-boiler. It passes down from the top of the leach into the space beneath the false bottom and enters the large base-tube E, which rests on the true bottom of the leach. This base-tube has apertures through it near its lower end, through which the liquor flows freely.

F is a tube of smaller diameter than E, which screws into E, as seen at G, and extends up with a chamber, H, upon its upper end. This chamber receives the short tube I, which tube is allowed to turn or revolve in the chamber. The tube I may be curved so as to give the liquor a lateral direction and be made to revolve by the reaction of the liquid against the atmosphere, and thus distribute the liquor evenly over the leach; but I prefer another arrangement. On the end of this short tube is a revolving wheel, J. This wheel has curved

orifices radiating from its center, and so arranged that it is made to revolve by the pressure of the liquid against the atmosphere, or upon the principle of the Barker mill. This wheel may be made to revolve either a little above or a little below the surface of the liquid in the leach.

The tan-bark or other article which it may be desired to leach is placed upon the false bottom, the leach being filled about two-thirds full. Water is then added until the water-line K (or thereabout) is reached. Steam is then let into the pipe D, which, meeting with water in the base-tube E, forces the water up through the tube F and out through the revolving wheel J, discharging the liquid upon or near the surface. The liquor condenses the steam, by which it is forced up, and consequently absorbs its heat, the steam thus heating the liquid while keeping up a constant circulation through the bark. The result of this circulation, is the sediment, gum, and resin of the bark are constantly being carried up and deposited on the top of the bark. The liquor, being constantly descending through the bark, serves to keep the bark down upon the false bottom, thus keeping all the bark under the liquor, so that it is all evenly heated and leached. By this means the liquor is made to extract all the tannin of the bark, and can be made as strong or concentrated as may be desired.

No other process or apparatus with which I am acquainted extracts so much tannin from bark as this.

By this apparatus no gum is left in the liquor to fill up the pores of the hide. Consequently the liquor penetrates the hide much more readily, thereby saving nearly or quite one-third of the time usually employed in tanning. The liquor being pure, the result is that the leather is soft and pliable, of lighter color, and generally of better quality than is made in the ordinary way.

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

The steam-pipe D, laterally-perforated base-E, tube F, having the revolving top J and the false slotted bottom B, all constructed and arranged as shown and described, for the purpose specified.

HILEN C. CROWELL.

Witnesses:

M. BRETTELL,  
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