J. W. JONES.

Apparatus for Making Extracts from Bark and Other Materials.

No. 70,439. Patented Nov. 5, 1867.

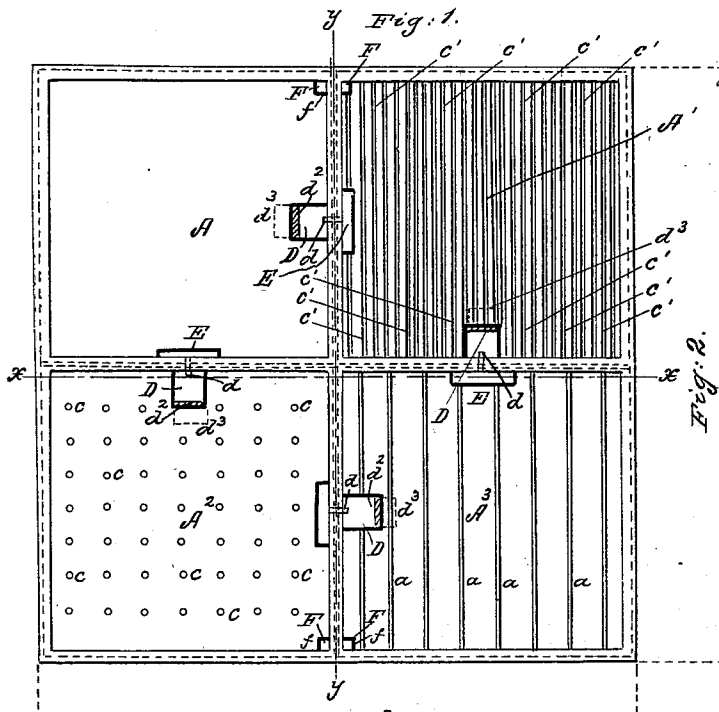


Fig: 1.

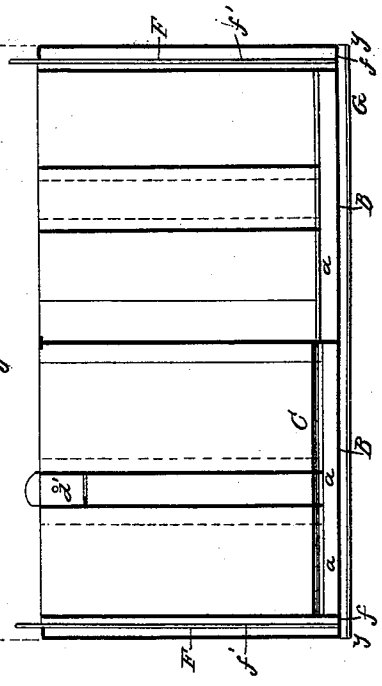


Fig: 2.

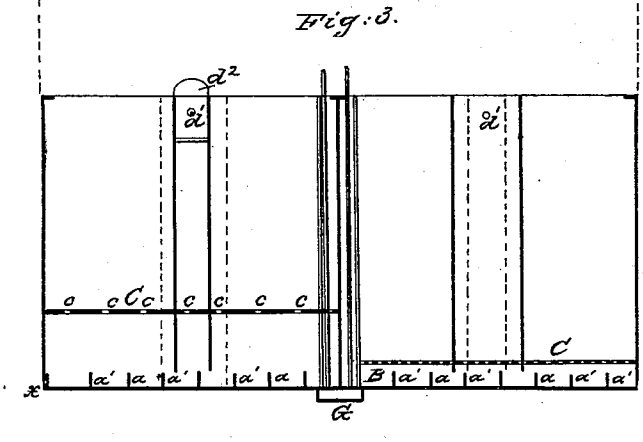


Fig: 3.

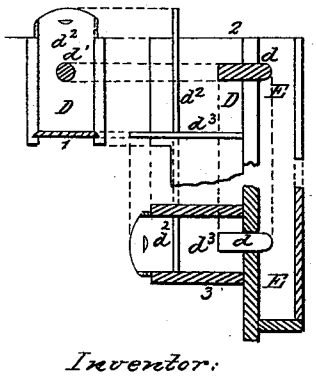


Fig: 4.

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JAMES W. JONES, OF CUMBERLAND, MARYLAND.

Letters Patent No. 70,439, *dated November* 5, 1867.

IMPROVED APPARATUS FOR MAKING EXTRACTS FROM BARK AND OTHER MATERIALS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JAMES W. JONES, of Cumberland, Alleghany county, Maryland, have made certain new and useful Improvements in Making Extracts by Upward Hydraulic Pressure; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, and to the letters of reference marked thereon, making a part of this specification, in which—

Figure 1 is a plan view.

Figure 2 is a vertical section on the line *y y* of fig. 1.

Figure 3 is a vertical section on the line *x x* of fig. 1.

Figure 4 represents sections of the box, pipe, and dead-eye.

The nature of my invention consists in an improved method of extracting tannin from bark, or the strength from any other substance from which extracts are obtained, by means of upward hydraulic pressure, when the same is applied to a vat, leach-tub, or other vessel having a false bottom, and also provided with a box pipe in which are sliding valves.

A A^1 A^2 A^3 are four vats or leach-tubs, of ordinary construction, and water-tight. A represents the frame of an ordinary vat. A^3 represents the vat having the joist *a a*, which supports the false bottom attached. A^1 A^2 represent the vats with the false bottoms C C in position, the first being constructed of slats, *c'*, and the other of a simple plate, having numerous perforations, *c*. D is a box pipe, which conveys the water or liquor to the desired position under the false bottom C. This box pipe D is provided with two sliding valves, d^2 d^3, one arranged in the upper portion of its face, and the other directly across the upper portion of its throat. These sliding valves work in suitable grooves arranged in the front and sides of the pipe. By means of a small opening, d^1, these pipes are connected with the dead-eye E of the adjoining vat. When it is desired to cut off all communication between the vats, the same is readily accomplished by simply inserting the plug *d*. E E are dead-eyes, which are attached to the side of the vats or tubs, and directly opposite the box pipe D of the next vat. The tops of these dead-eyes are closed, which renders them perfectly water-tight, except at their lower end, which is on a level with the false bottom C, and left open, and is thus enabled to receive the water or liquor, in order to convey it to the box pipe of the adjoining vat. In each of these vats or leach-tubs A A^1 A^2 A^3 there is a small opening, which connects with the trough G, which extends along the centre of the series of vats and their entire length, by means of which, when desired, the liquor can be easily drawn off. These openings are closed by means of valve-rods *f'*, which rest in small boxes F in the corner of the vat.

The operation of my invention is as follows: The vats or leach-tubs A A^1 A^2 A^3 are all filled with ground bark. Water is conveyed to one of them, A, for instance, by means of a pump, jet, hose pipe, or any other convenient appliance. The water passes down through the bark and under the false bottom C. The plug *d* is then withdrawn, which allows free communication with the vat A^1 by means of the opening d^1. The sliding valve d^2 is inserted in the face of the box pipe D, and the slide d^3 is then withdrawn from across its throat, which leaves the box D perfectly water-tight. Thus it will be seen, as the vat A is gradually filling with water, the false bottom will be raised, and at the same time the liquor will enter the dead-eye E, its height therein being always necessarily the same as that of the vat, so that when the vat is filled to a sufficient degree to be on a line with the opening d^1, the liquor in the dead-eye E will flow into the box pipe D, through the same down under the false bottom C of the vat A^1. When the vat A^1 is filled, the plug *d* can be inserted, which cuts off all communication between the vats A and A^1, and the box pipe D can also bo entirely closed by inserting the sliding valve d^3. The vat is then permitted to stand and the bark to macerate, which is constantly subjected to the upward hydraulic pressure by means of the false bottom. When the vat has been allowed to stand sufficiently long to thoroughly extract all the tannin, the same operation can be repeated in the adjoining vat, or, if desired, the liquor can be drawn off simply by withdrawing the valve-rod *f'*, which, through the opening *f*, will convey the liquor to the discharge-trough G.

Thus it will be seen that, although I have shown a series of four vats, one is only necessary to fully illustrate the invention. The great advantage of the upward hydraulic pressure will, upon a moment's reflection, readily suggest itself to any one familiar with the arts to which my invention is applicable. In preparing the bark, some of the particles are reduced to mere atoms. These being lighter than the larger pieces, naturally rest

on the top. When the pressure is applied from above, these atoms or capillaries are driven down through the interstices between the larger portions of the bark. Experience not only shows that many of these small particles adhere to the larger pieces of bark, but frequently coat the same, and so completely is this sometimes done that they are rendered impervious to the action of the liquid, and, as a consequence, the tannin cannot be extracted; and again the coloring matter and other impurities are forced to the bottom of the vat, and are there mixed with the liquor.

By my plan all these difficulties are successfully surmounted. The pressure being upwards, all the interstices between the bark are left open for the free action of the liquid, and the small particles are driven to the top of the vat, where they can float or commingle with the coloring and other injurious matters. These will all blend together in the form of a sediment, which collects around the upper portions of the side of the vat.

I have thus described my invention as applied to the art of tanning. But I do not desire to be understood as limiting myself to this specific application, as it can be used with equal advantage in extracting the substance from any material, as, for instance, in extracting the dyeing matter from all those species of wood which are commonly known as "dye-wood." It can also be advantageously and successfully used by the chemist and druggist, as it is entirely applicable to the work of the laboratory.

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

1. Extracting the strength from bark or other material by upward hydraulic pressure, when the same is applied to a vessel having a box pipe with sliding valves and a false perforated bottom, substantially as described.

2. I claim the false bottom C and pipe D, having sliding valves d^2 d^3, when the same are combined and operated substantially as described and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAS. W. JONES.

Witnesses:

JOHN D. BLOOR,

JOHN S. HOLLINGSHEAD.