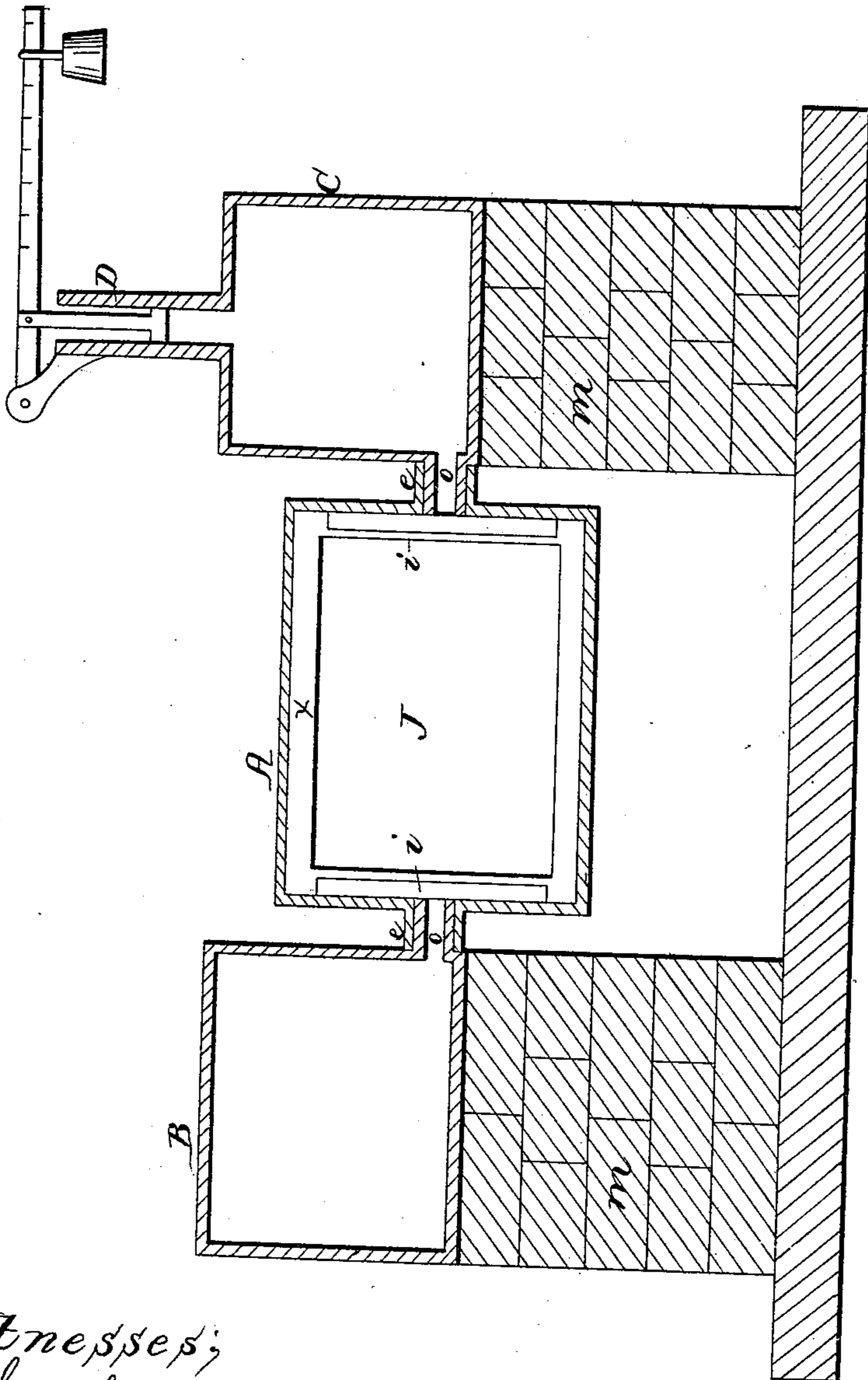


J. J. JOHNSTON.
TANNING.

No. 60,524.

Patented Dec. 18, 1866.



Witnesses;
John Johnston
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United States Patent Office.

IMPROVEMENT IN TANNING.

JAMES J. JOHNSTON, OF ALLEGHENY CITY, PENNSYLVANIA.

Letters Patent No. 60,524, dated December 18, 1866.

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 J. JOHNSTON, of the city and county of Alleghany, and State of Pennsylvania, have invented a new and useful improvement in the process of Tanning; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in tanning by placing the skins of animals, properly prepared for receiving the tannin, in air-tight vats, and exhausting the air from said skins and vats so as to form a vacuum, said vats and their contents being agitated, after which hydrostatic pressure is applied to said vats and their contents, the whole being constructed, arranged, and operating in the manner hereinafter described.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the accompanying drawings, A B and C represent vats, which are constructed so that they may be made perfectly air-tight. These vats are connected to each other by means of hollow trunnions, which work within each other, that is to say, the trunnions marked *o*, on the sides of the vats B and C, are placed in the trunnions marked *e*, placed in the centre of the sides of the vat A. The vats B and C are mounted on pedestals marked *m*, and arranged with relation to the vat A so that a revolving motion can be easily imparted to it. The trunnions, marked *o*, of the vats B and C should be furnished with valves for regulating the flow of the tanning liquids from the vats B and C into the vat A, which is furnished with a series of frames, upon which are stretched the skins which are to undergo the tanning process. These frames, marked *x*, are held in the desired position by means of guides, marked *i*. To the vat A should be attached suitable gearing for revolving it; the manner of constructing, arranging, and applying the gearing for revolving the vat will be readily understood without further description. The vat C is furnished with an ordinary device for obtaining hydrostatic pressure, as indicated in the drawings at the point marked D. As the manner of constructing, arranging, and adapting the different vats in proper relation to each other will be readily understood by reference to the drawings, I will proceed to describe the operation of my process and the device used. I use any known tanning liquids, which I place in the vats B and C by any known means, after which, by means of an air-pump or other suitable device, I exhaust the air from the said vats. I then stretch on the frames *x* the skins which are to undergo the tanning process; I then place them in the vat A, close it perfectly air-tight, and exhaust the air from the vat; I then open the valve of vat B and allow the tanning liquid in it to flow into the vat A, which will fill it up to the line marked J; I then slowly revolve the vat A, which will bring the pressure of the tanning liquid alternately upon each part of the skins, that is to say, the pressure of the tanning liquid will at one time be on that part of the skins which are below the line J, and at another time the pressure will be on the part of the skins above the line J. By thus bringing the pressure of the tanning liquid alternately on either half of the skins, an expanding and contracting action will follow, that is to say, that part of the skins which are buried in the tanning liquid will be contracted by the pressure of the liquid, and that part of the skins which are up in the vacuous part of the vat will be expanded. Thus, by opening up and closing of the pores of the skins in the manner described, the tannin will be forced into and absorbed with great rapidity. The tanning liquid should be changed frequently, and gradually increased in strength with each change of the tanning liquid, until the whole process of tanning is completed. After the skins have been in the vat A, and agitated in the manner described for the desired length of time, then each of the vats A B and C are filled with a strong tannin liquid, and a hydrostatic pressure is then applied by means of the device marked D, or by means of any other suitable device or apparatus, and this hydrostatic pressure is kept on, and gradually increased from time to time for six or eight days; the skins are then removed, curried, dressed, and manipulated in an ordinary manner. The hydrostatic pressure is used for the purpose of forcing the tannin into and through every pore and tissue of the skin, thereby increasing the weight, strength, and perfectly tanning the skin. The skins, prior to being placed in the tannin liquid, are treated with lime, and otherwise prepared in the ordinary manner, which process of preparation is well understood by those skilled in the art. The advantages of my improvement consist, first, in saving time in the process of tanning; second, in thoroughly impregnating the skins with the tannin matter,

and thereby making a better article of leather; third, economy of labor and expense, by avoiding the necessity of handling the skins and changing the tannin liquid, as compared with the old mode of tanning.

Having thus described the nature of my improvement in tanning, what I claim as of my invention, is—

1. Placing skins of animals in air-tight vats from which the air has been exhausted, and then treated with tannin liquid, and agitated, in the manner and for the purpose described.

2. In connection with the above, the application of hydrostatic pressure, in the manner and for the purpose described.

3. The combination and arrangement of the vats A B and C, furnished with trunnions *o* and *e*, frames *x*, and pressure device, the whole being constructed, arranged, and operating in the manner substantially herein described, and for the purpose set forth.

JAMES J. JOHNSTON.

Witnesses:

JOHN JOHNSTON,
A. C. JOHNSTON.