

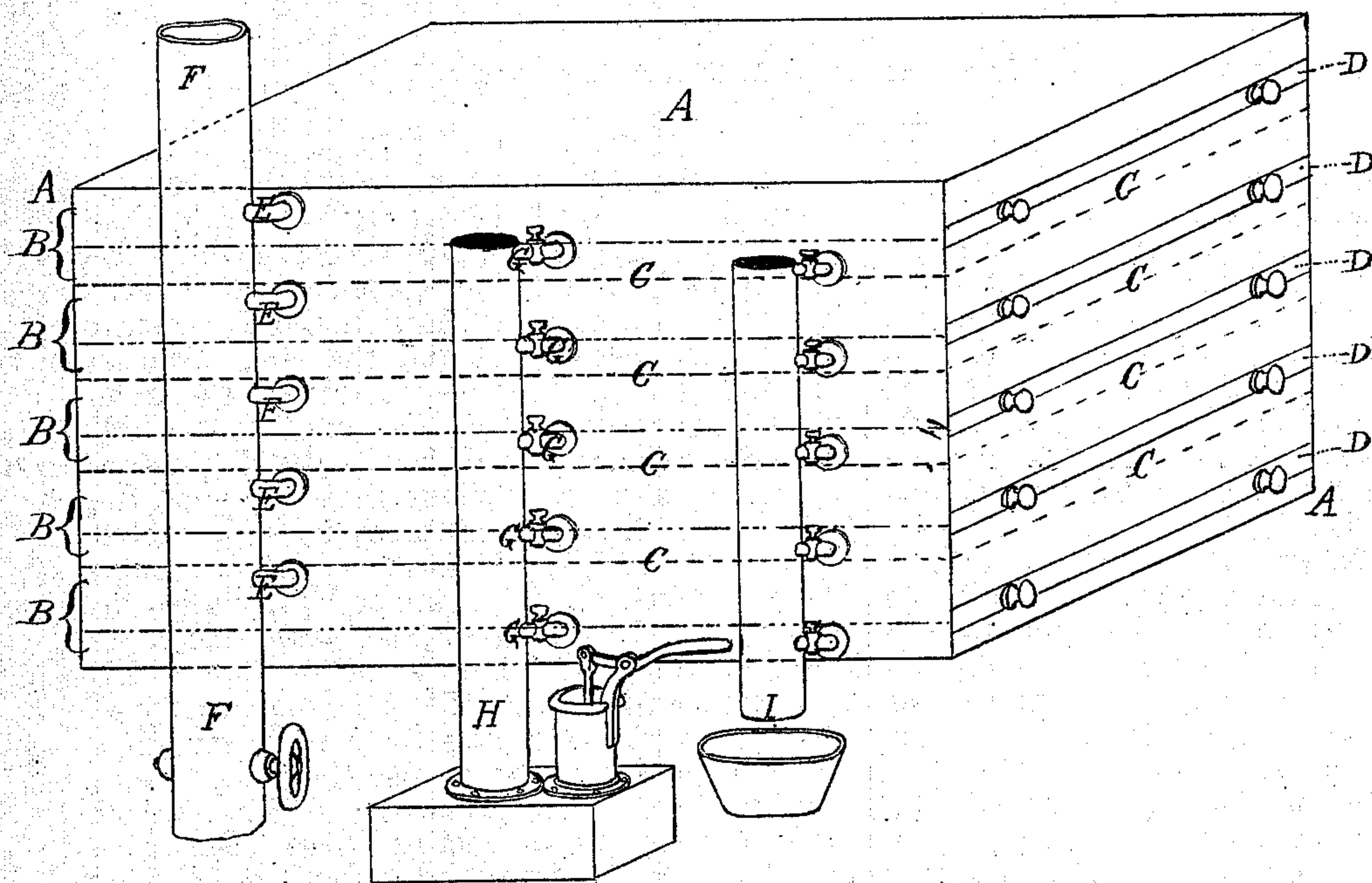
[56.]

WILLIAM MORRIS'

Process and Apparatus for Tanning Hides, &c.

No. 119,238.

Patented Sep. 26, 1871.



William Morris Inventor

Witnesses

Wm. D. Seale

Geo. H. Christian

UNITED STATES PATENT OFFICE.

WILLIAM MORRIS, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN APPARATUS AND PROCESSES OF TANNING.

Specification forming part of Letters Patent No. 119,238, dated September 26, 1871.

To all whom it may concern:

Be it known that I, WILLIAM MORRIS, of the city and county of Philadelphia and State of Pennsylvania, have invented an Improved Method or Process for Tanning Hides, Skins, &c., and an Apparatus for effecting the same; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention, sufficient to enable those skilled in the art to practice it.

My method consists in effecting a percolation of the astringent liquid or liquids through the skins by means of hydraulic pressure and pneumatic exhaustion; and it is useful also for improving other kinds of manufacture as well as leather, wherever the percolation of the fluids would be advantageous.

The necessity for such an improvement in the art of tanning will be readily perceived. The slow tanning of former times was favorable to "feeding the leather;" but the quick tanning of the present time is unfavorable to a thorough ingress, because the surface fibers are quickly charged with tannin and the free access of the same to the fibers is in some degree obstructed; but by means of my invention both quickness and effectiveness or thoroughness of tanning are insured.

I am aware that various methods have been adopted for promoting imbibition of the astringent fluids; but my invention differs from all such known to me, its object being to produce percolation in the manner hereinafter described.

I will first describe an apparatus which I have devised for the practice of my invention. I construct a cell or apartment, A, out of any suitable materials and of any appropriate dimensions, and I divide this apartment into compartments or chambers, B, by means of partitions C C C, &c., shown in dotted lines. A frame, the outer end of which is seen at D D D, &c., is made of such size as to conform as nearly as practicable in its length and breadth to the length and breadth of the several chambers, there being one such frame for each compartment or chamber; and these frames should be constructed so as to be rendered air-tight at the place of entrance when they are in place, and the entire apartment A should also be air-tight. On one side of each frame (on the upper side in the illustration

shown) and between it and the wall of the apartment or the next adjacent partition, as the case may be, is a space forming a receptacle for the astringent fluid, and the space on the opposite side of the frame (beneath it in the illustration shown) and between it and the next adjacent partition is an air-chamber. The fluid receptacle of each compartment is connected by a small pipe, E, with a supply-main or tube, F, for conveying the astringent liquid thereinto; and the air-chamber of each compartment is connected by a small pipe, G, with a tube or exhaust-main, H, for exhausting the chamber by means of an air-pump, and is also connected with an escape-main or tube, I, for conveying off the fluid which has percolated through the skins that it may be returned to the leach and renewed in strength. The exhaust-main may be also the escape-main, but I prefer to have them distinct. The smaller pipes or tubes for connecting these mains with the chambers are furnished with stop-cocks for regulating the exhaustion and escape. The supply-main near the base is furnished with a stop-cock for drawing off the fluid when not in use; and it may be also provided with a piston, if requisite, to give pressure to the fluid.

Apartments or cells constructed and furnished with apparatus as above described may be added one to another in any required number, and in any suitable order, and inclosed together, and may be set either in a perpendicular or in a horizontal position, preferably in the latter.

The apparatus having been constructed substantially as above described, the hides or skins (being quite whole or rendered so) are stretched in the frames D and attached to the sides thereof, and, if necessary, are sustained therein either by sieve-like wire or any suitable perforated or open-meshed support, and the spaces beyond the irregular edges of the skins, and between such edge and the frame, are closed with some kind of water-proof material. When the skins are placed horizontally the grain side is preferably the under side. The frames with their skins being in place, and made air-tight at the place of entrance, the tanning-fluid is let in, and the air-chambers are exhausted and percolation ensues, the pores or cells of each skin (or other article under treatment) as well as the chambers being exhausted of the air. In this manner a fresh supply of the tanning-fluid is constantly but

gradually allowed to flow in upon the skins and to percolate through them, every fiber being from the first acted on by the tannin; and hence the skins become perfectly tanned in a comparatively short time.

The quantity of fluid on either side of the skins at any given time may be observed through glass set in the wall of the cell or cells, and the only attention requisite during the process is to provide a constant supply of the tanning-fluid and an occasional use of the air-pump, and it may be a gentle pressure of the piston on the fluid.

My invention is also adapted and designed for certain preparatory work, such as "raising" the skins, &c., and for other uses in manufactures in which percolation will be an improvement of the

same, and in which the article may be treated in a manner similar to that which is hereinbefore described.

I claim—

1. The tanning of hides or skins with astringent liquids by means of percolation.
2. The combination of hydraulic pressure and pneumatic exhaustion for producing percolation of fluids for tanning hides or skins, and for other uses of percolation in manufactures.
3. The apparatus, substantially as described and shown, arranged to operate as set forth.

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Witnesses:

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