

(No Model.)

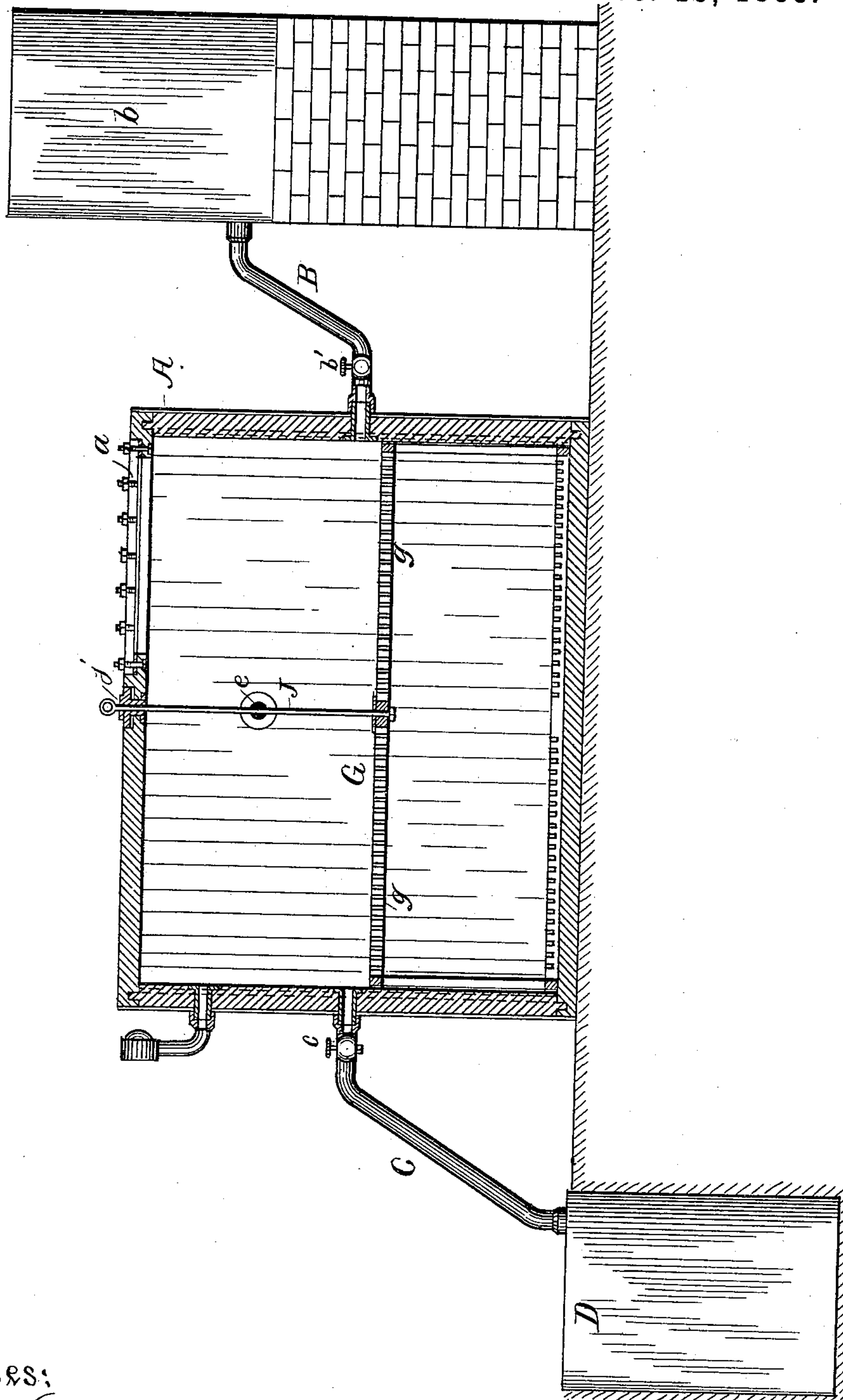
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L. SIMPSON.
TANNING APPARATUS.

No. 332,451.

Patented Dec. 15, 1885.

Fig. 1.



Witnesses:

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(No Model.)

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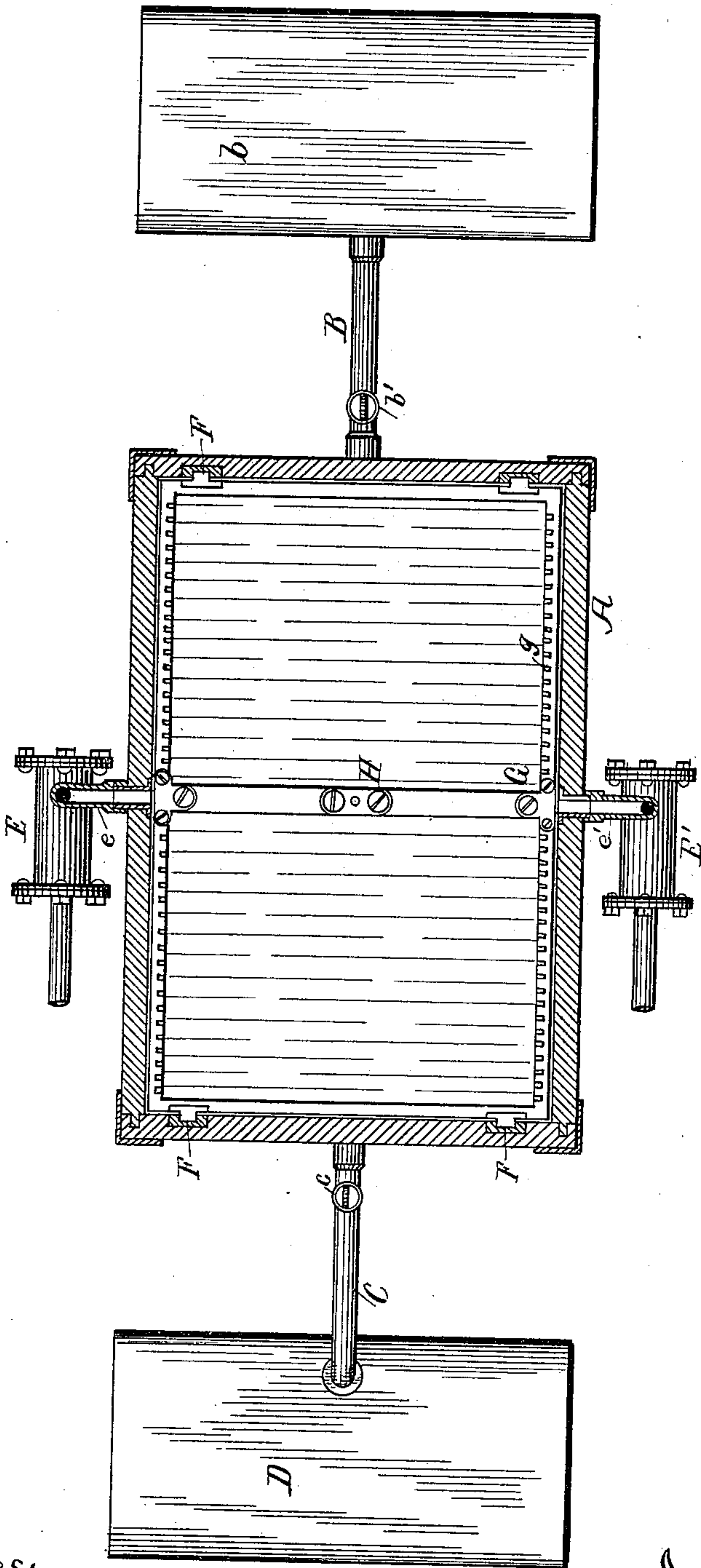


Fig. 2.

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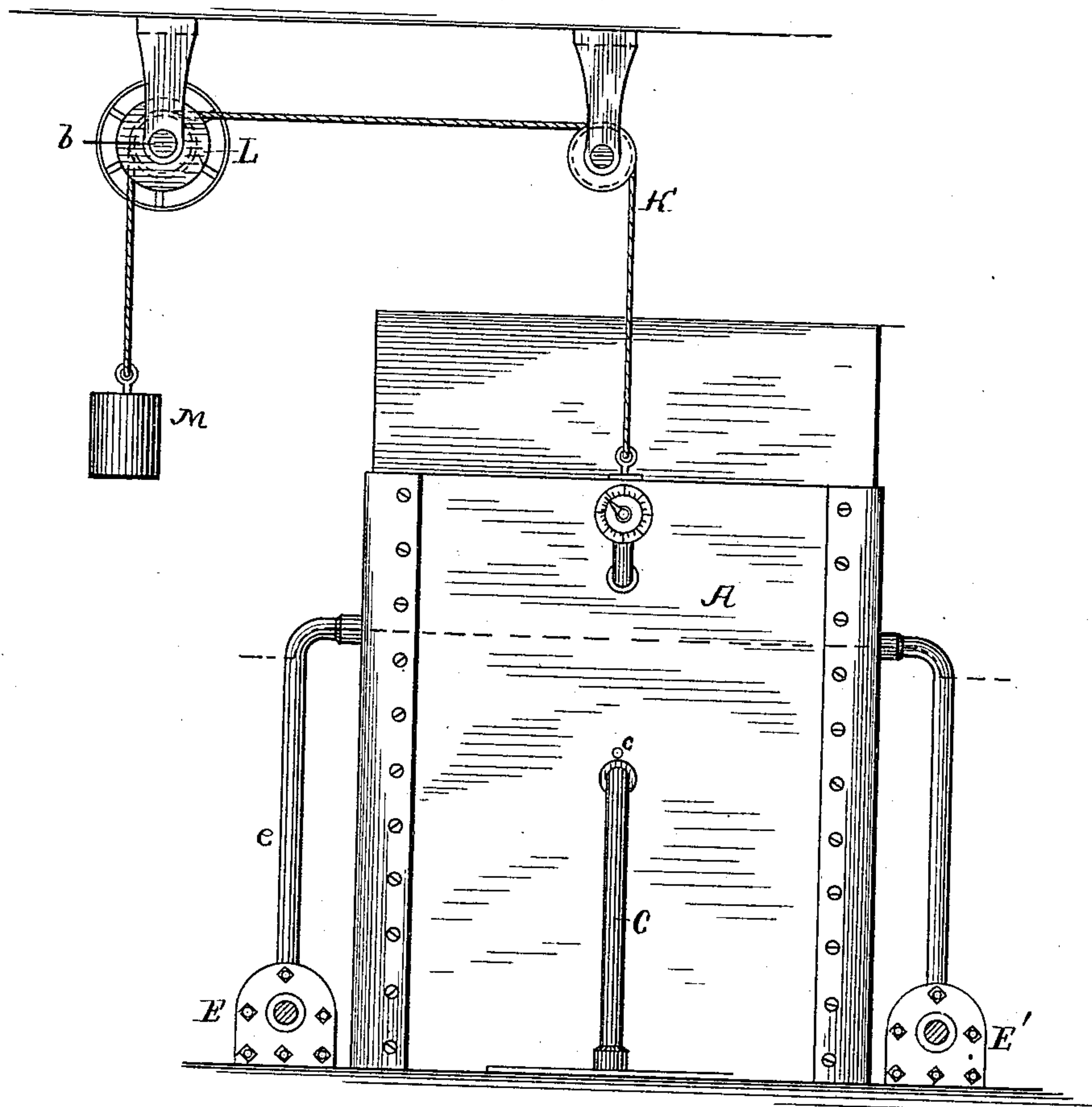
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No. 332,451.

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Fig. 3.



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UNITED STATES PATENT OFFICE.

LENOX SIMPSON, OF BELLEVUE, ALLEGHENY COUNTY, PENNSYLVANIA.

TANNING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 332,451, dated December 15, 1885.

Application filed July 18, 1885. Serial No. 171,952. (No model.)

To all whom it may concern:

Be it known that I, LENOX SIMPSON, a citizen of the United States, residing at Bellevue borough, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Tanning Apparatus, of which the following is a full, clear, and exact description.

The object of my invention is to provide a tanning apparatus by the use of which the tannic acid may be compressed into the hide and the spent liquor evacuated from the hide in rapid alternation.

The invention consists in the apparatus hereinafter described.

In the drawings, Figure 1 represents a longitudinal vertical section of the tanning-vat and elevations of the supply-tank and leach; Fig. 2, a longitudinal transverse section of the tanning-vat and top plan views of the supply-tank and leach; Fig. 3, an end elevation of the vat, showing the apparatus for lifting and counterbalancing the hide-frame.

Similar letters of reference indicate corresponding parts throughout the different views.

A is a tanning-vat of any suitable shape, size, and material, the only indispensable requisites being that the vat shall not be affected by the tannic acid, and shall be air-tight and of sufficient strength to resist external and internal pressure. A lid, *a*, is bolted on and forms an air-tight joint with the top of the vat. From one end of the vat and a little above midway of same extends a pipe, B, which connects the interior of the vat with the supply-tank *b*. A cock, *b'*, is used to regulate the flow of the liquor from the supply-tank to the vat.

C is a vent-pipe connecting the tanning-vat A with the leach D. Said pipe is provided with a cock, *c*, by means of which egress from the vat is cut off when occasion requires. Pipes *e e'* connect the interior of the vat A with the exhaust-pump E and force-pump E', and are provided with cocks. In the interior of the vat are vertical guideways F, along which slide, by means of guides F', the movable hide-frame G.

It is obvious that any known equivalent for the guides and ways may be substituted without changing the character of the invention, which consists primarily of a device by which

the hides may be lifted entirely above the liquor.

The hide-frame may be constructed of metal or wood. The hides may be strung vertically upon hooks secured to the frame; or they may be fastened to quadrilateral frames, and the latter slipped into and secured in vertical grooves *g*, formed in the hide-frame. Across the middle of the top of the hide-frame is secured a beam, H, to which is fastened a rod, J, which extends upwardly through the stuffing-box *j* in the top of the vat, and is connected with a rope or chain, K. Said rope or chain is secured to a drum, L, which is actuated by the counter-shaft *l*. About and secured to said drum is a rope, which carries a counter-weight, M, balancing the weight of the hide-frame and hides.

I do not wish to confine myself to the particular device shown and described for reciprocating the hide-frame, as this may be accomplished in a variety of ways. For instance, the vats could be made to work in pairs, the rods J being coupled to the ends of a walking-beam and the latter being driven by an engine.

The operation of the apparatus is as follows: The hides are secured to the hide-frame in the manner described, and the man-hole tightly closed. Sufficient tannic liquor is then allowed to enter the vat A from the supply-tank to about half fill said vat. The cocks in the pipes B C are then closed and the force-pump operated. Pneumatic pressure is thus brought to bear upon the surface of the liquor, and the latter thereby forced into the pores of the hide. After sufficient time has elapsed to allow the liquor to permeate the hides, (never more than a few minutes,) the hide-frame (by means of the mechanism described) is elevated above the surface of the liquor and the exhaust-pump operated. By this means substantially all the pressure upon the surface of the hides is removed, and the elasticity of the hide, as well as the greater or less amount of air contained therein, causes it to swell and open its pores. The spent liquor contained in said pores is forced out by said swelling, as well as by its own specific gravity. After sufficient time has elapsed to allow the spent acid to escape (two or three minutes, or less) the hide-frame is lowered into the liquor, and the operation repeated until the hides are com-

pletely tanned. At intervals during the continuance of the operation fresh liquor is allowed to run into the vat from the supply-tank, and portions of the weakened liquor are passed
5 outward through the eduction-pipe into the leach. The supply of liquor within the supply-tank is strengthened from time to time from the beginning to the end of the operation.

Having thus described my invention, what
10 I claim is—

1. The combination, with a tanning-vat provided with a vertically-reciprocating hide-frame, of one or more rods, J, working through stuffing-boxes j, and means for operating said
15 rod or rods, substantially as and for the purposes described.

2. The combination, with a tanning-vat pro-

vided with the vertically-reciprocating hide-frame G, having rod J attached thereto, of the rope or chain K, drum L, and weight M, 20 substantially as and for the purposes described.

3. A tanning apparatus consisting, essentially, of an air-tight tanning-vat provided with induction and eduction pipes having cocks, a vertically-reciprocating hide-frame, 25 a device for raising and lowering said hide-frame, and pumps for alternately exhausting and compressing the air within the vat, arranged substantially as described, and for the purposes set forth.

LENOX SIMPSON.

Witnesses:

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