

B. Irving,
Leaching Process,
N^o 85,175. Patented Dec. 22, 1868.

Fig: 1.

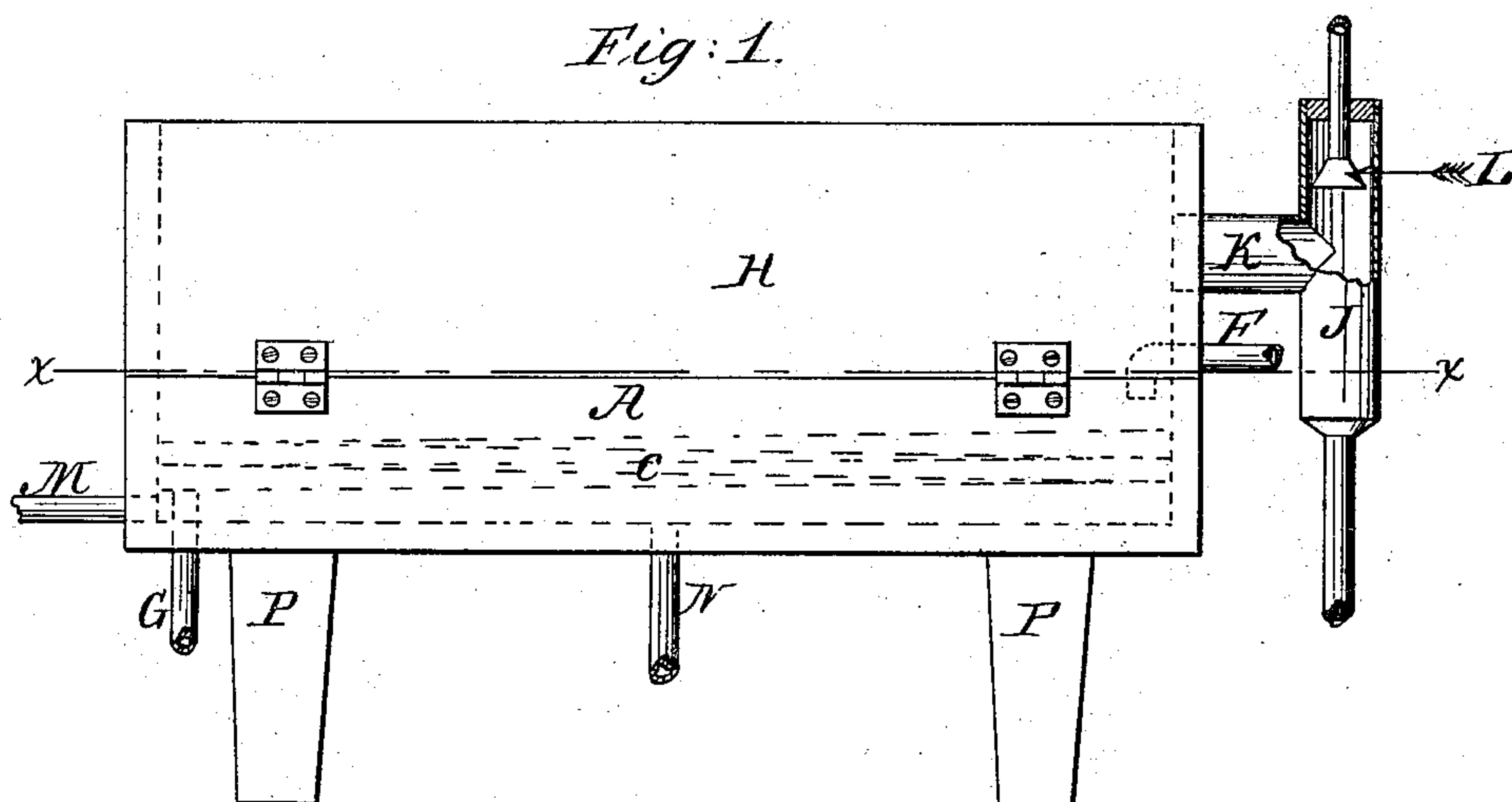


Fig: 2.

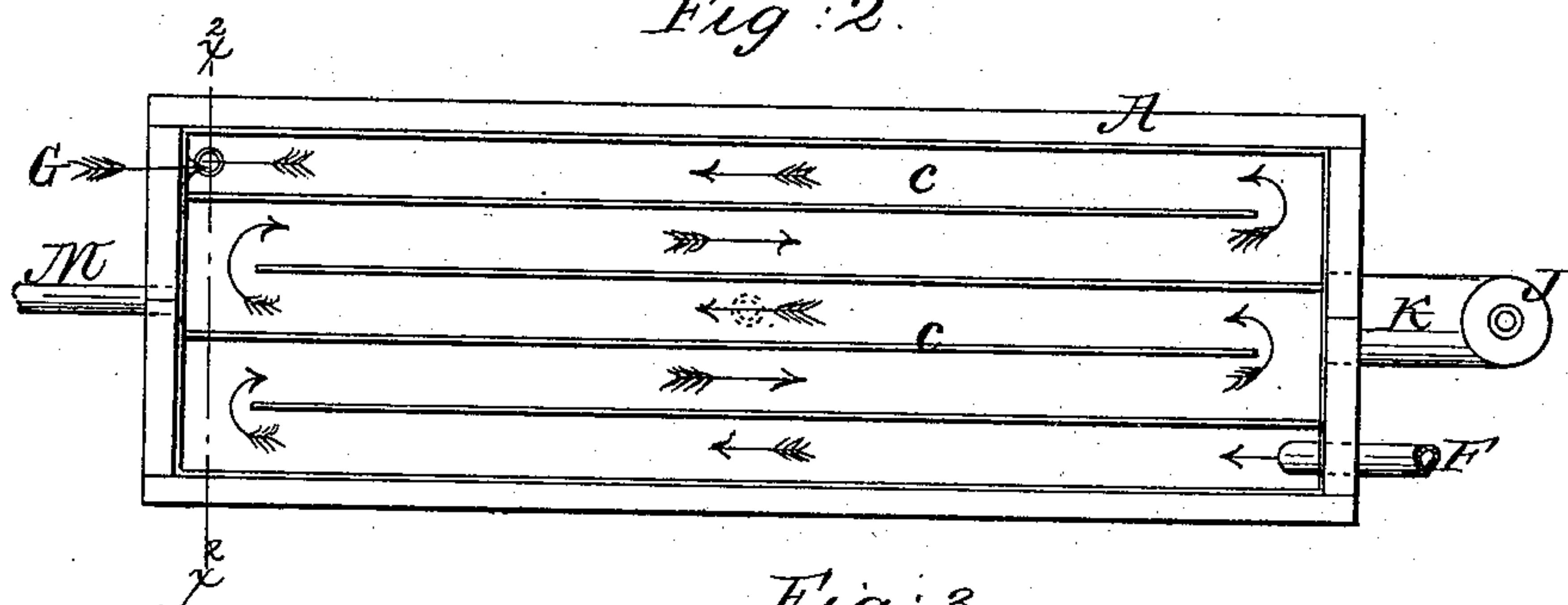
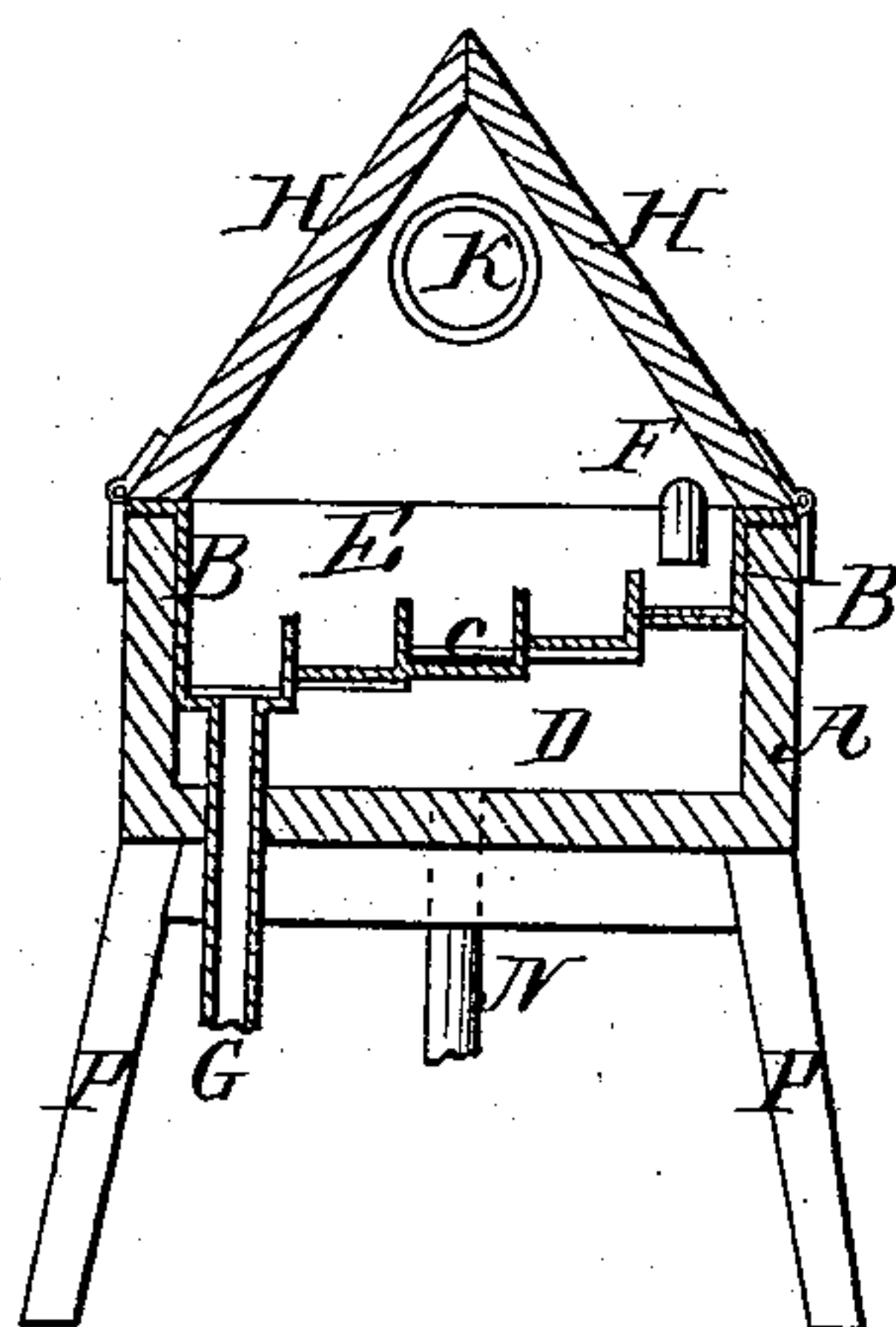


Fig: 3.



Witnesses;
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BENJAMIN IRVING, OF NEW YORK, ASSIGNOR TO H. A. TAYLOR,
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Letters Patent No. 85,175, dated December 22, 1868.

IMPROVED APPARATUS FOR CONCENTRATING EXTRACT OF TAN-BARK.

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, BENJAMIN IRVING, of the city, county, and State of New York, have invented certain new and useful Improvements in Apparatus for Concentrating the Liquid Extract of Bark for Tanning, and other purposes; and I do hereby declare that the following is a full description of the same.

In my invention for a like purpose, patented April 30, 1867, No. 64,324, I describe constructing a flat worm, with corrugated plates, in combination with steam-chambers and air-tight receiving-tanks.

My present invention, having changed the mode of constructing the worm, and modified the arrangement of it with regard to the steam-chamber and air-tight receiving-tanks, is intended to be an improvement on my said patent, No. 64,324; and

The nature of the said improvements or invention consists-

First, in constructing an evaporating-pan, with a continuously-descending channel from end to end of its surface, in combination with a steam or hot-air chamber, underneath the pan, for the purpose of evaporating the water from the thin stream of liquid extract as it flows down the channels of the pan.

Second, in constructing the evaporating-box with a roof, secured by hinges to the sides of the box, so that an opening at the peak may be made at pleasure, by separating the sides of the roof, to promote the escape of the watery vapor ascending from the liquid extract on the pan, and, at the same time, facilitate access to the pan, to clean it when required.

Third, in combining, with the evaporating-pan and box, as aforesaid, a water-sprinkler or condenser, for condensing the steam or watery vapor rising from the liquid extract when the roof of the box is closed, or the watery vapor is not otherwise carried off fast enough for rapidly evaporating the liquid extract.

But, to describe my invention more particularly, I will refer to the accompanying drawings, forming a part of this specification, the same letters of reference, wherever they occur, referring to like parts.

Figure 1 is a side view of the evaporating-box or apparatus.

Figure 2 is a plan view of the same, on the line $x x$, fig. 1, showing the channel-formed evaporating-pan.

Figure 3 is an end view of the same, through the line $x^2 x^2$, fig. 2.

Letter A is a wood or metal box, of some ten feet long by two feet wide, and fifteen inches deep. These precise measurements are not absolutely necessary, as any other proportions may be made to answer the purpose, though, for convenience of construction and results obtained, I believe the above proportions the best that can be used.

In this box is secured, by means of sides or flanges, B, a channel-formed metal evaporating-pan, C, so as to subdivide the box longitudinally into two compart-

ments, D and E, the lower one being a steam-tight chamber, and the upper one an evaporating-chamber.

The construction of the evaporating-pan is by joining together, side by side, lengthways, (in a full-size apparatus,) fifteen flat-bottomed troughs or half-circular tubes, with a descent from end to end of the pan, (say about ten feet long,) in each channel, of about one-quarter of an inch. By this construction of the pan, it will readily be seen that a constant stream of liquid extract can be discharged upon the pan by the pipe F, and, following the direction of the arrows, fig. 2, will have to pass over about one hundred and fifty feet of evaporating-surface before it reaches the outlet-pipe G. And as the pipe F is not intended to be over about half an inch bore, the quantity of liquid extract on the pan will be but a thin sheet, and thus be rapidly heated by a low degree of heat applied to the under side of the pan, and the watery particles of the extract vaporized before it can escape by the outlet-pipe G.

To admit of the rapid escape of the vapor eliminated from the extract, the roof of the box is formed, by means of two doors or wings, H, hinged to the upper edges of the sides of the evaporating-box, and so arranged that, when closed, they form a peaked roof. The object of this arrangement is that, when necessary to promote the escape of the vapor rising from the liquid extract, the wings may be opened more or less space, to form a draught, as it were, to carry off the vapor; also, when necessary to inspect or clean the pan, the whole top of the box can be thrown open at once.

In conjunction with the arrangement of the roof of the evaporating-box, to condense the vapor rising from the liquid extract, is used a water-sprinkler condensing-apparatus, J, having a communication with the vapor-chamber by means of an exhaust-pipe, K. By this device a jet of cold water will be discharged from the sprinkler L, which, descending past the outlet of the pipe K, will condense the vapor in contact with it, and thus, by a partial vacuum being created, draw off the vapor as fast as it rises in the evaporating-box.

It will be obvious that any exhausting-apparatus will answer the same purpose, and therefore I do not intend to limit myself to the use of a jet of water, where other exhausting-apparatus would be equally convenient to use.

Letter M is the steam-induction pipe, and

N, the waste or condensed-water-escape pipe.

Letter P are legs, upon which the apparatus is supported, or represent any other frame-work on which it may be adjusted.

Having now described my invention, I will proceed to set forth what I claim, and desire to secure by Letters Patent of the United States.

I claim the combination of the evaporating-pan, made substantially as hereinbefore described, with the

compartments, D and E, of the evaporating-box A, for the purpose of concentrating the liquid extract of bark for tanning-purposes, substantially as hereinbefore set forth.

I also claim the combination of the hinged wings H with the evaporating-box A, substantially as described, and for the purposes set forth.

I also claim, in combination with the evaporating-

chamber E, a condenser, J, or other equivalent device, substantially as described, and for the purposes set forth.

BENJAMIN IRVING.

Witnesses:

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