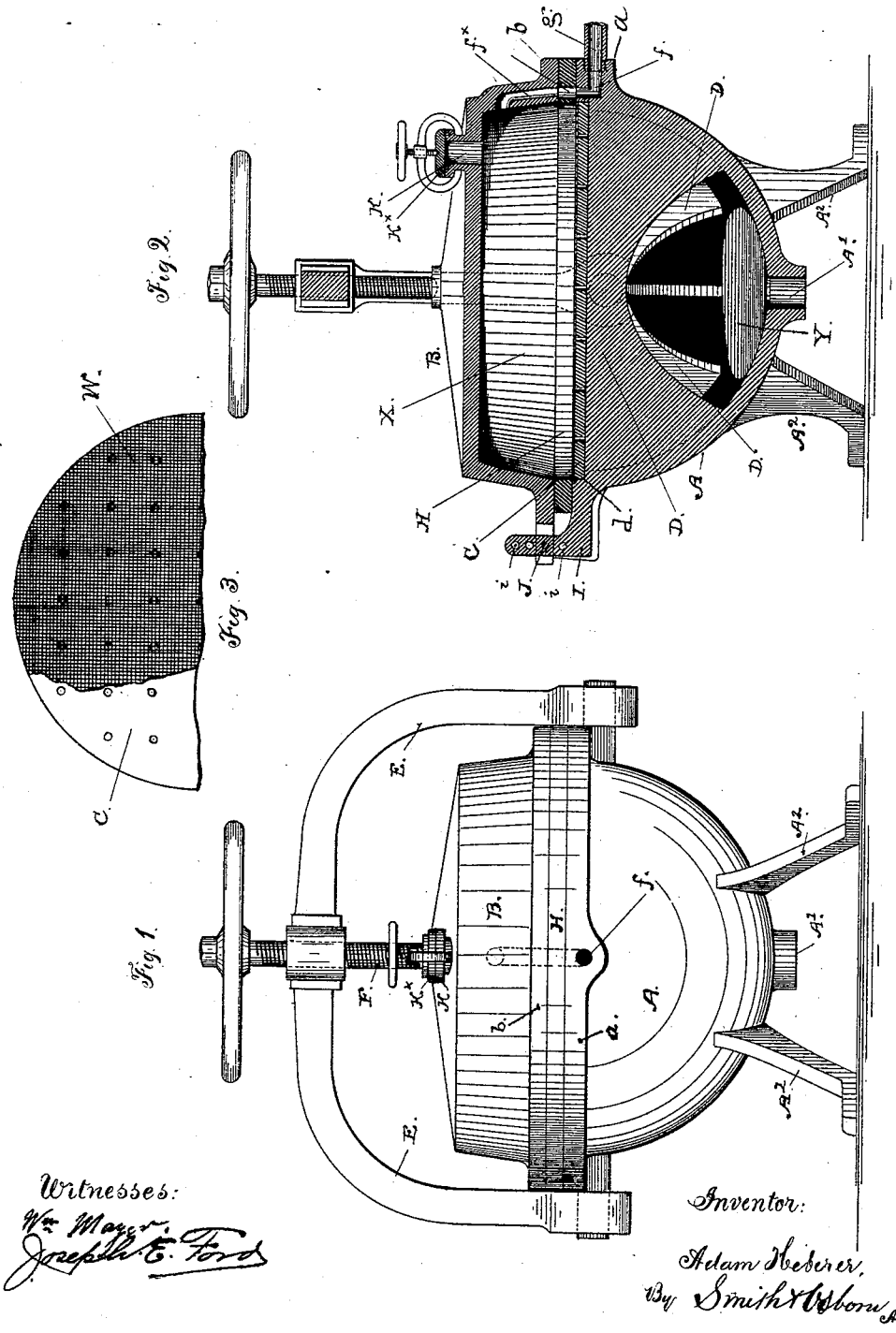
(No Model.)

A. HEBERER.

FILTER PRESS.

No. 381,369. Patented Apr. 17, 1888.



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UNITED STATES PATENT OFFICE.

ADAM HEBERER, OF ALAMEDA, CALIFORNIA.

FILTER-PRESS.

SPECIFICATION forming part of Letters Patent No. 381,369, dated April 17, 1888.

Application filed August 27, 1887. Serial No. 248,098. (No model.)

To all whom it may concern:

Be it known that I, ADAM HEBERER, a citizen of the United States, residing at Alameda, in the county of Alameda and State of California, have invented certain new and useful Improvements in Filter-Presses; and I do hereby declare that the following is a full, clear, and exact description of my said invention, reference being had to the accompanying drawings, that form a part of this specification.

My invention relates to improvements in filtering apparatus for extracting liquids from solid matter and substances by steam-pressure; and it consists in certain novel construction of apparatus in which the force or agent used to separate and remove the liquid is steam-pressure applied and acting directly on the matter or substance.

The apparatus is adapted for use in various arts and manufactures, and particularly in oil-works, borax-works, and sugar-refineries.

The following description explains the nature of my said improvements in apparatus for such purpose and the manner in which I construct and produce the same, the accompanying drawings being referred to by figures and letters.

Figure 1 is a general outside view of the press. Fig. 2 is a vertical section through the above figure. Fig. 3 shows a portion of the perforated bed-plate and the mat on which the matter or substance to be filtered is placed.

Similar letters of reference indicate corresponding parts in the several views.

A is the body of the press, having supports A^2 to bring it at convenient height from the floor, and having, generally, a hemispherical shape inside.

B is a removable top with a deep rim and an outwardly-standing flange, *b*, that fits a corresponding flange, *a*, on the body part. The space inside these two parts when they are placed together is divided by the perforated plate C into the upper compartment, X, which is wholly within the part B, and the lower space, Y, which is in the part A.

The plate C supports the matter or substance to be filtered, and it is set into the part A, so that its surface is about flush with the face of the rim *a*, or so that the straining-mat *c*, which is laid over the plate, shall be on a level with the flange. This construction enables the matter or substance to be easily and quickly removed after the liquid has been pressed out, as the top part when turned back leaves the solid substance standing above the rim of the lower part, and thus allows it to be removed in a cake or mass.

The plate C is supported around the edge by a ledge or seat, *d*, formed within the rim of the body part, and also by ribs D, that are carried from the sides diametrically across the space. These supports under the center I employ when the size of the press may seem to require them; but in constructing presses of the smaller sizes the plate may be made of such thickness that its center part will not need these supporting-ribs, and in such cases I do not use them.

An outlet, A′, for the liquid that is forced out of the matter or substance resting on the perforated plate, is provided at the bottom of the space beneath the plate, and by suitable troughs or pipes the liquid is taken from this outlet and carried away to any point, either for utilization or to be disposed of as waste material.

The yoke E and screw F form the means for holding down the top B to a tight seat on the rim of the body part, a close joint being made by inserting a gasket between the two flanges. The yoke is attached at the ends to the body by means of the ordinary eye and trunnion hinge, as shown, so that when the screw is run up the yoke can be turned back to clear the top part, which, being hinged to the body part, can then be turned back itself from over the perforated plate. A passage, *f*, in the wall of the body part is carried from the outside and upward through the flange *a*, and a similar passage, $h^{\times}$, in part H, and also $f^{\times}$ in the rim of the top part, is carried from the flange of this part upward and inward to discharge into the upper part of the interior space. These passages are arranged to come in line with each other when the two parts are set together, and thus to form a continuous passage from the outside to the inside. Steam from a supply at hand is conducted into these passages through a pipe, *g*, and then into the

space above the perforated plate. By this arrangement it will be seen that the top part can be removed and replaced without disturbing the steam-connections, as the pipe is fixed in the stationary body part of the press.

A suitable valve or cock will be placed in the steam-pipe convenient to the press for regulating the supply and the pressure, and the steam supplied will be of required pressure and of proper degree of dryness, according to the results to be accomplished.

The size of the space or compartment above the perforated plate can be increased by inserting between the two parts A B a ring or rings of such thickness as to give the desired height to the space, and when these are used a tight joint will be made by setting gaskets between the rings H and the flanges. Provision is made for inserting these rings by having several holes, *i*, in the upright post I, that forms the fixed part of the hinge to the top B, so that by changing the pin J from one hole to another above the top can be brought down to a flat and true seat in the ring.

The aperture K in the top part is provided for introducing whatever substance is to be treated in the press, and it is furnished with a cover, $K^{\times}$, and a screw-clamp for closing it, after the usual manner of fitting such inlets with steam-tight covers.

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

1. The herein-described press, consisting of the body A, having a compartment or space in it, the removable top B, having a compartment or space in it, and a perforated plate dividing the two compartments, a steam-inlet into the upper space and a discharge-outlet from the lower space, and means for securing the removable top upon the body, substantially as described.

2. The combination of the body part A, having the drip space or compartment, as described, the removable top B, having a space or compartment within it for containing the material to be pressed, the strainer-partition C, secured between the top B and body A on a line flush with the upper edge of the body, and a steam-inlet into the upper space and a discharge-passage from the lower space, as set forth.

3. The combination, with the body part and the perforated plate set into it, of the movable top part, the line of separation between said top and body parts being flush with the plate, the ring adapted to be inserted between the two parts B and A, and means for clamping the parts together.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

ADAM HEBERER. [L. S.]

Witnesses:
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