

J. MERRILL.
STILL CASING.

No. 32,951.

Patented July 30, 1861.

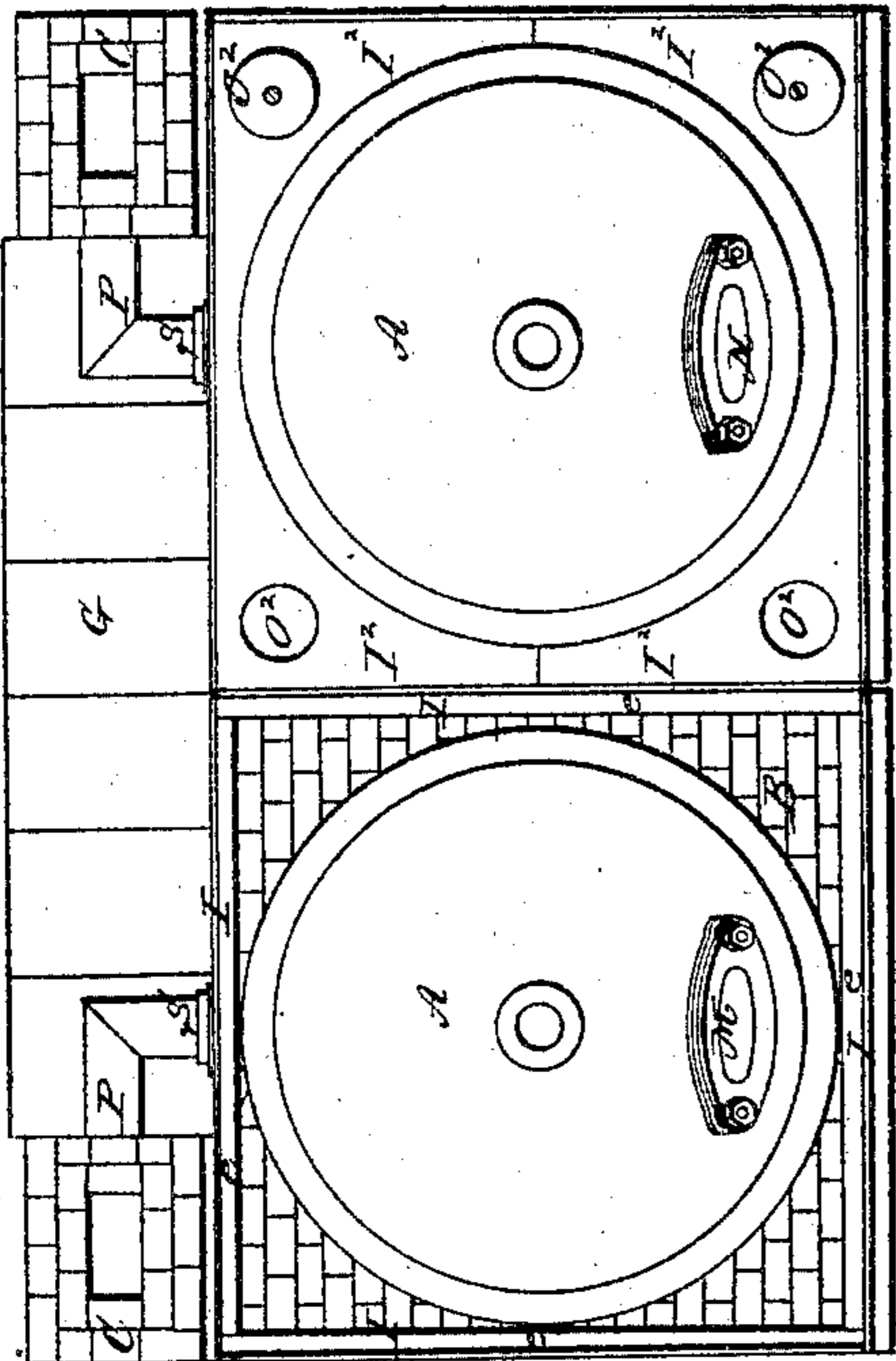


Fig. 2.

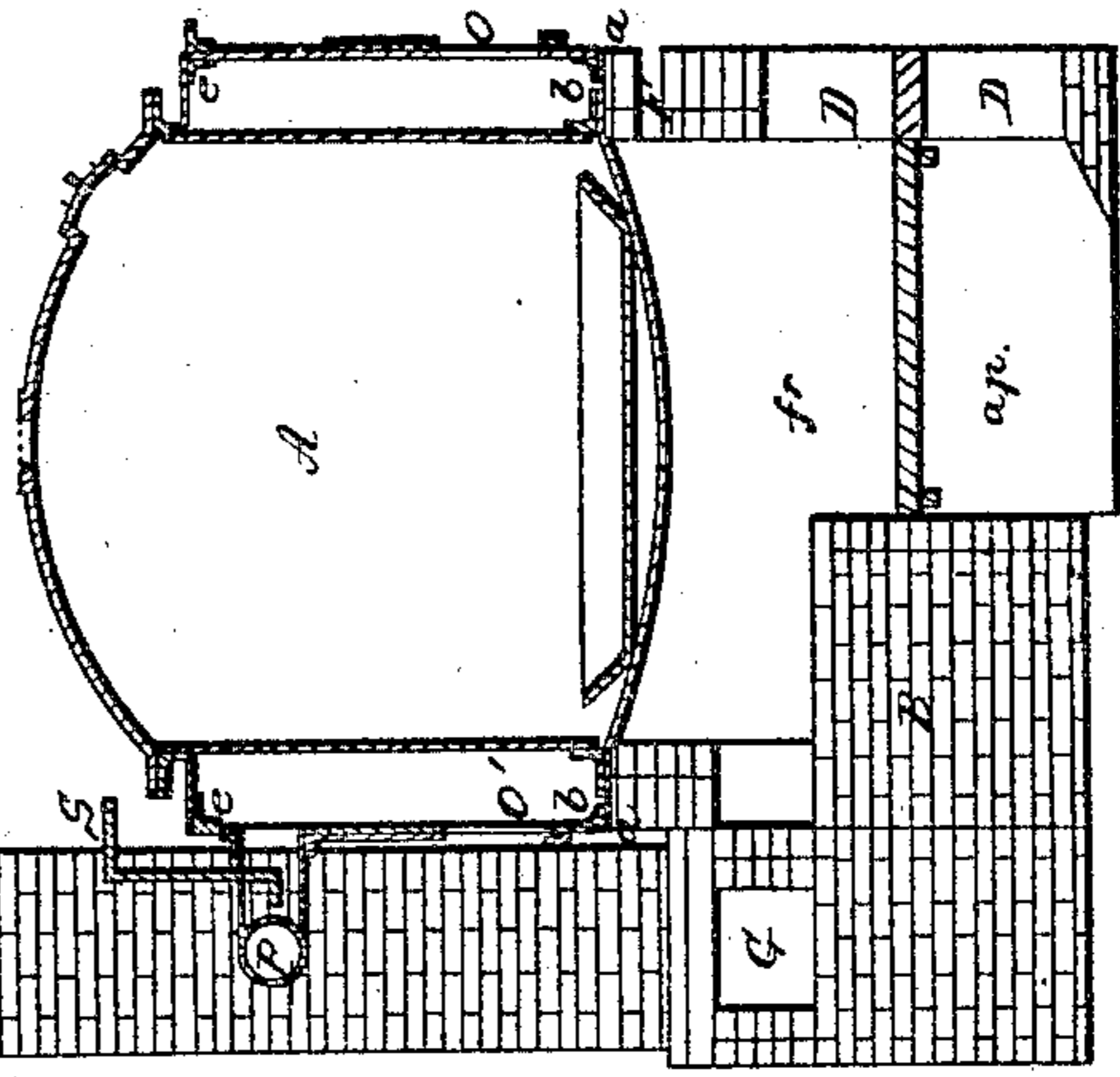


Fig. 3.

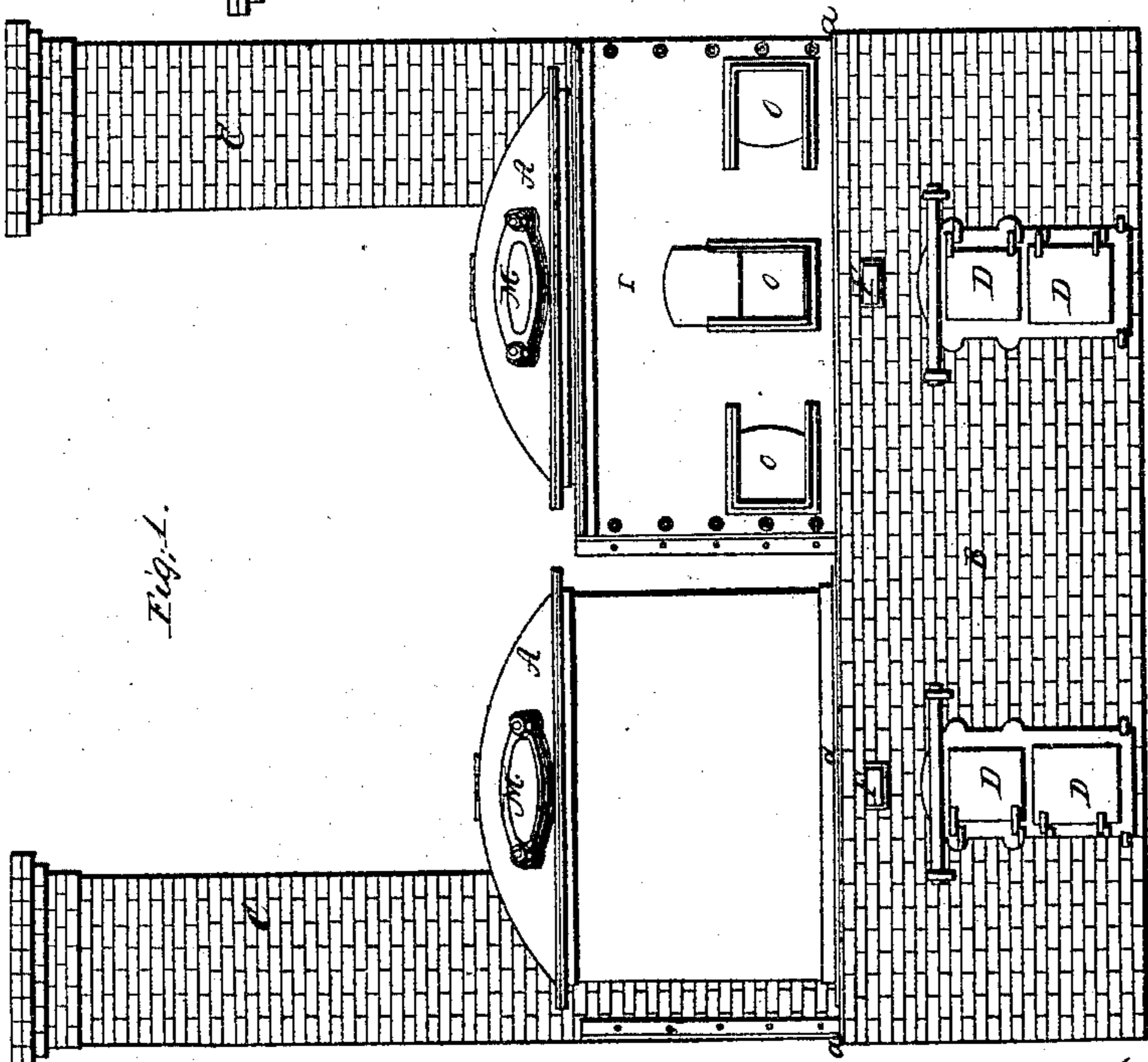


Fig. 1.

Witnesses,
George H. Bone,
L. H. Paine

Inventor,
Joshua Merrill

UNITED STATES PATENT OFFICE.

JOSHUA MERRILL, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN CASINGS OF STILLs.

Specification forming part of Letters Patent No. 32,951, dated July 30, 1861.

To all whom it may concern:

Be it known that I, JOSHUA MERRILL, of the city of Boston, county of Suffolk, and State of Massachusetts, have invented certain new and useful Improvements in the Casings of Stills; and I do hereby declare that the following is a full and correct description thereof, reference being had to the annexed drawings, and to the letters of reference thereon.

My said invention consists of several improvements in still-casings, more especially adapted to stills used in the manufacture of hydrocarbon oils.

The first part of my invention consists in incasing the sides of the still with plates or in any suitable manner, so as to surround the sides of the still with a confined air-chamber, substantially in the manner and for the purpose hereinafter described.

The second part of my invention consists in constructing the casing in such manner that a sufficient portion of it can be readily removed and replaced to admit of removing and replacing the still with facility.

The third part of my invention consists in combining with the casing suitable means of admitting and controlling a circulation of air from outside the casing to the sides of the still within for the purpose of regulating the temperature of the still.

Stills usually employed in the manufacture of hydrocarbon oils are cased with solid brick-work, which has to be removed in order to remove the still, and it also holds the heat so long a time after the operation of distillation is completed that artificial means—such as injected steam—has been resorted to for more rapidly cooling the stills.

The drawings illustrate my invention.

Figure No. 1 is a front elevation of still and casing; Fig. No. 2, a plan view; Fig. No. 3, a vertical section.

Letters A A represent stills resting on a foundation of brick-work, B, which contains the fire-box *f* and ash-pit *a*, doors D, spy-holes F, and passage-way G to the chimney C. I prefer to set the stills in pairs with division-walls of the building between each pair of stills and a longitudinal wall through the building at the back of the stills, separating the stills from the room in which the condensing apparatus is placed, both on account of cleanliness and liability to fire.

Letters I represent plates of iron constituting the vertical walls of the casing. There is a plate-iron bed or coping, *a*, embedded in the brick-work on which the casing rests, the plates having angle-iron riveted to their lower edges projecting inward, as shown at *b b*, Fig. No. 3, for the purpose of a foot or base, the weight of the casing being sufficient to hold it in position. The end and center plates have angle-irons *c* riveted to them at the side edges for the purpose of flanges, to which the front and rear plates are secured. This is done by bolts and nuts, as shown in the drawings at *d*. The inner top edges of all the plates have angle-iron brackets *e*, projecting inward and sufficiently below the top edge to form a seat for the segmental top plates, *I*², which are made to fit the casing and the sides of the still, and form, with the side plates and brick-work foundation, a completely-inclosed air space or chamber around the sides of the still sufficiently tight to prevent the circulation of air from the still-room to and from the sides of the still, thereby operating, when required to confine the heat to the still sufficiently for all practical purposes in distilling hydrocarbon oils, while from the mode of construction of the casing a still needing repair on the bottom may be immediately removed and replaced by one in order without other loss of time than the time necessary to lift off the top segments and unscrew the front plate of the casing, lift the still from its place by a suitable hoisting apparatus, and replace it by another still and restore the casing. The whole operation of removing and replacing a still cased in this manner need not occupy more than two hours.

The exigencies of the manufacture of hydrocarbon oils require that the stills employed should have very complete means of regulating and controlling the temperature at which the distillation is conducted, and also have the capacity to admit of suddenly changing the temperature very considerably.

Owing to the great thickness and weight of iron in the stills commonly used, and the mode heretofore adopted of incasing them in solid brick-work, and in some cases the use of heating-flues connected with the fire-box around the sides of the stills, it has been very difficult to control the temperature, the only means being by the draft of the fire-box or by injected steam, which latter is subject to serious

objections when used in the course of the operation of distilling.

The means I use for cooling the still and regulating the temperature during the operation of distilling other than by the draft are as follows, viz:

Letters O represent openings in the front plates of the casing furnished with well-fitted dampers; letters O', a like opening in the rear plate of the casing, also furnished with a damper; and letters O², circular openings in the top plates furnished with properly-fitted covers. By opening one or more of the holes in the top plates and one or more of the dampers in the front, or the damper in the rear plate, or all of them together, a circulation of air from the still-room to and from the sides of the still is established at once, which may be regulated and controlled, as desired, by means of the top and side openings.

If desired, a flue, P, connected with the chimney and furnished with a steam-jet pipe or any suitable means of inducing a current of air, may be used, but I have found the top openings sufficient for my purposes. Now, it is evident that the walls of the casing may be made of other material than plate-iron and yet leave an air-space between the walls and the sides of the still, that the walls themselves may be made of thinner metal and double inclosing within themselves an additional con-

fined air-space, and also that the front or the removable part of the casing may be made removable in many ways, and that the openings controlling the air circulation may be differently located and furnished without essentially changing the nature of my invention. I have endeavored to describe what I consider the simplest and best form of construction, but will vary the same as convenience and materials at hand may suggest.

What I claim as my invention and improvement in casing hydrocarbon-oil stills is as follows, viz:

1. Incasing a still substantially in the manner described, so as to surround the sides of the still with a confined air space or chamber, substantially for the purposes hereinbefore set forth.
2. Making a portion of the casing removable for the purpose of facilitating the removal and replacement of stills requiring repairs, substantially as described.
3. Combining with the casing openings and dampers or covers for the admission and control of air-circulation about the sides of the still, substantially as described.

JOSHUA MERRILL.

Witnesses:

GEORGE H. CONEY,
L. H. PEASLEE.