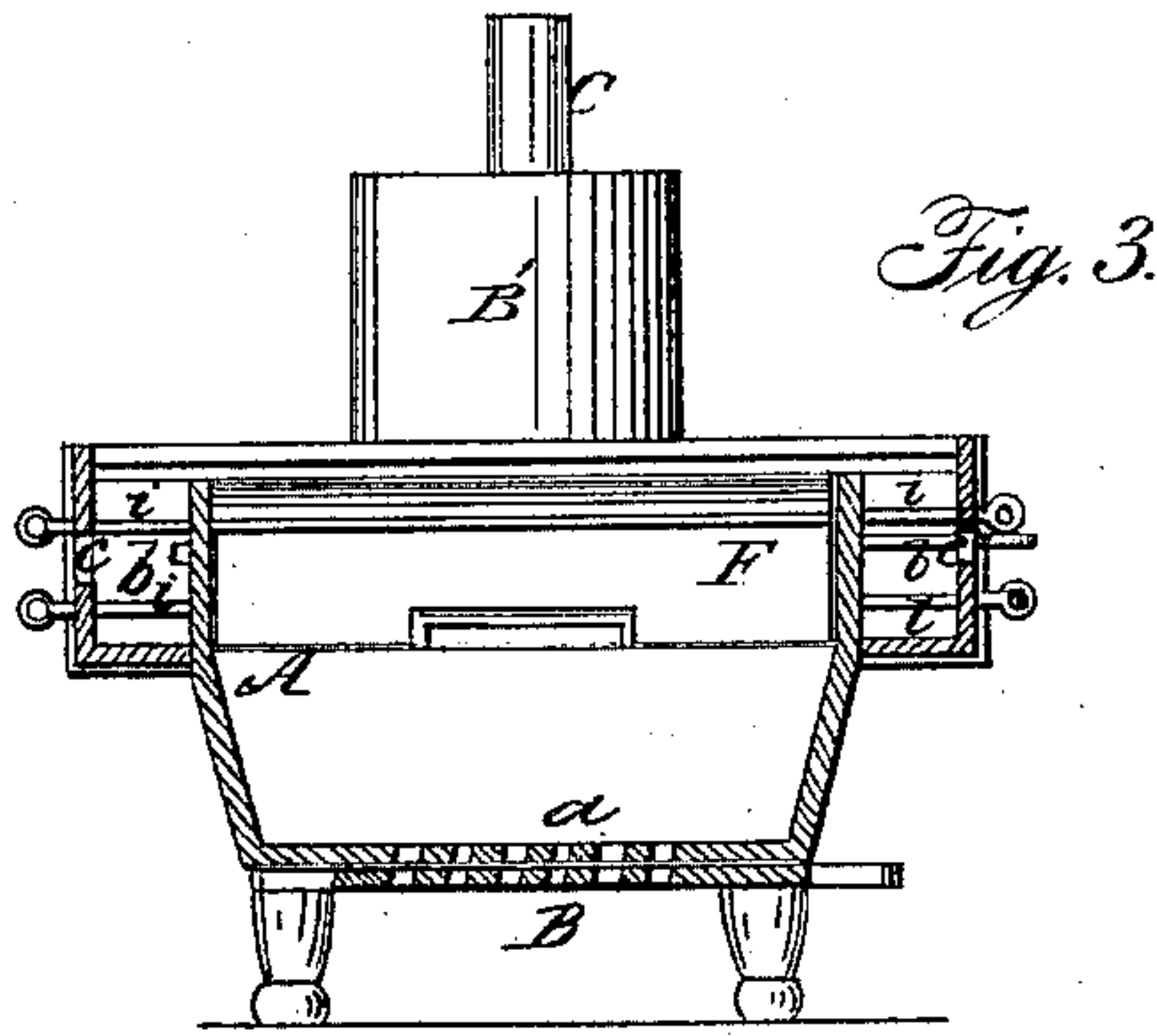
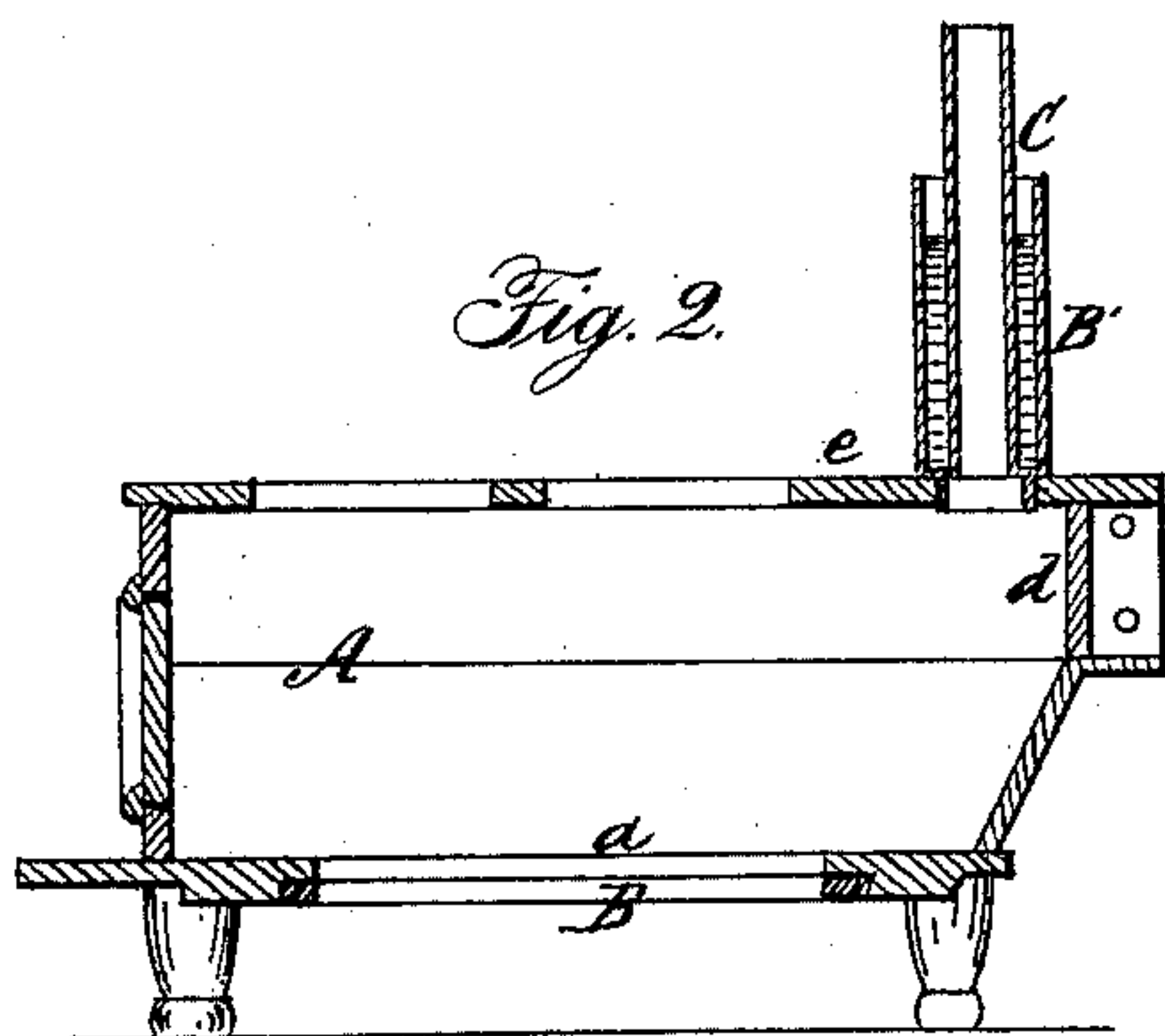
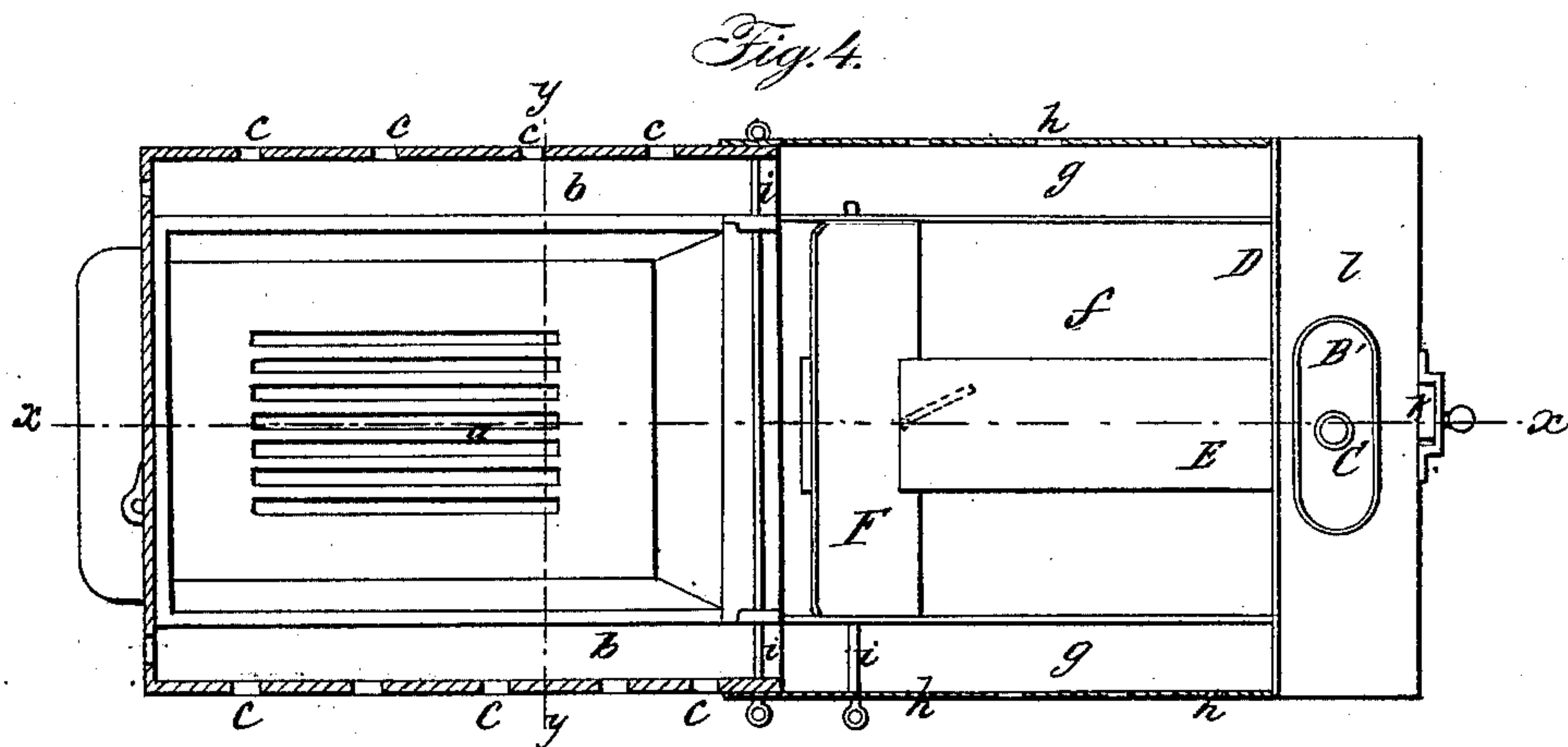
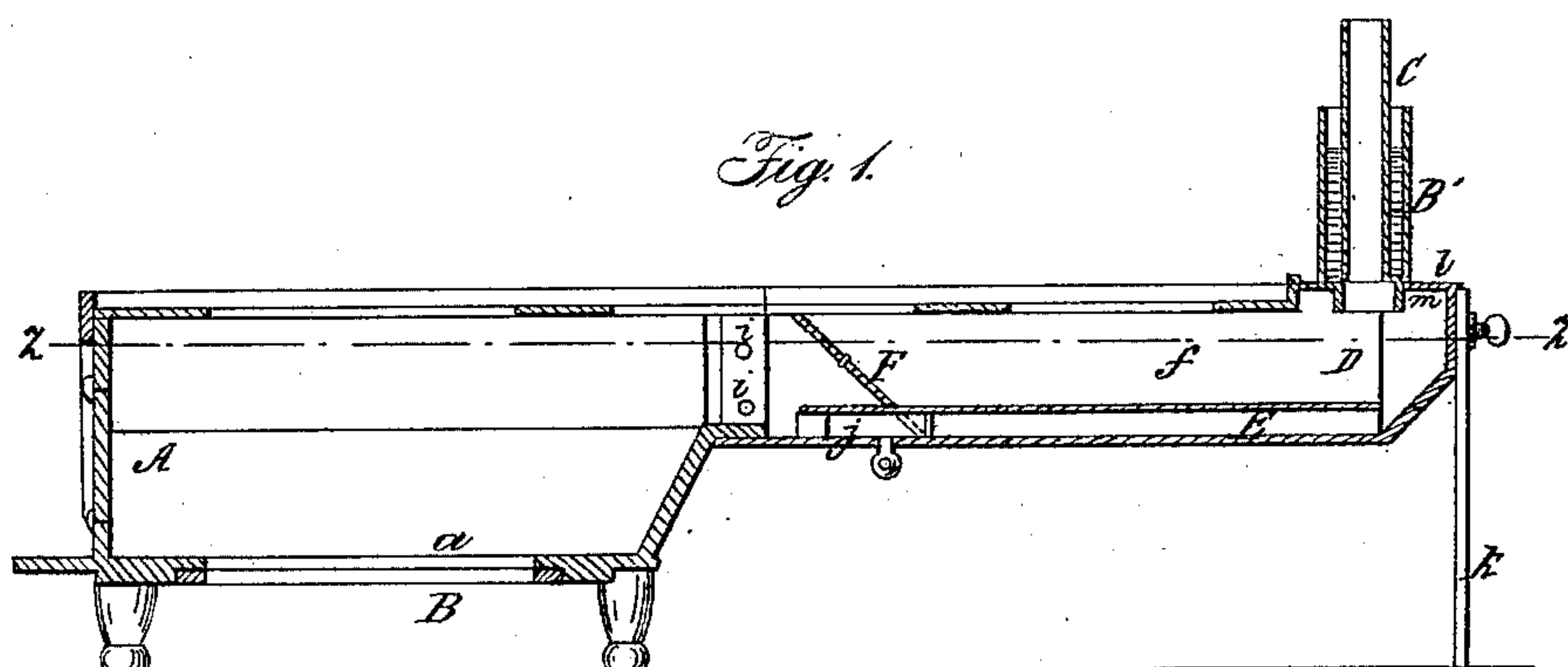


B. D. EVANS.
Evaporating Pan.

No. 27,541.

Patented Mar. 20, 1860.



Witnesses:

John W. Burn
Henry J. Warden.

Inventor.

Benjamin D. Evans

UNITED STATES PATENT OFFICE.

BENJAMIN D. EVANS, OF MOUNT VERNON, OHIO.

IMPROVEMENT IN FURNACES.

Specification forming part of Letters Patent No. 27,541, dated March 20, 1860.

To all whom it may concern:

Be it known that I, B. D. EVANS, of Mount Vernon, in the county of Knox and State of Ohio, have invented a new and useful Combination of an Evaporating-Furnace and Farmer's Boiling Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a side sectional view of my invention, taken in the line *xx*, Fig. 4; Fig. 2, a detached side sectional view of a portion of the same, taken in the line *xx*; Fig. 3, a transverse vertical section of the same, taken in the line *yy*, Fig. 4; Fig. 4, a horizontal section of the whole device, taken in the line *zz*, Fig. 1.

The object of this invention is to obtain a very simple furnace that will be capable of being used as a boiler and evaporator in the manufacture of sugar, and for other purposes, one that may be adapted to operations on a large or small scale, and well arranged for the controlling of the heat and the ready manipulation of the parts for that end.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a cast-iron furnace, which is of rectangular form, provided with an ordinary grate, *a*, at its bottom, underneath which a sliding grate, B, is placed, the latter serving as a register by which the admission of air into the furnace A may be controlled as desired. At each side of the furnace A, at its upper part, there is a cold-air passage, *b*, and these passages communicate with the external air by means of openings *c*, which are clearly shown in Fig. 4. In the back part of the furnace A a slide, *d*, is placed, which may be removed from and fitted in the furnace at pleasure. The top plate, *e*, of the furnace is also removable at pleasure, and at its back part a boiler, B' is placed, through which the smoke-pipe C passes, as shown clearly in Figs. 1 and 2. This boiler B' is also removable, the lower section of the smoke-pipe C' being attached to it.

The above-described parts are complete within themselves, and form a furnace which may be used for all ordinary purposes, as well

as for boiling and evaporating sirups on a small scale for family use.

D represents a sheet-metal attachment, which is formed similar to the body of the furnace A, said attachment having a central chamber, F, which corresponds in width with the furnace A, and having a cold-air passage, *g*, at each side, which passages correspond with the cold-air passages *b* at each side of the furnace A. The cold-air passages *g*, like those *b* of the furnace A, communicate with the external air by openings *h*, as shown in Fig. 4. The attachment D is connected to the furnace A, when required, by bolts *i*, which pass horizontally through the sides of the attachment and furnace, as shown clearly in Figs. 3 and 4. In the lower part of the attachment D there is a flue, E, the front part of which is provided with a damper, *j*. The central chamber, *f*, of the attachment D is also provided with a damper, F, which, when closed, shuts off the chamber *f* from the furnace A. The back part of the attachment D is provided with a support, *k*, and is also provided with a top plate, *l*, at its back part, with an aperture, *m*, to receive the boiler B. When the attachment D is used, the top plate, *e*, of the furnace A is removed, as is also the slide *d*, and a top plate, G, is placed on the furnace A and its attachment D. By opening the damper F the products of combustion pass directly through both the furnace and the chamber *f*, and the evaporating-pans being placed on the plate G, the boiling and evaporating process is gone through with, heat being controlled by regulating the register B. The plate G is designed to be used when operations are conducted on a small scale.

In operating on a large scale the vessels may fit directly on the furnace and its attachment, the bottoms of the vessels forming the top and extending over the cold-air passages *b g*. In this latter case the cold-air passages *b g* perform an important function—they keep the sides of the vessel cool, and thereby cause the scum to be drawn at the sides of the vessels, from whence it can be readily removed.

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

1. The combination of the furnace A, and its attachment D, provided with the cold

air chambers *b g*, and arranged to operate as and for the purpose set forth.

2. The combination of the register B, furnace A, attachment D, cold-air chambers *b g*, flue E, dampers *j* F, and boiler B', when arranged as shown, so that the above-named parts may be used jointly, and also admit of

the furnace A being readily detached and used separately.

BENJAMIN D. EVANS.

Witnesses:

STILES W. BURR,
HENRY P. WARDEN.