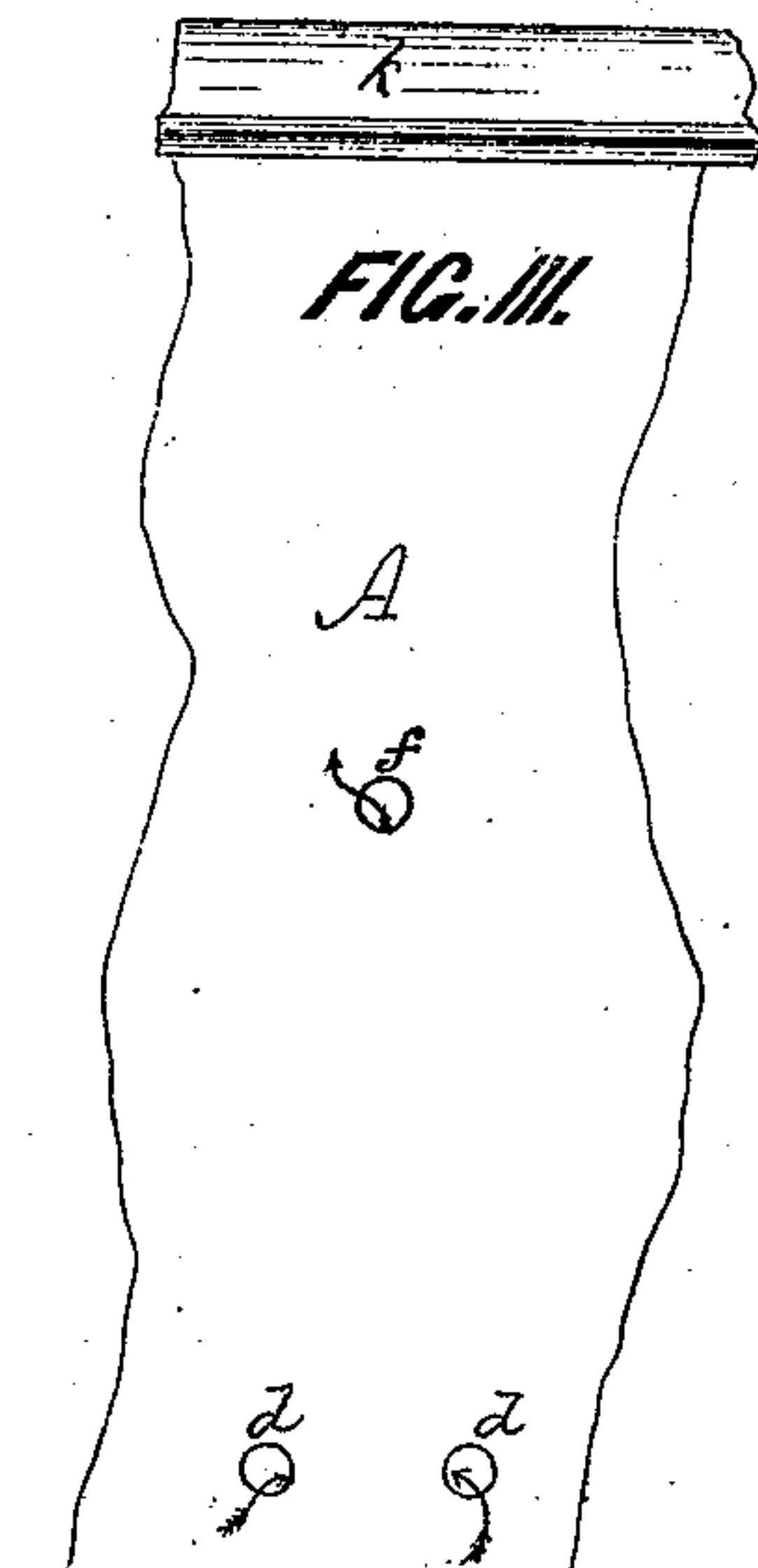
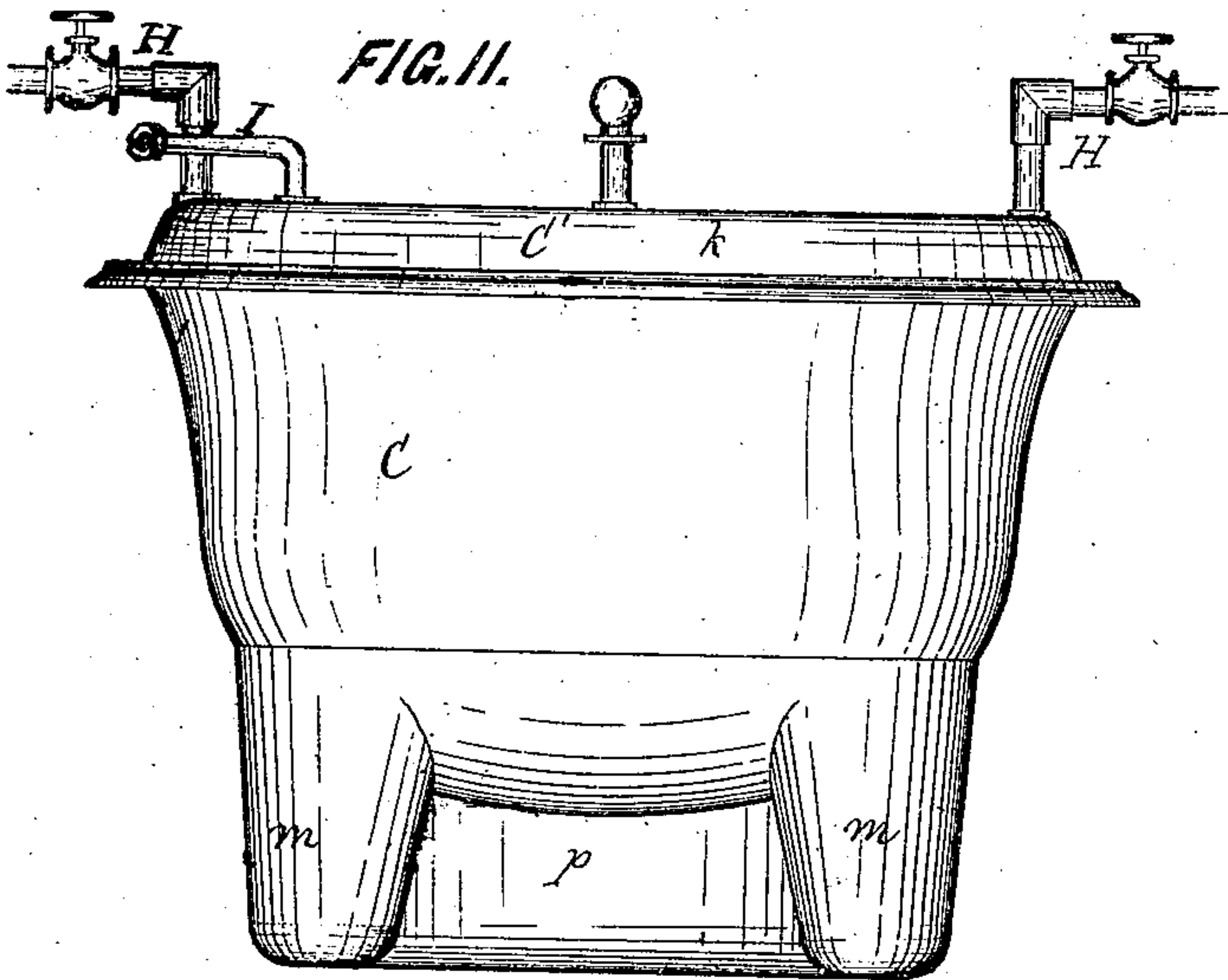
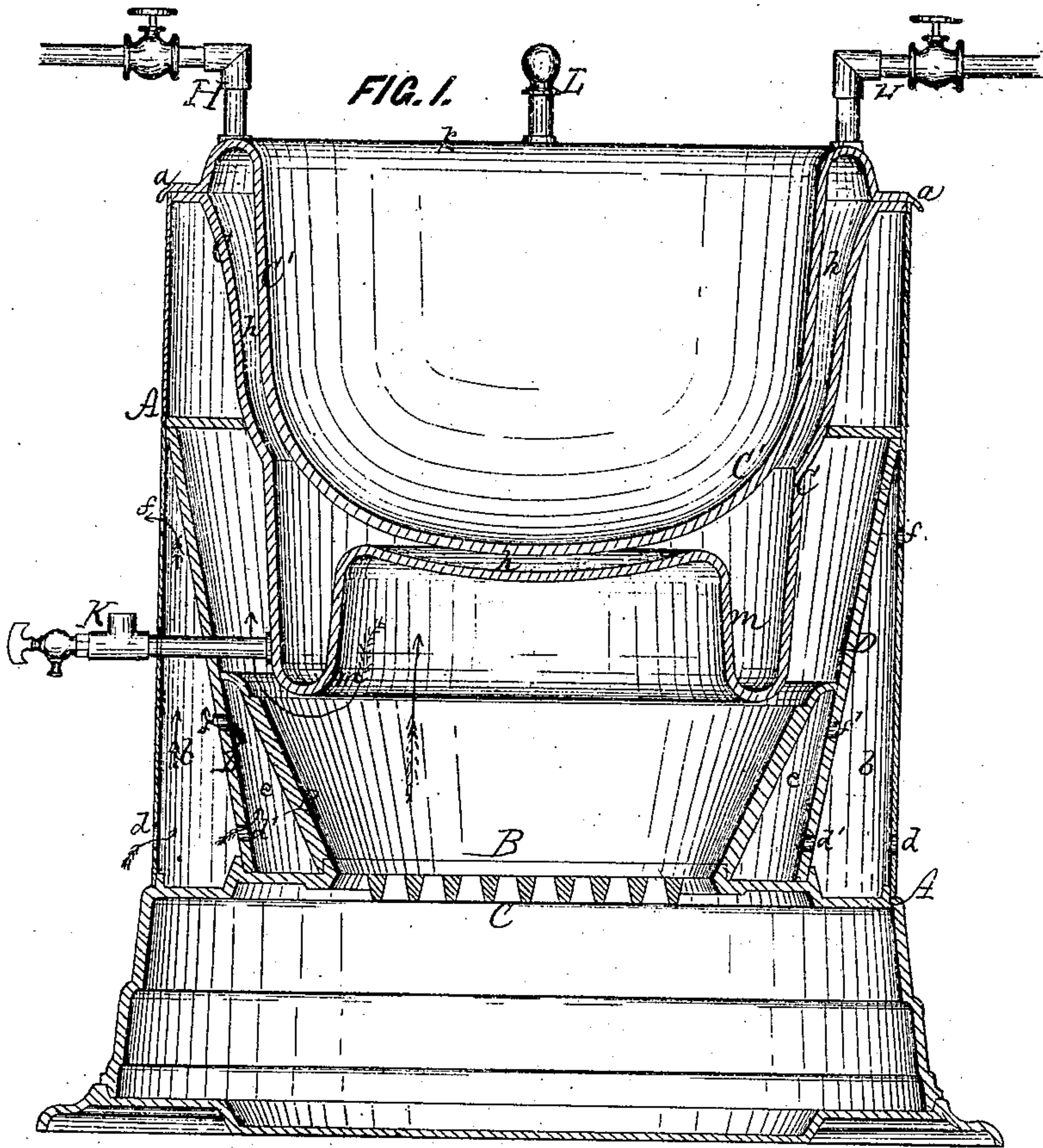


*Sill & Bennett,*

*Cauldron.*

*No. 102672.*

*Patented Nov. 29. 1870.*



*W. Barnes*  
*W. M. M. M.* } Witnesses.

Inventors  
*E. E. Sill*  
*A. H. Bennett*  
By *J. Fraser & Co*  
*attys*



# United States Patent Office.

EBENEZER E. SILL AND ALONZO H. BENNETT, OF ROCHESTER, NEW YORK

Letters Patent No. 109,679, dated November 29, 1870.

## IMPROVEMENT IN AGRICULTURAL CALDRONS.

The Schedule referred to in these Letters Patent and making part of the same.

*To all whom it may concern:*

Be it known that we, EBENEZER E. SILL and ALONZO H. BENNETT, both of the city of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Agricultural Caldrons and Steamers, of which the following is a specification.

### *Nature of the Invention.*

This invention consists in the construction of the furnace, whereby a double air-space with a compound circulation is attained; also in the construction of the caldron and steamer proper, as hereinafter described.

### *General Description.*

In the drawing—

Figure 1 is a central vertical section.

Figure 2, an elevation of the caldron and steamer proper, removed from the furnace.

Figure 3, a fragment of the outside of the furnace, showing the ventilating holes.

A represents the furnace, which is simply a vertical cylinder, made of cast or sheet metal.

It has the ordinary fire-pot B and grate E at the bottom, and is made open at the top, to admit the caldron and steamer, whose flange, *a*, rests on top.

The furnace is constructed with two air-spaces, *b* and *c*, the outer one being located between the outer cylinder and an intermediate metallic lining, D, and the inner one located between the said intermediate lining and the fire-brick or staves of the fire-pot B.

Both these air-spaces are angular, and the outer one of greater extent than the inner one, caused by carrying the intermediate lining D up half way or more of the height of the combined caldron and steamer.

Holes *d d* and *f*, respectively at the bottom and top of the space *b*, are made through the outer walls of the furnace into space *b*; and similar holes, *d' d'* *f'*, are made through the intermediate lining into the inner air-space *c*, as clearly shown in figs. 1 and 3.

By this means a compound circulation of the cold air is insured, viz.:

First, from the outside into the bottom, and through the top of the outer space; and

Second, from the space *b* to space *c* into and through holes *d' f'*.

This construction of the furnace, whereby the double air-spaces with the compound circulation are attained forms the first feature of our invention.

By this means not only the fire-pot, but also the intermediate lining and the outer cylinder, are protected against burning out under the intense heat.

Another advantage is that when the fire becomes low, the air-spaces *b c* surrounding the fire-pot have a tendency to keep it warm, and to preserve it from

exposure to the cold outer air, thus insuring a more uniform and sufficiently high temperature.

The caldron and steamer proper are constructed in two parts.

First, an outer shell, C, of proper form, to rest inside the furnace; and

Second, the caldron C', which rests in the shell, being made of sufficiently smaller size to leave a jacket-space, *h*, which forms the water and steam-space for the steamer.

The caldron may be made of any desired form, but has a raised rim or bead, *k*, at the top, for the attachment of the pipes; and also a depressed jacket or leg *m* at the bottom, which extends down into the fire-space below the caldron, and affords an extra capacity for the generation of steam.

The front side of this jacket is made open, as shown at *p*, for the purpose of allowing the feeding in of fuel through the furnace-door.

This special construction of the caldron and steamer constitutes the second feature of our invention.

The open-topped caldron allows free use without the necessity of removing a covering-dome; while the jacket-space, which retains a body of water, allows the generation of steam sufficient for the steaming of vegetables and food for animals, and for other purposes.

The jacket or leg *m*, extending down into the fire-space, not only furnishes an extra large fire-surface, but it also, by reason of its concave form, retains the flame and heat against a too rapid escape to the exit-flue, and thereby extracts the maximum amount of heat.

This form also serves to hold the gases at that point nearest the fire, whereby they become burned to a greater degree than if allowed to rise direct, in which case a large portion would escape, for the reason that it would escape at once above the temperature sufficient to burn it.

One or more pipes, H, lead from the top of the rim or bead *k*, to conduct the steam to the steaming receptacle.

A steam-pipe, I, also extends to a suitable feed-water apparatus outside the caldron, to equalize the back pressure produced by the steam through the feed-water pipe K, which also connects the jacket-space, at the bottom, with the feed-water apparatus.

Furthermore, a safety-valve, L, is used on top, to let off steam under undue pressure.

We are aware that air-spaces are common in various kinds of furnaces and stoves. We do not claim such broadly.

### *Claims.*

What we claim, and desire to secure by Letters Patent, is—

1. The arrangement in the furnace A of the two

air-spaces *b* and *c*, separated by the intermediate lining *D*, the outer space being of greater extent than the inner one, and the two having a compound circulation of air, by means of the passages *d d f* and *d' d' f'*, the whole operating in the manner, and for the purpose specified.

2. The shell *C*, constructed of such shape as to fit the open-topped furnace, and provided with the depending leg *m*, forming a water-space below the caldron, and having the opening *p* in front, in the manner, and for the purpose specified.

3. The combination of the open-topped caldron *C*

and jacket *C'*, formed as herein described, the said parts being arranged with the jacket-space *h* between the walls, and with the depending leg *m*, forming an extra water-space below the caldron, as herein described.

In witness whereof, we have hereunto signed our names in the presence of two subscribing witnesses.

EBENEZER E. SILL.

ALONZO H. BENNETT.

Witnesses:

JAS. E. CHENEY, Jr.,

G. WILLM. MIATT.