

## Heating Stove.

**2 Sheets—Sheet 1.**

**No. 5,968.**

**Patented Dec. 12, 1848.**

c. Fig. 1.

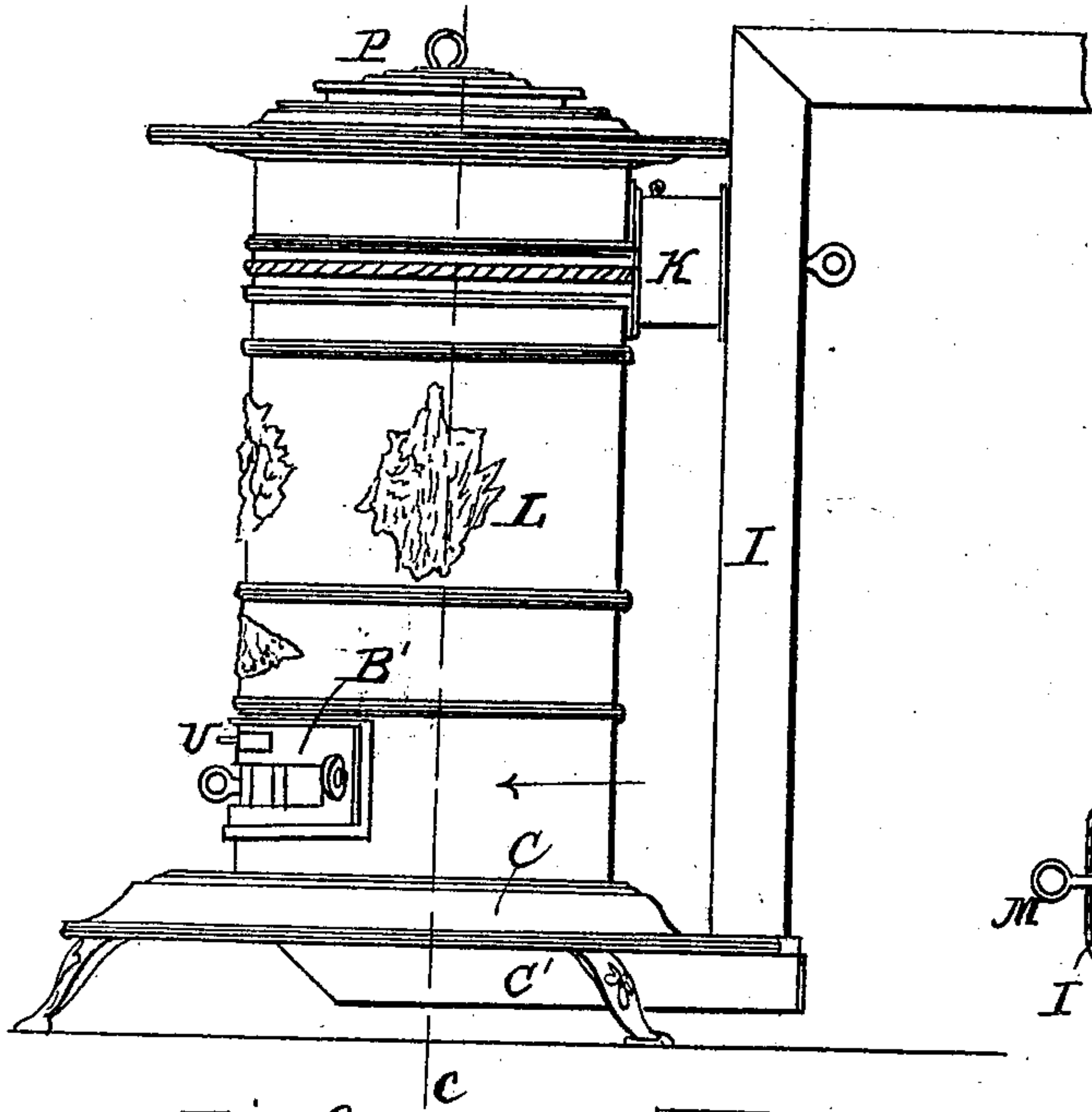
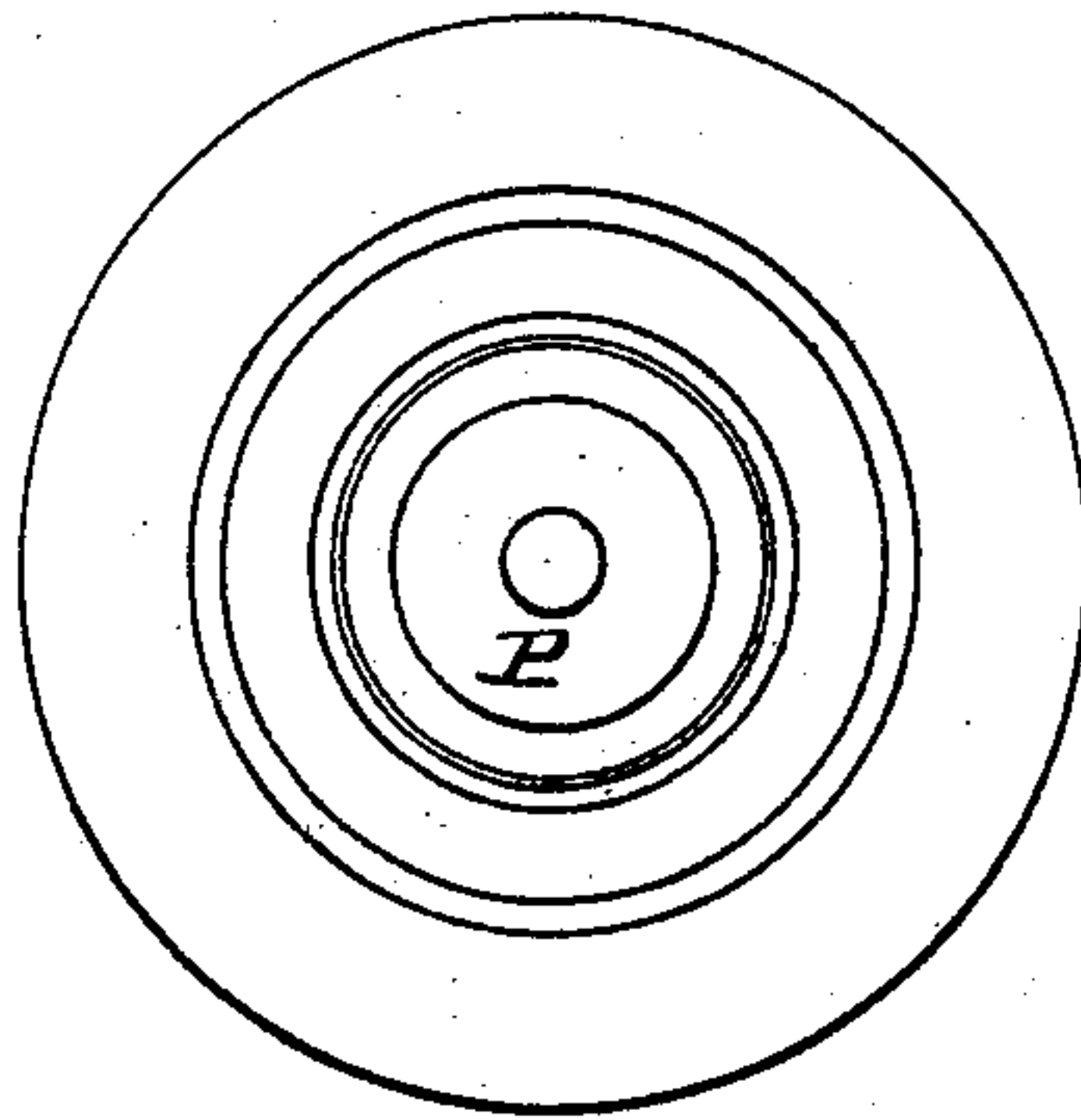


Fig. 4.



*Fig. 5.*

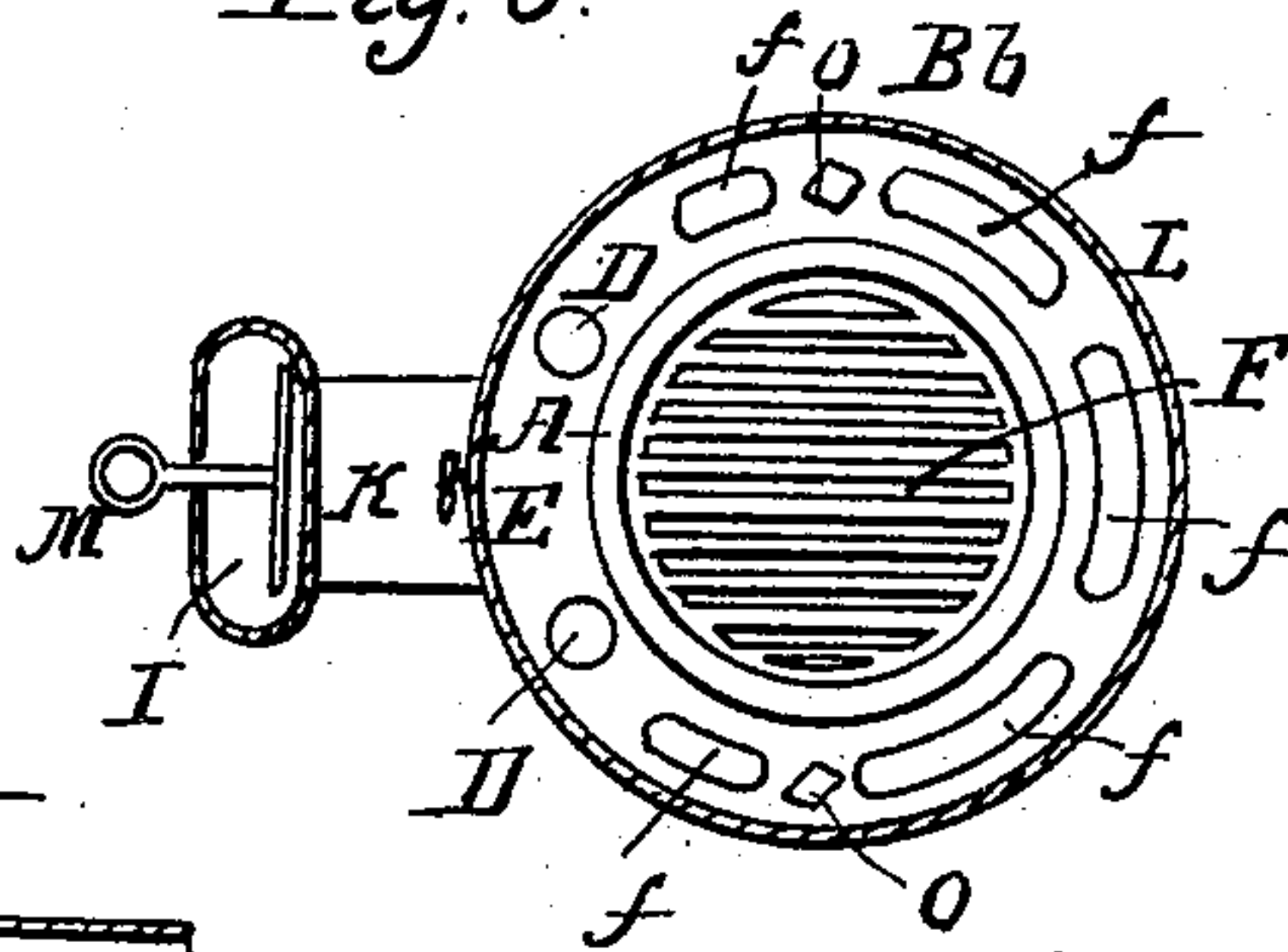


Fig. 2.

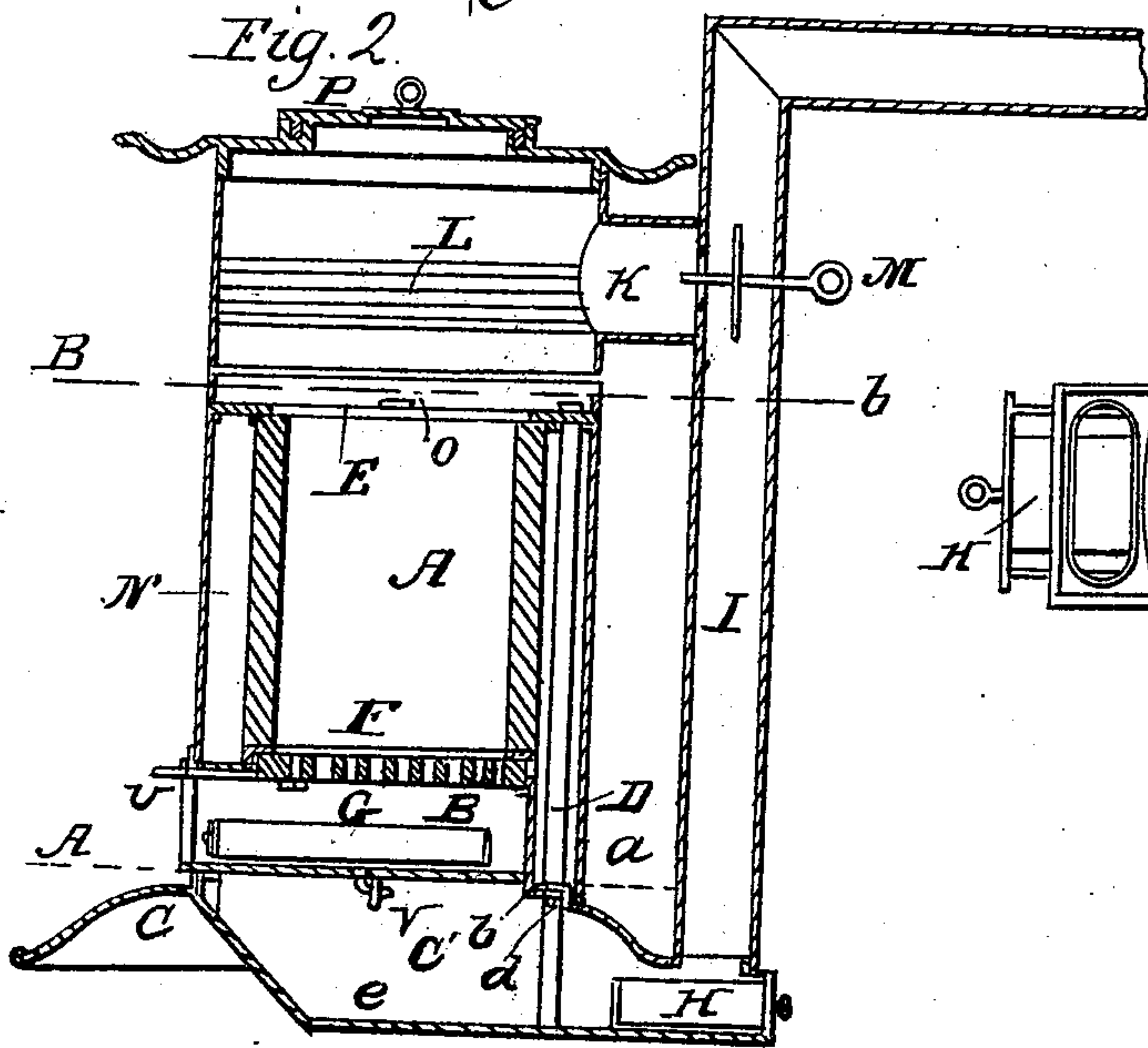
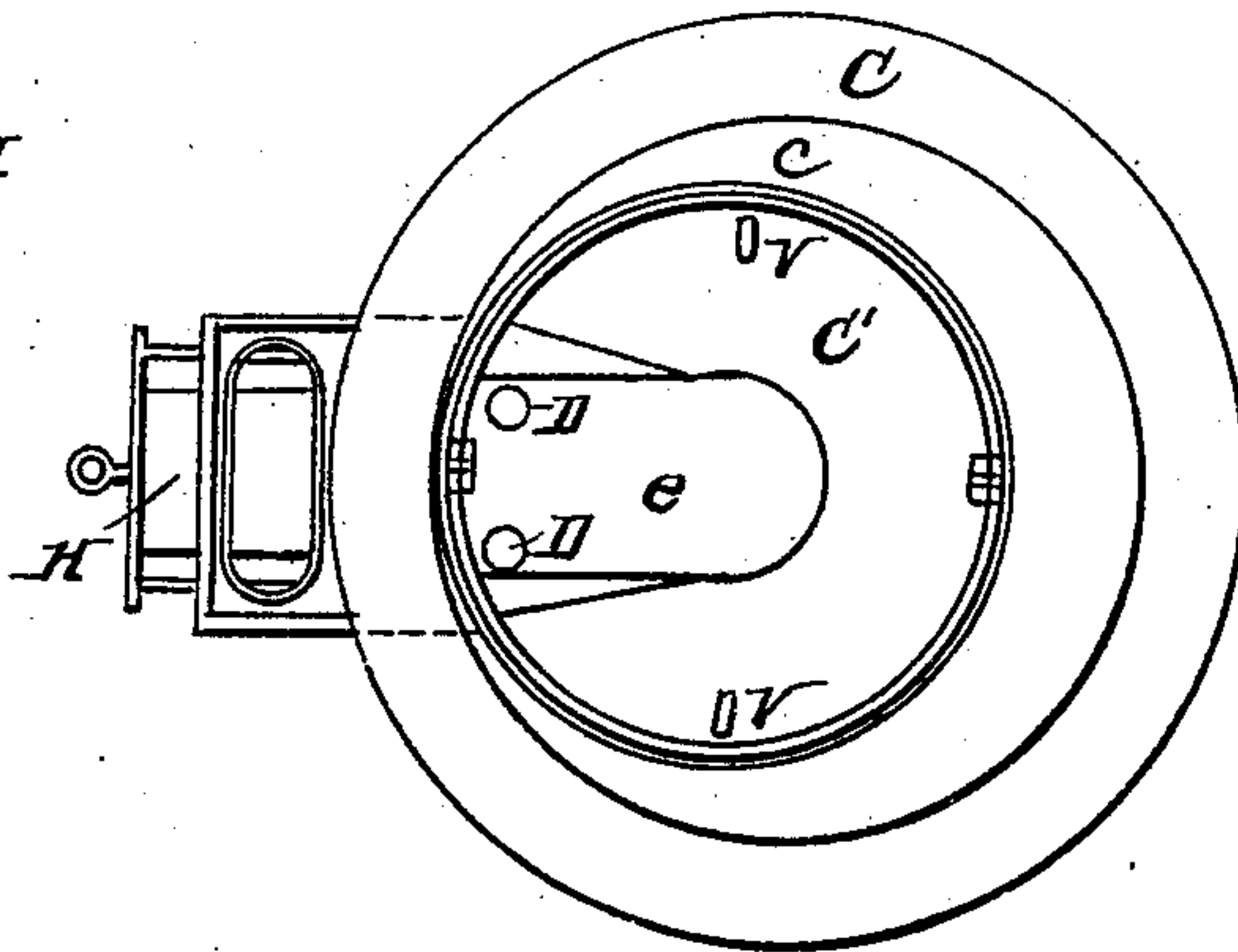


Fig. 3. A. a.

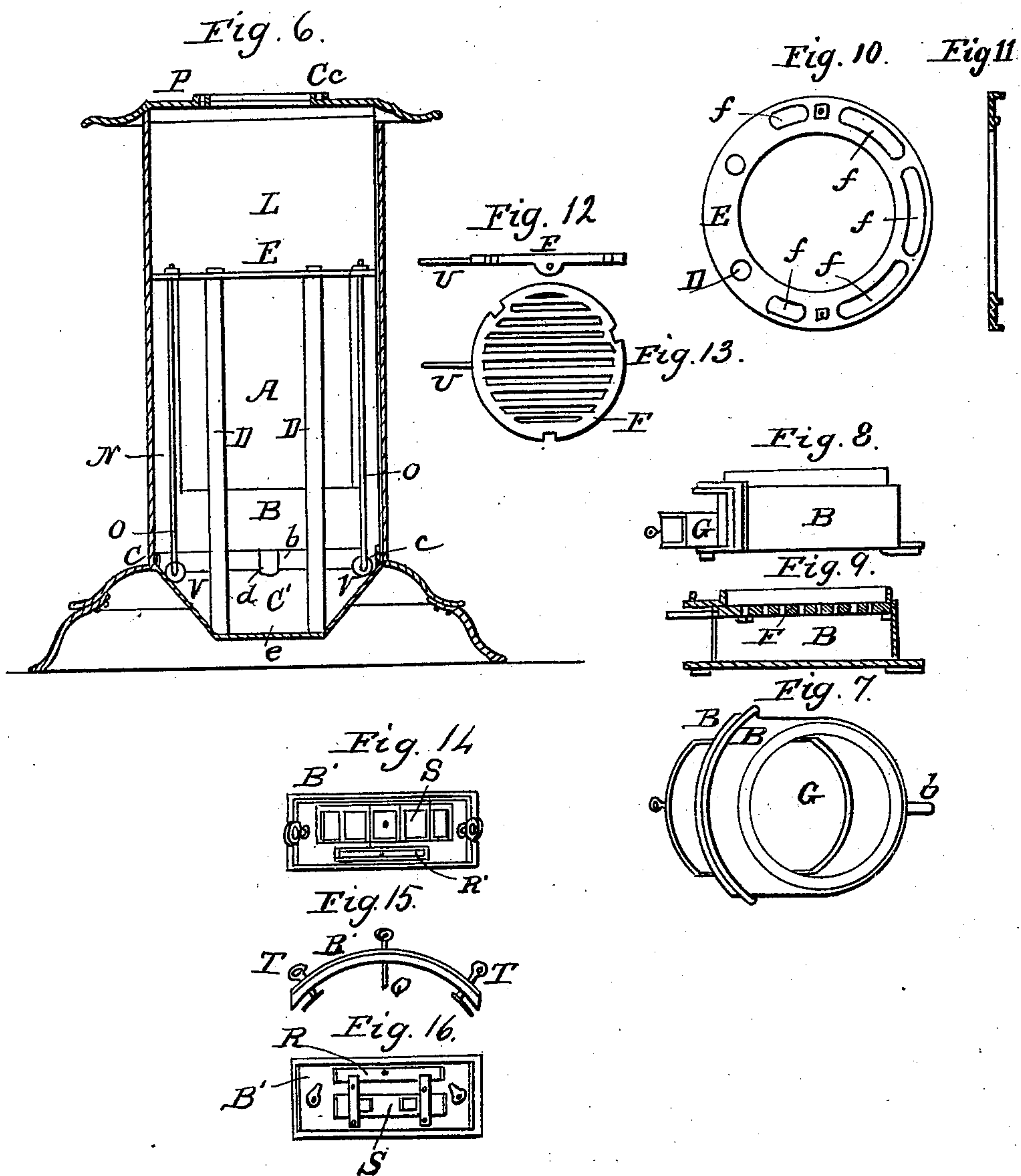


G. E. WARING.  
Heating Stove.

2 Sheets—Sheet 2.

No. 5,968.

Patented Dec. 12, 1848.





# UNITED STATES PATENT OFFICE.

GEO. E. WARING, OF STAMFORD, CONNECTICUT.

## PARLOR-STOVE.

Specification of Letters Patent No. 5,968, dated December 12, 1848.

*To all whom it may concern:*

Be it known that I, GEORGE E. WARING, of Stamford, in the county of Fairfield and State of Connecticut, have invented new and useful Improvements in Air-Tight Parlor-Stoves for Coal, and that the following is a full, clear, and exact description of the principle or character which distinguishes them from all other things before known and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation of the stove; Fig. 2, a vertical section; Fig. 3, a horizontal section taken at the line (A a) of Fig. 2; Fig. 4, a top view; and Fig. 5 a horizontal section taken at the line (B b) of Fig. 2; Fig. 6, an elevation of the inside of the stove with the outer cylinder in section at the line (C c) of Fig. 1; Figs. 7, 8, and 9, plan, vertical section, and elevation of the ash pan separate from the stove; Figs. 10 and 11, plan and section of the plate at the top of the fire chamber for the distribution of the hot air and draft; Figs. 12 and 13 plan and elevation of the grate; and Figs. 14, 15, 16, outside elevation, plan, and inside elevation of the front of the ash pan.

The same letters indicate like parts in all the figures.

In my improved stove the fire chamber is a vertical cylinder, with a grate at bottom, placed within an external radiating cylinder; and on top of an ash pan that rests on the base of the stove and surrounded on all sides, except an opening in front, by the radiating cylinder, which communicates with the base of the stove on which the cylinder and ash pan rest, the said base being sunken to form a smoke and draft passage to the exit pipe at the lowest part of the stove. The space between the fire pot and the radiating cylinder is covered by a perforated ring to distribute the draft as it passes down, and to receive the ends of vertical hot air feeding pipes which discharge air for the combustion of the combustible gases evolved from the fire chamber where the draft turns over the upper edge of the fire pot, the air being heated in its passage through the vertical feed pipes by the products of combustion in passing down around them in the space between the fire pot and radiating cylinder and in the sunken base below the ash pan. By this arrangement not only is the

air for the combustion of the combustible gases heated to the required degree to insure the combustion of the combustible matter evolved from the fire chamber, but this second combustion, as it may be termed, takes place near to and in contact with the external radiating cylinder that it may give out the largest amount of heat, and at the same time pass under and all around the ash pan (except the delivery and draft aperture in front) to heat the air as it passes in and through the ash pan to feed the fire, and to throw out heat from the bottom of the base of the stove.

The grate is made to vibrate horizontally to shake out the ashes, and the handle for this purpose has heretofore been made to pass through a slot in the outer casing of the stove through which the ashes fly out into the room. To prevent this and at the same time admit of applying the shaking grate to an air tight stove I pass the handle of the grate through a hole in a plate that slides over the slot in the external casing of the stove.

In the accompanying drawings (A) represents the cylindrical fire pot, made in the usual manner, and fitted to a flanch on the top plate of the ash pan or ash chamber (B), the aperture within the flanch being provided with a horizontally vibrating grate (F). This ash pan is semi-circular at the back to correspond with the form of the fire pot, and runs out with parallel sides to, and through the front of the stove and is there provided with a movable front plate (B') secured in place by turn buttons (T T). The handle (U) of the grate passes through a hole in a plate (R) that slides in brackets against the inner face of the plate (B') to cover a slot (R') in the said plate that the grate may be vibrated and yet prevent the escape of ashes or the undue ingress of air that the stove may be used on the air tight principle. The pedestal (C) of the stove (resting on legs in the usual manner), is provided with a flanch (c) on which fits the lower end of the radiating cylinder (L) that surrounds the fire pot, and the front part of the ash pan (B) rests on this same flanch while the rear part is supported by a bracket (b) that fits into a recessed projection (d) of the pedestal. That part of the pedestal within the flanch is sunken as at (C') in the form of an inverted frustum of a cone, the bottom plate (e) of which runs back beyond



the periphery of the pedestal to form a flue leading to the exit pipe (I), the conical sides of this recessed part being curved and run back to form the sides and end of the said flue. The chamber (N) between the radiating cylinder and the fire pot is covered with a cap plate (E) that rests on the upper edge of the fire pot, and the whole is then screwed together by means of screw rods (O, O), connected at bottom with staples (V, V) in the sunken base and passed through the cap plate with screw nuts at top.

The hot air pipes (D, D) fit into open collars cast in the sunken base of the pedestal and pass up through the chamber (N) between the fire pot and the radiating cylinder, and thence through holes in the cap plate to deliver the air at the top of the said cap plate, so that the air that enters these pipes at the bottom is highly heated in its passage upward for the inflammation of the combustible gases evolved from the fire in the fire pot, which gases, thus inflamed together with the other products of combustion pass down through the apertures (f) in the cap plate and pass down the chamber (N) around the fire pot, and around the ash pan (B) and under it, circulating through the sunken part (C') of the pedestal and out into the exit pipe (I), in this way giving out its heat through the cylinder and sunken pedestal to the room and at the same time heating the air that passes up the feed pipes (D) and that which passes through the ash pan to supply the combustion on the grate. In this way all the air to supply the combustion in every part of the stove is previously heated, thereby economizing fuel. As the front part of the ash pan passes through the chamber (N) the direct downward passage of the draft from the fire pot to the sunken base is cut off at this part and therefore the better to distribute the heat and draft around the fire pot the holes in the cap plate (E) through which the draft passes are mainly in front over that part of the ash pan which extends through the radiating cylinder, that the draft may pass down in front and then around and under the ash pan to the exit pipe. By this arrangement the direction of the draft not only distributes the heat equally and heats all the air required to feed the combustion, but also carries down all the soot, ashes, &c., and deposits them in the bottom of the sunken base,

where, by reason of the inclined sides, they are deposited in a small space from whence they can be removed by drawing out the soot drawer or pan (H) let in through the rear end of the bottom flue.

The top of the radiating cylinder (L) is provided with a cap plate (P) ornamented in any desired manner, and near the upper end the said radiating cylinder is provided with a short pipe (K) and damper (M) which when open carries the draft directly out from the fire pot into the exit pipe for the purpose of kindling the fire. The ash pan may for convenience be provided with an ash drawer (G) in the usual manner. I also contemplate making the exterior casing of the stove of an oval form, to admit of the insertion through the top and bottom of two vertical tubes for the purpose of heating a current of air in its ascent.

I am aware that stoves have heretofore been made with a radiating cylinder surrounding the fire pot, for the downward passage of the draft between the two, and that the draft has been made to circulate in the base or pedestal of the stove; but I am not aware that these have been so arranged as to carry the draft around and under the ash pan to heat the bottom as well as the sides thereof and to heat the entire bottom of the pedestal and to deliver the soot and other solid matter carried out of the fire pot by the draft, into the bottom thereof that it may be easily removed, at the same time causing the draft in the chamber between the fire pot and radiating cylinder and in the flue leading to the exit pipe to circulate around the feed pipe and thus heat to a high degree the air that supplies the combustion of the combustible gases evolved, that the intense heat produced by their combustion may be used as the means of heating this very air.

What I claim therefore as my invention and desire to secure by Letters Patent is—

Making the apertures in the cap plate for the draft mainly in the front part thereof, that is, over that part of the ash pan which passes through the radiating cylinder, substantially as herein described, the better to distribute equally the draft and the radiation of heat thereby produced.

GEO. E. WARING.

Witnesses:

WM. H. HOLLY,  
WILLIAM T. MINOR.