

(No Model.)

J. K. BROWN.
HEATER.

No. 445,010.

Patented Jan. 20, 1891.

Fig. 1.

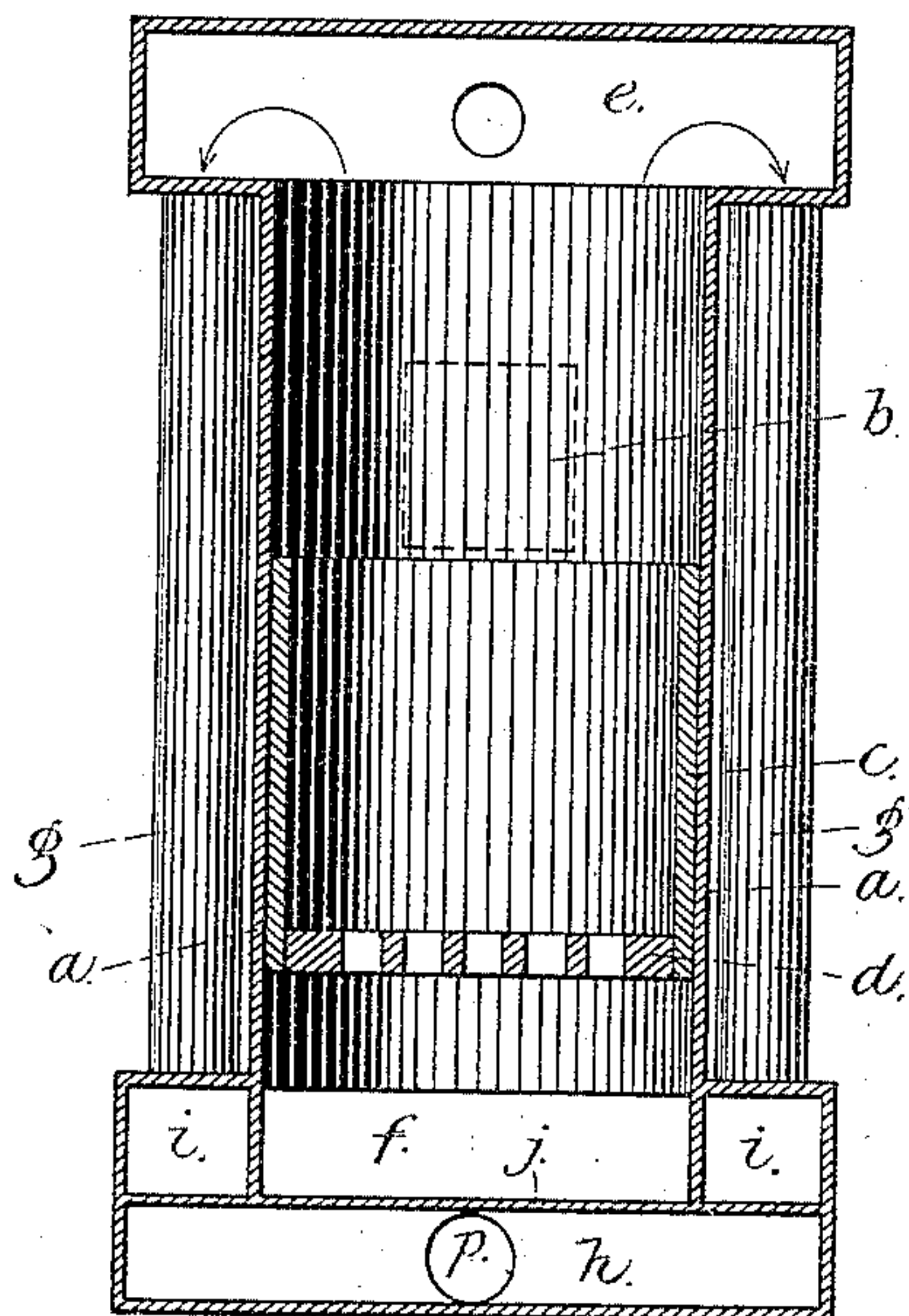


Fig. 2.

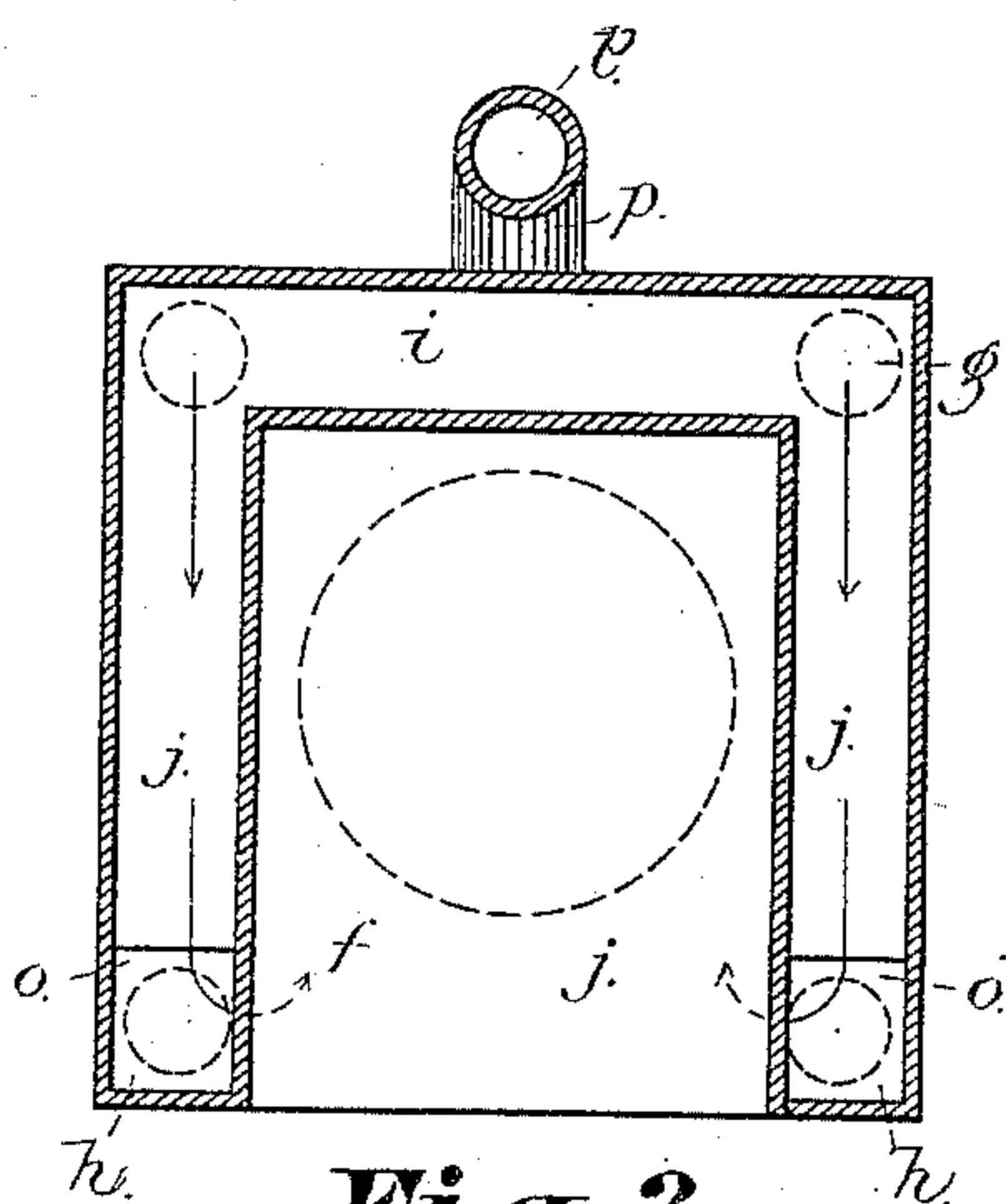
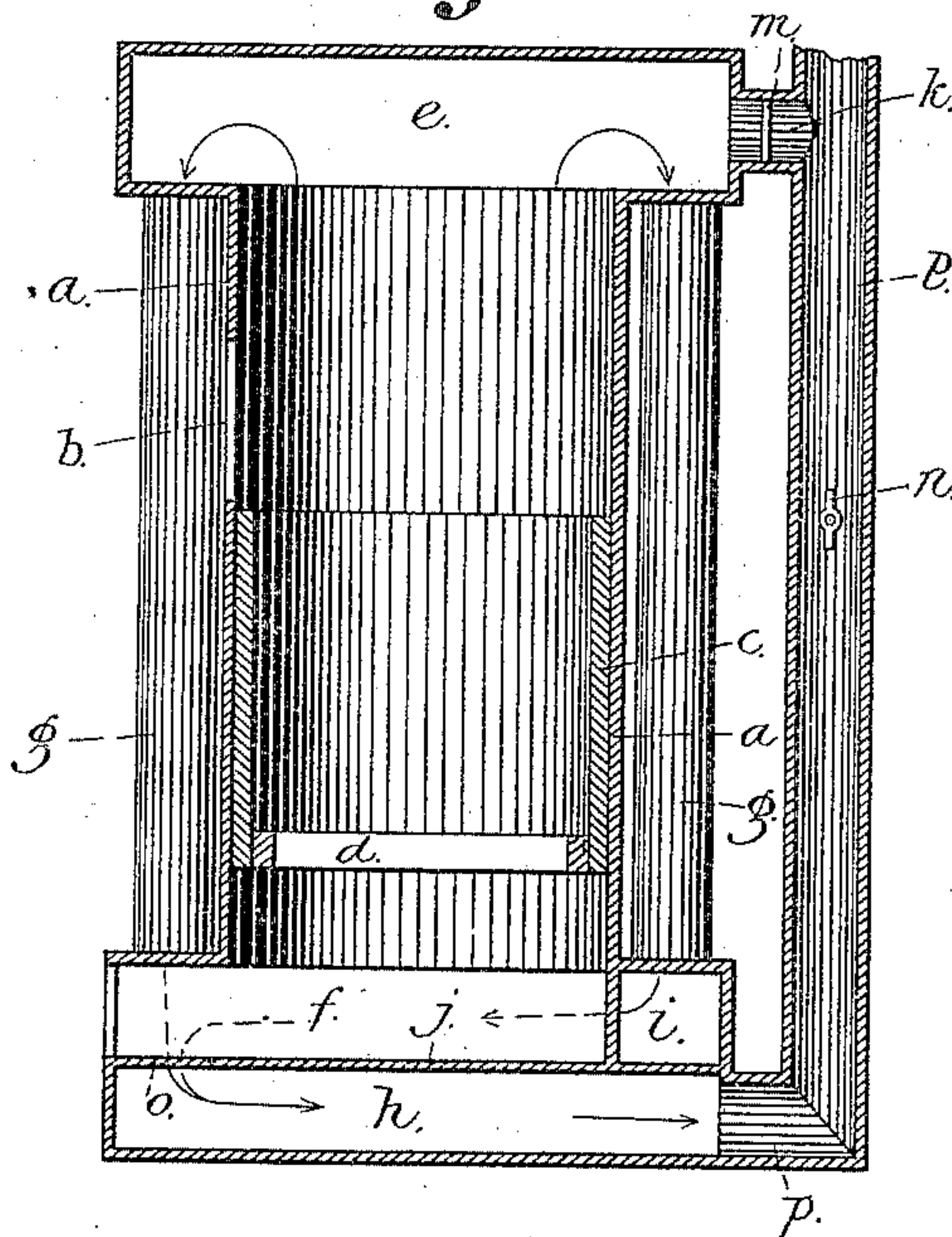


Fig. 3.

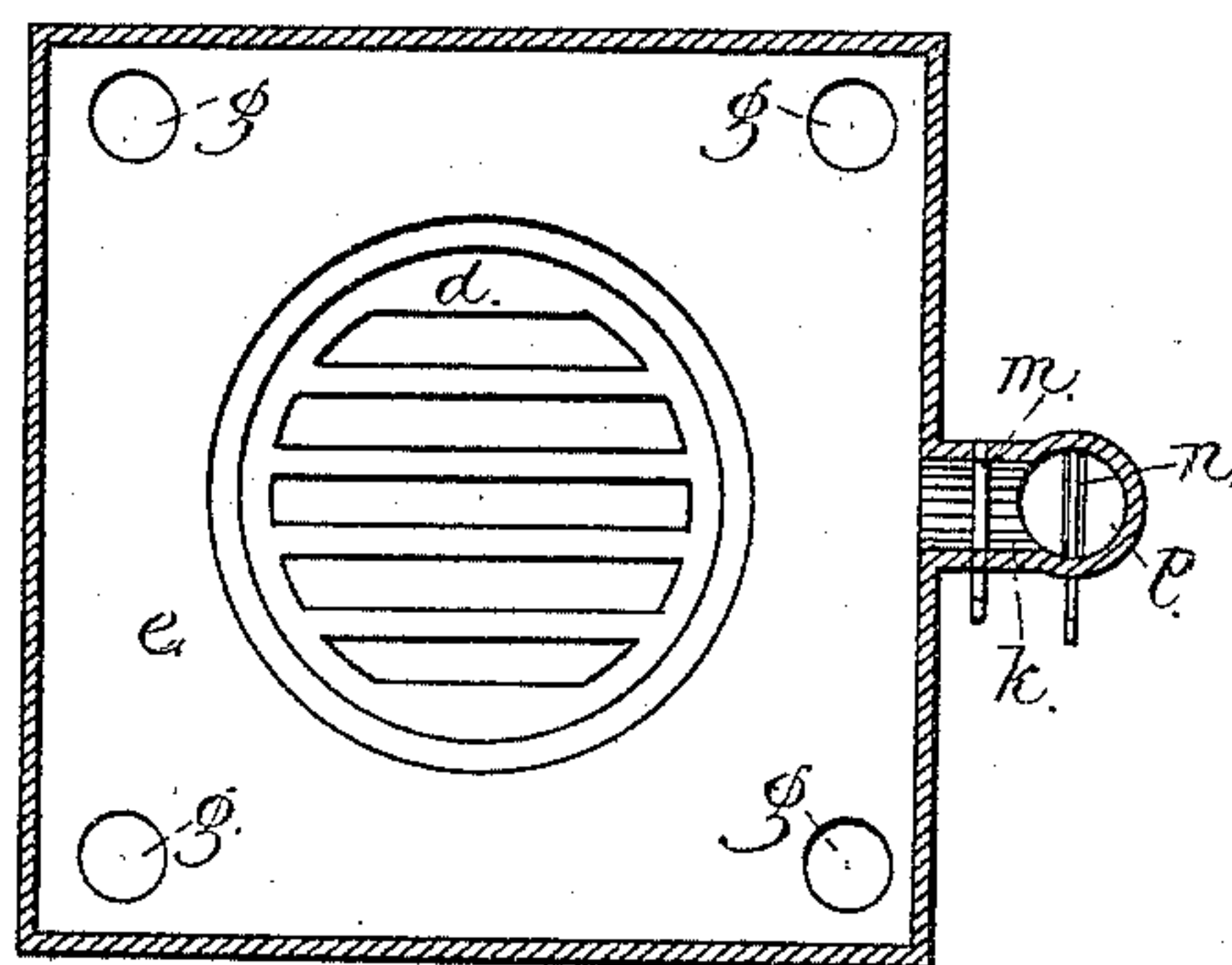


Fig. 4.

Witnesses:

William Henry Clifford.
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UNITED STATES PATENT OFFICE.

JAMES K. BROWN, OF PORTLAND, MAINE.

HEATER.

SPECIFICATION forming part of Letters Patent No. 445,010, dated January 20, 1891.

Application filed February 27, 1890. Serial No. 341,955. (No model.)

To all whom it may concern:

Be it known that I, JAMES K. BROWN, of Portland, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Heaters; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in heaters, and is designed to secure a more perfect radiation of the heat generated in the consumption of the fuel. This it accomplishes by the peculiar arrangement of the reservoirs and conduits, as hereinafter more particularly described.

In the drawings herewith accompanying and making a part of this specification, Figure 1 is a vertical section at right angles to the door and back pipe of my improved heater. Fig. 2 is a vertical section of same at right angles to Fig. 1. Fig. 3 is a horizontal section through the base and ash-pan, and Fig. 4 is a horizontal section through the reservoir.

Same letters refer to like parts in all these figures.

In said drawings, *a* represents the main part of the heater; *b*, the door therein; *c*, the lining, and *d* the grate. The combustion-chamber opens directly into the reservoir *e* at the top. Said reservoir may be of any size and shape, and projects beyond the sides of the combustion-chamber. Beneath the fire-box is a chamber *f* for the ash-pan, and beneath the ash-pan chamber is a chamber *h*, formed by the partition *j*, which forms the bottom of the ash-pan chamber and extends to the sides of the base. When thus arranged there is formed an intermediate chamber *i*, extending around the ash-pan chamber, except the front part thereof. At the front ends of the chamber *i* are openings *o*, which lead down into the chamber *h*. Leading from the chamber *h* is a back pipe *p*, and leading from the reservoir *e*, or directly from the fire-pit, is a direct-draft pipe *k*, opening into the back pipe.

In pipe *k* is a damper *m*, and in back pipe *p* is a damper *n*.

Leading from the hot-air reservoir *e* are hot-air conduits *g*, which open into the base of the stove, first extending downwardly outside of the body of the stove. It will be evident that these hot-air conduits may connect directly with the body of the stove, and thence lead down and into the base in any position outside of the body of the stove.

The operation of my improved heater is as follows: The heat generated by the combustion of the fuel passes from the body of the stove into the drum, thence through the conduits leading down outside the said body, thence into the chambers beneath the fire-box, thus keeping the base of the stove hot, the gases that are not consumed passing off through the back pipe *p*. When it is desirable to have a direct draft, the damper *m* is opened. The great advantages of this arrangement is evident. The radiating-surface is very largely increased, including not only the body of the stove itself, but also the reservoir *e*, the conduits *g*, and the entire base except the space occupied by the ash-pan. The hot air and gases passing out of the fire-box and into the outside conduits and base permits the heat to be nearly all radiated, and yet admits of having an opening in the back pipe sufficient to allow all the gases not consumed to escape, thus saving the heat and obviating all danger from explosions due to the accumulation of gases. By causing the hot air from the reservoir at the top to pass down through the pipes, and thence to circulate around the outer edge of the base through the chamber *i*, and thence through openings near the front of said chamber into the chamber beneath the ash-pan, the base of the stove is kept warm much better than it would if the products passed directly from the pipes into the chamber beneath the ash-pan, out of which leads the escape-flue.

Having thus described my invention and its use, what I claim, and desire to secure by Letters Patent of the United States, is—

In a heater, the combination, with a fire-box, of a reservoir in direct communication with said fire-box, a chamber in the base

around the outside except at the front, flues
leading from said chamber near the front into
the chamber out of which leads the escape-
flue, and pipes leading from said reservoir to
5 the intermediate chamber, as and for the pur-
poses set forth.

In testimony that I claim the foregoing as

my own I affix my signature in presence of two
witnesses.

JAMES K. BROWN.

Witnesses:

SANFORD T. HUNT,
FRANK H. VERRILL.