

(No Model.)

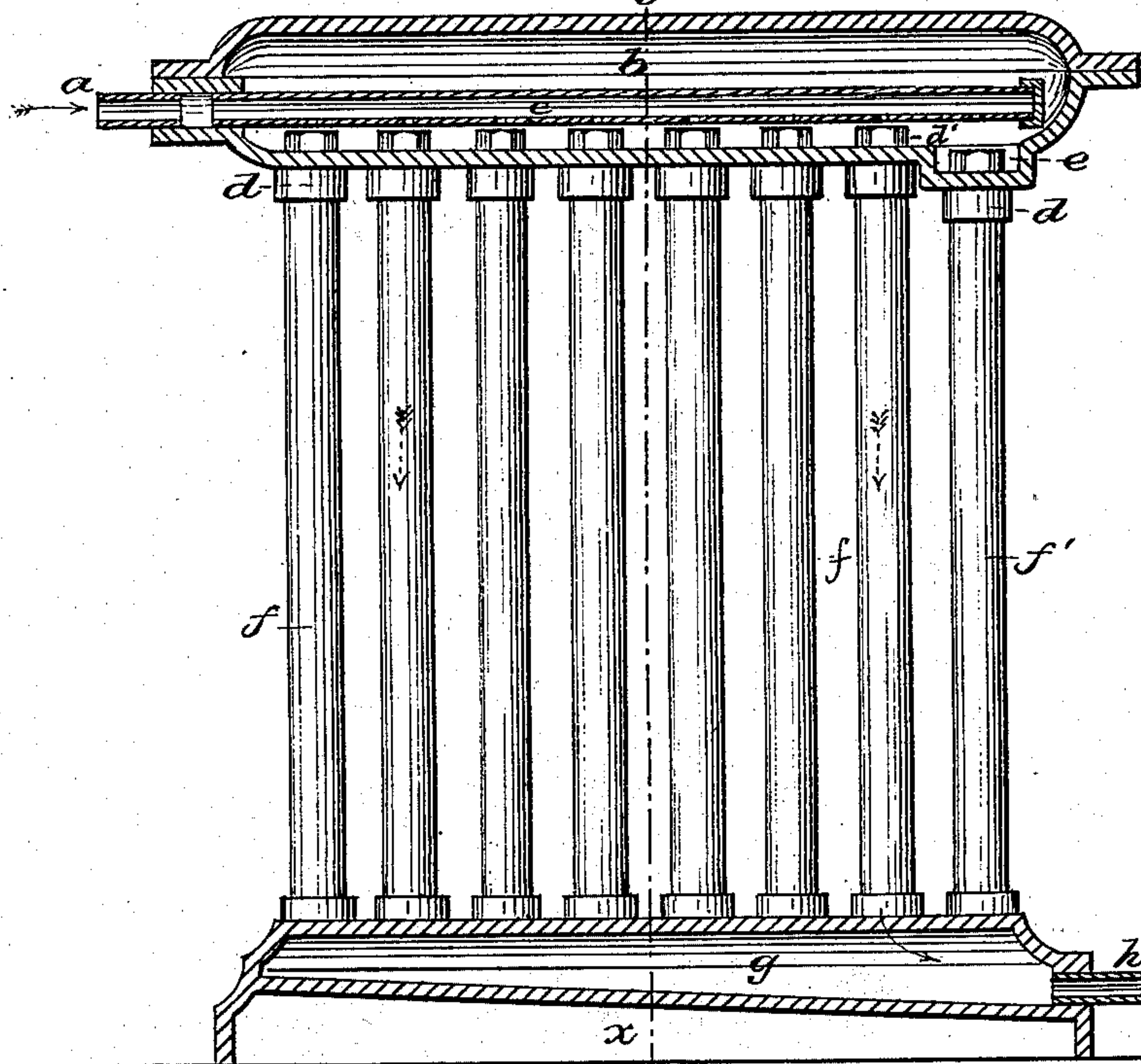
J. CHAPMAN & R. BRASS.

STEAM RADIATOR.

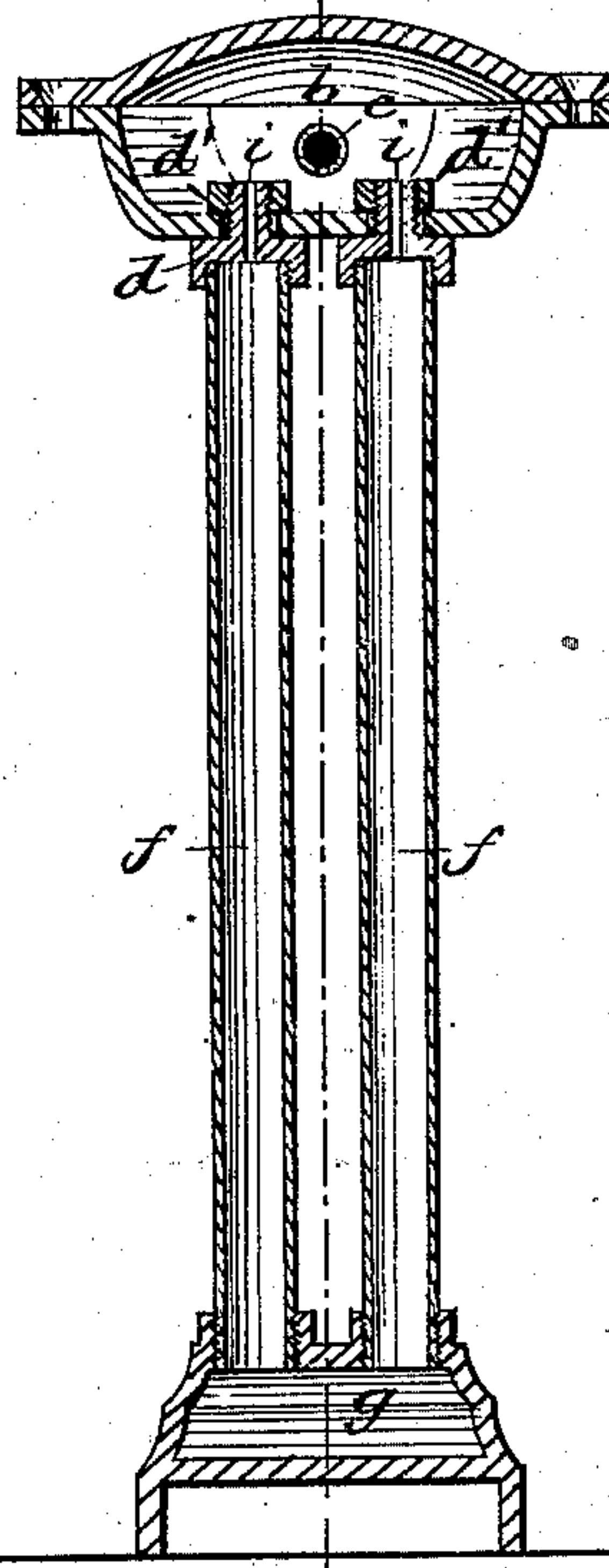
No. 258,374.

Patented May 23, 1882.

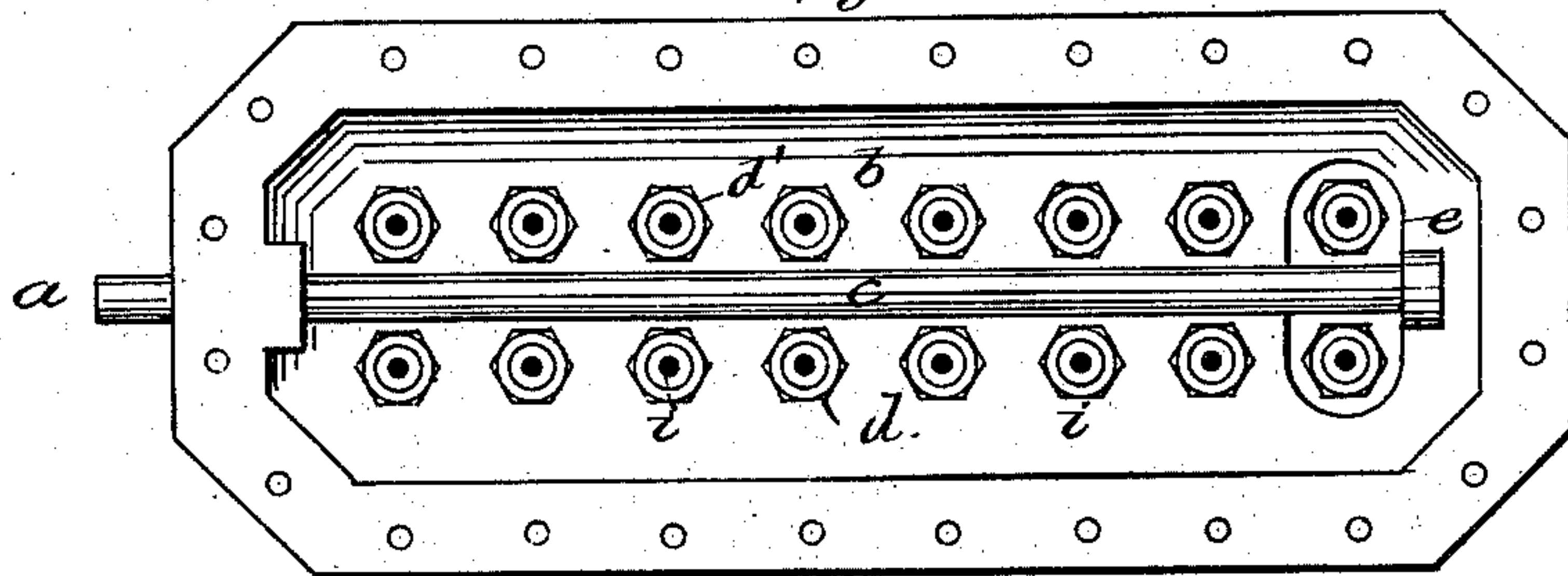
*Fig. 1.*



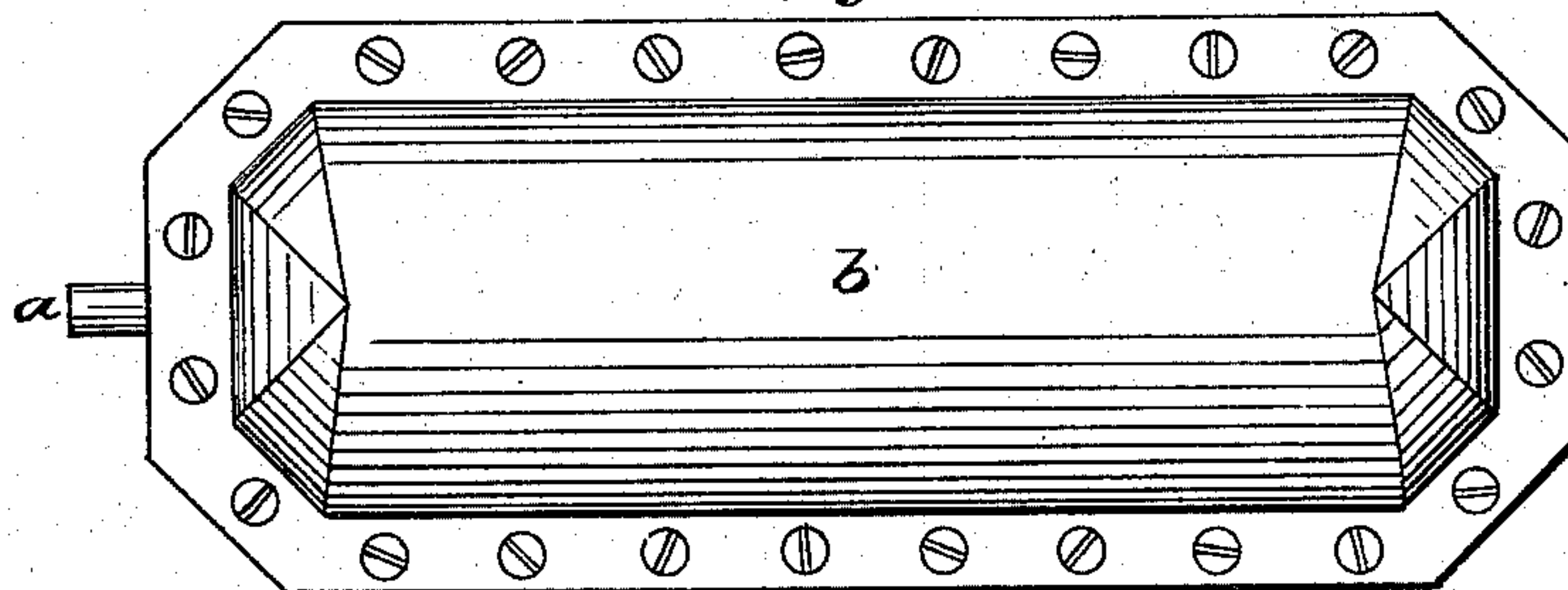
*Fig. 2.*



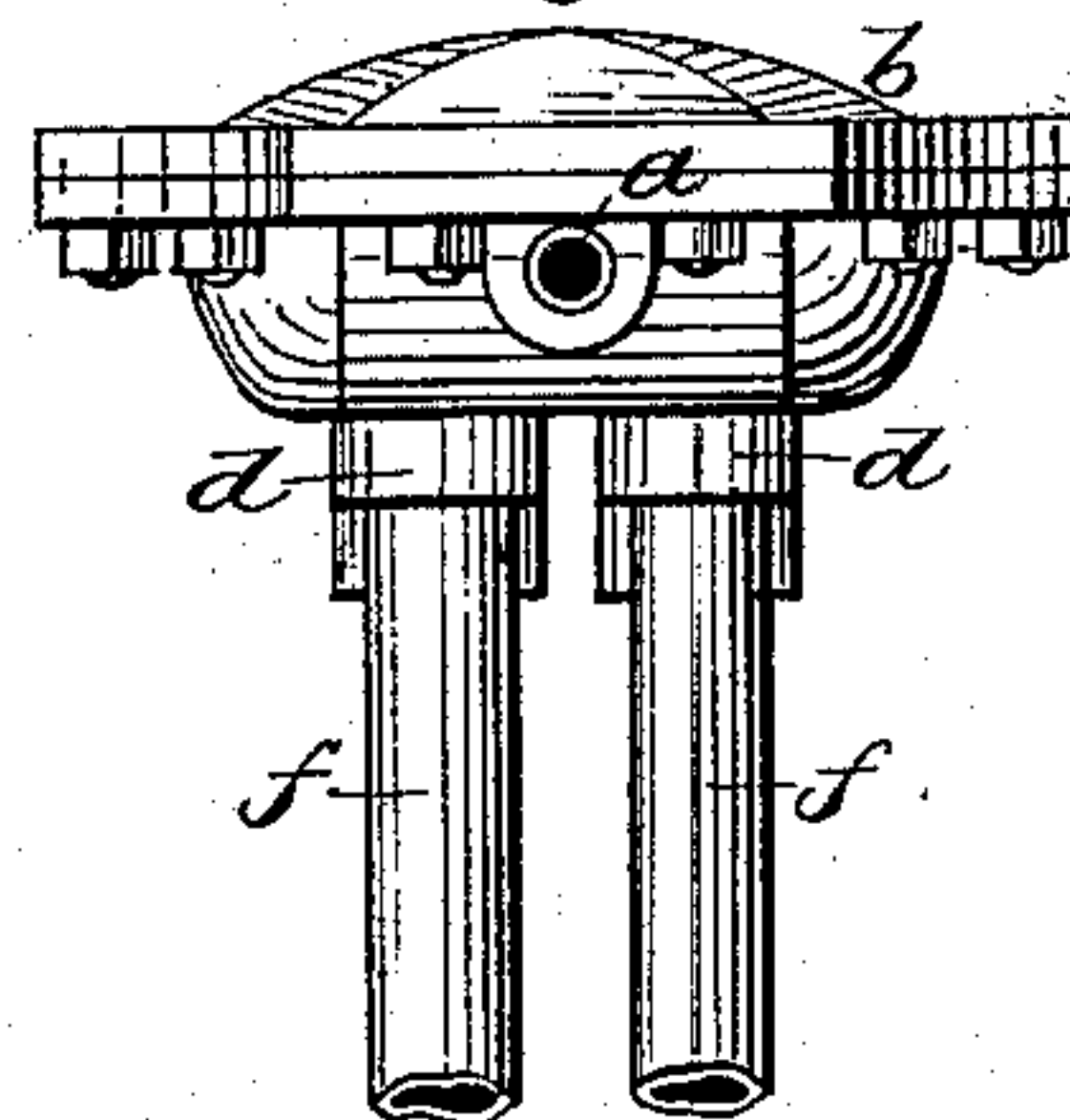
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



WITNESSES

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# UNITED STATES PATENT OFFICE.

JOHN CHAPMAN AND ROBERT BRASS, OF BROOKLYN, NEW YORK.

## STEAM-RADIATOR.

SPECIFICATION forming part of Letters Patent No. 258,374, dated May 23, 1882.

Application filed December 17, 1881. (No model.)

*To all whom it may concern:*

Be it known that we, JOHN CHAPMAN and ROBERT BRASS, citizens of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Steam-Radiators; and we 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.

Our invention relates to certain new and useful improvements in steam-radiators. It has for its objects to effect a more perfect circulation of the steam with consequent greater radiation, and the further object of the perfect discharge of air and products of condensation, so as to prevent the annoyance of the usual thumping or hammering noise.

Our invention also has for its objects to simplify the details of construction, as will be hereinafter set forth.

Our invention consists in the particular construction and arrangement of parts hereinafter described and specifically claimed.

In the drawings, Figure 1 is a central vertical section of a steam-radiator embracing the features of our invention. Fig. 2 is a transverse section taken on the line *x x*, Fig. 1. Fig. 3 is a top view with the cap of the upper receptacle removed. Fig. 4 is a top view with the cap in place, and Fig. 5 is an end view of the upper receptacle.

Similar letters indicate like parts in the several figures.

*a* is a steam-tight inlet-pipe connected to the upper steam-receptacle, *b*, within which is arranged centrally a horizontal steam-conduit pipe, *c*, provided with a series of exit-holes along its bottom, as clearly shown at Fig. 1.

*f* are the vertical pipes connecting the upper receptacle, *b*, and the lower receptacle, *g*. These pipes are screwed into the top of the lower receptacle, *g*, and are provided at their upper ends with nipples *d*, which are secured thereto by a screw-thread. The upper ends of the nipples pass through the bottom plate of the upper steam-receptacle, *b*, and are secured thereto by screw-nuts *d'*. The nipples *d* have a central vertical orifice, *i*, for the passage of the

steam from the receptacle *b* into the pipes *f*, and thence to the lower receptacle, *g*. A suitable washer is used, either between the shoulder of the nipple *d* and the under side of the bottom plate of the receptacle *b* or between the nut *d'* and said plate, to make a steam-tight joint. The nipples *d* and nuts *d'* necessarily project above the bottom plate of the receptacle *b*, and any products of condensation existing in said cylinder are therefore prevented from entering any of the tubes *f* except those two at the end nearest to the exit *h* in the bottom receptacle, *g*, and designated by letter *f'*; and in order that the products of condensation shall enter and be discharged through such two end pipes we form in one end of the receptacle *b* a downward projection to form a transverse trough, *e*, so that the nipples and nuts connecting the two pipes *f* at such point shall lie within or below the plane of the bottom of the remainder of the receptacle *b*, whereby all waters from condensation gravitate to the trough *e* and find their escape through the pipes at such point, and out of the exit-pipe *h* in the end of the lower receptacle, *g*, the bottom of which, to facilitate such exit, inclines, as clearly seen in Fig. 1, to said exit *h*. The top receptacle is made in two parts, and they are secured together by screw-bolts and nuts, as clearly shown at Figs. 4 and 5.

From the construction shown and described it will be seen that the steam enters at *a* into the pipe *c*, escaping into the top receptacle, *b*, which is heated by the radiated heat from pipe *c*, and also by direct heat of the escaping steam. All condensation gravitates through the openings in the bottom of pipe *c* down onto the bottom plate of the receptacle into the trough *e*, and thence through the two end pipes into the bottom receptacle, and is discharged at *h*, while the dry steam circulates through the balance of the pipes *f* between the upper and lower steam-receptacles, *b g*.

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

1. The top receptacle, *b*, and lower receptacle, *g*, connected by circulating-pipes *f*, secured within the bottom plate of the upper receptacle by nipples *d*, attached to the ends of the pipes by screw-threads, said nipples passing loosely

through the bottom plate of the receptacle and secured in place by nuts  $d'$ , whereby the joint may be packed, substantially as described.

2. The top and bottom receptacles connected  
5 by circulating-pipes  $f$ , secured by nipples  $d$  and nuts  $d'$ , projecting above the bottom plate of the receptacle  $b$ , in combination with the horizontal conduit-pipe  $e$ , arranged between the rows of pipes  $f$ , and provided with exits in the  
10 bottom thereof, as hereinbefore set forth.

3. The top receptacle,  $b$ , formed with a trans-

verse trough,  $e$ , below the bottom of the receptacle to receive the products of condensation, in combination with the end pipes,  $f'$ , and nipples, arranged as described, to receive the wa- 15  
ter and conduct it to the receptacle below, as set forth.

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Witnesses:

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