

(No Model.)

J. LIEDL.
RADIATOR.

No. 408,420.

Patented Aug. 6, 1889.

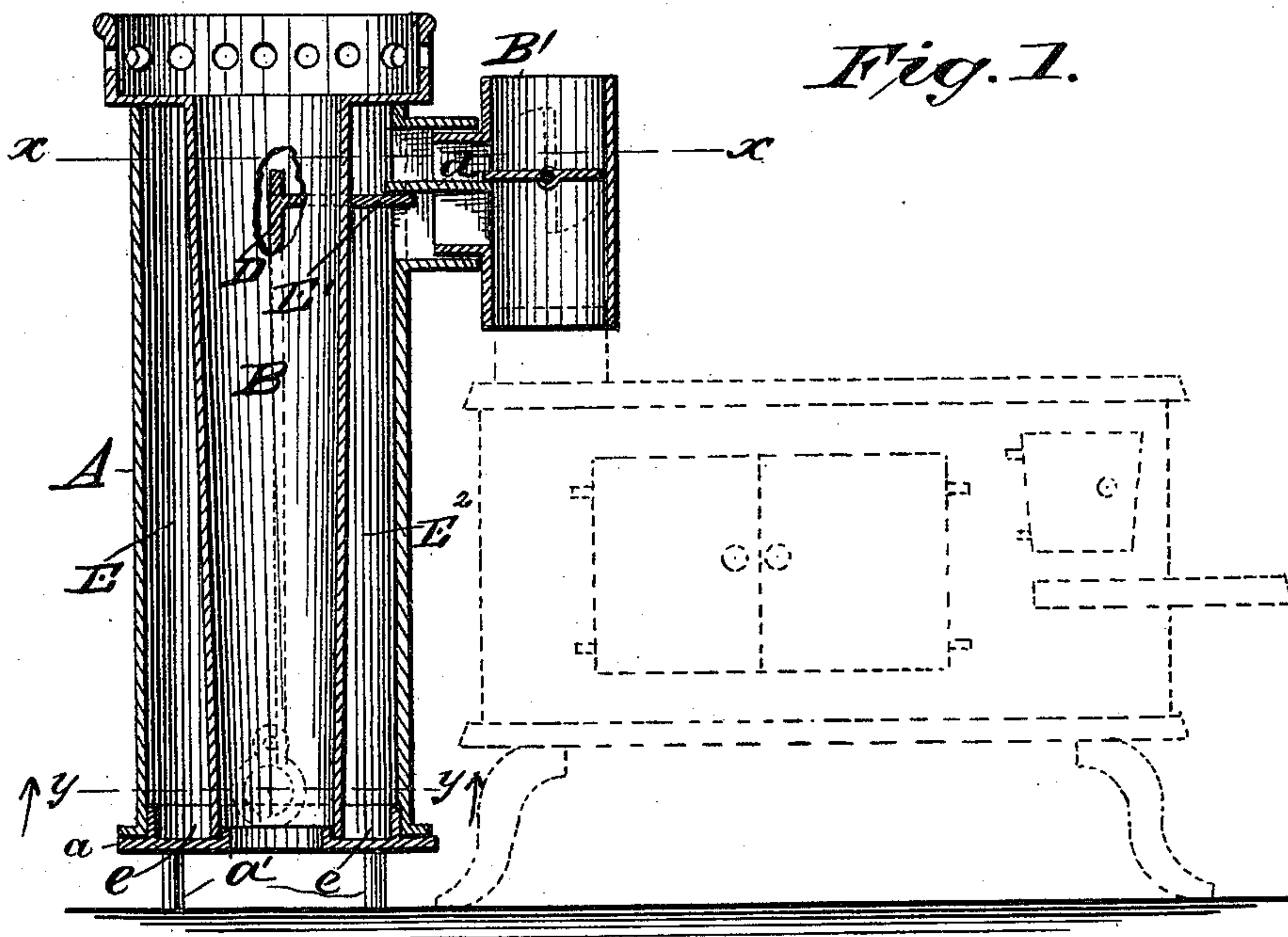


Fig. 2.

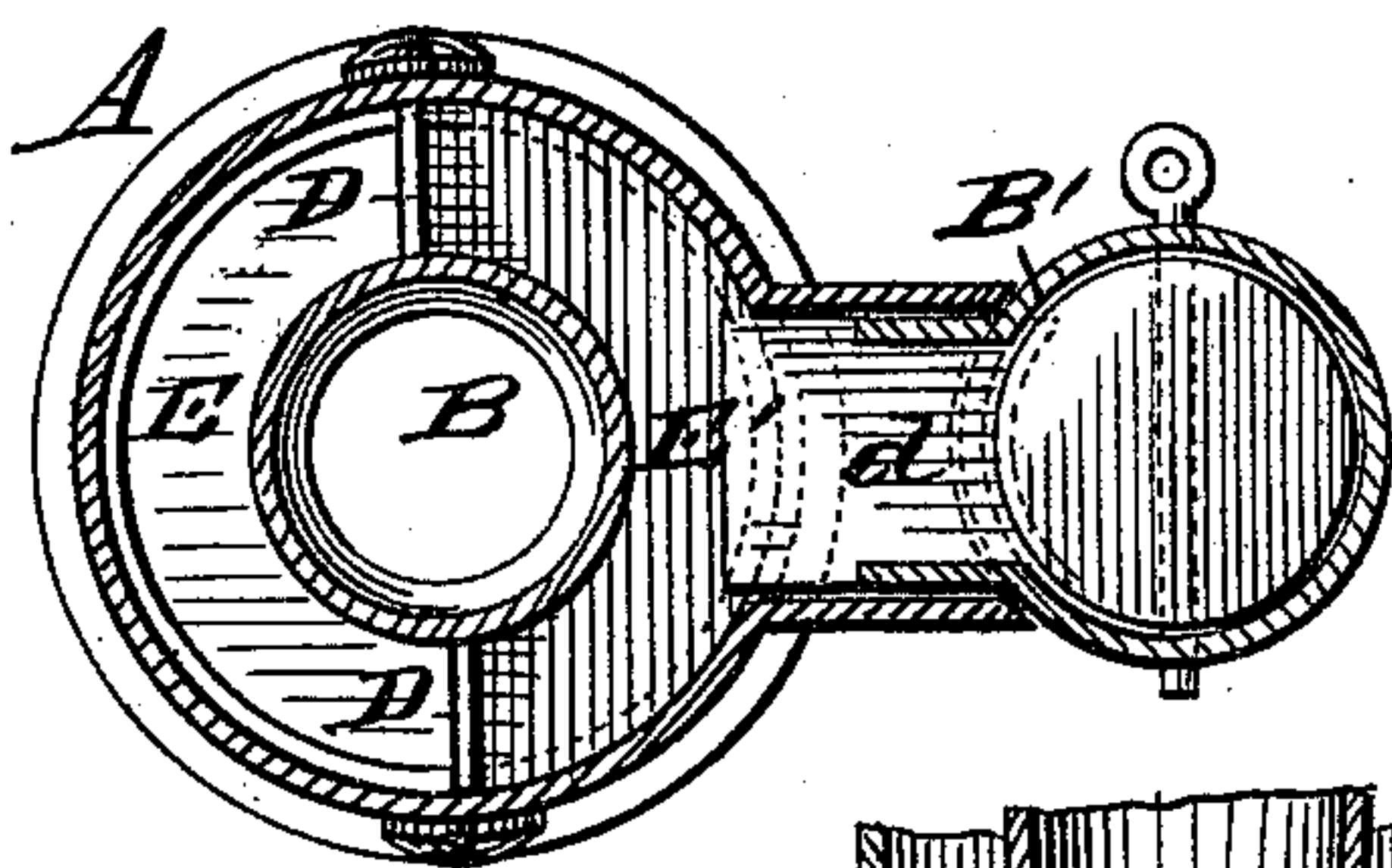


Fig. 3.

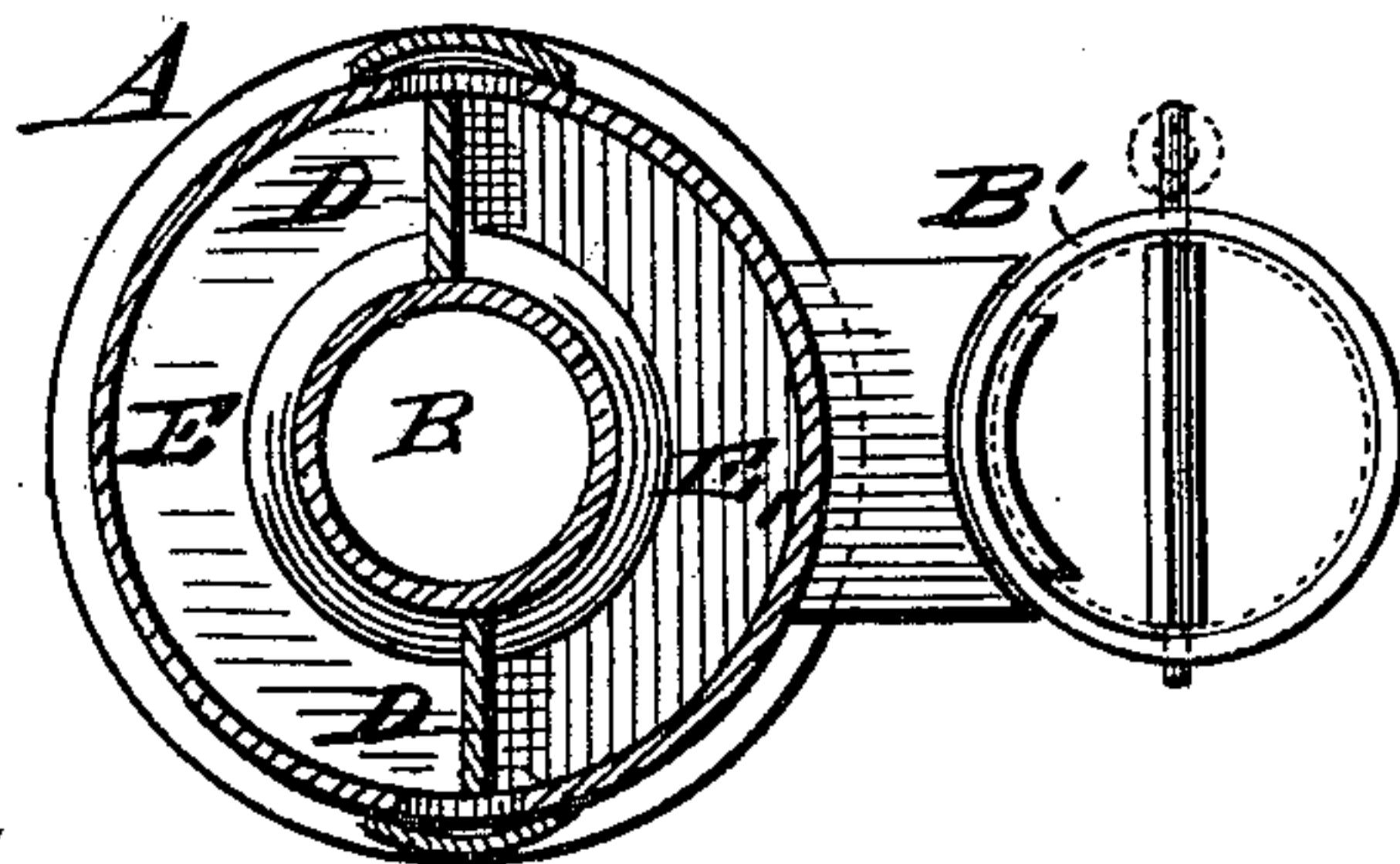
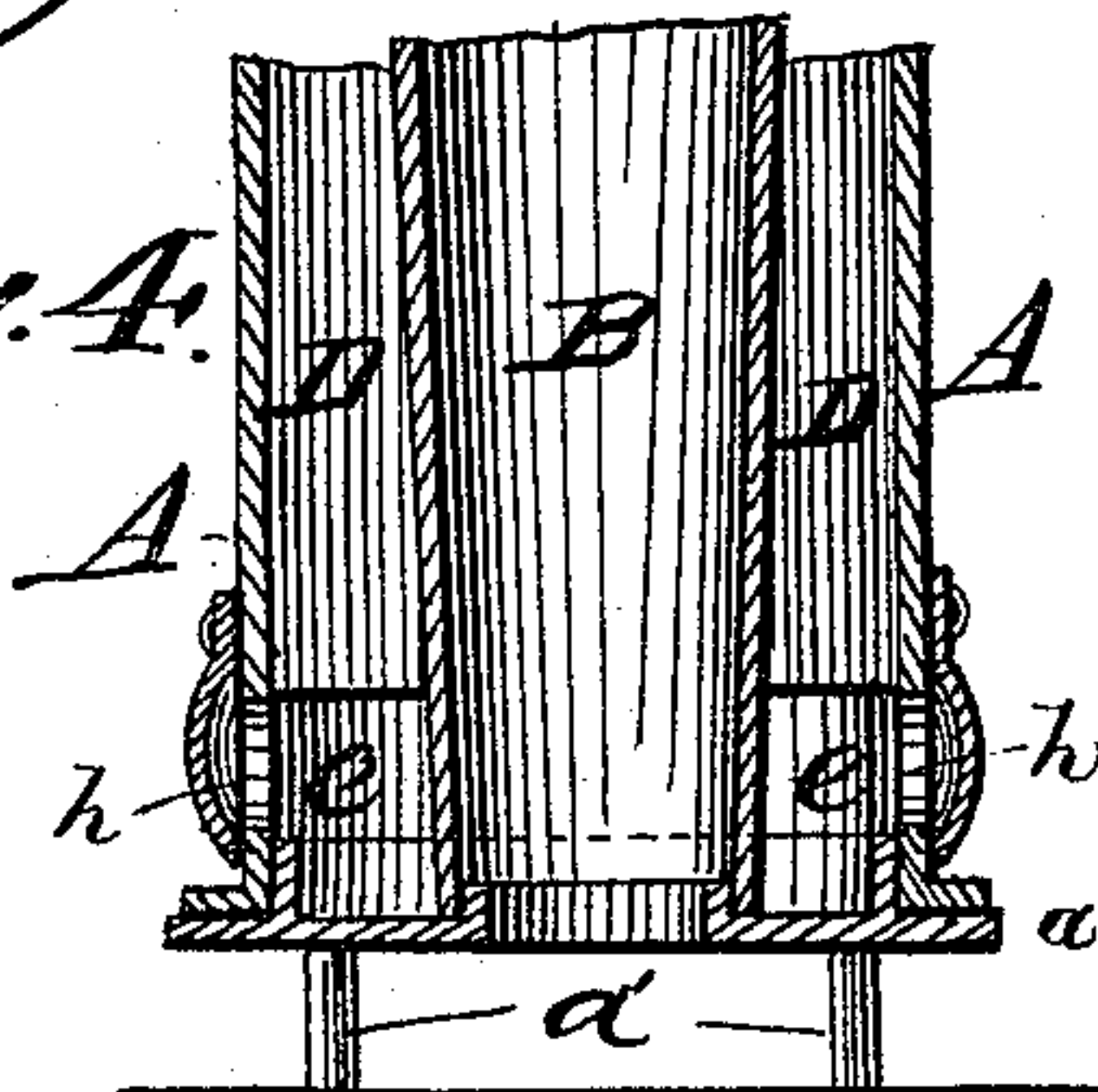


Fig. 4.



WITNESSES:

Phil. Dietrich.
C. Sedgwick

INVENTOR:

INVENTOR:
J. Liedl
BY *Munn & Co*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOSEPH LIEDL, OF FERGUS FALLS, MINNESOTA.

RADIATOR.

SPECIFICATION forming part of Letters Patent No. 408,420, dated August 6, 1889.

Application filed September 18, 1888. Serial No. 285,678. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH LIEDL, of Fergus Falls, in the county of Otter Tail and State of Minnesota, have invented a new and Improved Radiator, of which the following is a full, clear, and exact description.

My invention relates to an improvement in radiators, and has for its object to provide an apparatus adapted for attachment to a heating or cooking stove, or any perpendicular stove-pipe or furnace-flue, which will cause a circulation of the cold stagnant air usually found near the floor, heat the same, and thereby equalize the temperature in a room.

The invention consists in the construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the views.

Figure 1 is a central vertical longitudinal section of the device. Fig. 2 is a transverse section on line *x x* in Fig. 1. Fig. 3 is a similar section on line *y y* in Fig. 1, and Fig. 4 is a partial vertical section taken upon the opposite side to that shown in Fig. 1.

In carrying out the invention the body A of the drum is preferably made cylindrical and provided with a centrally-apertured bottom *a*, having legs *a'*, which serve to elevate the bottom a distance from the floor.

Through the body A, which is provided with an ornamental centrally-apertured top, a conical tube B extends from the top to the bottom, the smaller end of the tube being downward, thus admitting of the direct passage of air from the floor through the tube upward and out therefrom. The air-tube B is made in the form of an inverted section of a cone to accommodate the air when expanded by heat in its upward passage, and also to increase the draft of air through the lower end. A T-shaped pipe B' is usually attached to the body at one side near the top, in the vertical arm of which pipe a damper B is pivoted, this arm being adapted for attachment to a stove-collar at one end and a smoke-pipe at the other end.

The horizontal arm of the pipe B' is divided into two essentially-equal sections by a hori-

zontal partition *d*, which partition extending inward connects with a horizontal partition E', attached to the upper ends of oppositely-arranged vertical partitions D, held between the air-pipe B and the inner face of the body, the said partitions being projected downward to within a short distance of the bottom, leaving a channel *e*, connecting the compartments E E', formed by the aforesaid longitudinal partitions. The connection need not necessarily be made with the collar of the stove, and the shape of the pipe B' may be varied as occasion may demand.

In the side of the body apertures *h* are produced near the bottom, which may be closed by any approved form of slide, the purpose of the apertures being to provide a ready means of cleaning the radiator.

In operation the products of combustion will pass from the stove or pipe below the partition *d*, if the damper in the outlet-pipe B' is closed, into the compartment E', through the channel *e*, up the compartment E, and over the partitions *d* E', and to the flue. Thus the central tube B is kept hot and the air passing up the same heated.

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

1. A radiator consisting of the inner and outer spaced casings A B, the inner casing being open at both ends, the opposite partitions D, between the two casings, spaces being formed between the ends of the partitions and the upper and lower ends of the chamber formed between said casings, the T-shaped pipe B', the horizontal arm of which communicates with the upper end of said chamber about at right angles to the partitions D, and is provided with a horizontal portion *d*, the horizontal partition E', extending from the partitions D to partition *d*, and the damper in the vertical arm of said pipe to close it at the partition *d*, whereby the products of combustion may be directed under partitions *d* E' downward under partitions D, thence upward and over partitions E' *d* and the damper, substantially as set forth.

2. A radiator consisting of a hollow body having apertured top and bottom, a longitudinal conical tube opening through the top and bottom of the body, with its smaller end down, an inlet-tube attached to one side, a horizon-

tal partition dividing said inlet-tube, vertical partitions partially dividing the body into two compartments, and a horizontal partition connected with the vertical partitions, substantially as shown and described.

5 3. A radiator consisting of two spaced tubes or casings, the outer casing having a single horizontally-partitioned opening in one side, and partitions dividing the space between the

two tubes or casing above and below the said horizontal partition, whereby the single divided opening will serve for the inlet and outlet of the products of combustion, substantially as set forth.

JOSEPH LIEDL.

Witnesses:

CHARLES L. LEWIS,
HENRY G. LILLEANDER.