

(No Model.)

E. F. GORDON & H. HOBBS.

STEAM RADIATOR.

No. 271,330.

Patented Jan. 30, 1883.

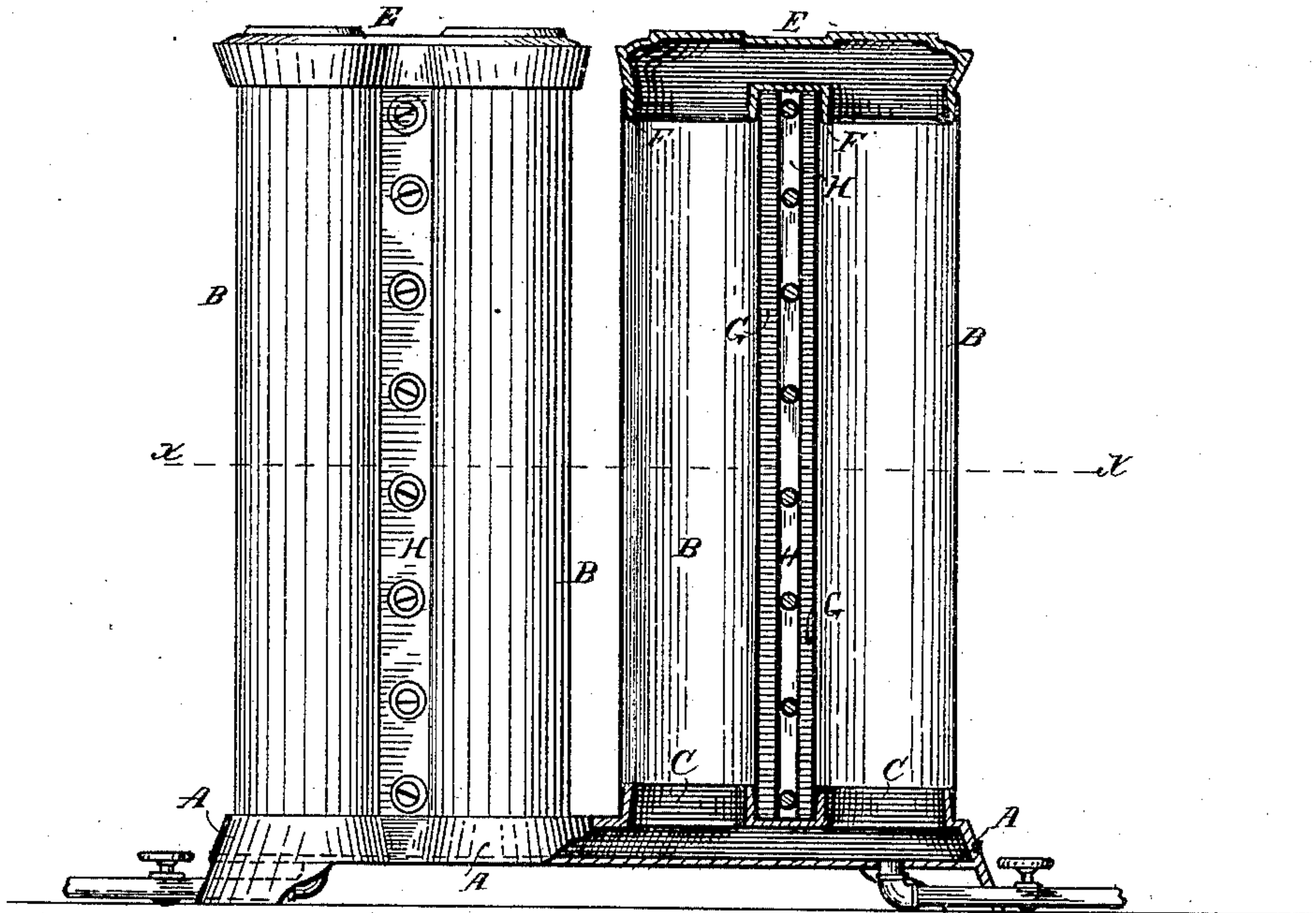


Fig. 1.

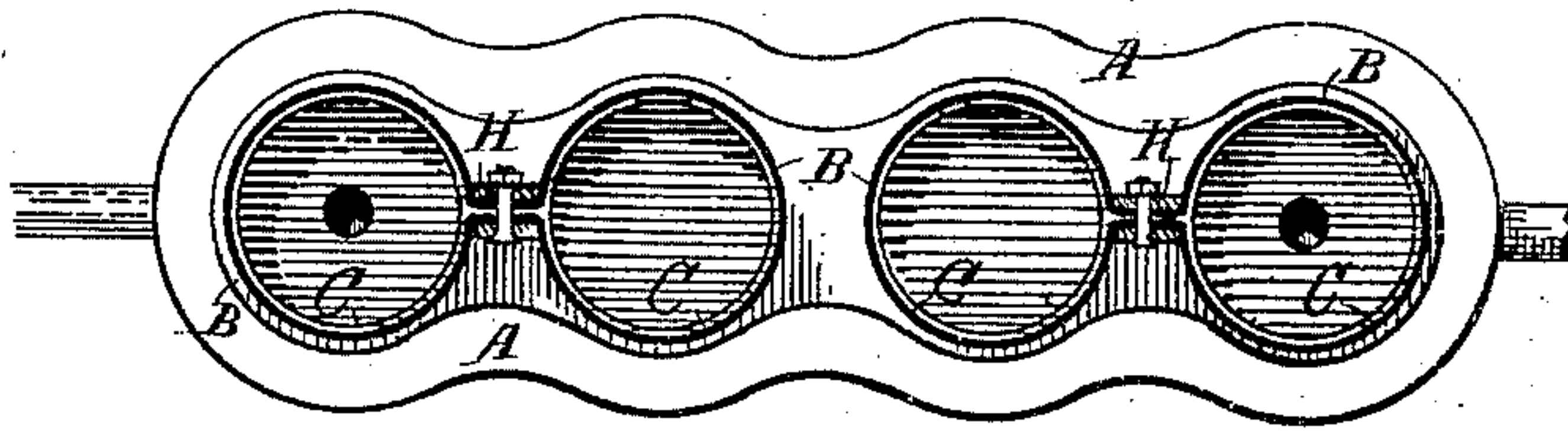


Fig. 2.

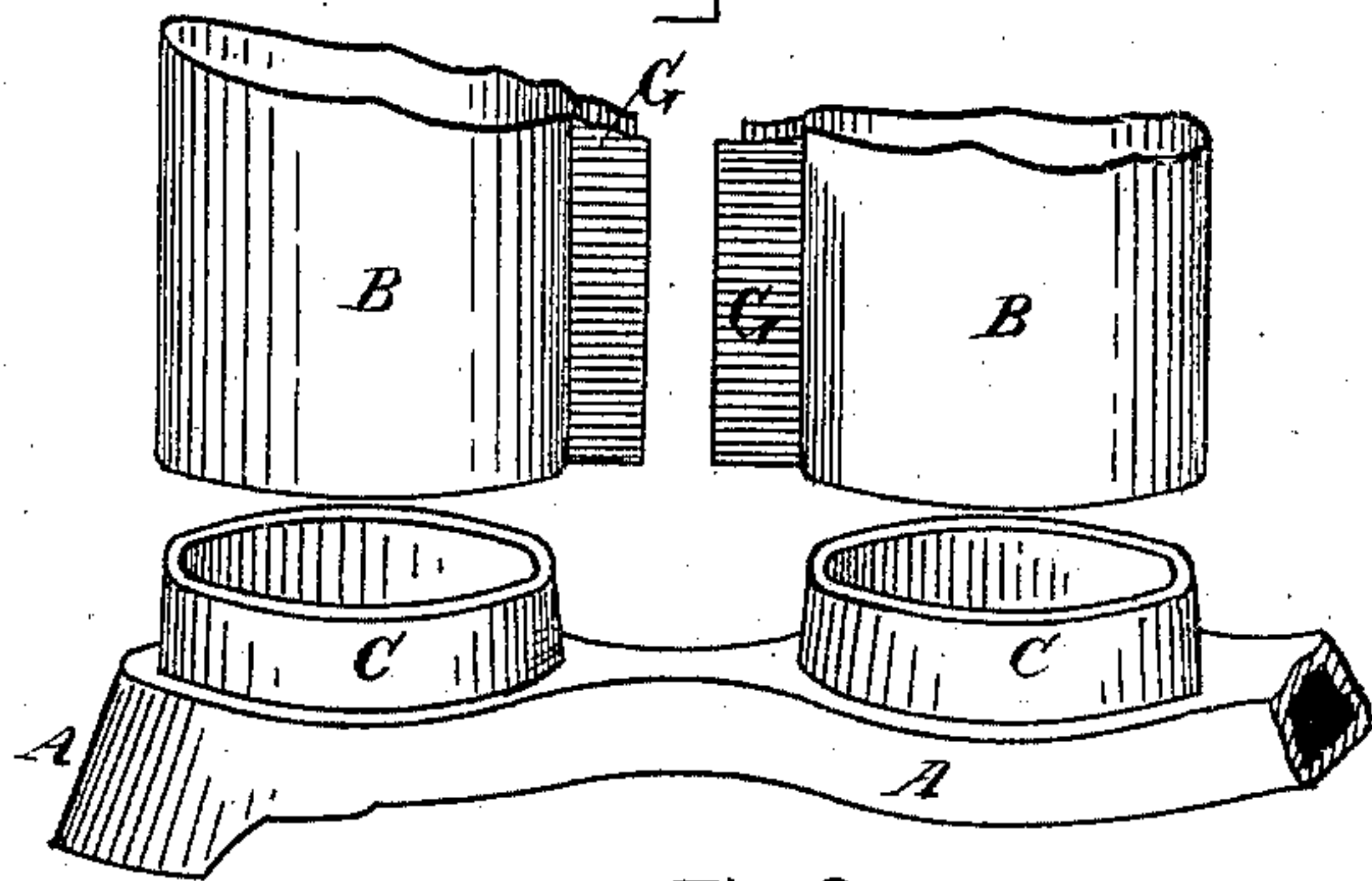


Fig. 3.

Witnesses.
J. O. Bishop.
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Inventors.
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UNITED STATES PATENT OFFICE.

EDWARD F. GORDON AND HORATIO HOBBS, OF CONCORD, N. H.

STEAM-RADIATOR.

SPECIFICATION forming part of Letters Patent No. 271,330, dated January 30, 1883.

Application filed October 6, 1882. (No model.)

To all whom it may concern:

Be it known that we, EDWARD F. GORDON and HORATIO HOBBS, citizens of the United States, residing at Concord, in the county of Merrimack and State of New Hampshire, have jointly invented certain new and useful Improvements in Steam-Radiators; and the same are fully described in the following specification and illustrated in the accompanying drawings.

This invention is in the nature of an improvement upon that described in the patent, No. 227,517, granted May 11, 1880, to Edward F. Gordon, assignor to Horatio Hobbs, in which is set forth a radiator-tube made of two sheet-metal shells arranged one within the other, and united by clamping together the projecting flanges of such shells. Under that arrangement the steam was received in the annular or crescent-shaped space between the two, and heat was radiated from the exterior of the larger shell and the interior of the smaller one, heating (in the latter case) the column of air rising through the inner shell.

Our improvement omits the inner shell with its radiating-surface, and employs a simple flanged sheet-metal tube, its entire interior being occupied as a steam chamber or channel, two of such tubes being in practice united at their flanges by clamping plates and bolts, which cause the sheet-metal tubes to closely hug the projecting collars of the base and caps which connect the tubes at bottom and top, and with them form a continuous conduit or open space for the circulation of the steam. This cheapens and simplifies the apparatus materially, and much less difficulty is experienced in making steam-tight joints. Furthermore, with a given volume of steam we can employ much smaller tubes, since there is no interior shell with an air-space within it.

The peculiarities of the present invention will be readily seen in the drawings, Figure 1 representing a radiator partly in elevation and partly in vertical section, while Fig. 2 is a transverse section at *xx*, and Fig. 3 a detail in perspective.

In the drawings, A is the base—a hollow metallic casting—upon which two or more of the flanged sheet-metal tubes, B, are erected, each embracing an annular upturned collar, C, cast in one with the base. The base is of sufficient dimensions to support the desired number of tubes arranged in pairs for circulation of the steam through them. The two tubes of each

pair, rising from the base, as stated, are connected at the top by a hollow cap, E, preferably of cast-iron, provided with downwardly-projecting collars F, each of which is embraced by the upper end of one of the tubes, B. Such caps therefore serve as return-bends to connect one tube with the other, and to form with them and the base a continuous channel or connected steam-space for the steam, which is admitted at one end of the base and finds an exit at the other end, ordinarily. The tubes B B are until joined to each other mere shells with outwardly-extending flanges G at their edges. (See Fig. 3.) These edges are not turned back, hooked together, and hammered down, like stove-pipe; but, as seen in Fig. 2, the flange-edges of the two tubes are turned toward each other and caused to abut, or nearly so, with their flanges G extending along the same vertical plane, and are then drawn laterally together and held in close contact by clamping-bars H each side of the flanges, and secured by screws, bolts, or rivets. These clamp screws or bolts will usually pass between the edges of the flanges G of two adjacent tubes where separated, notched, or slotted for the purpose.

The tightening of the clamp-bars serves to draw the sheet-metal tubes closely about the collars of the base and caps, as well as to bring the flanges G into close lateral contact, thus uniting all the parts in a most perfect manner and forming steam-tight joints. The "hug" of the sheet metal around the annular collars is so powerful as to render unnecessary any connecting-bolts from cap to base, which were required in the patented radiator referred to.

We claim as our invention—

The hollow base A and caps E, formed with projecting annular collars, as shown, and the flanged sheet-metal shells B, arranged in pairs side by side, external to each other and to said collars, in combination with clamps adapted to bring said flanges into close lateral contact and to cause said shells to tightly hug the collars of both base and cap, substantially as set forth.

In testimony whereof we hereto affix our signatures in presence of two witnesses.

EDWARD F. GORDON.
HORATIO HOBBS.

Witnesses:

WILLIAM H. KING,
CHARLES E. WHITCOMB.