

A. L. IDE.
Steam Radiators.

No. 144,981.

Patented Nov. 25, 1873.

Fig. I.

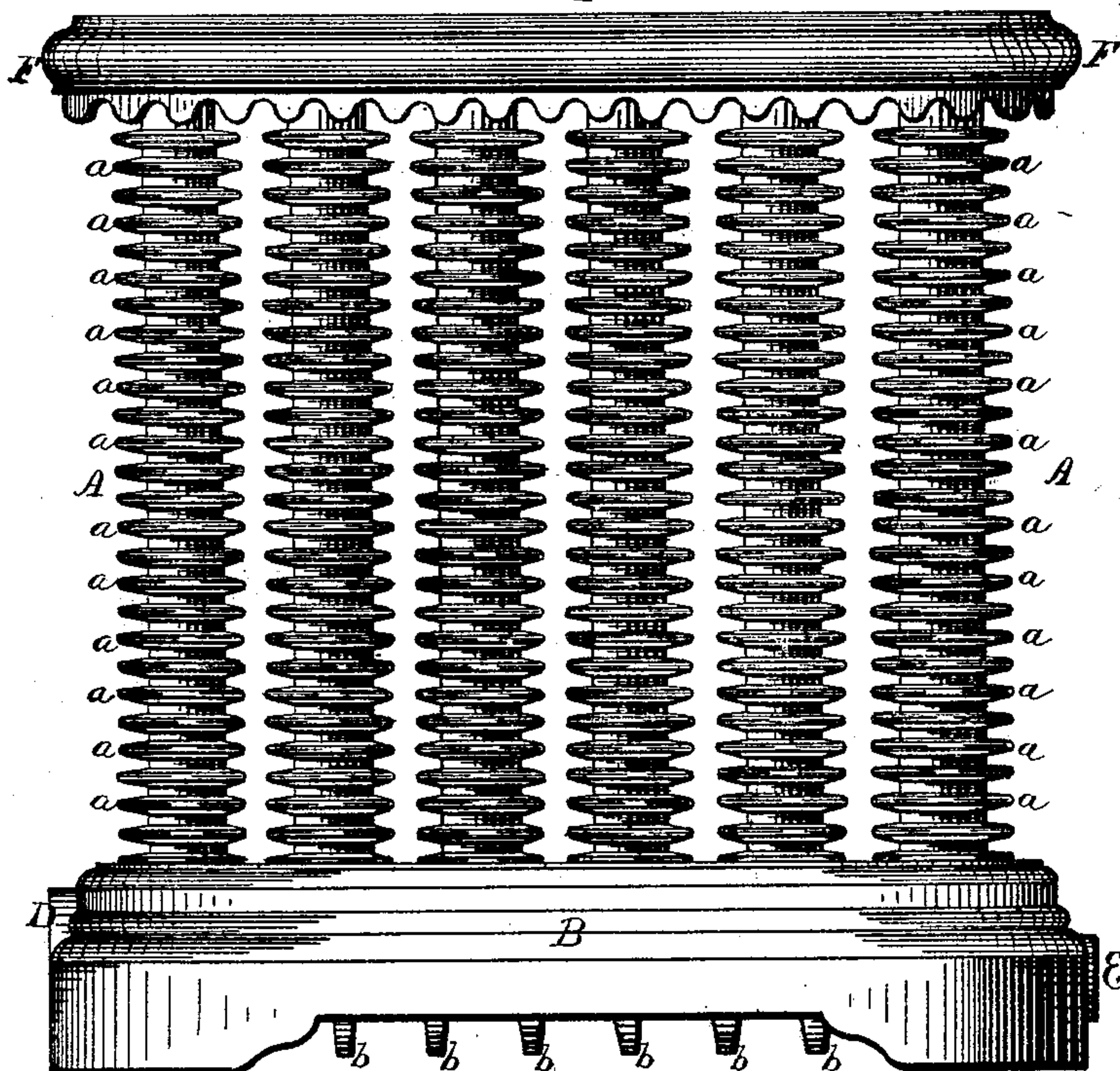
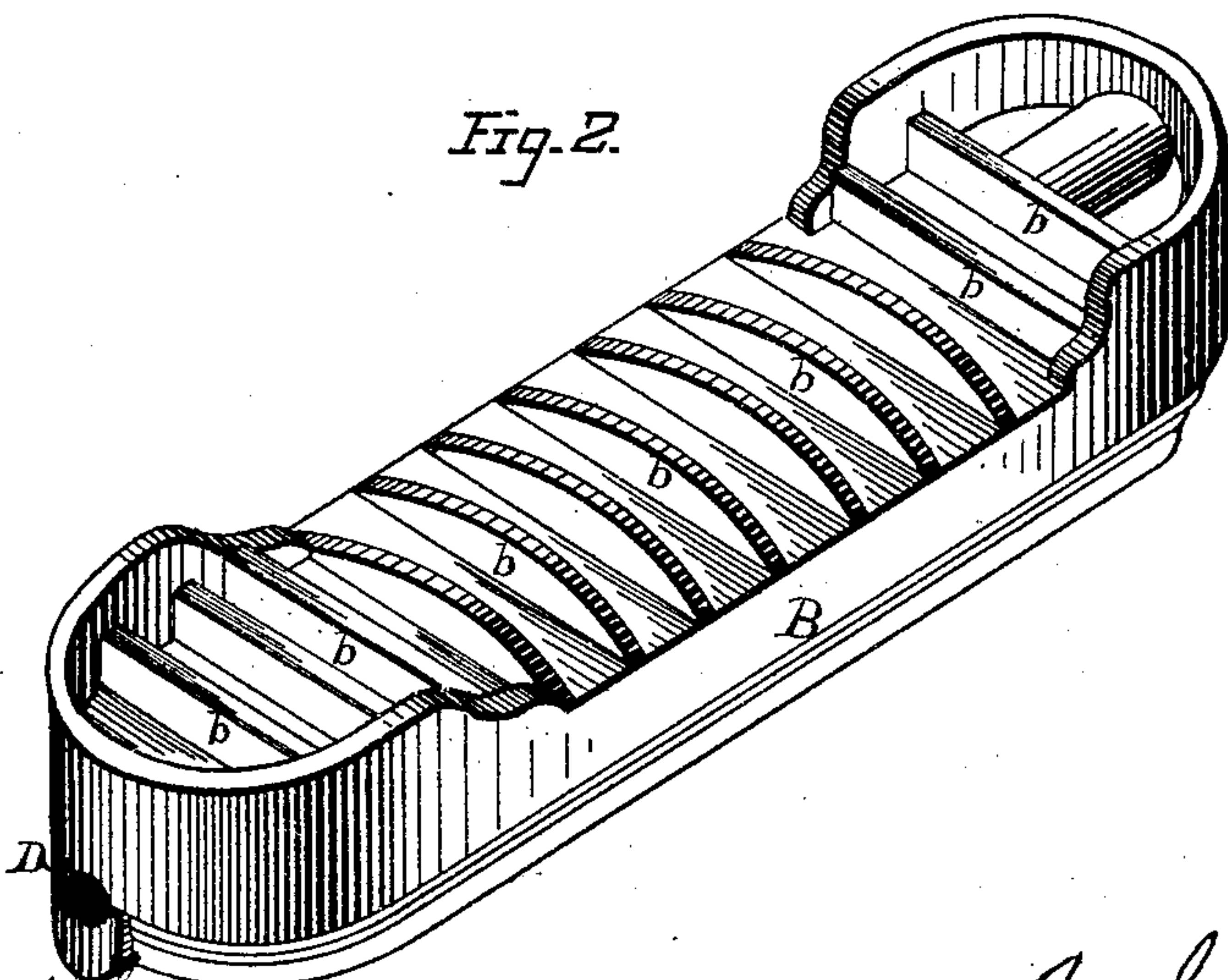


Fig. 2.



WITNESSES:

Geo. E. Hutchinson
John R. Young

INVENTOR.

A. L. Ide, by
Orindle and Co. his Attys

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Fig. 3

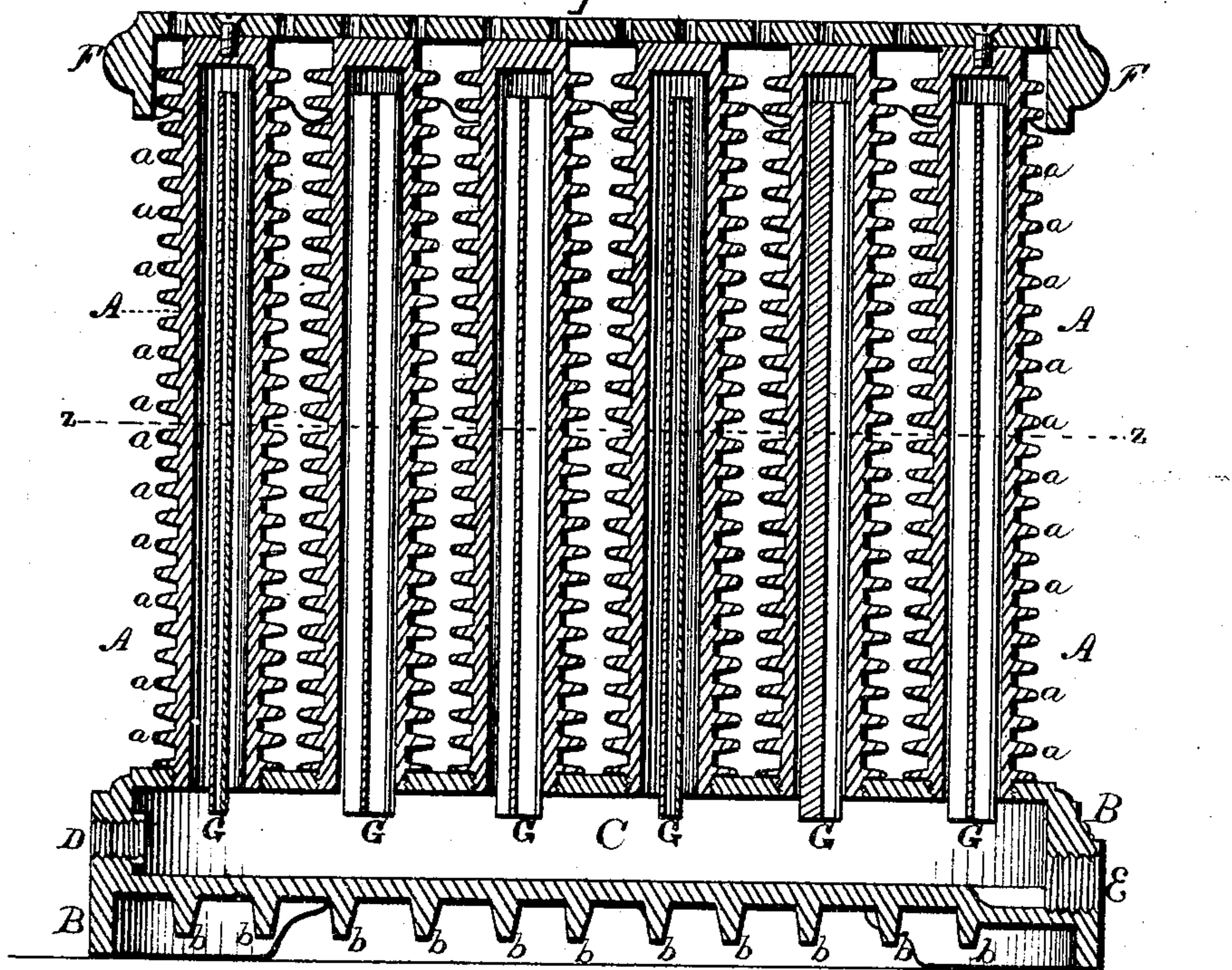
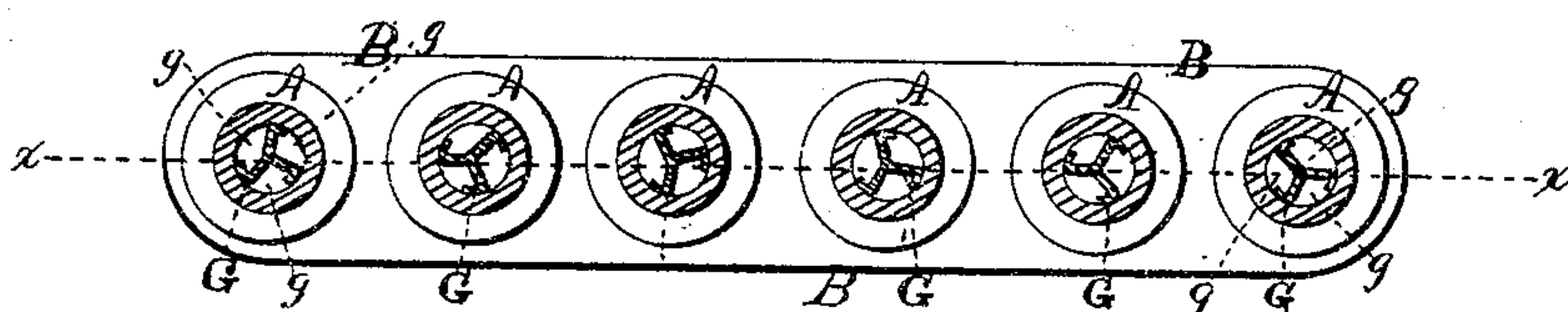


Fig. 4



WITNESSES:

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UNITED STATES PATENT OFFICE.

ALBERT L. IDE, OF SPRINGFIELD, ILLINOIS.

IMPROVEMENT IN STEAM RADIATORS.

Specification forming part of Letters Patent No. **144,981**, dated November 25, 1873; application filed June 6, 1873.

To all whom it may concern:

Be it known that I, ALBERT L. IDE, of Springfield, in the county of Sangamon and in the State of Illinois, have invented certain new and useful Improvements in Steam Radiators; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings making a part of this specification, in which—

Figure 1 is a side elevation of my improved apparatus. Fig. 2 is a perspective view of the lower side of the base. Fig. 3 is a vertical central section upon line *xx* of Fig. 4; and Fig. 4 is a horizontal section upon line *zz* of Fig. 3.

Letters of like name and kind refer to like parts in each of the figures.

The object of my invention is to render more speedy and thorough the expulsion of air from the pipes of a radiator and to increase its heating capacity at the base; and it consists in a vertical radiator-pipe divided interiorly into three vertical passages, substantially as and for the purpose hereinafter specified.

In the annexed drawings, A and A represent a series of pipes inclosed at their upper ends, open at their lower ends, and secured vertically upon and within a base, B, which, as seen in Fig. 3, is provided with an interior space, C, that communicates at its ends, by means of an inlet and an outlet passage, D and E, respectively, with steam-supply and waste pipes. Exteriorly each of the vertical pipes A is provided with a series of concentric flanges, which, transversely, have a Λ shape, and, by nearly trebling the exposed surface of said pipe, correspondingly increase its capacity for radiating heat. An ornamental cap, F, secured upon and covering the upper ends of the pipes A, insures their relative positions, and gives a finish to the upper portion of the radiator. Extending upward from the lower end of each pipe A to a point near the upper end of the same is a three-flanged partition, G, which has the form shown in Fig. 4, and divides the space within said

pipe into three substantially-equal vertical passages, *g*, that, at their lower ends, open into the space C within the base B, and at their upper ends into the undivided portion of the interior of said pipe.

As thus constructed, upon the admission of steam to the radiator, said steam will pass upward through two of the passages *g* of each pipe, while the air contained within said pipe will be forced downward through the third passage into the space C, and expelled from the latter.

It has been demonstrated by experiment that upon the admission of steam to the pipes the effect of the condensation of the same is to render requisite an amount equal to at least twice the volume of the outward-flowing current of air; and that therefore, by dividing the space as shown, the necessary proportion of steam is admitted to the pipes to expel the air with the greatest possible dispatch; and, further, that the steam invariably ascends two passages, while the air descends a third.

These radiator-pipes not only heat with greater rapidity than those having the interior space divided into two passages, but they also maintain a higher temperature, as, in consequence of the constantly-decreasing volume of the steam from the moment when it enters the radiator until it passes into the waste-pipe, its upward and downward course require the same relative proportion of passages in order to insure a uniform circulation.

Great difficulty has been experienced in securing a sufficient radiation of heat from the base of steam heaters to render them desirable for many rooms, and, in consequence, their use has been more restricted than would otherwise have been the case. To remedy this difficulty, I elevate the base B so as to leave a considerable air-space beneath, and upon its lower side provide a series of projections or ribs, *b*, which have, preferably, a Λ shape, and are placed with their points downward.

As thus constructed, it is found that a large increase is effected in the downward radiation

of heat, and that the device is rendered applicable in any place where other heating apparatus is employed.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

In a steam radiator, a vertical pipe or column divided interiorly into three vertical pas-

sages, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 3d day of June, 1873.

Witnesses:

ALBERT L. IDE.

H. W. BUTLER,

GEO. N. BLACK.