

(No Model.)

2 Sheets—Sheet 1.

D. F. MORGAN & J. ROBB.

STEAM RADIATOR.

No. 295,040.

Patented Mar. 11, 1884.

Fig. 1.

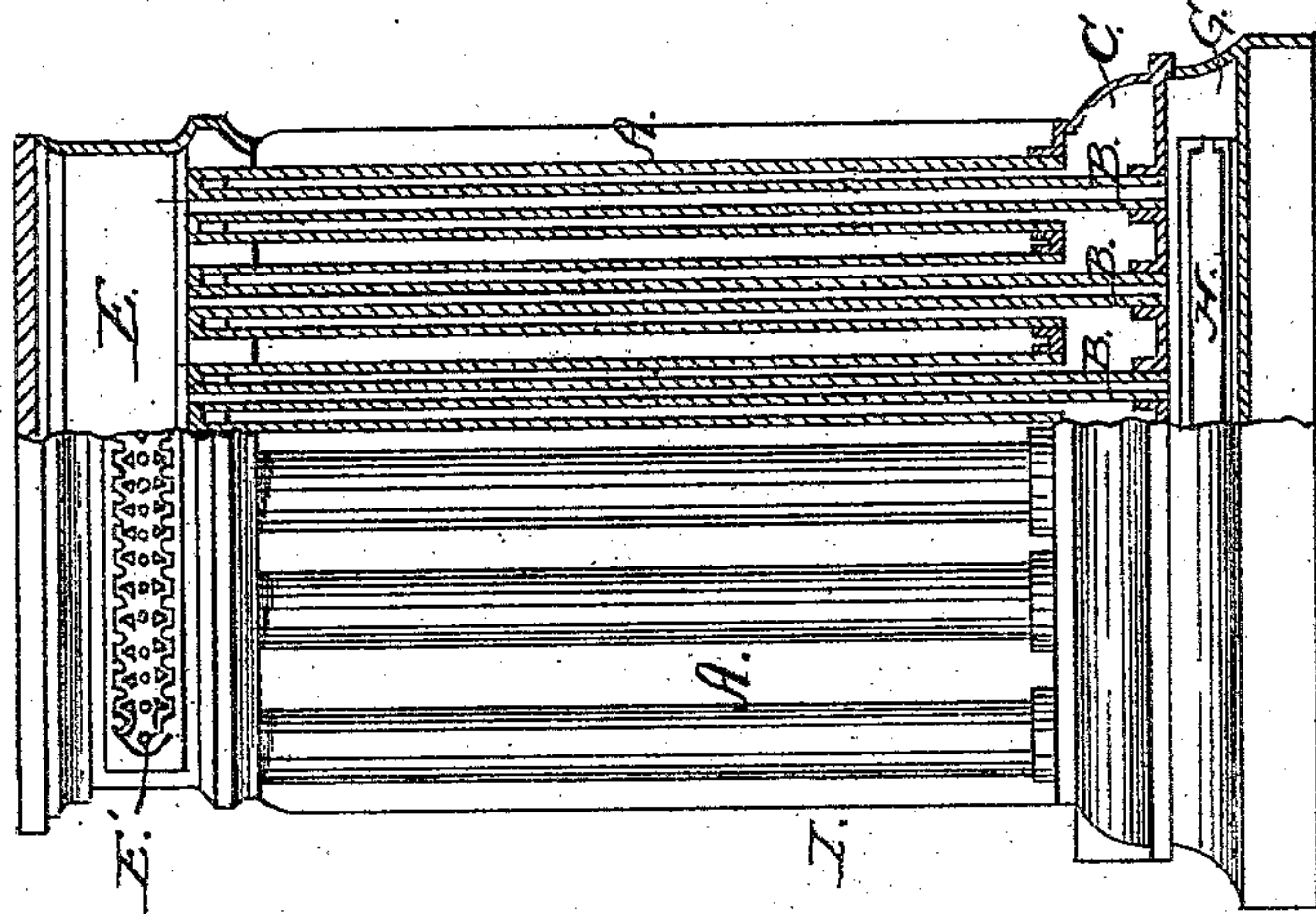


Fig. 2.

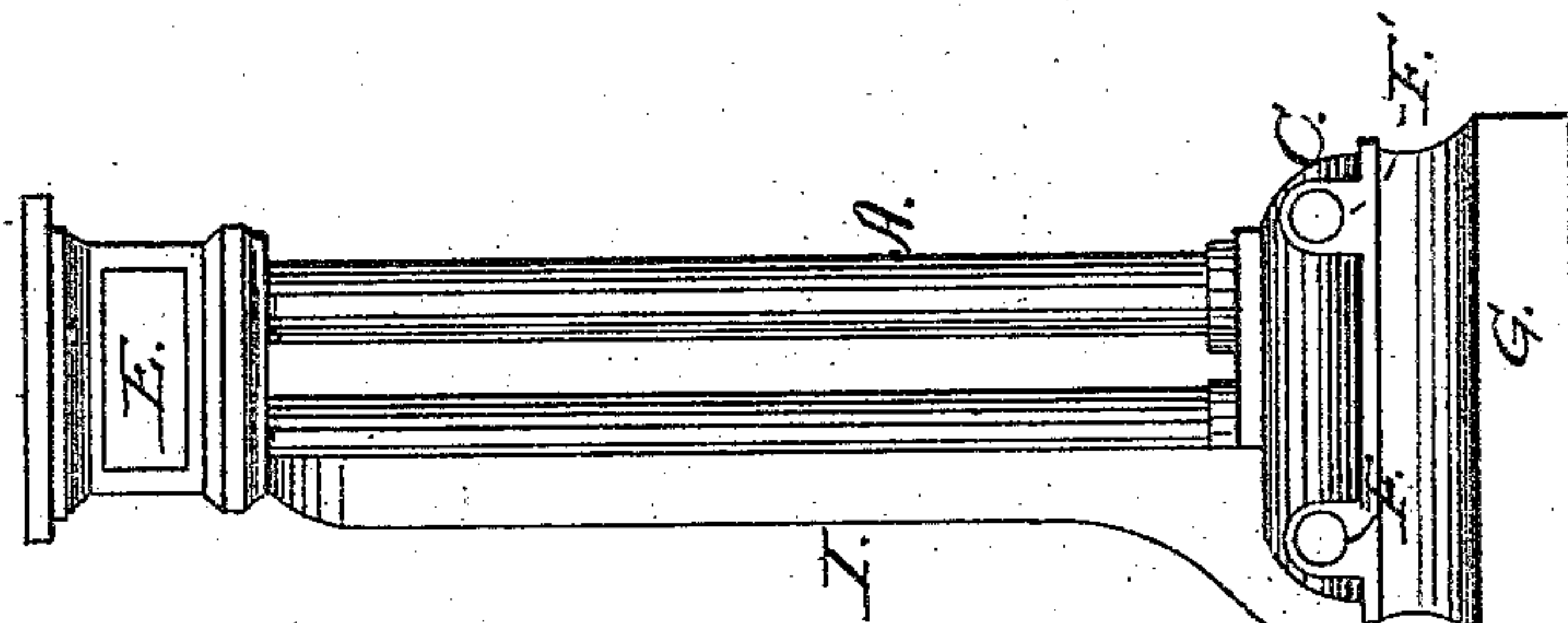


Fig. 3.

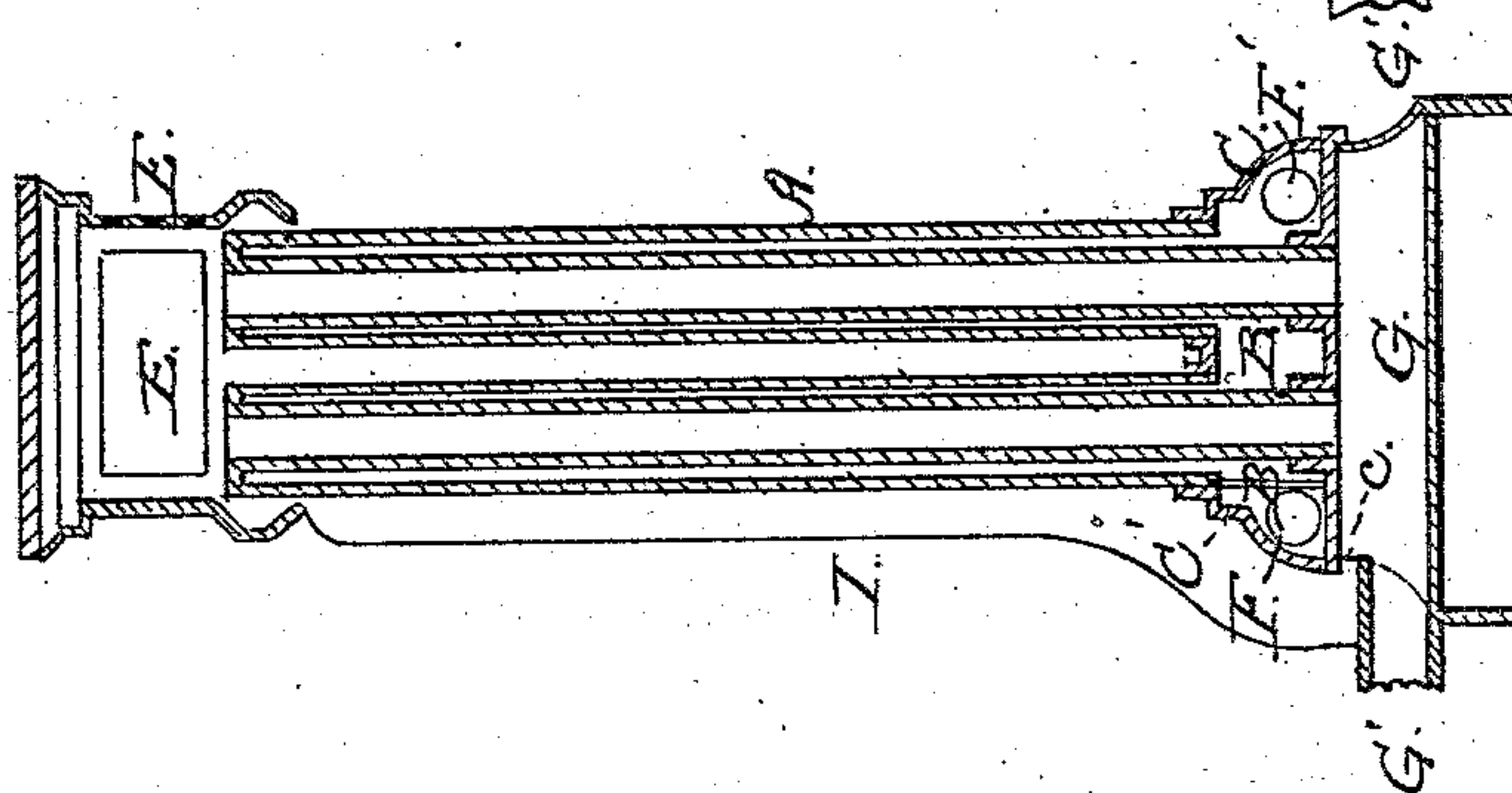


Fig. 4.

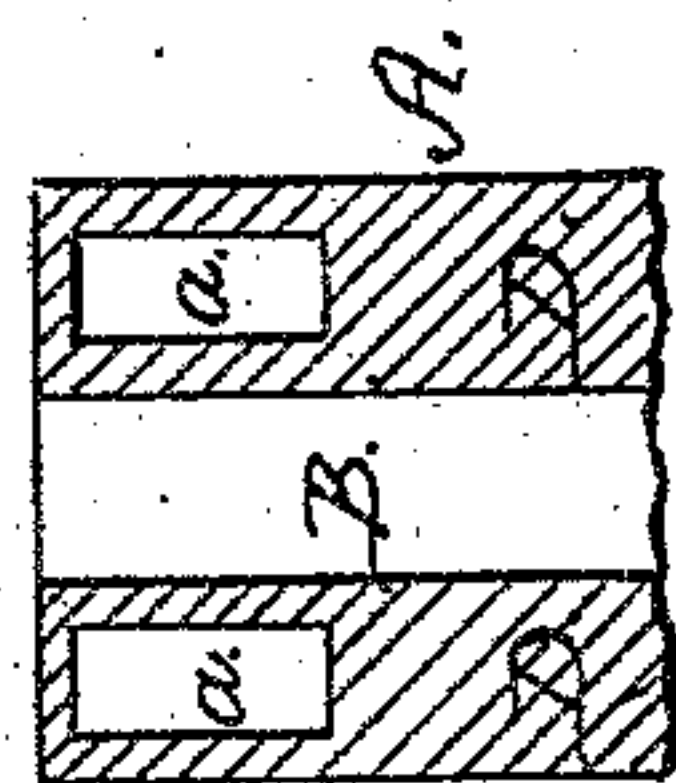
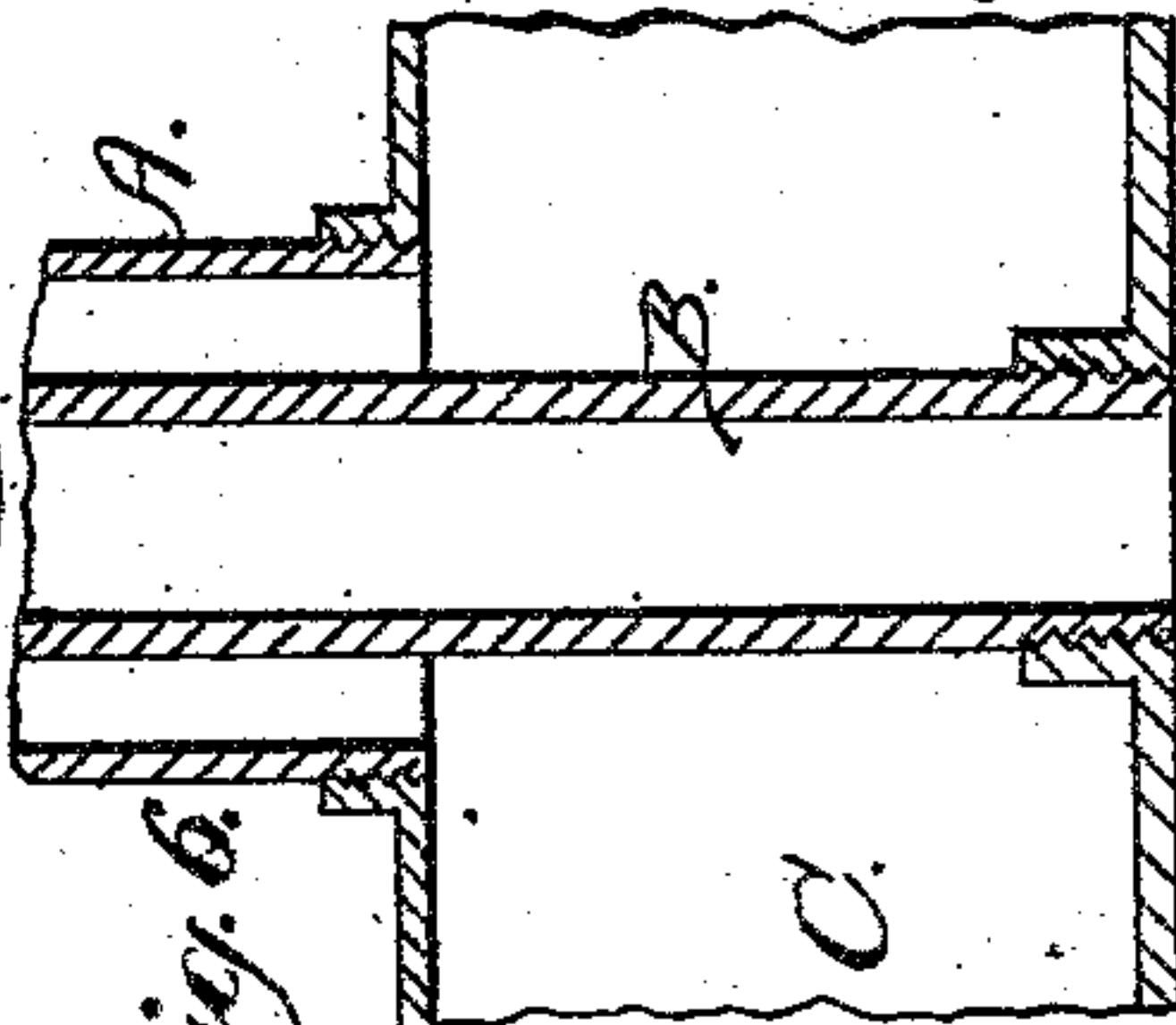


Fig. 6.



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J. T. Chapman

Inventors:
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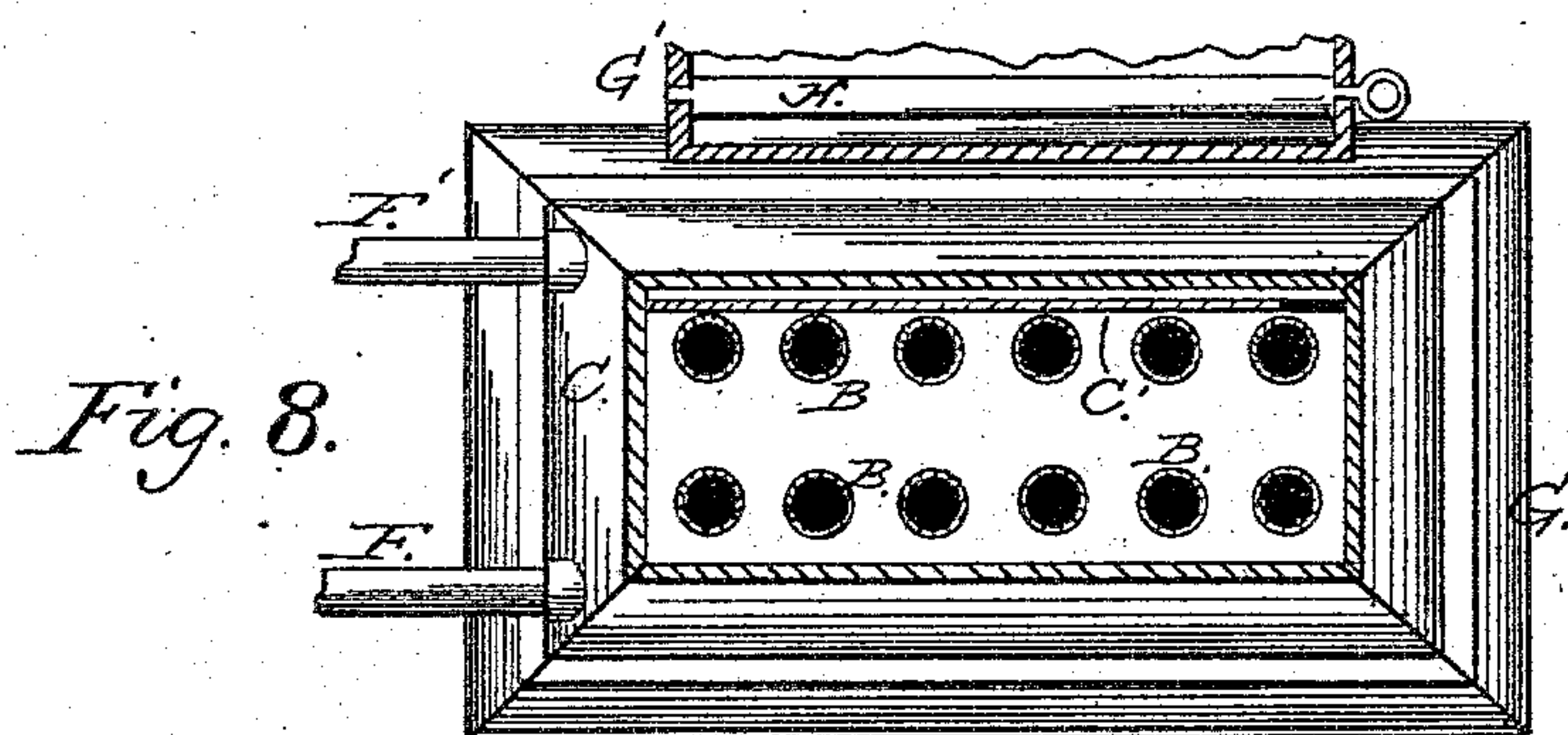
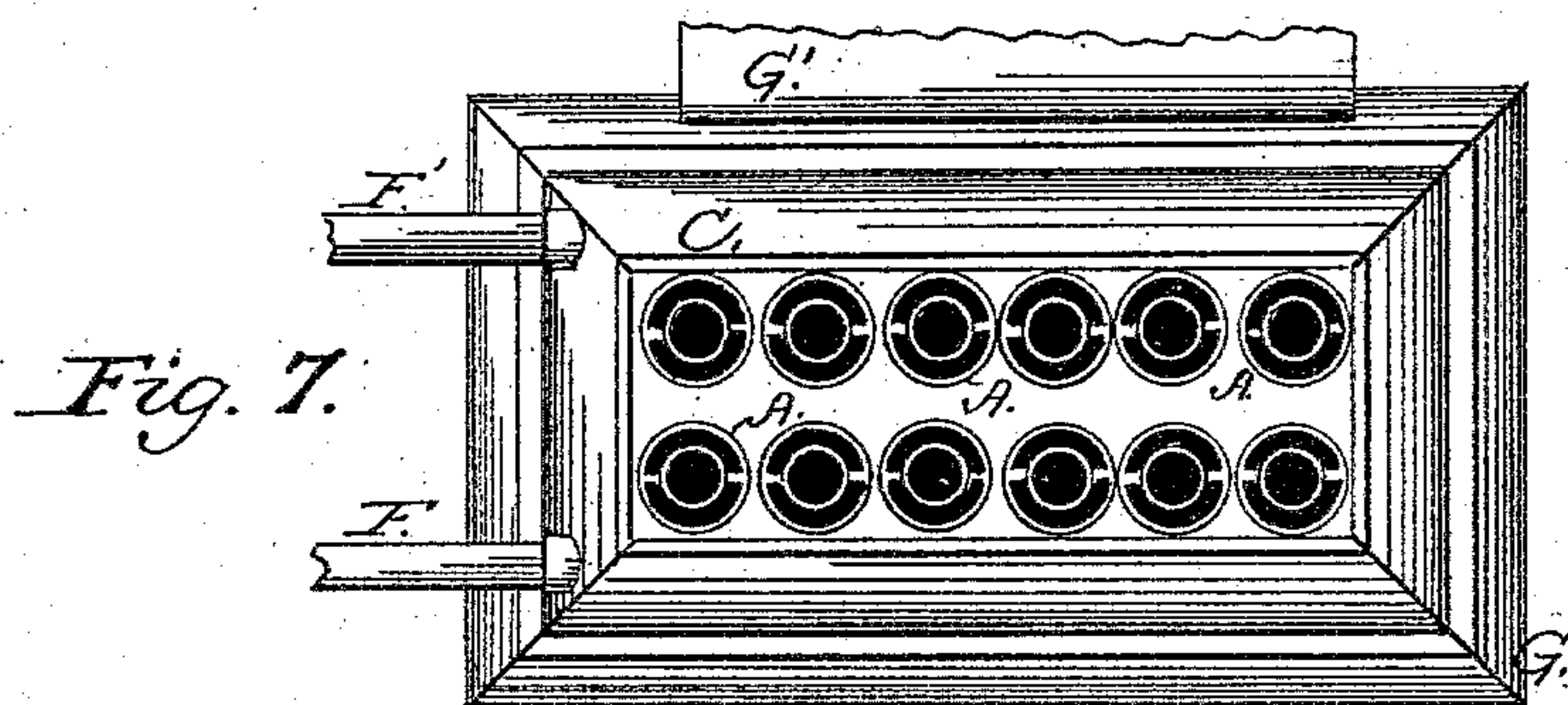
(No Model.)

2 Sheets—Sheet 2.

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STEAM RADIATOR.

No. 295,040.

Patented Mar. 11, 1884.



Witnesses:
W. Fred. Keller.
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UNITED STATES PATENT OFFICE.

DOCTOR F. MORGAN AND JOHN ROBB, OF AKRON, OHIO.

STEAM-RADIATOR.

SPECIFICATION forming part of Letters Patent No. 295,040, dated March 11, 1884.

Application filed July 6, 1883. (No model.)

To all whom it may concern:

Be it known that we, DOCTOR F. MORGAN and JOHN ROBB, citizens of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented certain new and useful Improvements in Radiators; and we do declare the following to be a full, clear, and exact description of the invention, such as 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 the letters and figures of reference marked thereon, which form a part of this specification.

Our invention has for its object to provide an improved and novel construction of that class of radiators in which a series of fresh-air and steam pipes are grouped together, and whereby the heat is economized and evenly distributed in the simplest and best possible manner; and our improvements consist, essentially, of the details of construction and general arrangement of parts, all as will be hereinafter fully described, and specifically designated in the claims.

In the accompanying drawings, Figure 1 represents a front elevation of a radiator embodying our improvements, with one side broken away to more fully show the interior construction; Fig. 2, an end elevation of the same; Fig. 3, a vertical transverse section, and Figs. 4 to 8 detail sectional views thereof.

Similar letters of reference occurring on the several figures indicate corresponding parts.

In carrying out our invention each of the steam-tubes A is provided with an interior air-tube, B, the space between the two being covered at the top, and the air-tube projecting down some distance below the bottom of the steam-tubes, as fully shown in the drawings.

C represents the hollow base, in which the tubes A and B are vertically secured, the bottoms of the steam-tubes A being suitably connected to the upper plate of said base and opening into the same, while the fresh-air tubes B extend downward to and are connected to the lower plate or bottom of said base, and open outwardly, as fully shown in Fig. 6. A central dividing-partition, D, is provided between each of the steam-tubes A and air-tubes B, said partition extending from the

base of the steam-tubes A to near the tops thereof, leaving a small opening, *a*, on each side for the circulation of the steam, as fully shown in Fig. 4.

E represents an ornamental hollow top or cover, which fits snugly over the tops of the steam-tubes A in such manner that the upper parts of the fresh-air tubes B open into the said top or cover E, which is closed upon all sides, except at the front, where it is provided with an ornamental perforated plate or screen, E', as fully shown in Fig. 1. Upon one end of the base C is attached the steam-supply pipe F and the exhaust or drip pipe F', a partition, C', extending partly across the interior of the base, so as to force the steam to travel the entire length of the base and through the steam-tubes back to the exhaust-pipe F', as fully shown in the drawings.

G represents an air-reservoir, of suitable ornamental shape, upon the top portion of which the base C rests in such manner that the bottoms of the air-tubes B open into said reservoir, a pipe, G', extending from the reservoir to and through the outer walls of the building in which the radiator may be located, to admit fresh air to said reservoir and air-tubes, the supply of air being regulated or controlled by the damper H, located at the entrance of the air-reservoir, as fully shown in Fig. 1. To the rear of the radiator thus formed is attached a deflecting-shield, I, the ends of which lap partly over the first row of tubes, as shown in Fig. 2, although the same may be extended so as to cover the entire ends of the radiator, if deemed preferable. This shield is so arranged as to connect with the cover or top E and with the air-reservoir G, a small opening or extended slot, *c*, being located in the upper rear portion of the air-reservoir and opening out against the said shield, to secure a continuous current of air against the inclined surface thereof, which is deflected through and among the steam-tubes out to the front of the radiator.

The construction of our invention being as described, it will be observed that in the operation of the same the steam is introduced through the supply-pipe F to the steam-tubes A, a constant circulation being established through the base C, steam-tubes A, and open-

ings *a* of the dividing-partitions D, to the exhaust or drip pipe F', while a constant supply of fresh air passes up through the air-tubes B from the air-reservoir below, and a current 5 deflected from the shield I among the steam-tubes A to the front of the radiator, the air being heated during its passage through and among the steam-tubes. The air which passes up through the air-tubes B enters the hollow 10 top or cover E, from which it is discharged through the perforated plate or screen E' at the front.

By means of our improvements a uniform and constant supply of pure air is drawn 15 through the pipe G' from the outer atmosphere into the radiator, and discharged from thence in a heated condition, the shield I and top or cover E serving to deflect the heated air outwardly toward the front and ends of the radiators, thereby preventing the disfigurement 20 of the walls of the room against which the radiator may be placed.

Having thus described our invention, we claim as new and useful—

25 . 1. The herein-described radiator, consisting of the steam-tubes A, provided with the inte-

rior air-tubes, B, and partitions D, having openings *a*, hollow base C, provided with supply-pipe F, exhaust-pipe F', and partition C', air-reservoir G, provided with the supply-pipe 30 G', damper H, and opening *c*, the hollow top or cover E, having perforated plate or screen E', and the deflecting-shield I, all substantially as and for the purpose specified.

2. The air-reservoir G, provided with supply-pipe G', hollow top or cover E, provided 35 with the perforated plate or screen E', and the deflecting-shield I, in combination with the steam-tubes A, air-tubes B, and base C, substantially as and for the purpose specified. 40

3. The steam-tubes A, provided with the air-tubes B and central partitions, D, having openings *a*, in combination with the shield I, hollow base C, and top E, substantially as and 45 for the purpose specified.

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

DOCTOR F. MORGAN.
JOHN ROBB.

Witnesses:

G. T. FORD,
GEO. HOPKINS.