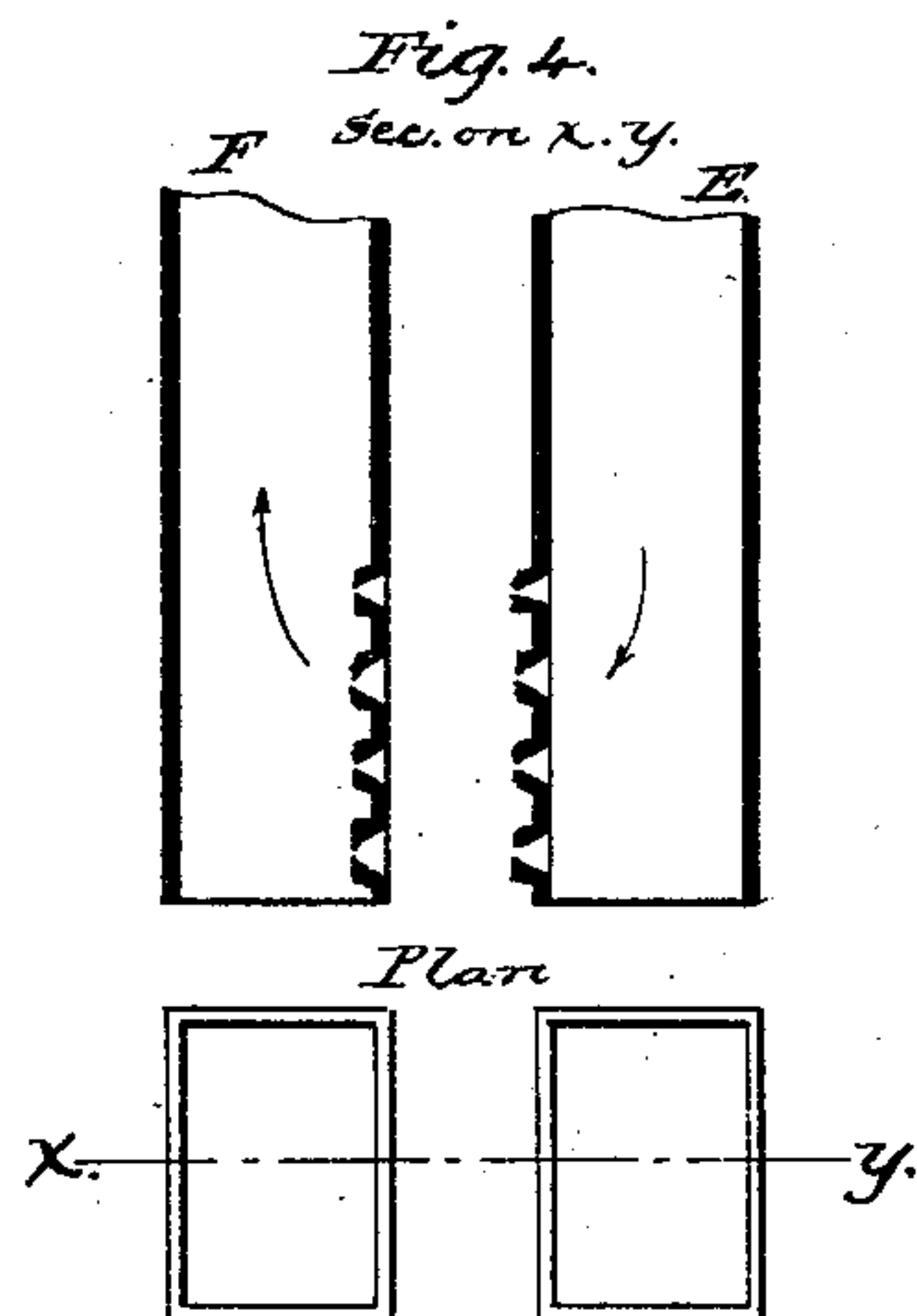
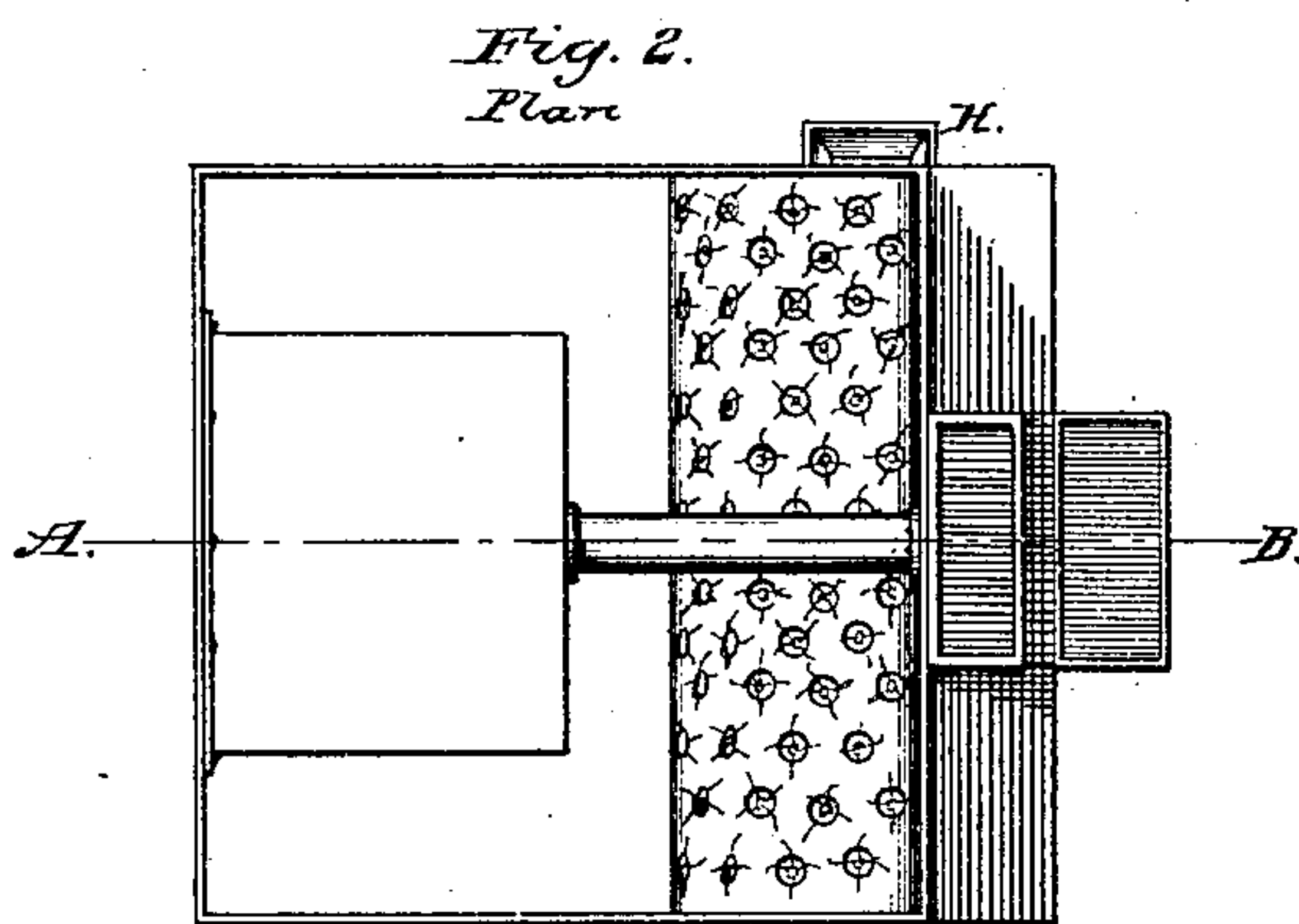
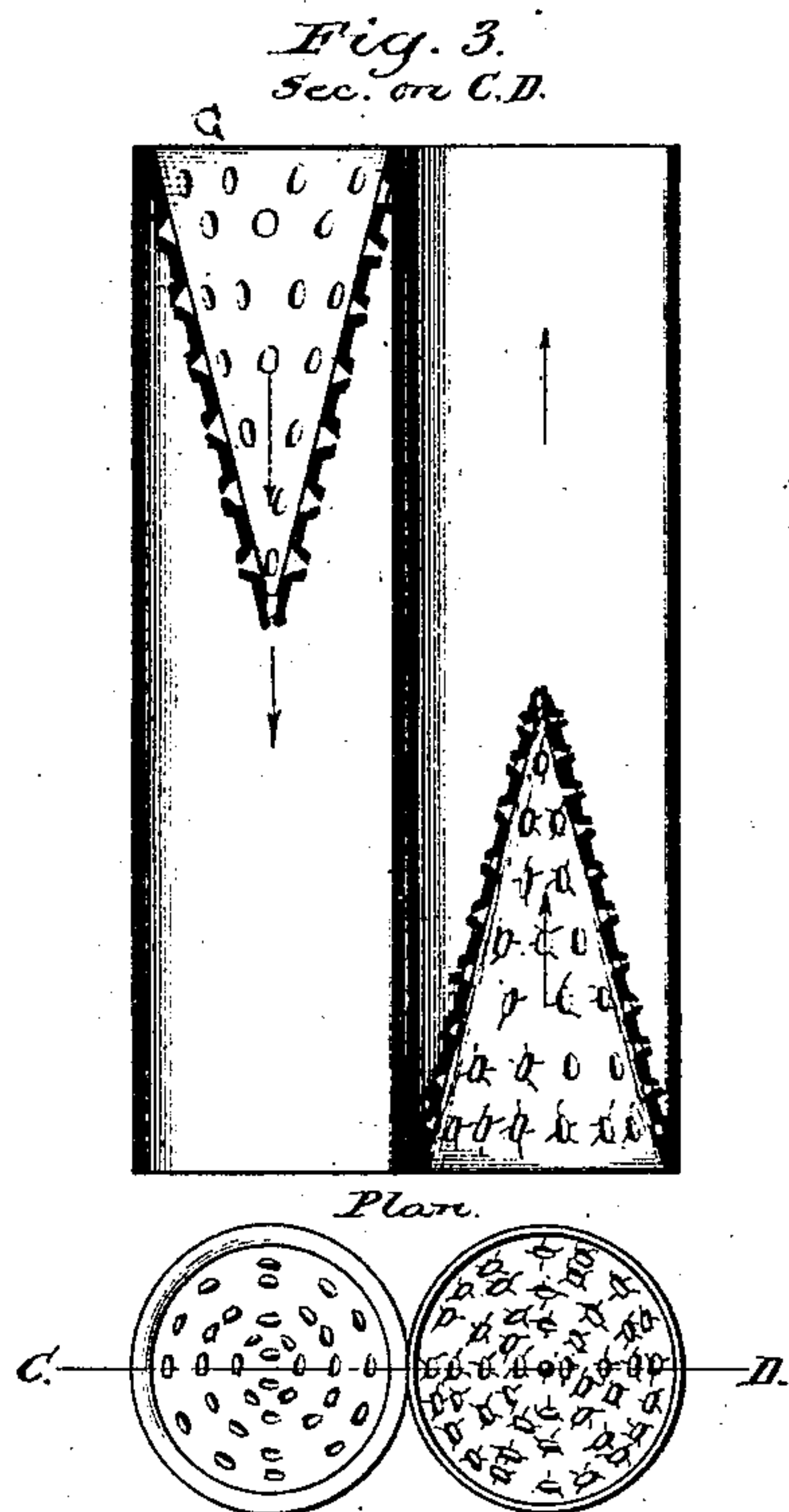
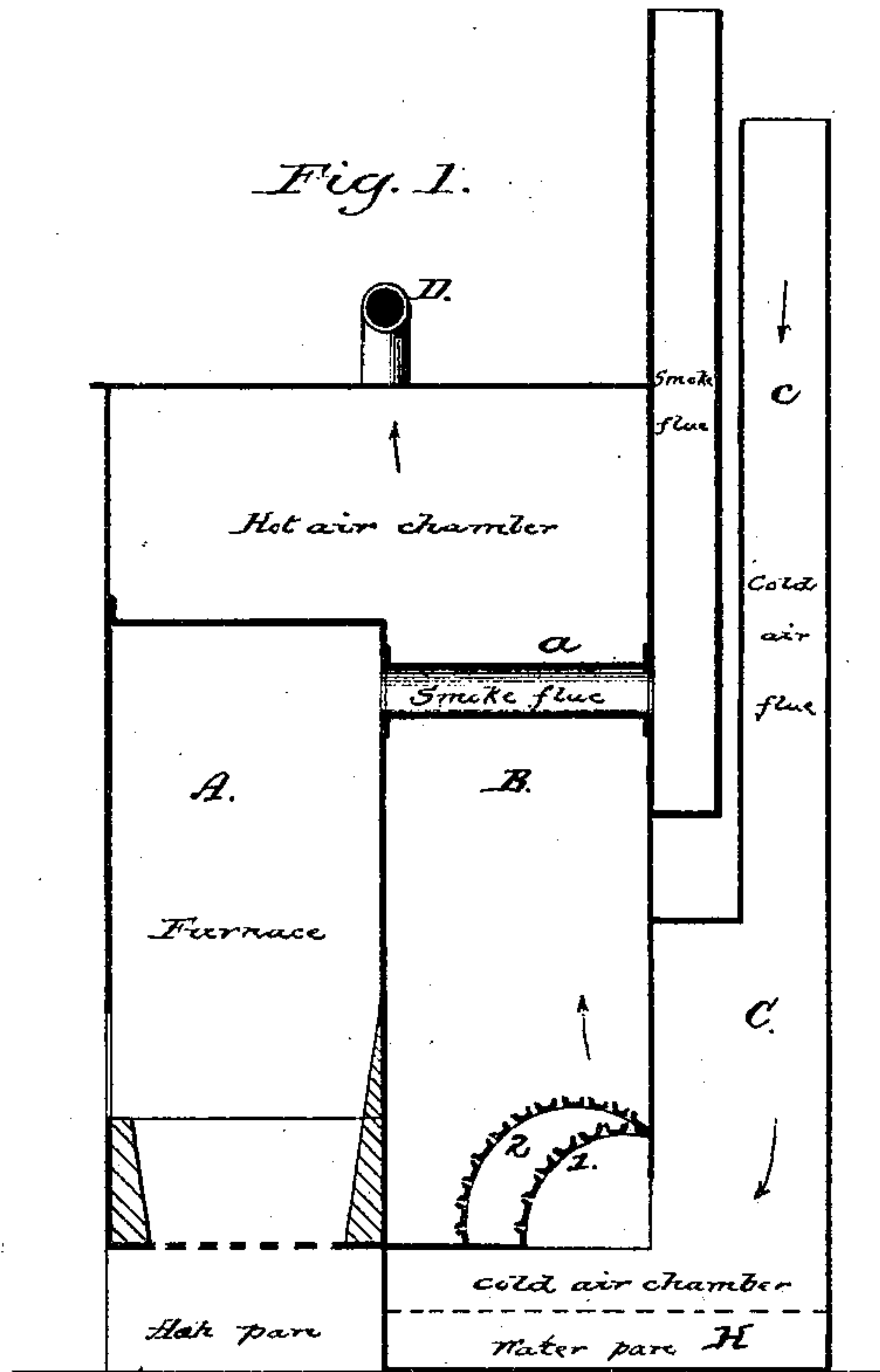


JANE G. SWISSHELM.

HOT AIR CHAMBER.

No. 178,813.

Patented June 13, 1876.



Attest:

*J. M. Sullivan*  
*J. M. Sullivan*

Inventor:

*Mrs. Jane Gay Swisshelm*

# UNITED STATES PATENT OFFICE.

JANE GREY SWISSHELM, OF PITTSBURG, PENNSYLVANIA.

## IMPROVEMENT IN HOT-AIR CHAMBERS.

Specification forming part of Letters Patent No. **178,813**, dated June 13, 1876; application filed February 23, 1876.

*To all whom it may concern:*

Be it known that I, Mrs. JANE GREY SWISSHELM, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Ventilating-Flues and Hot-Air Chambers, of which the following is a specification:

My improvement consists in interposing between a cold-air chamber or flue and the hot-air chamber partitions of thin plates of wrought metal, perforated by a sharp instrument, so as to have a "burr" or sharp rough edge around each perforation on one side, while on the other each one is a smooth-sided funnel-shaped flue, Figures 1 and 2. From this side the air will pass freely, while from the opposite side its passage will be greatly retarded, if not totally prevented. We thus aid the passage of cold air into the hot-air chamber, and hinder, if not totally prevent, the escape of the hot air through the cold-air flue. The effect is strengthened by doubling the partitions, so that the air must pass through two sets of perforations, Figs. 1 and 2, and also by having the plates circular, with the burrs on the convex side, as the convexity aids the burrs in breaking and throwing off the air-waves when forced against them, Figs. 1 and 2. It may be still further strengthened by placing the plates in the form of cones in the circular pipes used to conduct the hot air into rooms, Fig. 3, D, or a similar pipe, if used as a supply-flue for cold air, Fig. 3, G. For a square or oblong pipe or flue, if used as a supply-pipe, the plates should be flat and placed on the outside, with the burrs inward, Fig. 4, F, while, for a similar flue to carry air into a room on a side wall, the burrs or plate should be reversed, Fig. 4, E.

Fig. 1 is a heating-furnace of any kind; A,

the furnace or fire-chamber; a, the smoke-flue; B, the hot-air chamber; G, the cold-air chamber; c, the cold-air flue; D, hot-air flue; 1 and 2, the perforated partitions; H, water-pan and supply-pocket.

Fig. 2 is a view of the same heating-furnace, looking downward, with the top removed.

Fig. 3 is two sections of circular pipe, with perforated cones—c to carry the air downward, D to carry it upward.

Fig. 4 is two sections of oblong pipe or flue—F to pass air into the flue, E to pass air out of the flue. The arrows show the direction in which the air passes.

These perforated plates are applicable to all heating apparatus, furnaces, and stoves, to all ventilating-flues, and to smoke-flues, if so placed that they can be easily reached to remove the soot, which might easily clog such small openings. They apply, in short, to any opening or flue through which it is desired to have air pass freely in one direction, while it shall be hindered from passing in the opposite direction.

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

The combination, with a heating apparatus, of a foraminous plate perforated in the manner described—that is to say, with the larger end of the perforations toward the side from which the air is to be received, and the smaller pointed or burred end toward the hot-air chamber in which the air is to be warmed, or toward the apartment into which it is to be discharged after having been warmed.

MRS. JANE GREY SWISSHELM.

Attest:

J. G. MILLIGAN,  
W. B. NEGLY.