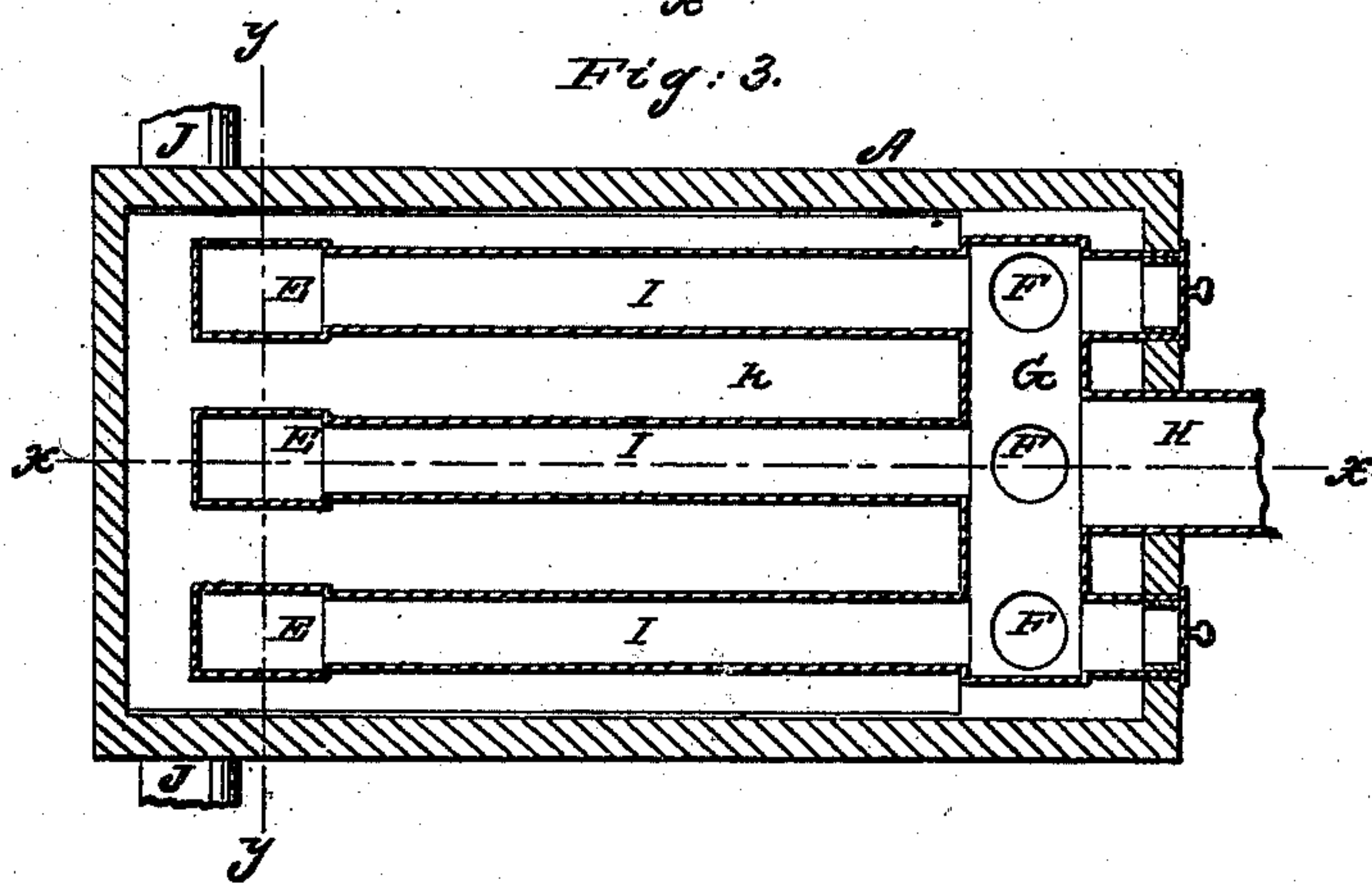
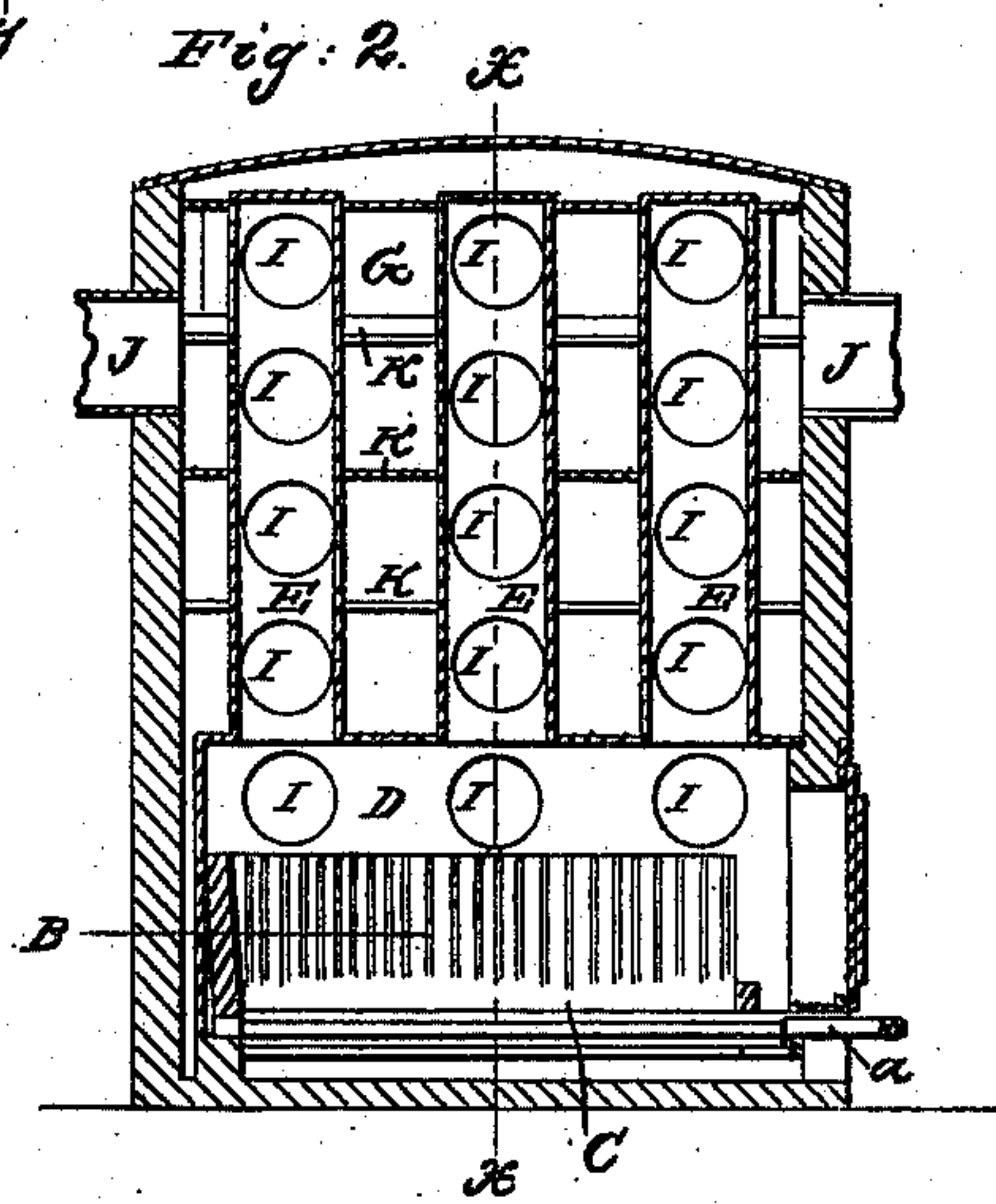
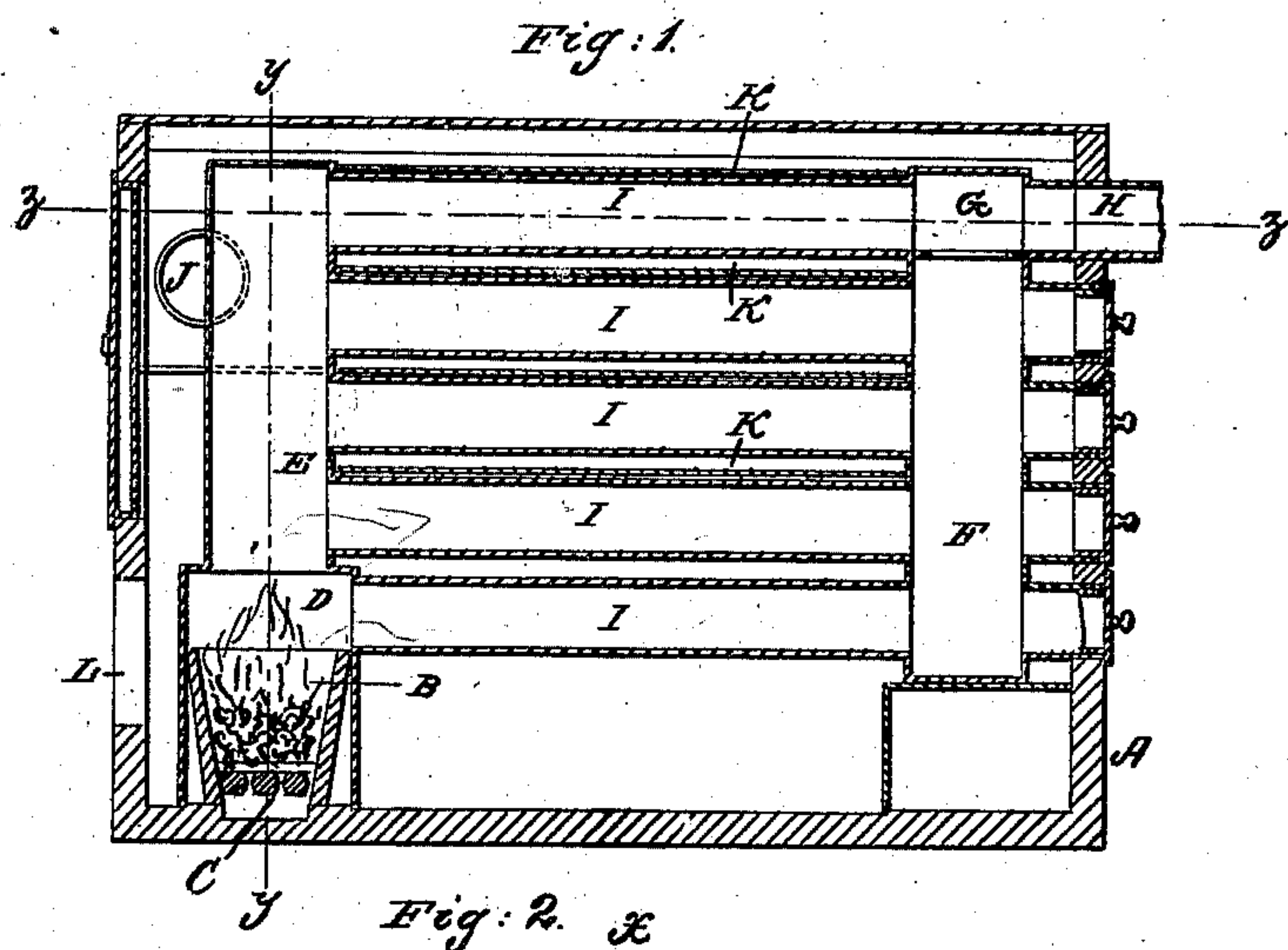


S. J. RUSSELL.

Hot Air Furnace.

No. 12,875.

Patented May 15, 1855.



UNITED STATES PATENT OFFICE.

S. I. RUSSELL, OF CHICAGO, ILLINOIS.

HOT-AIR FURNACE.

Specification of Letters Patent No. 12,875, dated May 15, 1855.

To all whom it may concern:

Be it known that I, S. I. RUSSELL, of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Hot-Air Furnace; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a longitudinal vertical section of my improvement (x) (x) Figs. 2 and 3 showing the plane of section. Fig. 2, is a transverse vertical section of ditto (y) (y) Figs. 1 and 3 showing the plane of section. Fig. 3, is a horizontal section of ditto (z) (z) Fig. 3, showing the plane of section.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to a new and improved hot air furnace, and consists in the peculiar construction of the same, arrangement of the smoke flues, etc., as will be presently shown, whereby air may be heated with a small consumption of fuel as a great area of heating surface is exposed within the air heating chamber.

To enable others skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a casing which may be of rectangular form and of any proper size, the casing may be constructed of masonry, or cast iron. At the front end of this casing and at its lower part the fire chamber B is placed, the fire chamber being constructed of iron lined with fire brick, or in any other proper manner and having its grate C formed of a series of round bars (a) placed a suitable distance apart, see Fig. 1. The bars (a) may be so arranged that they may be rotated when necessary for the purpose of raking the ashes from the fire chamber.

Directly over the fire chamber B, there is a square trunk or box D, on which, and communicating with it, there are three vertical trunks E, E, E, and there are also three vertical trunks F, F, F, at the back part of the casing. The trunks F being connected at their upper ends by a horizontal trunk G to which the smoke pipe H is attached.

The vertical trunks E, F, at the front and back parts of the casing are connected by a series of horizontal pipes I, one being over the other at suitable distances apart, as shown in Figs. 1 and 3.

J, J, are hot air pipes which communicate with the upper part of the chamber within the casing A.

Within the casing A there are placed a series of horizontal plates K which do not extend the entire length of the casing, a space being left at the back end, these plates are placed a suitable distance apart as shown in Figs. 1 and 2.

The plates K, being placed horizontally within the casing A give a circuitous direction to the cold air around and between the pipes I, and cause said air, which is to be heated by passing through the casing, to be generally diffused within the chamber, subjecting it to a great area of heated surface.

At the front end of the casing and at its lower part there is an opening L, see Fig. 1.

The smoke and heat from the fire chamber B passes up into trunks E, horizontal pipes I and trunks F into the smoke pipe H and a large heating surface is obtained thereby. The cold air enters the chamber within the casing through the opening L and passes to the back end of the casing and then back again to the front end and becomes perfectly heated and passes into the pipes J, J, by which it is conveyed to the desired apartments, valves or dampers may be placed in the trunks E, F, if desired in order to give the draft a more circuitous passage in passing through the pipes I and trunks E, F.

What I claim as new and desire to secure by Letters Patent is—

The employment of the vertical trunks E, F, horizontal pipes I, and horizontal plates K, K, connected with the fire chamber B and inclosed by a casing A, when arranged substantially as herein shown, and for the purpose as set forth.

S. I. RUSSELL.

Witnesses:

GEO. T. CLINE,
BRADFORD SLOAT,
C. D. WOLF.