

(No Model.)

F. HUNDT.
Furnace.

No. 239,788.

Patented April 5, 1881.

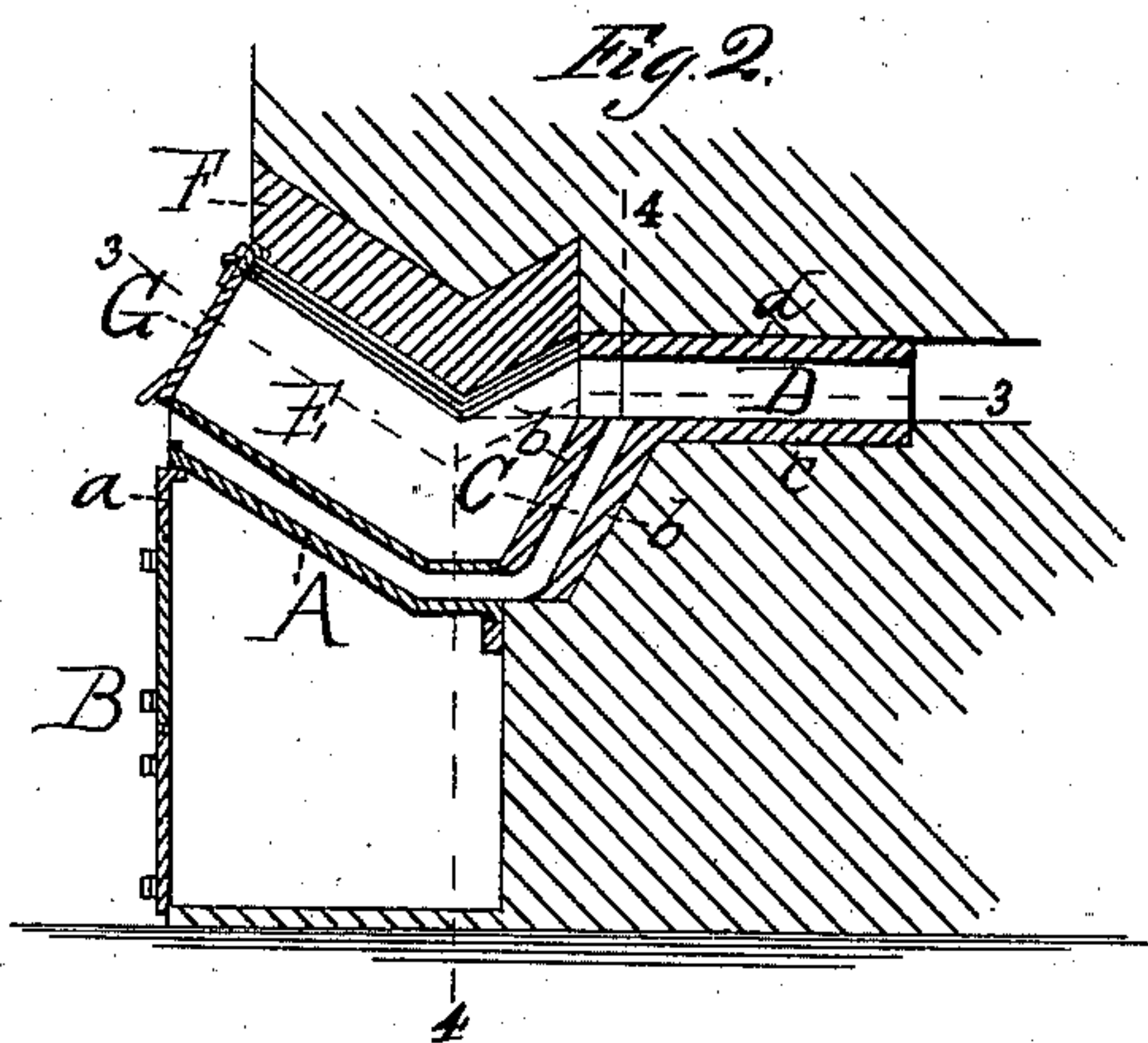
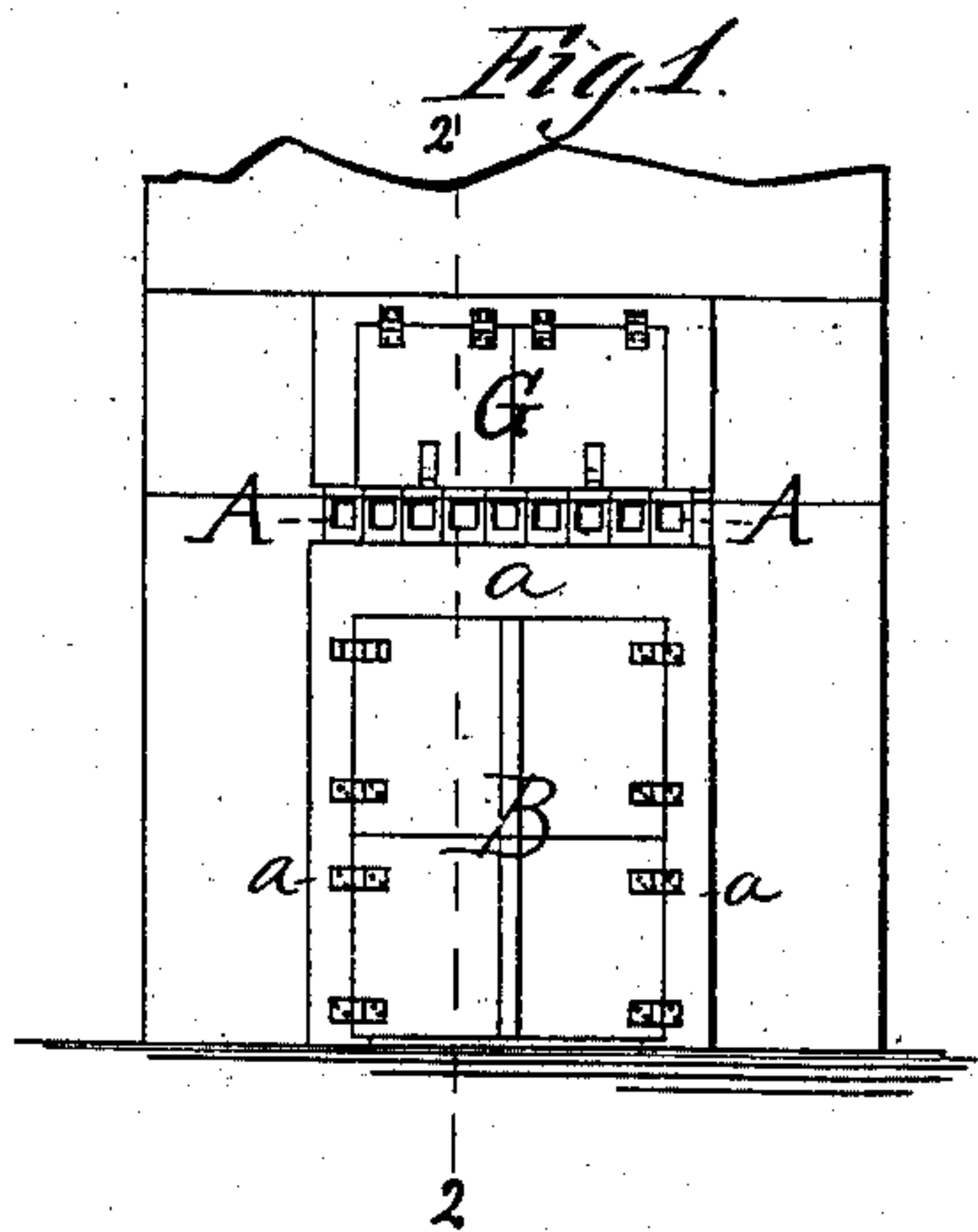


Fig. 3.

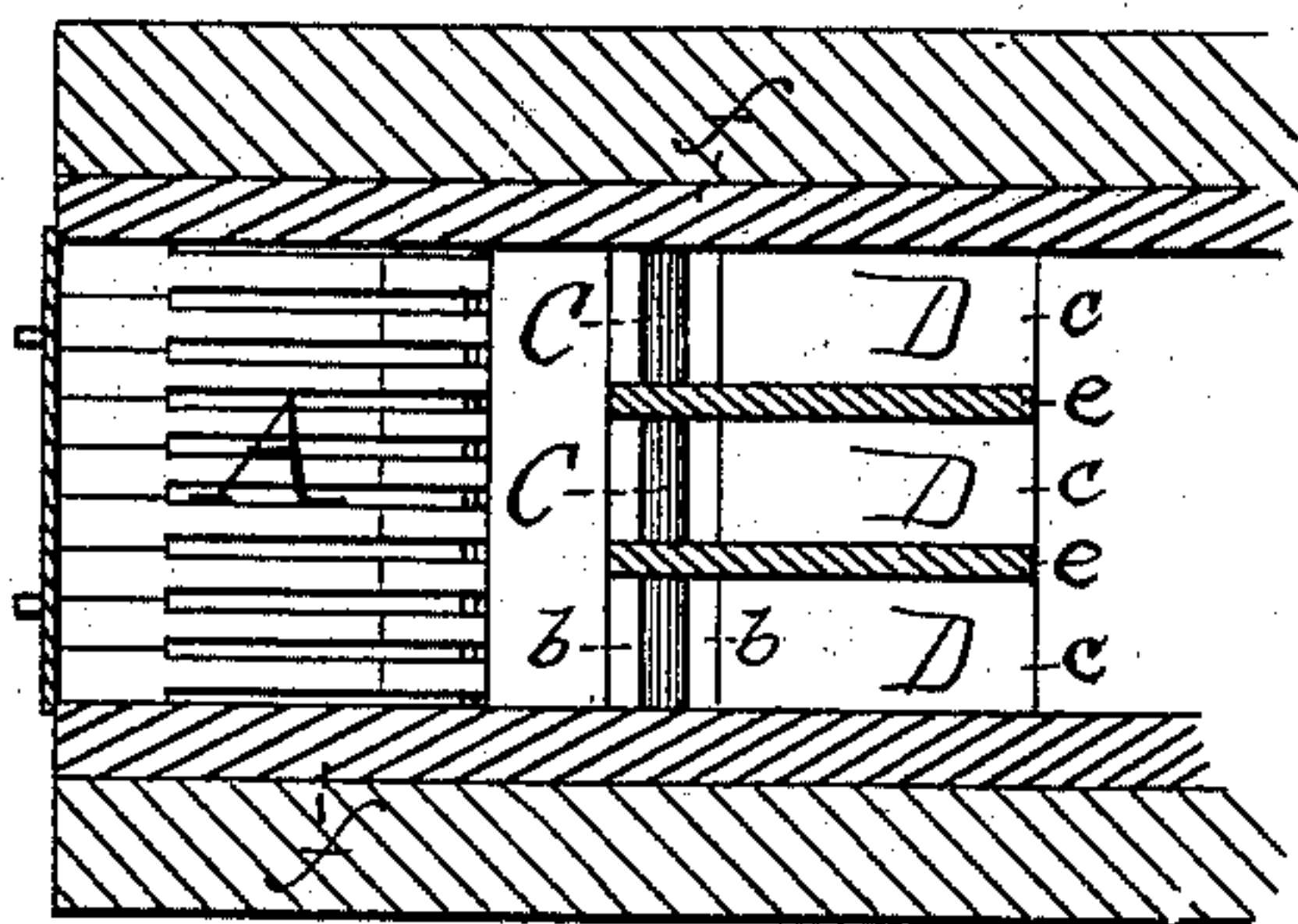
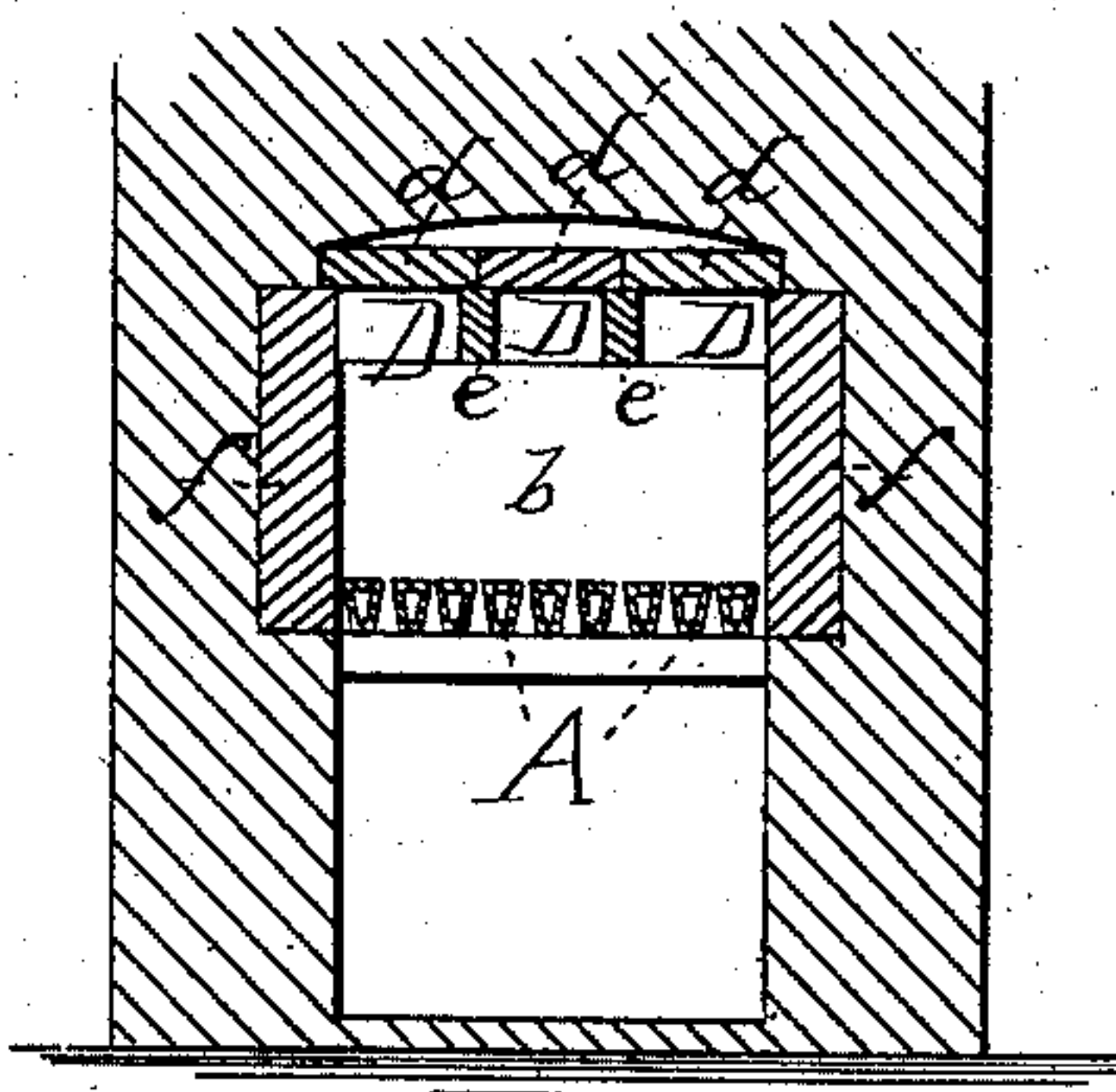


Fig. 4.



Witnesses:
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UNITED STATES PATENT OFFICE.

FRIEDRICH HUNDT, OF CHICAGO, ILLINOIS.

FURNACE.

SPECIFICATION forming part of Letters Patent No. 239,788, dated April 5, 1881.

Application filed August 12, 1880. (No model.)

To all whom it may concern:

Be it known that I, FRIEDRICH HUNDT, of Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Furnaces, of which the following is a specification.

The object I have in view is to provide a furnace for steam-boilers and other purposes which will produce more perfect combustion than heretofore, and will prevent the grate-bars from burning out, and will at the same time be simple in construction.

My invention consists in the peculiar means employed by me for accomplishing this object, as fully hereinafter explained, and pointed out by the claims.

In the accompanying drawings, forming a part hereof, Figure 1 is a front elevation of the furnace; Fig. 2, a vertical section from front to rear on line 2 2; Fig. 3, a horizontal section on line 3 3, and Fig. 4 a vertical cross-section on line 4 4.

Like letters denote corresponding parts in all the figures.

A represents the grate-bars, which are inclined downwardly toward the bridge-wall, so as to be self-feeding. At their inner ends they are supported by the brick-work, while at their outer ends they rest upon the frame *a* of the ash-pit doors B. These grate-bars are made hollow throughout their length, being open at their outer ends to the exterior air, and at their inner ends being connected with upright flues C in the bridge-wall, which flues are formed of slabs or plates *b*, of fire-clay. Such upright flues C open at their upper ends into horizontal flues D, having bottom slabs, *c*, and top slabs, *d*, supported by vertical plates or slabs *e*, all such slabs being formed of fire-clay.

The combustion-chamber E has an arched top, F, of fire-clay, inclined downwardly about parallel with the grate-bars, and then upwardly to the tops of the horizontal flues D. The side walls, *f*, of the combustion-chamber are lined with slabs of fire-clay, while the front end of the combustion-chamber is closed by one or two doors, G.

Air is caused to circulate rapidly through the hollow grate-bars by the draft, and this

air prevents such bars from becoming highly heated, as they otherwise would be, and thereby makes them much more durable in use. The air which passes through the hollow grate-bars is heated to a high degree, and, mingling with the heated gases at the top of the bridge-wall, causes their complete combustion, which combustion is materially assisted by the contact of the products or gases with the walls of the horizontal fire-clay flues D.

By having the top of the combustion-chamber inclined downwardly to the rear, about parallel with the inclined hollow grate-bars, the unconsumed gases which rise from the fresh coal at the upper and front end of the combustion-chamber are forced on their passage to the bridge-wall intimately into contact with the incandescent coal at the lower end of such combustion-chamber. These gases become thereby highly heated and are partly consumed, and such portions of them as are not consumed at that point are prepared for complete combustion, which takes place by the admixture of the gases with the heated air at the top of the bridge-wall.

The ash-pit doors may have air-registers, and the open ends of the grate-bars may be provided with means, if desired, for closing them at pleasure.

What I claim as my invention is—

1. In a furnace, the inclined hollow grate-bars A, connected at the front of the furnace with the exterior air and with upright flues C in the bridge-wall, in combination with the inclined top F of the combustion-chamber and the horizontal flues D, extending rearwardly from the bridge-wall, substantially as described and shown.

2. In a furnace, the combination of the combustion-chamber E, having inclined top F, the inclined hollow grate-bars A, the upright flues C in the bridge-wall, formed of slabs *b*, of fire-clay, and the narrow horizontal flues D, formed of fire-clay slabs *c d e*, all constructed and arranged substantially as described and shown.

FRIEDRICH HUNDT.

Witnesses:

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