

(No Model.)

V. K. McELHENY.  
SMOKE CONSUMING FURNACE.

No. 543,424.

Patented July 23, 1895.

Fig 1.

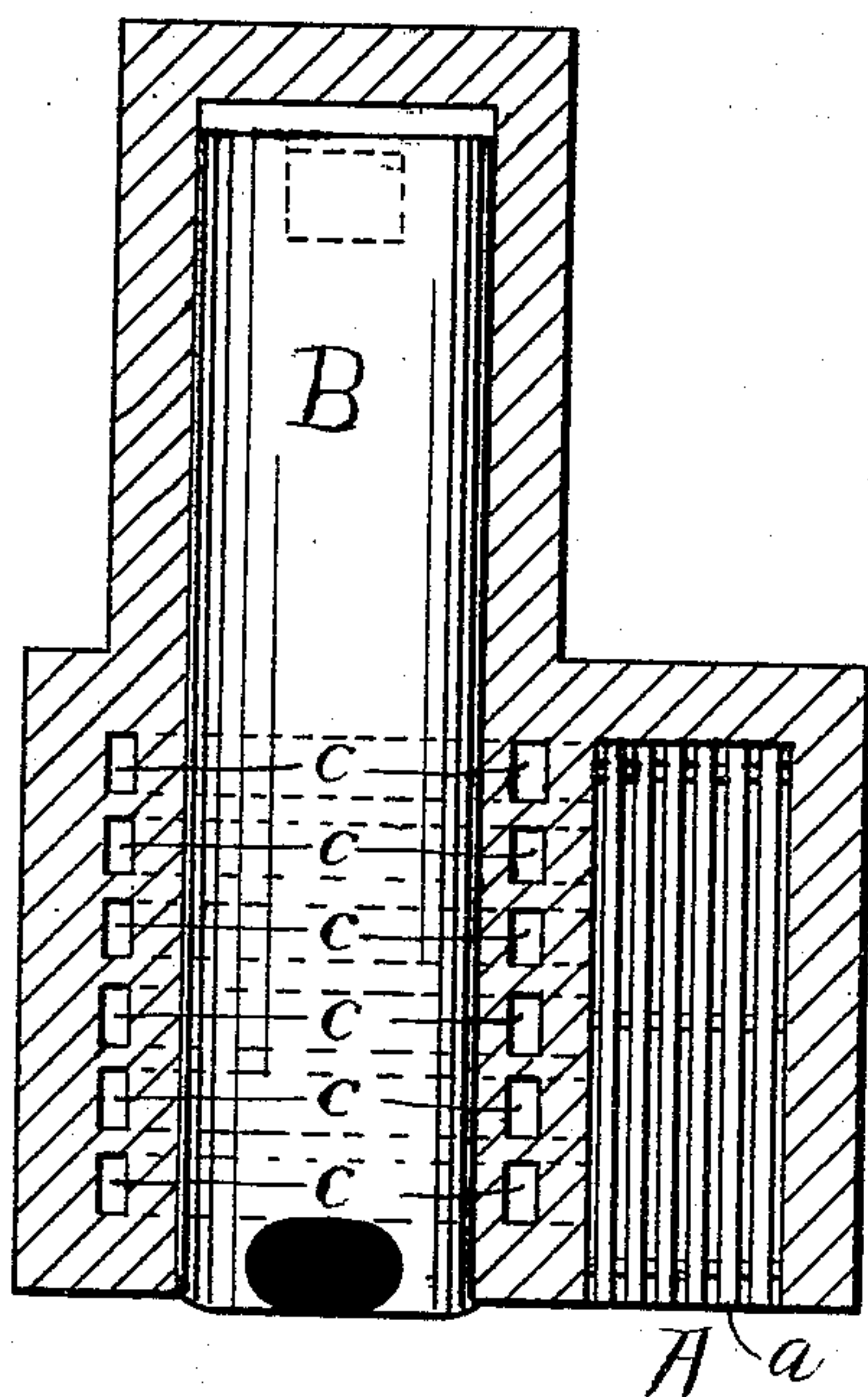


Fig 2.

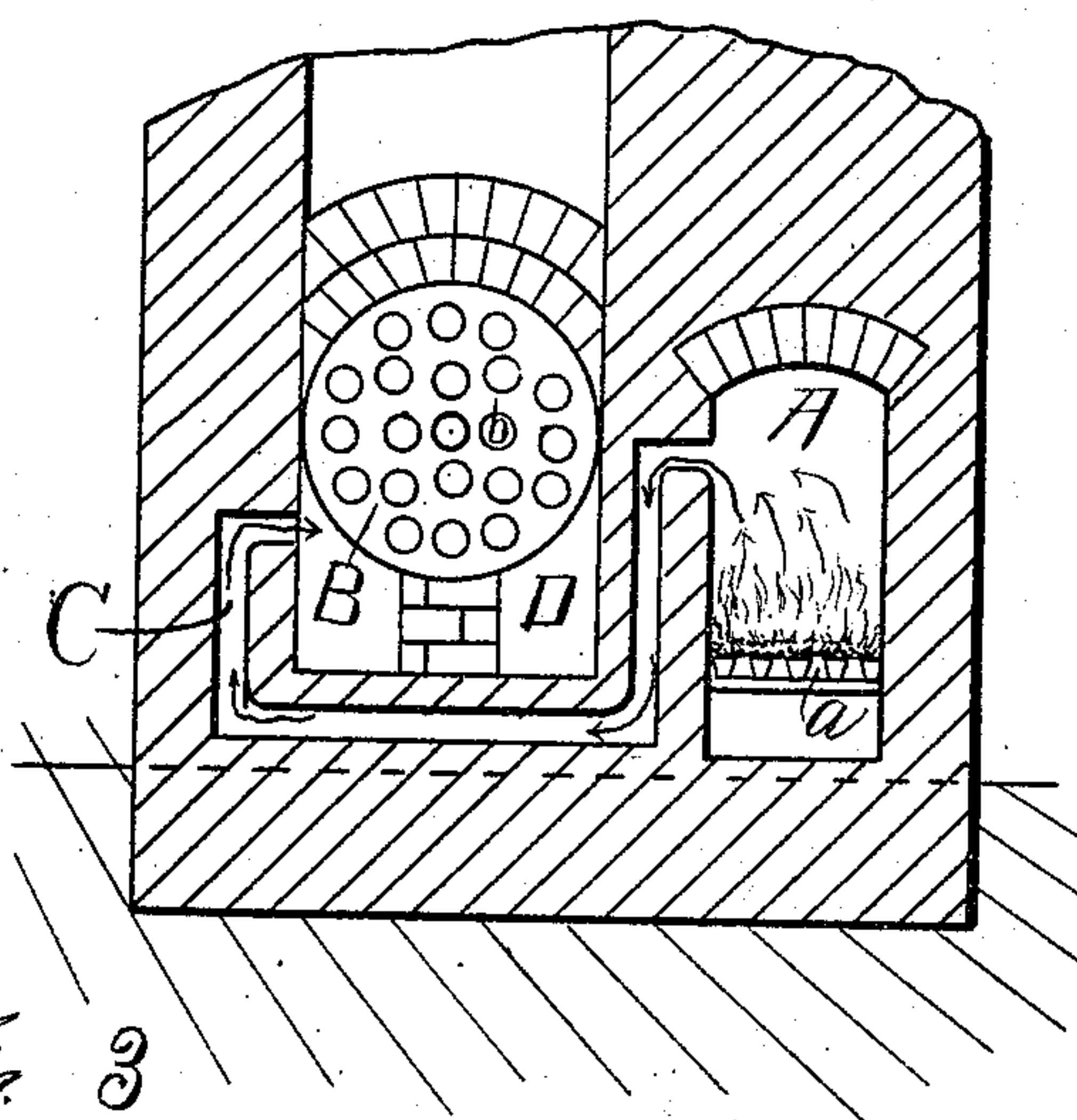
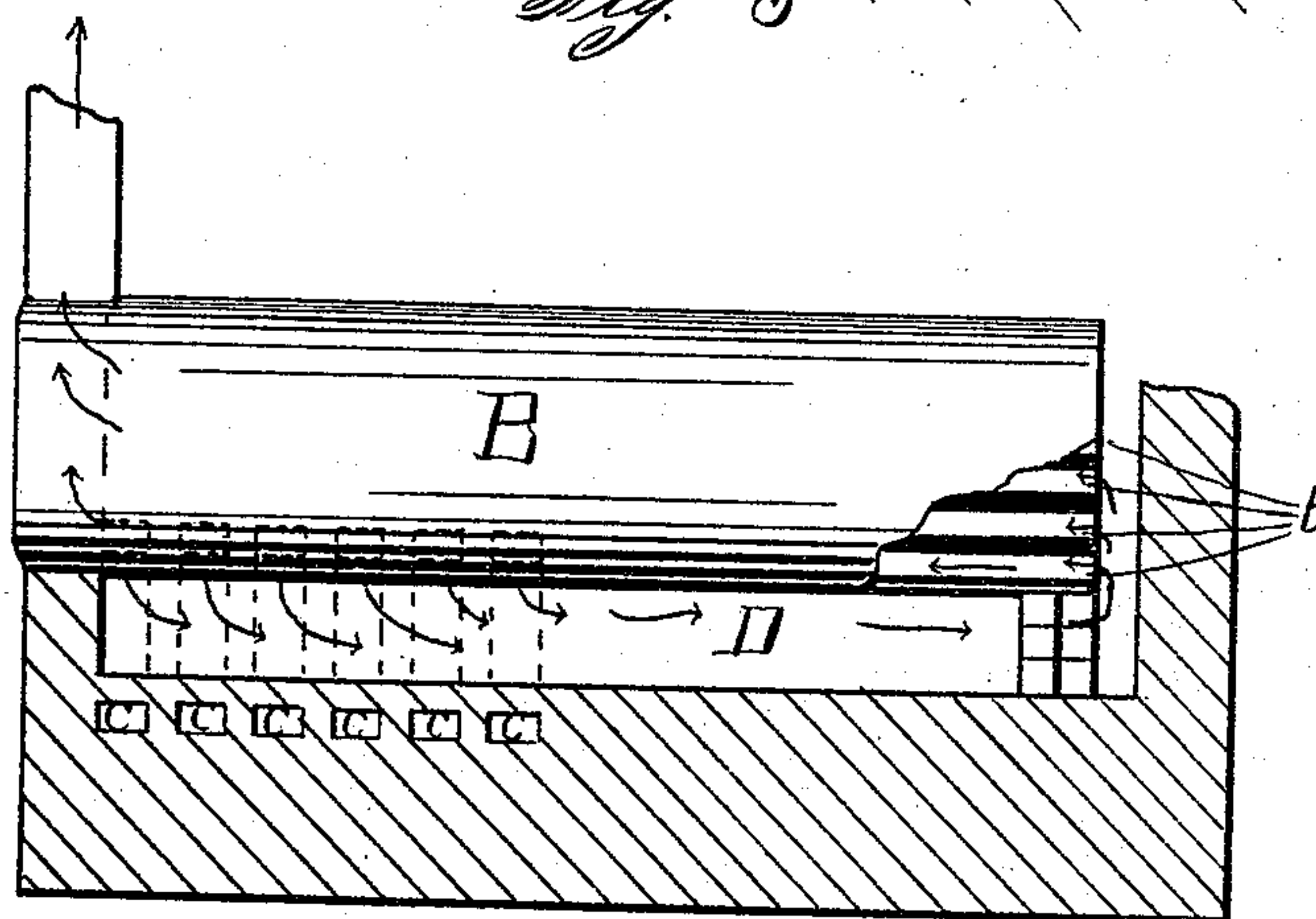


Fig 3.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

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## SMOKE-CONSUMING FURNACE.

SPECIFICATION forming part of Letters Patent No. 543,424, dated July 23, 1895.

Application filed November 3, 1894. Serial No. 527,794. (No model.)

*To all whom it may concern:*

Be it known that I, VICTOR K. McELHENY, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Smoke-Consuming Furnaces; 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, and to the letters of reference marked thereon, in which—

Figure 1 is a horizontal section of the furnace, showing a boiler placed in proper position. Fig. 2 is a vertical cross-section of the furnace, showing the location and arrangement of one of the flues leading from the fuel-chamber or furnace to the combustion-chamber. Fig. 3 is a vertical horizontal section.

The present invention has relation to smoke-consuming furnaces; and it consists in the peculiar construction and arrangement hereinafter described, and particularly pointed out in the claim.

Similar letters of reference indicate corresponding parts in all of the figures of the drawings.

In the accompanying drawings, A represents the fuel-chamber, which is provided with suitable grate-bars *a*, which grate-bars may be located and arranged substantially as shown, or they may be differently arranged, inasmuch as the grate-bars within themselves form no particular part of the present invention, except that grate-bars must be used to carry out the object of the present invention.

The fuel-chamber A is located to one side of the boiler B, and is provided with a closed top and rear end. From the upper portion of the furnace A lead a series of flues C, which flues are formed in the walls of the boiler-furnace proper, and extend downward to a point below the chamber D, and horizontally below said chamber D, and are extended upward and into the chamber D.

The fuel-chamber A is used in the ordinary

manner, the flame and smoke being conveyed through the flues C. As the flame passes through the flues C they will become heated, thereby consuming the smoke as it passes through said flues. The flame will enter the chamber D directly below the boiler, from whence it is conveyed rearward and brought through the flues *b* in the ordinary manner.

It will be understood, by locating the flues C as illustrated in the drawings, that the flame must necessarily travel a circuitous route, thereby causing the smoke to mingle with the flame to be consumed.

It will also be understood that by providing a series of flues the body of the flame, together with the smoke, will be divided, thereby providing a better means for consuming the smoke, inasmuch as the smoke is divided, which gives the flames a more direct contact upon the particles forming the smoke.

The flues C are extended laterally from the fuel-furnace A, by which arrangement the flames are first extended downward below the boiler-heating chamber D and thence upward, thereby giving the flame a sufficient distance to travel to better consume the smoke, by which arrangement the smoke is substantially consumed or removed from the flame and heat before it reaches the boiler-heating chamber.

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

The combination of the fuel chamber A, located to one side of the boiler furnace, a series of flues leading from the side of the fuel chamber, and extended downward below the boiler furnace, and thence upward, and into said boiler furnace, substantially as and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

VICTOR K. McELHENY.

Witnesses:

JOHN N. DUNN,

DAVID S. McCANN.