

(No Model.)

S. SMYTH.
GRATE FOR STOVES OR FURNACES.

No. 577,666.

Patented Feb. 23, 1897.

Fig. 1.

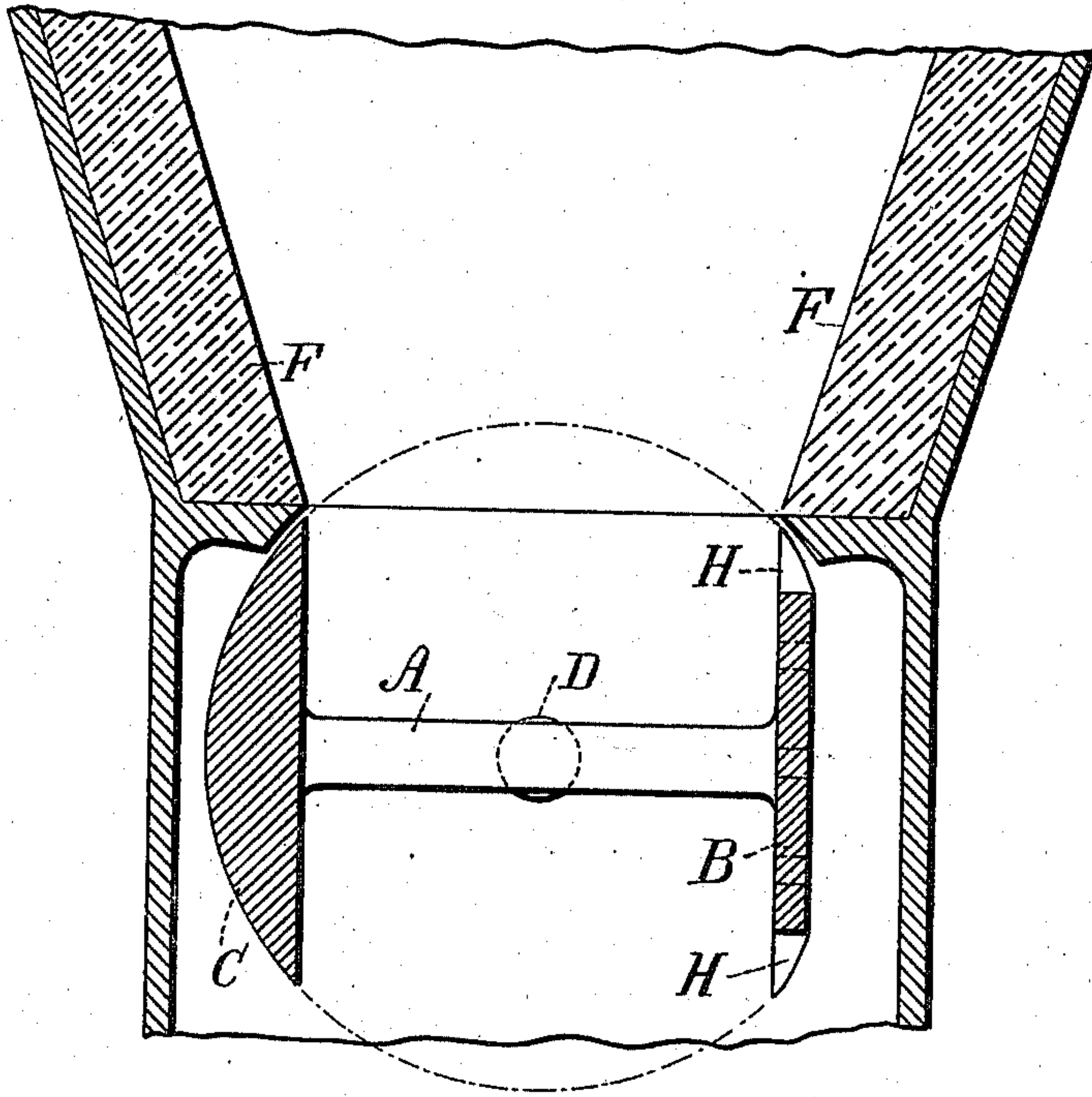


Fig. 2.

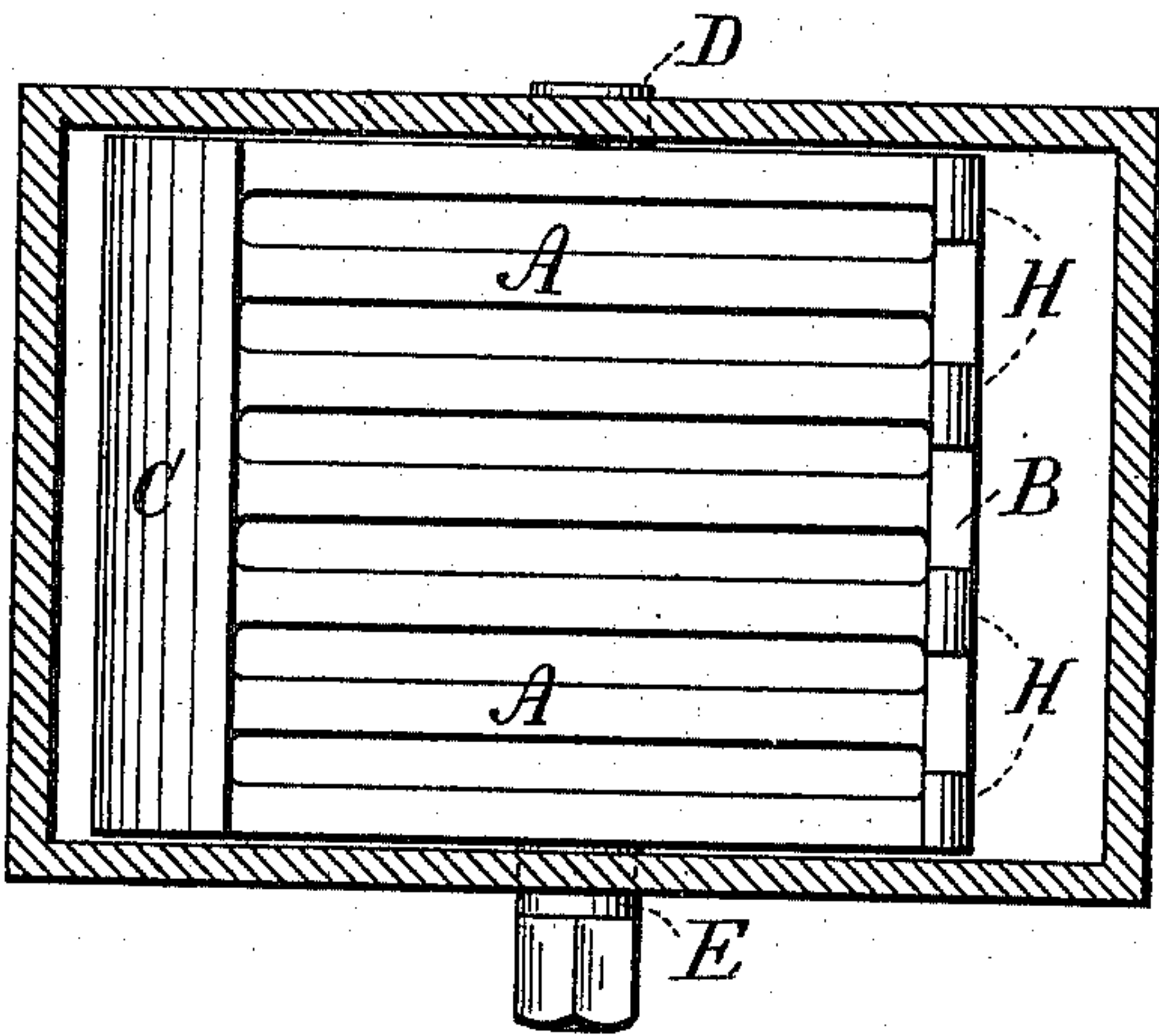
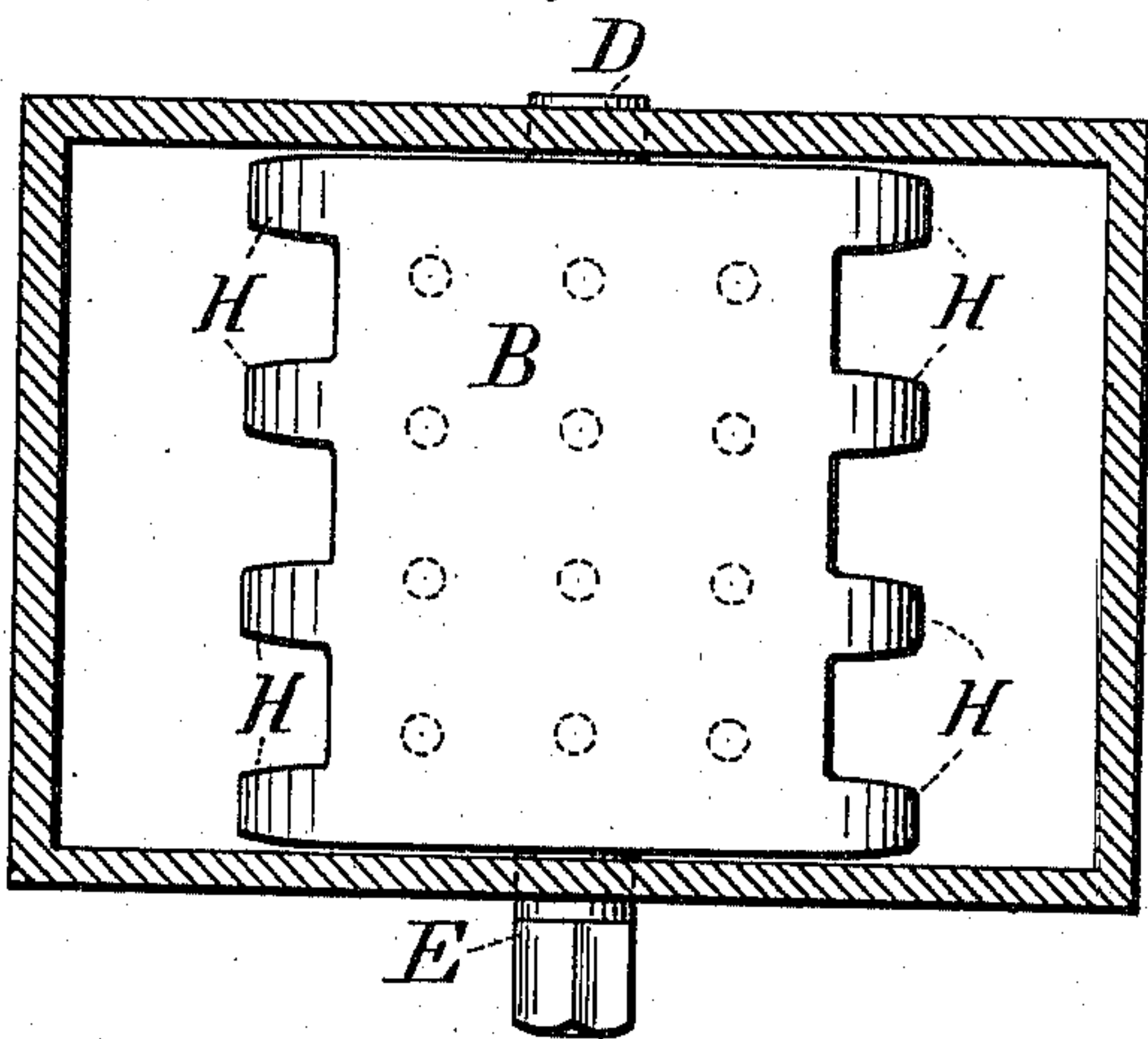


Fig. 3.



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UNITED STATES PATENT OFFICE.

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GRATE FOR STOVES OR FURNACES.

SPECIFICATION forming part of Letters Patent No. 577,666, dated February 23, 1897.

Application filed October 13, 1896. Serial No. 608,711. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL SMYTH, a citizen of the United States, residing at Pittston, in the county of Luzerne and State of Pennsylvania, have invented an Improvement in Grates for Stoves or Furnaces, of which the following is a specification.

In Letters Patent No. 140,224, granted to me June 24, 1873, a grate is represented having two segments at opposite sides of a flat grate, pivoted in the center, so that the grate can be revolved, and in so doing will cut off, separate, and discharge ashes and clinkers that may settle down upon the flat portion of the grate.

In the present instance I make a grate that can be revolved upon end pivots, and this grate is adapted to burning ordinary coal or to the burning of wood, or to the closing of the lower end of the fire-pot in such a manner as to shut off the draft, or nearly so, in order that the fire may be either extinguished or simply smoulder, and with either wood or coal the contents of the fire-pot can be dumped with rapidity by the rotation or oscillation of the grate upon its axis.

In the drawings, Figure 1 is a cross-section representing the improved grate and a portion of the lower end of the fire-pot. Fig. 2 is a plan view of the grate, and Fig. 3 shows the surface that is adapted to the burning of wood.

The bars A are at suitable distances apart for burning coal of any desired size, and the ends of the bars are united to the plate B at one end and to the plate C at the other end, and there are pivots D E, upon which the grate can be revolved, and these pivots are supported in any suitable bearing bars or plates, and one of them should be provided with a square for a shaker or wrench by which the grate can be revolved.

The lower ends of the fire-pot F extend down to the exterior segmental surface of the plate C, or nearly so, there being sufficient space between the grate and the lower ends of the fire-pot F for the grate as a whole to be rotated freely upon its axis, and the length of the bars A corresponds, or nearly so, to the width between the lower ends of the fire-pot, and the length of the flat side of the plate C corresponds, or nearly so, to the length of the bars A. Hence when the grate is in the po-

sition shown in Fig. 1 the fire will be supported by the bars A and will burn between the plates B and C and up into the fire-pot, and when the grate receives a quarter-revolution the plate C is brought up at the lower end of the fire-pot and substantially closes the same, so as to check or deaden the fire or extinguish the same, and if the grate receives a half-revolution the grate A is brought with the other sides of the bars upward to receive the fire, and ashes and clinkers that may have accumulated upon the grate A and between the plates B and C are discharged from the grate, and in addition to this the ashes can be shaken out by an oscillating movement given to the grate as a whole.

It will be observed that the plate B is not as wide as the plate C, so that when the grate receives a quarter-rotation to bring the plate B upward there are openings between the edges of the plate B and the lower edges of the fire-pot. Hence this plate is adapted for burning wood because there will be sufficient air-spaces between the edges of the plate B and the lower edges of the fire-pot for the draft to pass freely into the wood fire, and, if desired, this plate B may have holes through it at any desired intervals for admitting more air, and I find it also advantageous to have projecting teeth H at the edges of the plate B sufficiently close together to prevent pieces of burning wood dropping down through the openings, and while this plate B with the teeth upon the edge is especially adapted to burning wood it might be used for charcoal or other fuel.

By this improvement I am able to adapt a stove, range, or furnace to different kinds of fuel without interfering with the usefulness of the grate when burning the quality of coal for which such stove, range, or furnace is principally intended, and the segment or plate C becomes substantially a damper for checking or extinguishing the fire.

In Letters Patent No. 199,752 a two-part grate is represented having concave surfaces for burning coal and convex exterior segments adapted to burning wood; but these have to be used in pairs, as shown, and they are not adapted to being entirely revolved.

I claim as my invention—

1. The combination in a grate, of bars for supporting the fuel with intervening spaces

for the free passage of air, and a plate connected with the bars and of a size adapted to close, or nearly so, the air-inlet, end pivots upon which the grate can be turned so as to
5 bring the plate up to the lower end of the fire-pot for excluding the air or nearly so, or to bring the bars into position for supporting the fuel, substantially as set forth.

2. The combination in a grate, of bars for
10 supporting the fuel with intervening spaces for the free passage of air, and a segmental plate connected with the bars and of a size adapted to close, or nearly so, the air-inlet, end pivots upon which the grate can be turned
15 so as to bring the segmental plate up to the lower end of the fire-pot for excluding the air or nearly so, or to bring the bars into position for supporting the fuel, substantially as set forth.

20 3. The combination in a grate, of bars for supporting the fuel with intervening spaces for the free passage of air, a plate connected with the bars and having projecting teeth at the edges, and end pivots upon which the

grate can be turned for bringing the plate up 25 into position for supporting the fuel such as wood, and for admitting a small quantity of air to pass in between the teeth, substantially as set forth.

4. The combination in a grate, of bars for 30 supporting the fuel with intervening spaces for the free passage of air, a plate with a segmental surface adapted to close, or nearly so, the air-inlet to the fire, a second plate also supported by the bars and adapted to admit 35 a smaller quantity of air and end pivots for supporting the grate and upon which such grate can be turned to bring the segmental plate into position for closing the air-inlet, or
40 nearly so, or for bringing the second plate into position for supporting wood or similar fuel, or for allowing the fuel to rest upon the grate-bars, substantially as set forth.

Signed by me this 9th day of October, 1896.

SAMUEL SMYTH.

Witnesses:

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