

(No Model.)

G. C. DUNKLEE.

FIRE GRATE FOR FURNACES, STOVES, &c.

No. 388,647.

Patented Aug. 28, 1888.

Fig. 1.

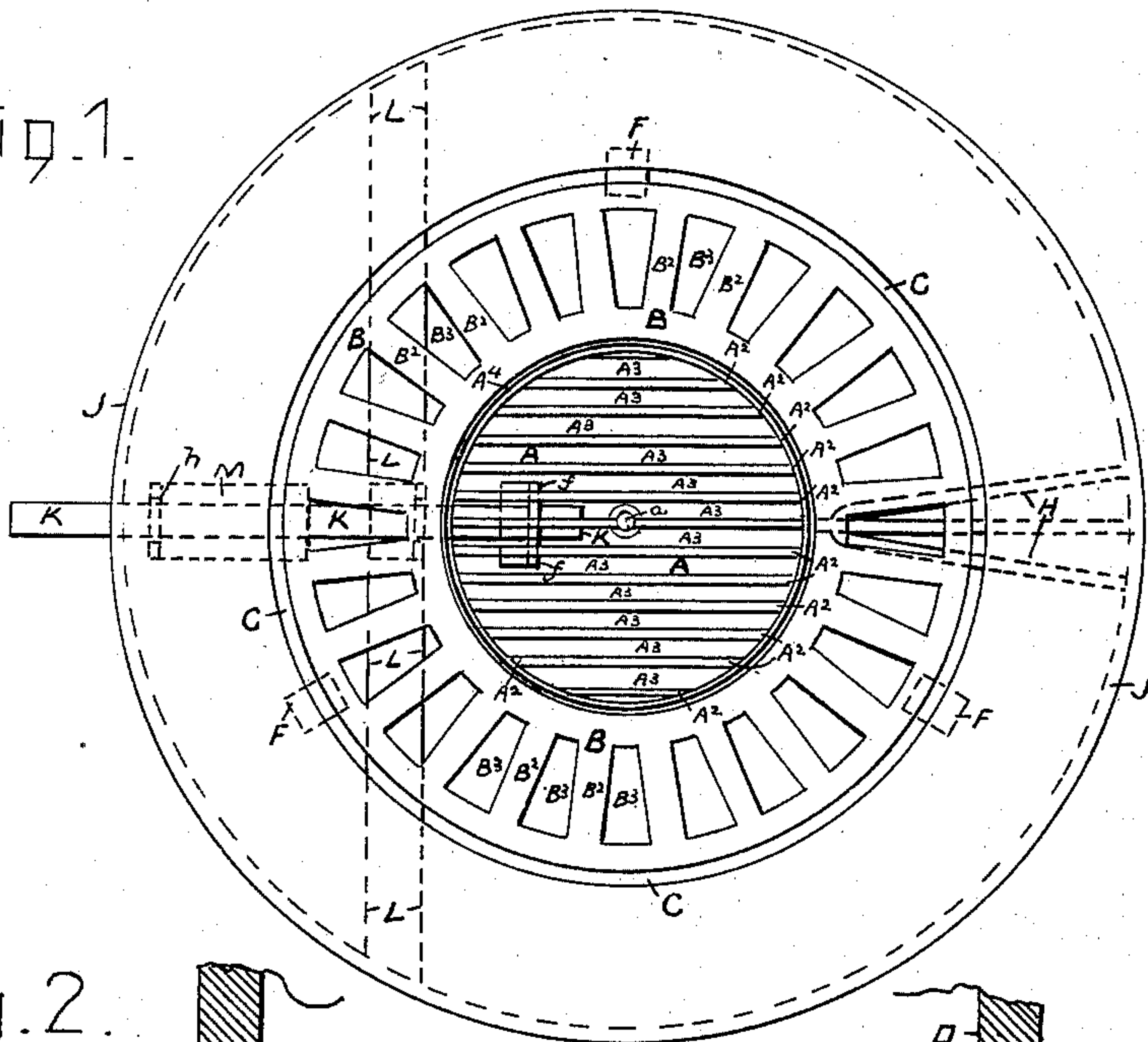


Fig. 2.

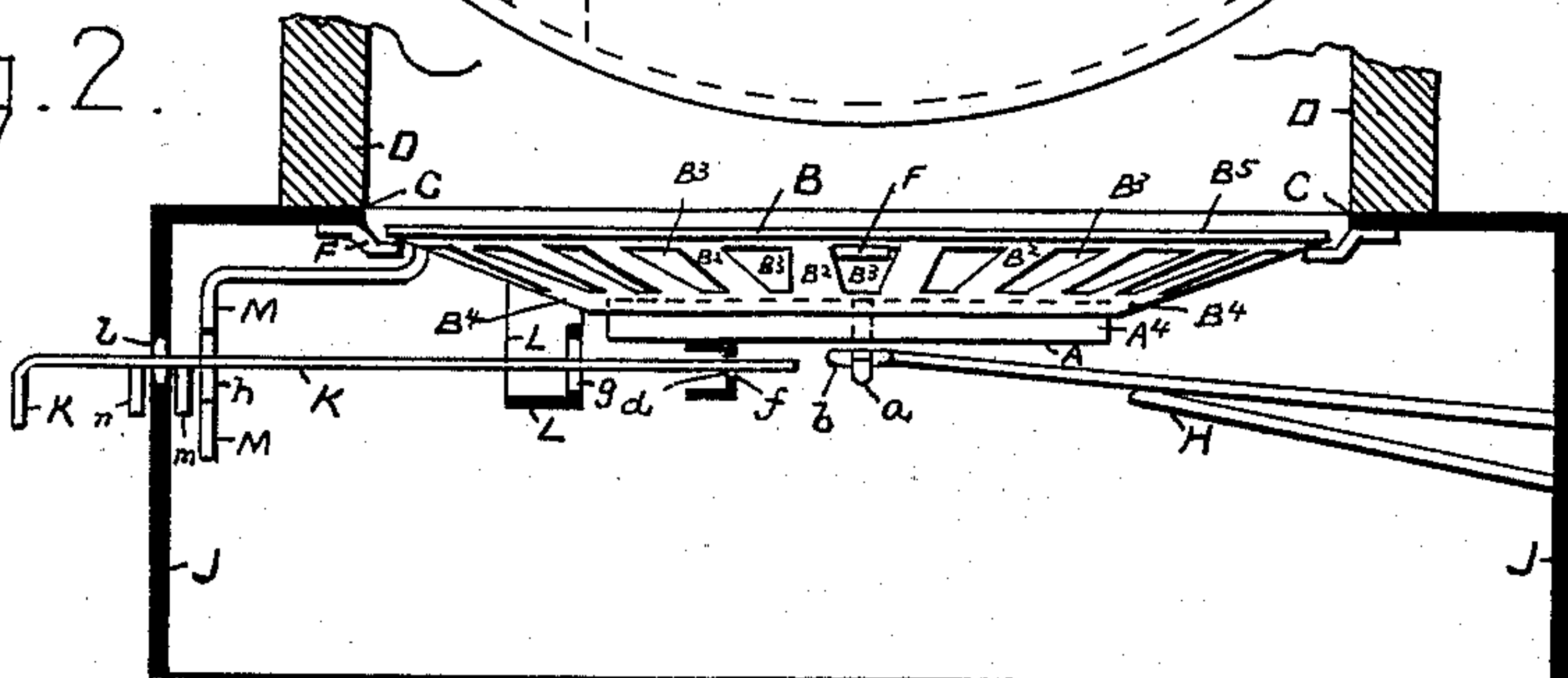
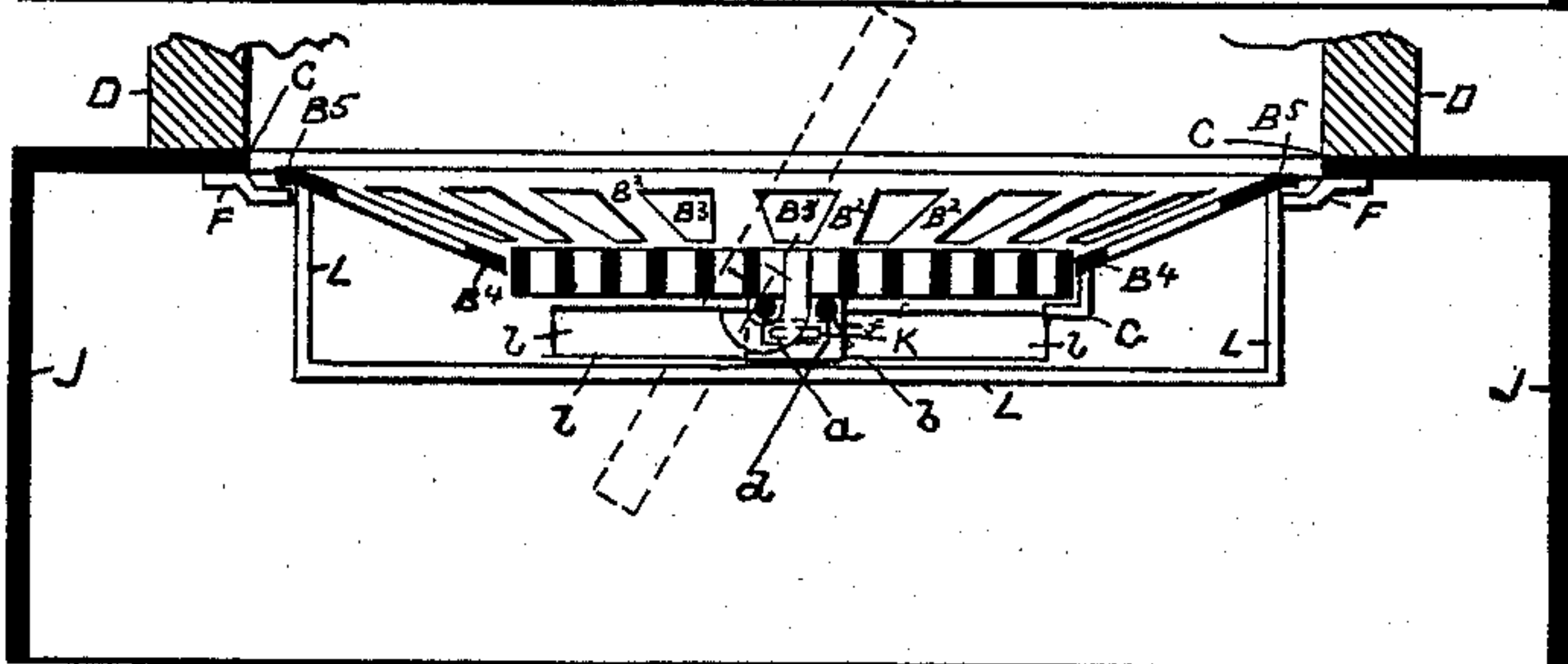


Fig. 3.



WITNESSES.

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# UNITED STATES PATENT OFFICE.

GALUSHA C. DUNKLEE, OF BOSTON, MASSACHUSETTS.

## FIRE-GRATE FOR FURNACES, STOVES, &c.

SPECIFICATION forming part of Letters Patent No. 388,647, dated August 28, 1888.

Application filed October 3, 1887. Serial No. 251,366. (No model.)

*To all whom it may concern:*

Be it known that I, GALUSHA C. DUNKLEE, of the city of Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Fire-Grates for Furnaces, Stoves, &c., of which the following is a full, clear, and exact description.

The object of this invention in fire-grates for stoves, furnaces, &c., is to secure increased efficiency to the grate by suitably shaking it for freeing and discharging the ashes through its openings, while at the same time the grate is capable of being dumped, to thereby discharge the contents of the fire-pot of the furnace or stove.

The fire-grate of this invention is in two parts—inner and outer—both horizontal. The form of the inner part is circular and of the outer annular, and the two are concentrically arranged, the inner within and loosely fitting the outer, and the outer is suitably supported on the walls of the fire-pot, and both parts are connected, and otherwise each is suitably arranged to be rotated in directions opposite to each other and from the oscillations of an operating-rod common to both, and the inner part to be dumped by means of said rod, all substantially as hereinafter described.

In the drawings forming part of this specification, Figure 1 is a plan view of the fire-grate of this invention. Figs. 2 and 3 are cross-sections, as hereinafter appears.

In the drawings, A is the inner and B is the outer part of the two-part fire-grate. The inner part, A, of the two-part grate is circular in form, and, as particularly shown, its bars  $A^2$  and the spaces  $A^3$  between them are straight and in lines severally parallel with its diametrical line, and they are severally joined to or in one piece with a circular band or ring,  $A^4$ , making the outer edge of part A. The outer part, B, of the two-part grate is annular in form, with an inner diameter slightly larger than the outer diameter of the inner and circular part, A, and an outer diameter slightly less than the diameter of the hole C at the bottom of the fire-pot D (partially shown) of a furnace or stove, and in which it is to be placed. Again, the outer part, as particularly shown, has bars  $B^2$  and spaces  $B^3$  between them, all of which are in radial lines with its center, and

these bars  $B^2$  at their inner and outer ends are severally joined to or in one piece with inner and outer rings,  $B^4$   $B^5$ , respectively, making the inner and outer edges of said part; and, furthermore, the upper surface of the outer parts with it and the inner part in position, as hereinafter explained, inclines downwardly from its outer to its inner edge, or, in other words, toward the outer edge of the inner part.

The outer part, B, rests upon suitable support at different points around the opening C at the bottom of the fire-pot D, and which supports, as particularly shown, are a series of lug or ear-pieces, F, projected from the side of said opening; but these supports may be of other forms well known, and therefore needing no particular explanation. The inner part, A, loosely fills the central opening of the outer annular part, B, resting at one side on a lugs or ear-piece, G, of the outer part, and at its center provided with a vertical and curved pivot or bolt,  $a$ , entering and loosely fitting the opening of an eye,  $b$ , at one end of a bracket-arm, H, which is under the grate, and horizontally extends from and is attached to one side of the wall of the ash-pit J. (Partially shown.)

K is a rod or lever for operating, as will be hereinafter explained, the two-part grate above described. This rod K is horizontal and below the grate, and at its inner end it is entered into a horizontal rectangular eye or opening, of an ear-piece,  $f$ , of the inner grate, A, extending therefrom to and through a vertical circular eye or opening,  $g$ , of a stationary horizontal cross-bar, L, of the ash-pit, which makes its fulcrum, and thence to and through the vertical circular eye or opening  $h$  of an ear-piece, M, of the outer grate, B, outside of said cross-bar, and a horizontal slotted opening,  $l$ , in the wall of the ash-pit to the outside thereof, where, preferably, it is either shaped or provided with or adapted as a handle for convenience in handling it. This rod K is the operating-rod of the grate, and being moved in either direction along the slotted opening  $l$  of the ash-pit from its engagement, as described, with the inner and outer grates, A B, the grates are thereby made to simultaneously move or rotate, the outer grate in the direction



of the movement of the operating-rod and the inner grate, A, in the opposite direction.

- As shown, the operating-rod is a flat bar and its fulcrum and bearing of the outer grate are  
 5 circular, which allows the rod to be turned, and thereby to dump or upset the inner grate, lifting it at the side of its edge, which has a rest or support, G, on the outer grate, and lowering it at the opposite side, Fig. 3.
- 10 The operating-rod K is loose in its connection with the outer and inner grates and the fulcrum-bar, all as described, so as to be free to be disconnected therefrom by simply drawing it outwardly lengthwise through them,  
 15 when otherwise suitably situated therefor, as will appear; and to prevent its accidental detachment it has on its under side two downwardly-projecting lips, *m n*, one inside and the other outside of the walls of the ash-pit.
- 20 To disengage the operating-rod from the grates and its fulcrum-bar, as has been stated, it must be first turned so as to bring its said lips *m n* in line with the slotted opening *l* of the ash-pit, and, so placed, the rod can then be  
 25 drawn outward through said slotted opening, which and said lips are of suitable relative width therefor.

- A grate made in two parts and arranged to be rotated in opposite directions, as described,  
 30 obviously secures a most efficient sifting or removal of the ashes and obviates the tendency of a blocking of the grate with clink-

ers and pieces of coal, while the inner part is free to be dumped or upset when desired to empty the contents of the fire-pot either in whole or in part.

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

In combination, an inner circular grate, A, 40 having a horizontal rectangular eye, *d*, and a central pivot, *a*, turning in a bearing, *b*, of a stationary support, H, an outer annular grate, B, surrounding inner grate, A, and having a vertical circular eye, *h*, and a rest, G, for grate 45 A, supports F at and about a circular opening, C, for grate B, an operating-rod, K, and a fixed support, L, for said rod K, having a vertical circular eye, *g*, and said rod extending through and engaging said several eyes *d*, 50 *h*, and *g*, whereby, through the rod K, the grates A B can be rotated on their said respective supports simultaneously in opposite directions and the inner grate dumped, all substantially as described, for the purpose specified. 55

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GALUSHA C. DUNKLEE.

Witnesses:

ALBERT W. BROWN,  
 FRANCES W. BROWN.