

(No Model.)

3 Sheets—Sheet 1.

J. A. MILLER.  
FIRE POT FOR STOVES.

No. 277,050.

Patented May 8, 1883.

Fig. 1.

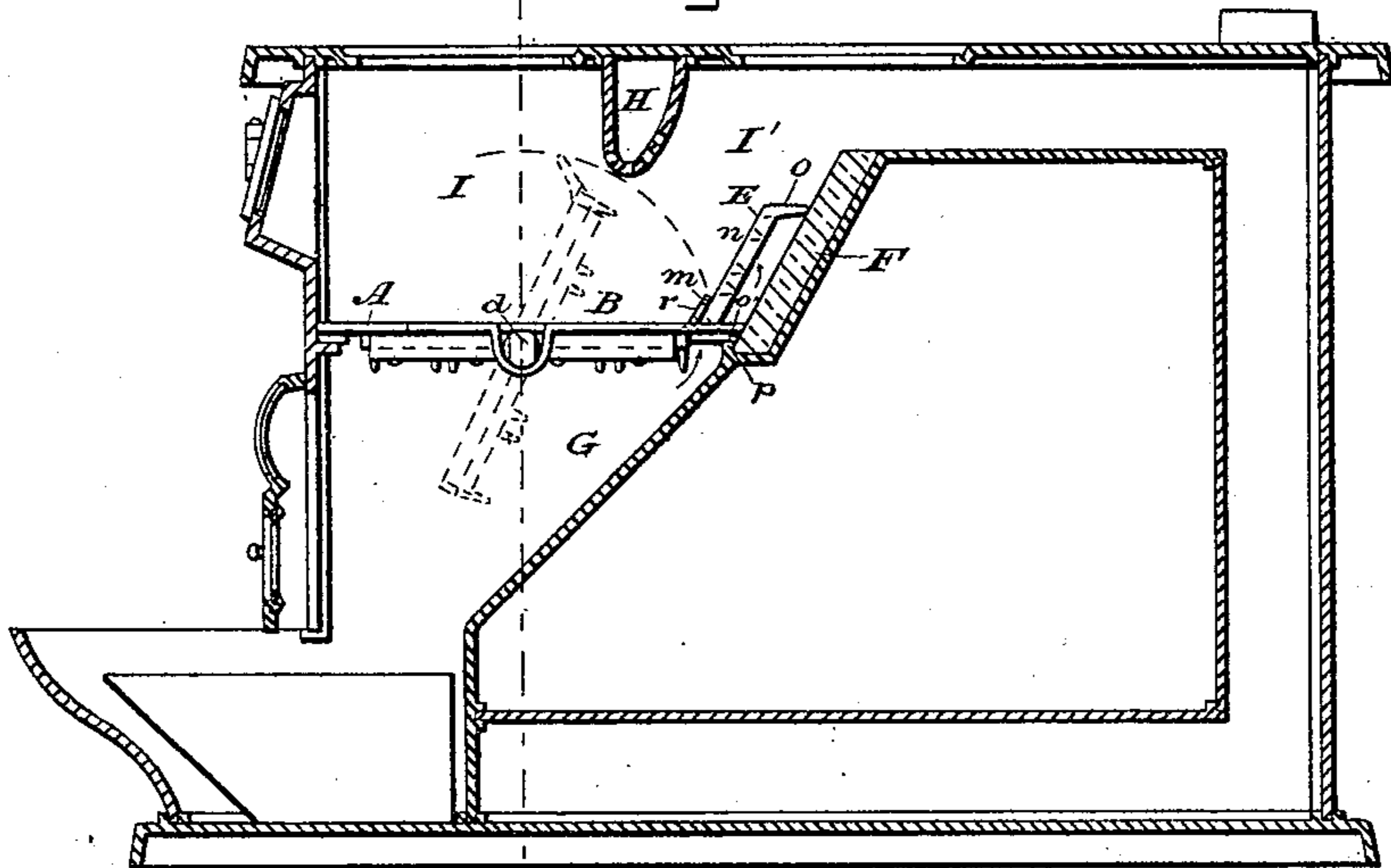


Fig. 2.

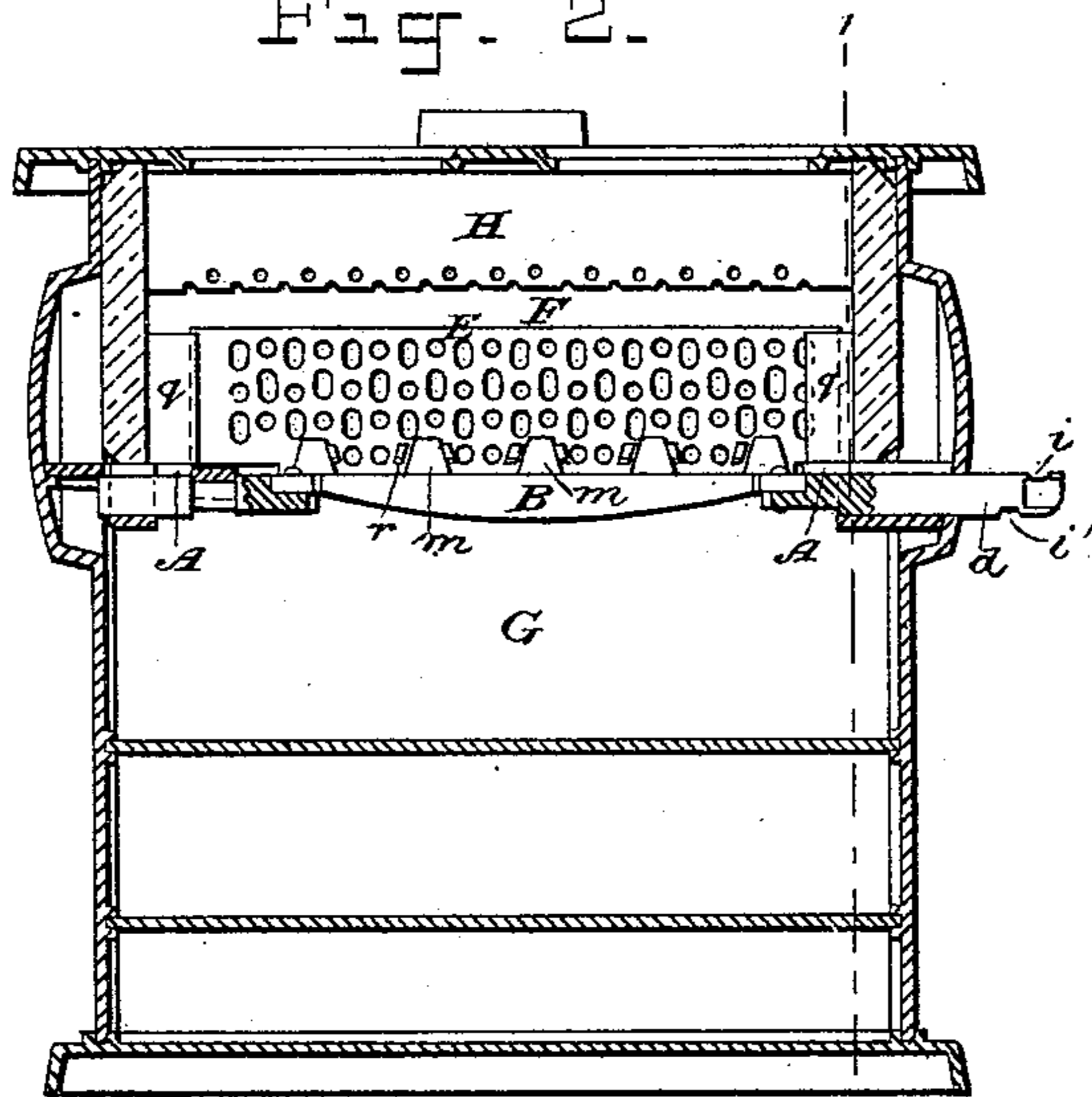
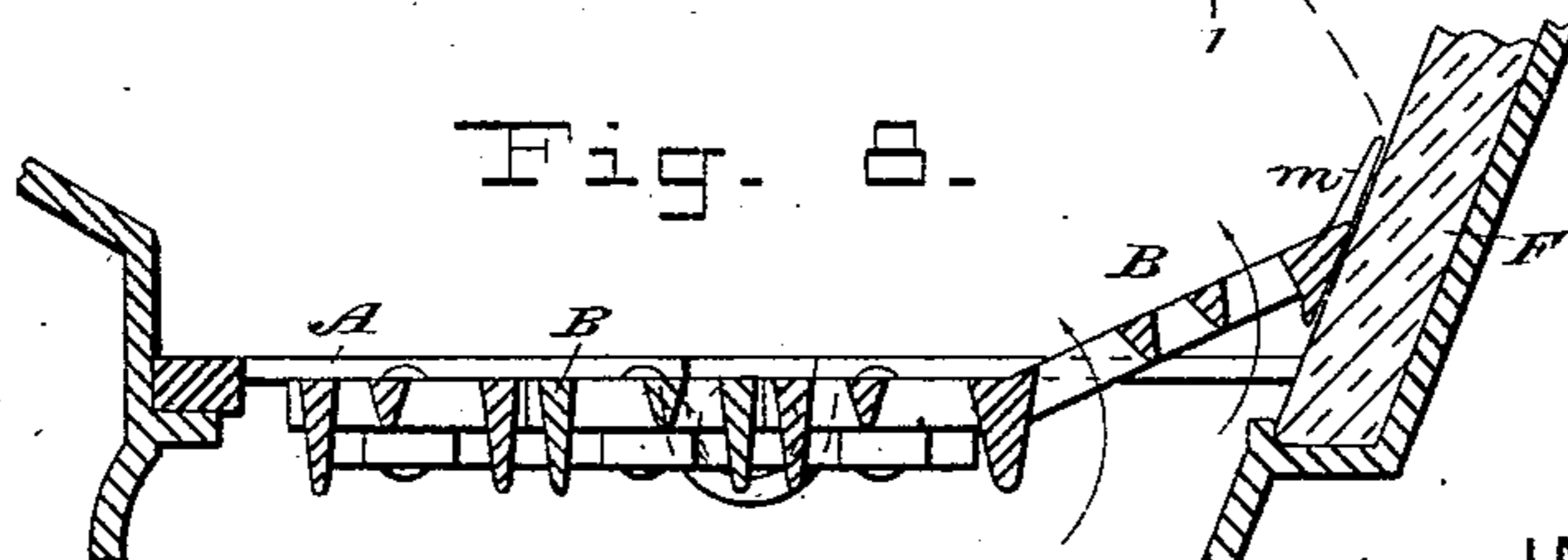


Fig. 3.



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*Geo. H. Fraser.*

*E. B. Bolton*

INVENTOR:

*John A. Miller*

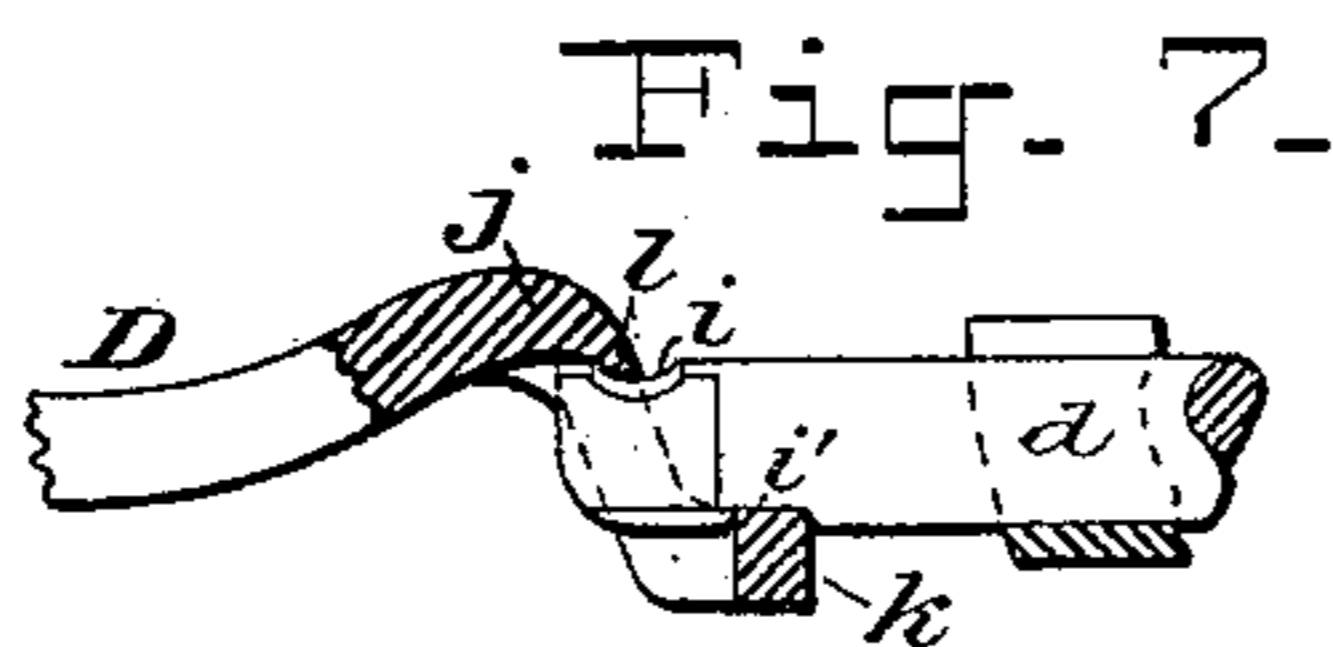
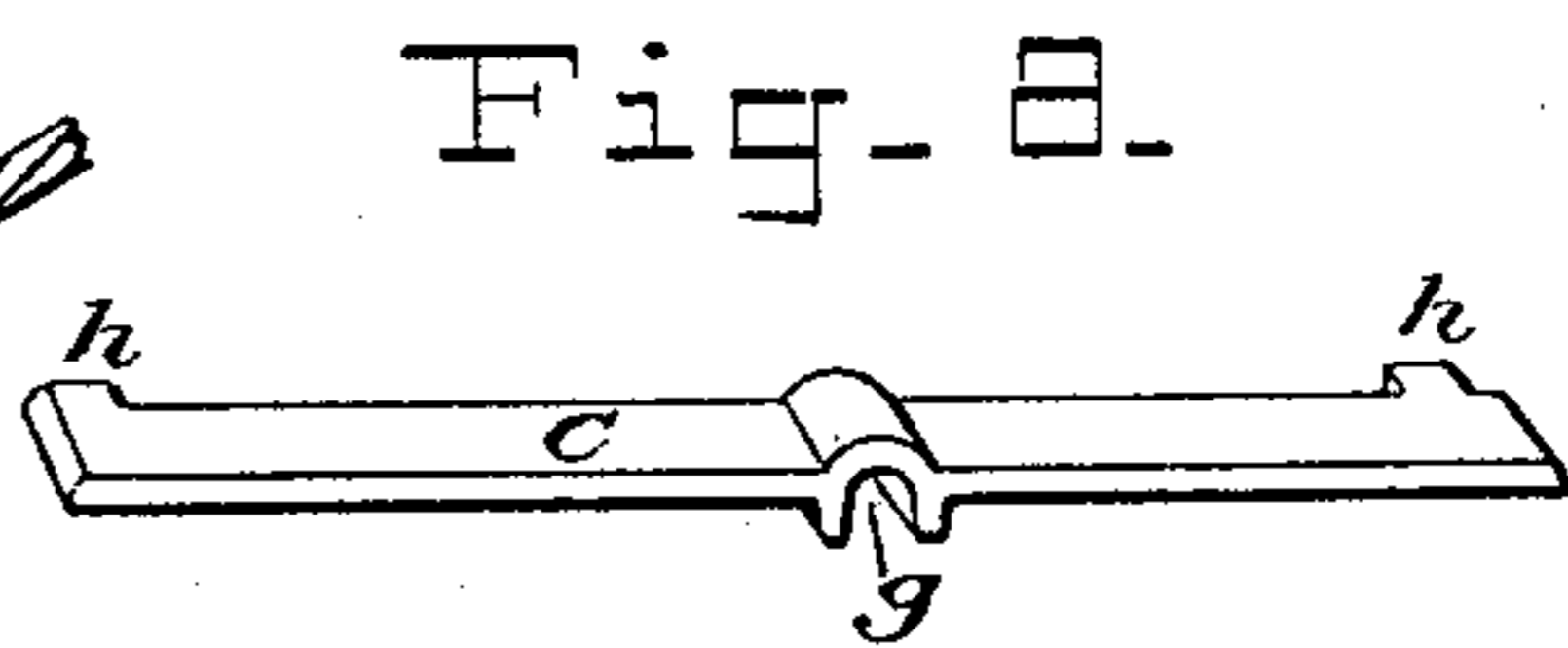
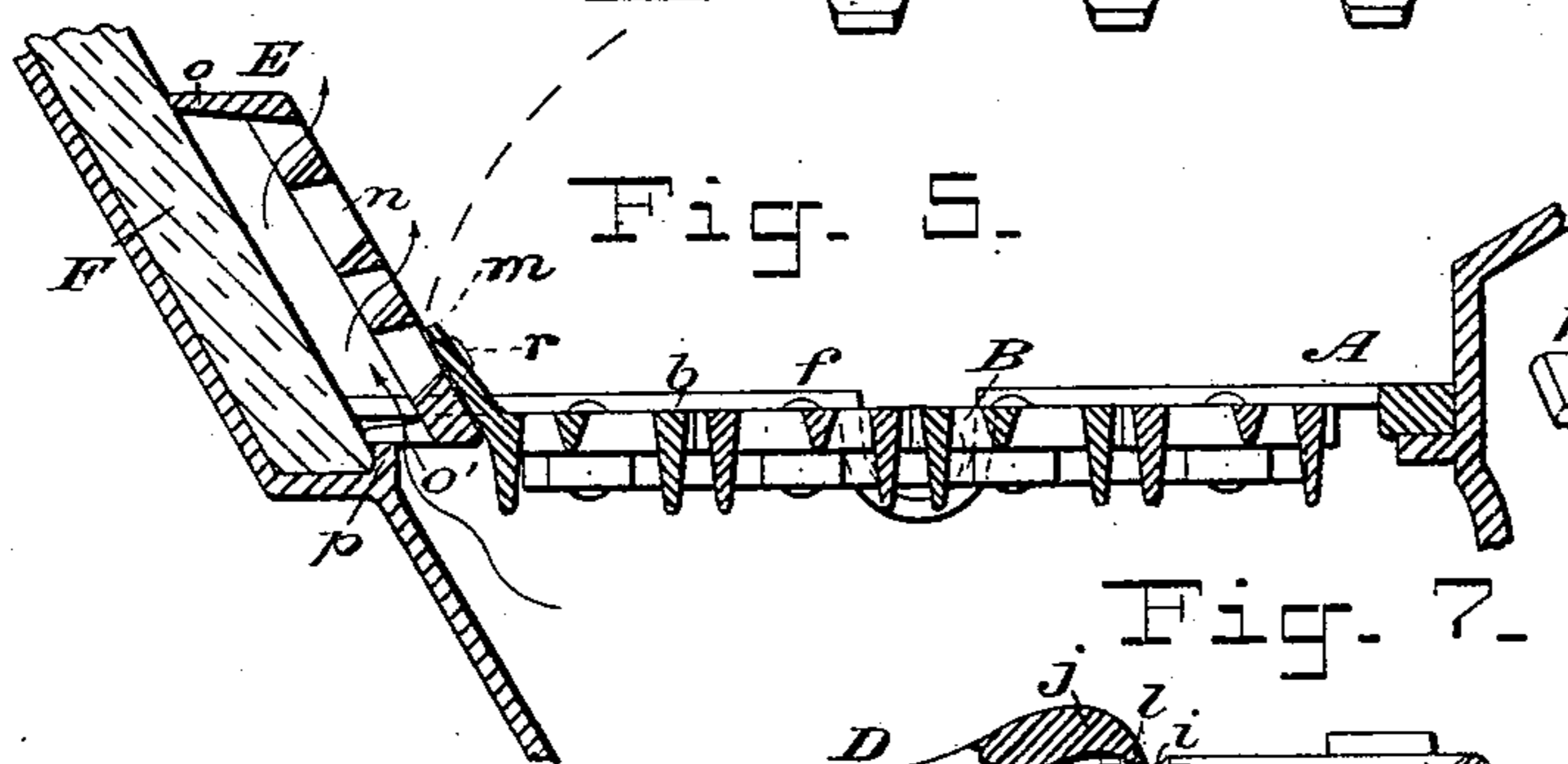
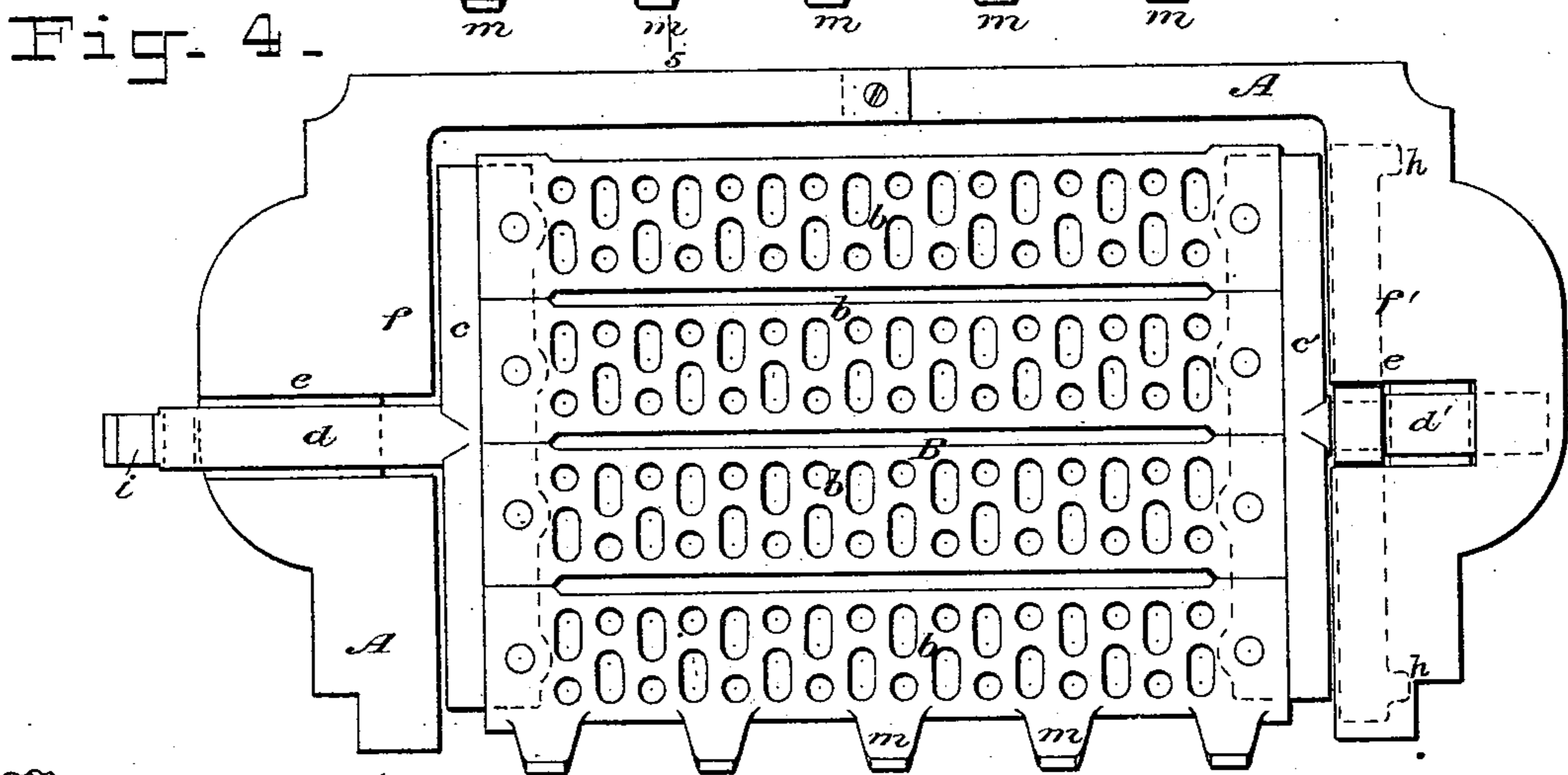
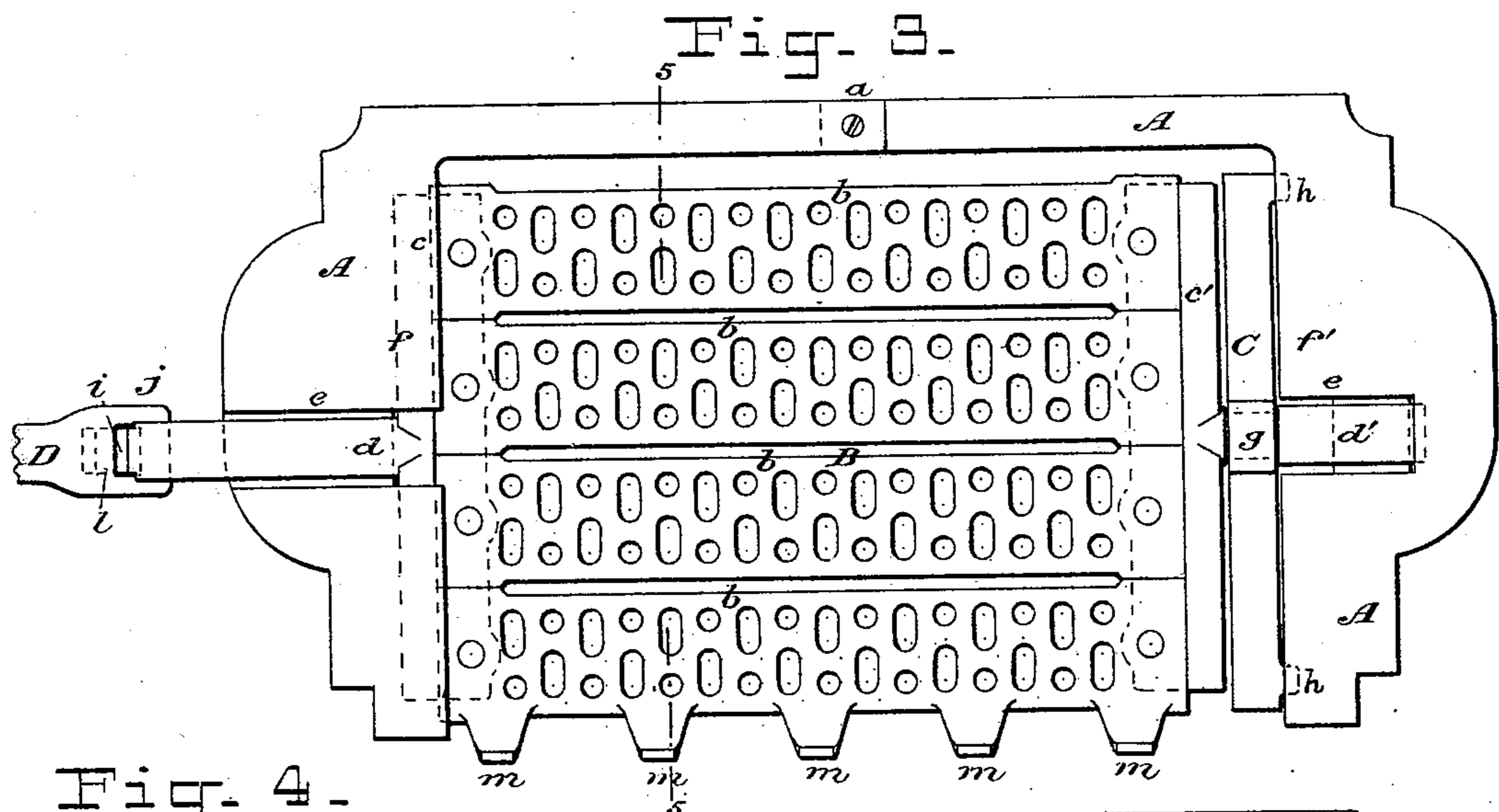
By his Attorneys,

*Burke, Fraser & Connors*

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Fig. 9.

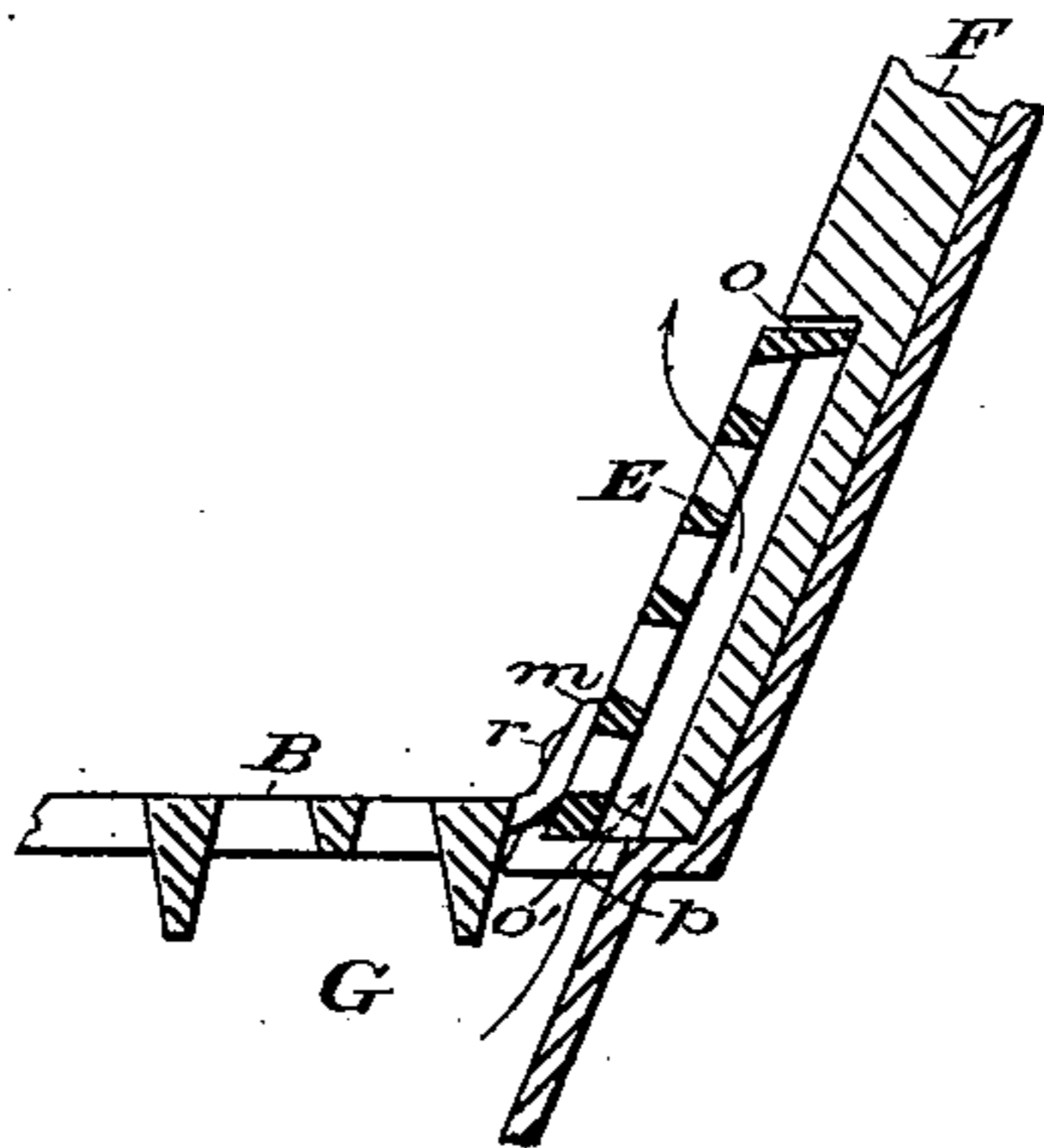
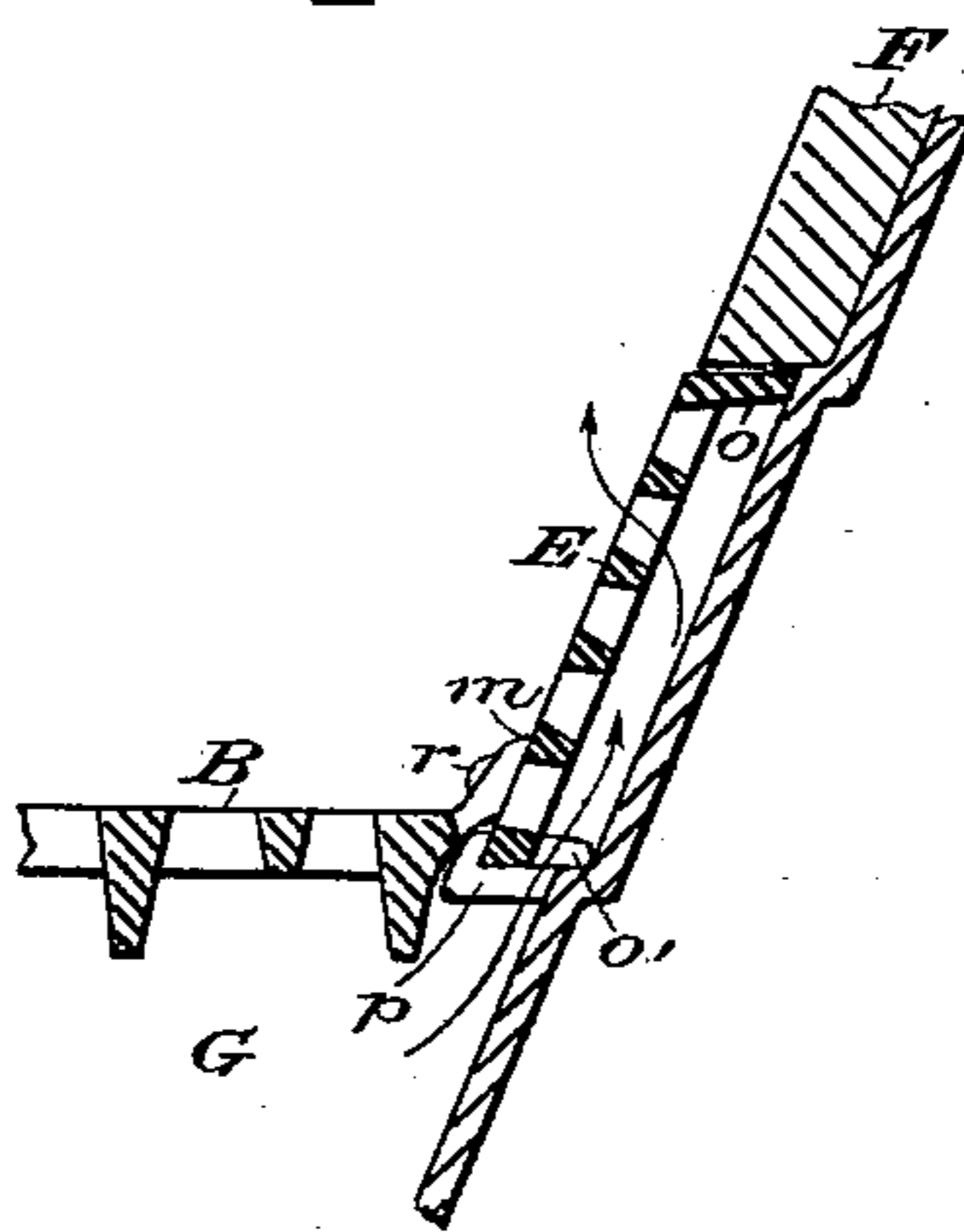


Fig. 10.



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# UNITED STATES PATENT OFFICE.

JOHN A. MILLER, OF NEWARK, NEW JERSEY, ASSIGNOR TO THE GREENE STOVE COMPANY, OF SAME PLACE.

## FIRE-POT FOR STOVES.

SPECIFICATION forming part of Letters Patent No. 277,050, dated May 8, 1883.

Application filed December 21, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN A. MILLER, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain Improvements in Fire-Pots for Stoves, of which the following is a specification.

My invention relates to the grates of the fire pot or box of a stove in the main, and, first, to a grate which is capable of being tilted or turned on journals or trunnions at its ends, and also to be moved endwise so as to be locked in its normal horizontal position; second, to an auxiliary grate arranged at the back of the fire-pot, and at an angle with the tilting grate, which auxiliary grate is arranged to play endwise and transversely of the stove, and arranged to be engaged by fingers on the rear edge of the tilting grate, whereby both may be made to play endwise for the purpose of clearing out clinkers and ashes that may collect. I may, however, omit this auxiliary grate and allow the fingers on the tilting grate to serve as scrapers to remove the clinkers, &c., from the fire-brick at the back of the fire-pot, against which, or in proximity to which, they would rest in case the auxiliary grate was not employed.

My invention also comprehends certain details of construction, which will be fully hereinafter described.

In the drawings, wherein my improvements are shown as applied to a stove, I have shown the grates as mounted in the fire-pot of a cooking-stove constructed according to the patent of W. A. Greene, No. 220,530, of October 14, 1879, and I propose to employ them in the construction of this kind of stove; but they may be applied as well to other kinds. They are especially well adapted to this stove, however, for reasons that will be hereinafter explained.

Figure 1 is a vertical sectional view on line 1 1, Fig. 2, of a Greene cooking-stove provided with my improvements. The dotted lines in this figure show the position of the dumping-grate when tilted or turned on its trunnions. Fig. 2 is a vertical section taken on line 2 2 in Fig. 1, and looking toward the back of the fire-pot of the stove. Fig. 3 is a plan of the tilting or dumping grate detached, and on a

larger scale. This view shows the grate drawn outward and locked, its normal position, and also shows the frame in which the grate is mounted. Fig. 4 is a view of the grate, similar to Fig. 3, showing it pushed inward and unlocked so that it may be free to tilt. Fig. 5 is a vertical cross-section through the fire-pot and the tilting and auxiliary grates, adapted to show the construction on a larger scale than the same parts are shown in Fig. 1. Fig. 6 is a detached perspective view of the saddle-piece mounted on the trunnion of the tilting grate. Fig. 7 illustrates the construction of the handle for operating the grates. Fig. 8 is a sectional view, showing the construction when the auxiliary grate is omitted, and also the inclined arrangement of the rear portion of the tilting grate. The said rear portion may, however, be inclined when the auxiliary grate is employed, and the auxiliary grate may be omitted without inclining any portion of the grate. Figs. 9 and 10 are sectional views illustrating modifications that will be referred to hereinafter.

Referring now to Figs. 3, 4, 6, and 7, especially, A is the frame in which the tilting grate is mounted, which frame I usually make of cast-iron and in two pieces, connected at *a*. This is for convenience in setting the frame in the fire-pot of the stove. The exterior contour of the frame will usually be made to fit the interior of the fire-pot, while the inner contour will be of a substantially rectangular form, corresponding to that of the grate.

B represents the tilting or dumping grate as a whole, which grate I construct by preference from perforated sections *b b*, the ends of which rest in rabbets in end plates, *c* and *c'*. Formed on or attached to said end plates, respectively, are the trunnions or journals *d* and *d'*, which find suitable bearings in recesses at *e e* in the frame A. The opening in the frame A, in which the grate B hangs and plays, is a little longer than the grate—say one inch in an ordinary grate—and the end plate *c* is arranged to stand, when the trunnions rest in their bearings, just below the level of the end piece *f* of the frame A, so that when the grate is drawn out or forward, as in Fig. 3, the end plate *c* will pass under the frame, as indicated by dot-

ted lines in Fig. 3. This "locks" the grate, so to speak, and prevents it from accidentally turning on its trunnions and dumping the fuel into the ash-pan. When the grate is thus drawn out, however, it is obvious that, unless some provision were made to prevent it, a gap would be left between the inner end of the grate and the frame A, through which the fuel would fall. To obviate this difficulty I provide an auxiliary saddle-piece, C, (seen detached in Fig. 6,) which has a journaling-recess, *g*, at its middle, which takes over a reduced journal formed in the trunnion *d'* in the manner of a saddle. This piece C plays under the end plate *f'* of frame A as the grate is moved endwise, and some portion of it always remains under said plate, (see Fig. 3,) so that it cannot fall off from its bearings on the trunnion. I prefer to provide it with projections *h h* on one edge, to take under or remain under said end piece *f'* when the grate is drawn out; but it may only be made wide enough to insure this—that is, as wide as it would be if filled out even with the ends of the points. This is not a matter of importance. The saddle-piece does not of course tilt with the grate.

The means for tilting the grate and sliding it endwise are illustrated in Figs. 3 and 7. The prolonged extremity of the trunnion *d*, which projects through the side of the stove, has a square formed on its end and two notches or recesses, *i* and *i'*, formed in it, the former in its top, near the end, and the latter in its under side, a little farther back.

D is the shaking-handle, the operative end only of which is shown. This handle has its end *j* turned down, and in this end is formed a square hole to receive the squared end of the trunnion *d*. On the lower margin of the end *j* is formed a lip, *k*, which engages (see Fig. 7) the notch *i'*, while the notch *i* is engaged by a lip, *l*, which forms the upper margin of the square aperture in the end *j*. Thus, when the grate is to be dumped by turning it on its journals, the engagement of the square hole in the handle with the square on the trunnion serves to prevent the handle from turning on the trunnion, and if the grate is to be slid endwise, the engagement of the lips or parts *k* and *l* with the notches *i* and *i'* serves to prevent the handle from slipping on the square of the trunnion. The lip *k* forms, practically, the margin of the aperture in *j*, and it might simply abut against a shoulder on the trunnion *d*. The handle D is detached by simply lifting it, which disengages the lips from the recesses, and it may then be slipped off.

The several sections *b b* of the grate might be made in one, except for convenience, and the grate might be made up of parallel bars and intervening spaces, or have simple holes or perforations, as shown in Greene's patent aforesaid. I prefer, however, to construct and arrange the perforations as shown in Fig. 3—that is to say, arrange a small perforation adjacent to an elongated one, and alternate them,

as shown. On the rear or inner edge of the grate B, or on the inner section *b*, if the grate is made in sections, are formed or attached fingers *m*—two or more—but preferably not more than an inch apart, if the grate has a play of an inch. The function of these will be hereinafter set forth.

Referring now to Figs. 1, 2, and 5 most particularly, E is a sliding grate, which comprises the perforated bed *n* and the ribs or flanges *o* and *o'* on its upper and lower edges, respectively, which serve to form supports for the grate and to raise its perforated surface or bed above the inclined fire-brick F, which forms the back of the fire-pot of the stove. The lower rib or flange, *o'*, (which may be only two or more widely separated legs or a perforated plate,) rests or may rest on a flange, *p*, on the casting of the stove, as clearly shown in Fig. 5; and to further sustain this grate in its position, its ends may take under keepers *q q*, (see Fig. 2,) secured to the body of the stove or to the frame A, as desired. The precise method of mounting this auxiliary grate is not important, so long as it is free to play endwise. On the lower front edge or part of the grate E, I form or attach suitable lugs or projections, *r r*, so arranged as to engage the fingers *m* on the grate B when the latter stands in its normal position, as in Fig. 5, for example. These lugs *r* do not interfere in the least with the tilting of the grate B, and when the said grate B is moved back and forth endwise the engagement of said fingers *m* with the lugs *r* compels the grate E to move with it. This serves to shake off any clinkers or other debris which may adhere to the grate E.

It will be seen by inspection of Fig. 5 that air from the ash-pan G of the stove may pass up behind the grate E and enter the fire-pot through its perforated top *n*. The circulation of the air is indicated by the arrows.

In the Greene stove, such as I have shown in Figs. 1 and 2, a pendent partition, H, divides or partially divides the fire-pot into two chambers, I and I', the front chamber being a cooking-chamber and the rear chamber, I', a combustion-chamber. This construction, with certain kinds of coal, is apt to lead to the formation of clinkers or masses of debris at the angle formed by the grated bottom of the fire-pot with the fire-brick F, and it is to remove these or prevent their formation, or both, that I provide the auxiliary grate E and arrange it to play endwise. The admission of air through said grate from below tends to produce freer combustion at this point, which will prevent the formation of such debris to a great extent, if not wholly, and the movement of the grate will dislodge what is formed. The grate E may set at any desired incline, and its perforated top may stand at the same incline as the fire-brick F, or not, as desired; or I might recess the said fire-brick in its manufacture and set the grate in said recess, as in Fig. 9;

or the lower portion of the fire-brick might be entirely removed and the grate be set to take its place, as in Fig. 10.

In Fig. 8 I have shown the rear or inner section or part of grate B arranged at an incline instead of level, as in the other views, and I have omitted the grate E. In this construction the fingers *m* of the grate are arranged to rest in close proximity to the fire-brick F, whereby, when the grate is caused to play endwise, the said fingers will serve to rake the surface of said fire-brick and remove all clinkers or débris adhering thereto.

I may also construct and arrange the grates as in Figs. 1, 2, and 5, except that I may omit the projections *r* from grate E and fix it in its seat. The fingers *m* will then play along its face when the grate B is moved endwise, and scrape the débris therefrom, if there be any.

The grate B may or may not be pivoted at its middle. I prefer ordinarily to so pivot it, and to make the inner half a little the heavier of the two, so that it will tend to drop back to its place; but this is not necessary, as the grate, when properly locked, as described, cannot tilt of itself. It may be made to lock by pushing it in, if desired, in lieu of pulling it out, as represented. In this case it would only be necessary to place the saddle-piece C on the trunnion *d* in lieu of on the trunnion *d'*.

Having thus described my invention, I claim—

1. A fire pot or box of a stove, provided with a grate mounted on trunnions or journals, substantially as described, and adapted to be turned on its trunnions for dumping, and to be locked and prevented from dumping when in its normal horizontal position, by being slid endwise until its end plate *c'* takes under the end piece *f* of the frame, substantially as shown, and for the purposes specified.

2. The combination, with the stove, of a tilting grate mounted on journals in its frame, and arranged to slide endwise in its bearings, of the said frame, and the saddle-piece mounted loosely on the trunnion of the grate, all arranged substantially as and for the purposes set forth.

3. The combination, with a stove, of the tilting and sliding grate B, mounted therein, substantially as shown, and provided with fingers *m m*, substantially as and for the purposes set forth.

4. The combination, in a stove, of a tilting and sliding grate, B, provided with fingers *m*, and an auxiliary grate, E, provided with lugs *r*, all arranged to operate substantially as set forth.

5. The combination, with the stove, of the frame A, mounted therein, and provided with recessed bearings for the tilting grate, the said tilting grate provided with trunnions and fingers, as shown, and adapted to slide endwise in the fixed frame, the saddle-piece C, and the grate E, arranged substantially as shown, and provided with lugs *r*, arranged to be engaged by the fingers on the tilting grate, all substantially as set forth.

6. As a means for sliding and tilting the grate B, the said grate provided with a trunnion, *d*, arranged to project through the side of the stove, and provided with a squared end having notches *i* and *i'*, in combination with the operating-handle D, constructed substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JNO. A. MILLER.

Witnesses:

HENRY CONNETT,  
ARTHUR C. FRASER.