

(No Model.)

W. E. FITCH.  
FIREPLACE GRATE.

No. 470,855.

Patented Mar. 15, 1892.

Fig. 1.

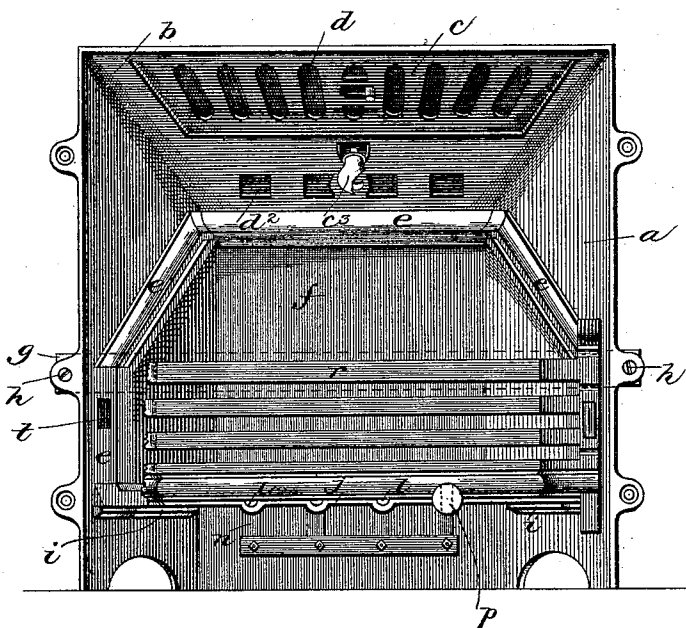
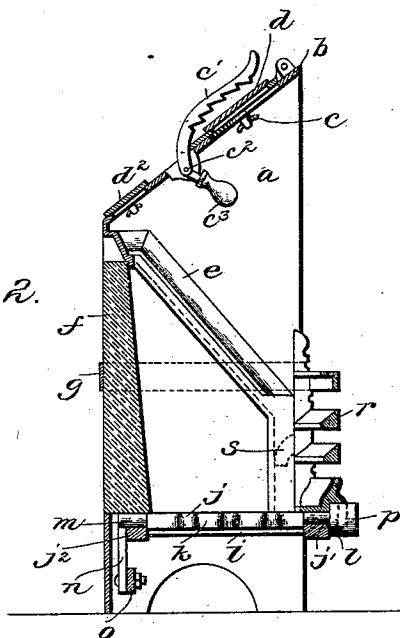


Fig. 2.



WITNESSES

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# UNITED STATES PATENT OFFICE.

WILLIAM E. FITCH, OF LOUISVILLE, KENTUCKY, ASSIGNOR TO THE PEER-  
LESS MANUFACTURING COMPANY, OF SAME PLACE.

## FIRE-PLACE GRATE.

SPECIFICATION forming part of Letters Patent No. 470,855, dated March 15, 1892.

Application filed May 4, 1891. Serial No. 391,537. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM E. FITCH, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented a certain new and useful Improvement in Fire-Place Grates, of which the following is a full, clear, and exact description.

This invention relates to fire-place grates, and has reference more especially to that class of grates which employ a grate proper composed of a series of rotary grate-bars supported in a frame and arranged within a lining in which there is employed a tile or tiles of fire-brick or like refractory material.

The object of the invention is to provide means for supporting the grate-bars and to regulate the draft.

In the preferred form of my invention I employ a cast-iron lining in one piece constructed with an opening in the back to receive a tile, which is also in one piece, and provided below the tile with ways to receive the grate proper, so that when the grate is shoved home the rear journals of the grate-bars will be concealed and protected by the tile and will be held in place by the tile, while the front journals will be restrained from rising and be protected by the basket, which latter is detachably affixed to the lining. In this way I obviate the necessity of employing special fittings to keep the grate-bars in place. I also provide two dampers for perfectly controlling and regulating the draft.

I will proceed now to describe my invention in detail, and finally will particularly point out and distinctly claim the part or improvement which I claim as my invention.

In the accompanying drawings, in the two figures of which like parts are similarly designated, Figure 1 shows in front elevation a fire-place grate illustrating my invention, a portion of the left-hand side of the basket being broken away; and Fig. 2 is a vertical section.

The letter *a* designates a lining, made of cast-iron in one piece and having the top *b*, which is provided with a hinged plate *c*, made with a registering-valve *d*, the plate and valve constituting a damper.

*c'* is a toothed rack hinged at *c*<sup>2</sup> and having the counterbalancing-head *c*<sup>3</sup>, by which the aforesaid damper may be supported in an open or raised position for increasing the draft. A second damper *d*<sup>2</sup>, which may be made as a plate sliding over openings in the top *b* of the lining, is arranged below the first-named damper and nearer the fire. This damper *d*<sup>2</sup> is herein distinguished as the "direct-draft" damper, and the uses of the two dampers may be stated thus: When the fire is to be started, the damper *c d* is opened, and when the fire has got under way this damper *c d* may be closed and damper *d*<sup>2</sup> opened, and it being smaller than the first and nearer the fire will carry off the smoke and gas and keep alive the fire. The top of the lining being closed from this damper to its outer edge presents a large radiating or reflecting surface, and thus materially saves the heat. The back, sides, and the lower front edges of the lining are made with a hollow bead *e*, projecting inwardly, and the back and sides are left open below this bead to a short distance from their lower ends, and in this opening is inserted from the back the one-piece tile *f*, the upper edge of which is received within the hollow bead and the lower edge of which rests upon the lower portions of the back and sides of the lining. A strap *g* of metal may be passed about the back and sides of the tile and bolted to ears *h* on the front of the lining to hold the tile in place, although other fastenings may be employed.

I do not limit my invention to a one-piece lining nor to a one-piece tile, although I much prefer them because of economy of marketing the grate and in setting it.

The sides of the lining are provided with shelves or brackets *i*, arranged below the tile-opening, and these shelves or brackets form ways to receive and support the grate *j*, which is slid into the lining from the front.

The grate commonly used and now most in vogue consists of a frame in which are ranged rotatable grate-bars *k*, having journals *l* and *m* at front and rear, which journals are laid in bearings in the front and rear members *j'* and *j*<sup>2</sup>, respectively, of the frame. The rear journals are made with crank-arms

$n$  depending therefrom, and the crank-arms of the several bars are connected by a bar  $o$ , so as to cause all of the grate-bars to rock in unison. One of the grate-bars is provided  
 5 with a projecting slotted head  $p$  to receive a shaker by which to rotate or agitate the grate-bars, as usual. When the grate is shoved home in the lining, its rear end and the journals and crank-arms of its bars are concealed  
 10 beneath and covered by the tile and so protected from the direct action of the fire, and more particularly are held in place or from vertical displacement by the tile and without those other fastenings which have been employed  
 15 customarily heretofore, thus simplifying and economizing the construction.

The basket  $r$  is provided with hooks  $s$  at each side to enter and engage slots  $t$  (see left-hand side, Fig. 1) in the front of the lining to  
 20 secure it (the said basket) in place; but other means of fastening the basket in place may be used. The point is that the lower edge of the basket rests upon or just above the front journals of the grate-bars and prevents their  
 25 displacement without the aid of the heretofore-customary special fastenings. By this construction a very cheap grate may be produced—one that is perfectly serviceable and  
 30 one more easily and readily set than any other to me known.

What I claim is—

1. A fire-place grate having a lining, a tile set in said lining, ways for the grate beneath the tile, and a grate arranged in said ways and having the rear journals of its bars covered  
 35 by the tile, substantially as described.

2. A fire-place grate having a lining constructed with a tile-opening, a tile arranged in said openings, ways for the grate, a basket, and a grate arranged in said ways and having  
 40 the front and rear journals of its bars covered, respectively, by the basket and tile and so held from vertical displacement and protected from the direct action of the fire, substantially as described.

3. The combination, substantially as shown and described, of a lining made in one piece and having a tile-opening constructed with a  
 hollow bead, a tile in one piece set in said  
 opening, ways on the sides of the lining arranged  
 50 below the tile-opening, a basket, and a grate having journaled grate-bars arranged in said ways with its journals concealed and protected by the tile and basket.

In testimony whereof I have hereunto set  
 my hand this 1st day of May, A. D. 1891.

WILLIAM E. FITCH.

Witnesses:

F. S. BREYFOGLE,  
 W. T. HALE.