

(No Model.)

J. T. AUSTIN.

SHAKING GRATE FOR DOMESTIC HOT AIR FURNACES.

No. 565,400.

Patented Aug. 4, 1896.

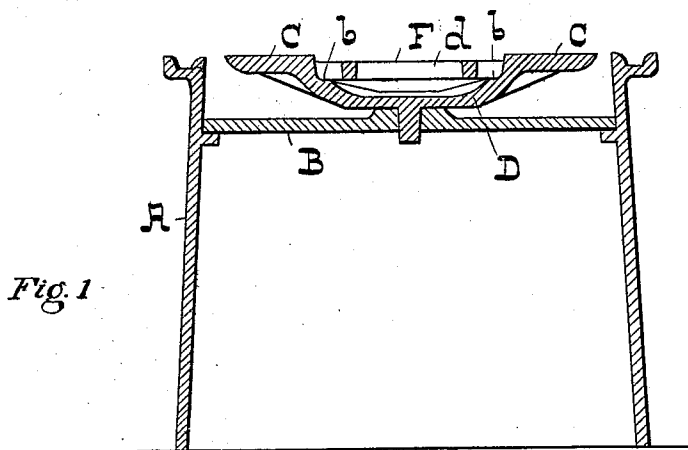


Fig. 1

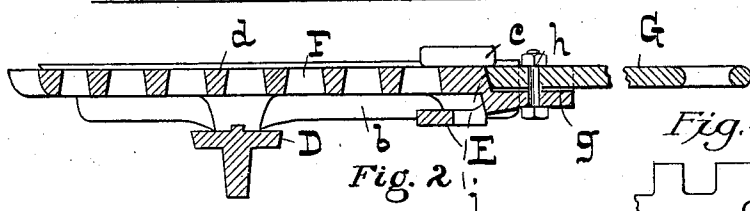


Fig. 2

Fig. 4.

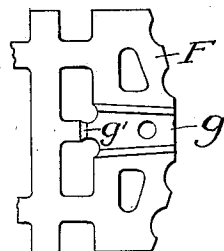


Fig. 3

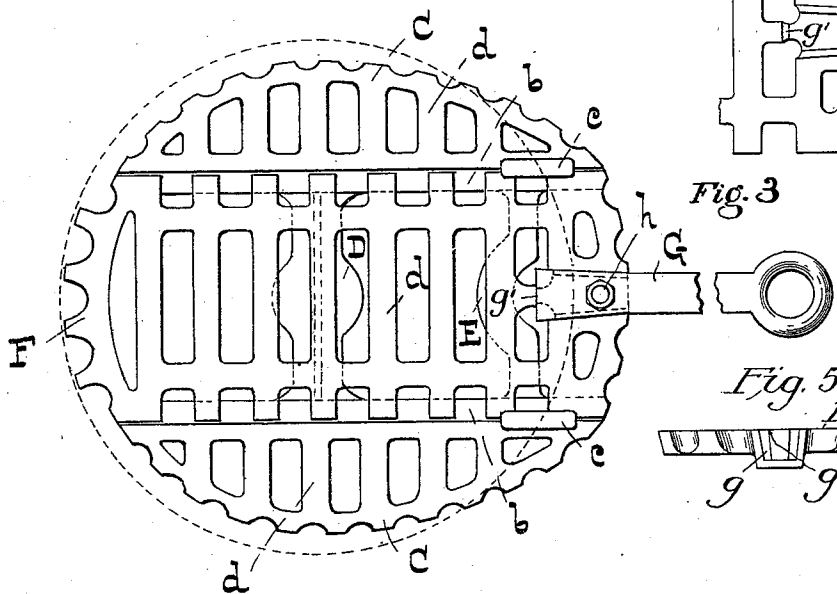
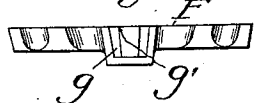


Fig. 5.



-WITNESSES-

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UNITED STATES PATENT OFFICE.

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SHAKING-GRATE FOR DOMESTIC HOT-AIR FURNACES.

SPECIFICATION forming part of Letters Patent No. 565,400, dated August 4, 1896.

Application filed April 26, 1895. Serial No. 547,229. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. AUSTIN, of the city of Baltimore, State of Maryland, have invented certain Improvements in Shaking-Grates for Domestic Hot-Air Furnaces, of which the following is a specification.

In the description of the said invention which follows reference is made to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is a vertical central section of certain of the lower parts of a furnace, together with the grate which forms the subject of the present invention. Fig. 2 is an enlarged central section of the grate alone. Fig. 3 is a top view of Fig. 2. Figs. 4 and 5 are views of parts of the grate, as hereinafter described.

Referring now to the drawings, A is the lower portion of the furnace, which is of ordinary construction. Within the furnace, or rather the ash-pit of the same, is the cross bearing-bar B, which supports the grate.

C C are the segmental side pieces of the grate, connected by the central bridge D and the front bar E, both of which are below the under surface of the grate.

F is the central portion of the grate, which is separate from the segmental side pieces C, and is of a length equal to the greatest diameter or length of the side pieces. The sliding central portion of the grate rests on the tracks *b*, which project from the side pieces, and is prevented from being lifted independently of the side pieces by the overhanging lips *c*.

The central bridge D has the usual pintle, which enters the cross bearing-bar B.

The bars *d* of the central part F extend in a direction which is at a right angle with the line of movement of the same in order that the ashes resting thereon may be more readily expelled when the said central part is rapidly moved in a forward and backward direction. The bars *d* in the segments are also arranged to extend in the same direction as those in the central part, but for a different purpose—viz., to make them shorter and less liable to be warped with heat.

The grate is susceptible of the usual vibratory movement whereby ashes are expelled from its circumference, and there is a space

between the edge of the grate and the inner surface of the ash-pit, which is shown in dotted lines in Fig. 3.

G is the handle or bar for shaking the grate and also for shaking the sliding central portion thereof independently of the side segments. These bars as ordinarily constructed and attached to grates are liable to become loose, and when once there is any loose motion between the grate and the bar the looseness increases rapidly by wear, and finally the shaking-bar is practically useless. To obviate this difficulty, I cast in the sliding central portion F of the grate a cavity or depression *g*, which, as seen from the top, is tapering, the smaller end being at the edge of the grate, and provide at the inner end of the depression a stop *g'*. The sides of the depression and the inner face of the stop *g'* are inclined or beveled, so that the bottom area of the depression is less than the top. (See Figs. 4 and 5, which represent, respectively, a top and an edge view of a part of the central portion of the grate.)

The butt or inner end of the bar G has a shape corresponding with the cavity or depression *g*, but it is made slightly larger than the lower portion of the depression, so that it cannot pass entirely to the bottom of the same, but will stand somewhat above the bottom. (See Fig. 2.)

The bar G is secured in the cavity *g* by means of a bolt *h*, the nut of which is tightly screwed down. The side edges of the butt end of the bar G are thus drawn firmly against the sides of the cavity, and the rear end is pressed against the inner face *j* of the stop *g'*, and there being still a space between the under side of the bar and the bottom of the cavity, and a strain on the bolt, there can be no independent movement of the bar. Bars secured as described never become loose in shaking the grates.

To clean the fire in the furnace, the ashes are first expelled by vibrating the grate as an entirety by means of the bar G.

The central portion of the grate is drawn forward and backward in a rapid manner to expel the ashes which have collected centrally of the fire, and then the said portion of the grate is drawn outward sufficiently to expose

an opening in the rear of the grate, through which the clinkers are pushed by means of a poker.

I claim as my invention—

- 5 A grate for a hot-air furnace having a loose central section provided with a cavity at its front end or side which is wider at the inner than at the outer end, and narrower at the bottom than at the top, combined with a shak-

ing-bar of the same general shape at its inner end but which is slightly larger, so as not to bottom when placed in the said cavity, and a bolt to hold the said bar in the cavity, substantially as described.

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Witnesses:

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