

W. SHEPHERD.

Fig. 1.

Improvement in Drop-Grates for Furnaces.

No. 118,062.

Patented August 15, 1871.

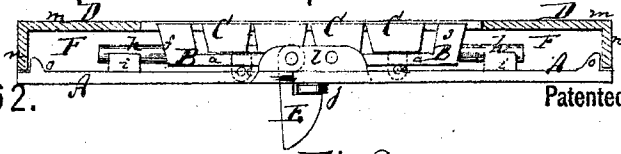


Fig. 2.

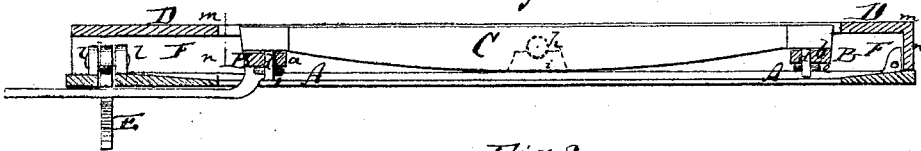


Fig. 3.

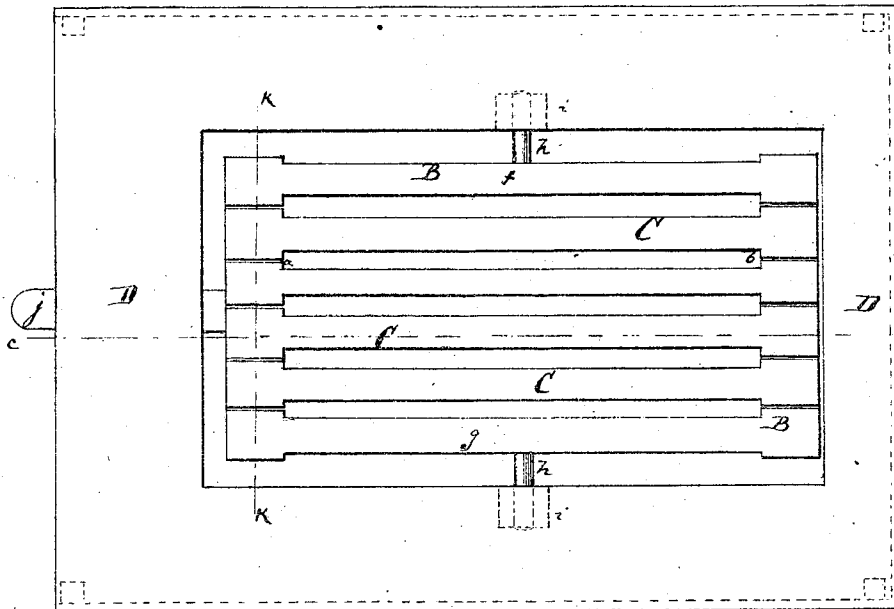
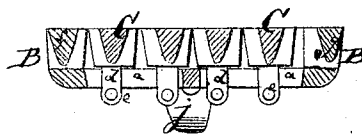


Fig. 4.



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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN DROP-GRATES FOR FURNACES.

Specification forming part of Letters Patent No. 118,062, dated August 15, 1871.

To all whom it may concern:

Be it known that I, WILLIAM SHEPHERD, of the city, county, and State of New York, have invented a new and Improved Drop-Grate; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

Figure 1 represents a front view, partly in section, of my improved grate. Fig. 2 is a vertical longitudinal section of the same on the line *c c*, Fig. 3. Fig. 3 is a plan or top view of the same. Fig. 4 is a detail transverse section of the same on the line *k k*, Fig. 3.

Similar letters of reference indicate corresponding parts.

This invention relates to a new drop-grate for furnaces of every kind; and has for its object to provide a solid support for the grate, to prevent the occurrence of warping, and permit the rapid and convenient dropping of the grate and the ready removal and replacing of single bars. The invention consists in the arrangement of an air-chamber around and on the same plane with the grate, so that a continuous supply of cool air is carried to the grate-bars, and in a new manner of hanging, securing, and holding the pivoted grate-bars, as hereinafter more fully described.

A in the drawing represents the base or supporting-plate of the grate. It is provided with a large opening in the middle to receive the grate. B is the frame of the grate proper. C C are the grate-bars, and D is the case or box placed over the plate A. The grate-bars are at their ends placed upon cross-bars *a* and *b* of the frame B, as shown in Fig. 2, and have downwardly-projecting lugs or ears *d d* that fit through slots in said cross-bars *a b* and receive small pins *e* below the same, whereby they are locked to the frame. Each grate-bar is thus separately fastened, and can be removed at any time and replaced without difficulty. The frame B consists of two side bars, *f* and *g*, and of the cross-pieces *a b*, above referred to. The side bars have near their middles projecting pins or trunnions *h h*, on which

the grate is pivoted. These trunnions have their bearings on strong blocks *i i*, which project from the base-plate A. The front end of the frame A has a projecting arm, *j*, which, when the grate is in position, is held up by a hook, E, pivoted between ears *l l* that project from the plate A. The grate-bars may be readily removed from the frame B, as above represented. The frame B can be taken out by lifting the pins *h* from the blocks *i* and then turning it slightly aside, so that it can be taken through the opening of the base-plate. The case or box D is composed of a plate, *m*, of about the same size as the plate A, and of pendent flanges or feet *n*, that support it on the plate A. The air-chamber F thus formed around the grate is open in front to the draught, so as to cause a constant supply of fresh air to reach the grate and pass between the grate-bars, keeping them cool and preserving them from rapid consumption. The plate A has projecting corner-lugs *o o*, by which the cover is held in place. The cover can, however, be readily drawn out when injured without disturbing the base-plate. All the heat coming from the fire-brick enters the chamber F, and is, by the current of air therein, carried back to the fire, so that no heat is wasted. The bottom plate A is thinner at the inner edge than at the outer, so that it is beveled to prevent accumulation of ashes within the chamber F.

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

1. The grate-bars C, provided with the ears *d* secured to the cross-bars of the pivot-frame B by means of pins *e*, substantially as herein shown and described.

2. The air and draught-chamber F, formed around a grate by a cover, D, as set forth.

3. The base-plate A, receiving the pivoted grate and combined with the cover D, substantially as herein shown and described.

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Witnesses:

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