J. REYNOLDS.

Furnace-Grate Bar.

No. 89,888. Patented May 11, 1869.

Fig. 1.

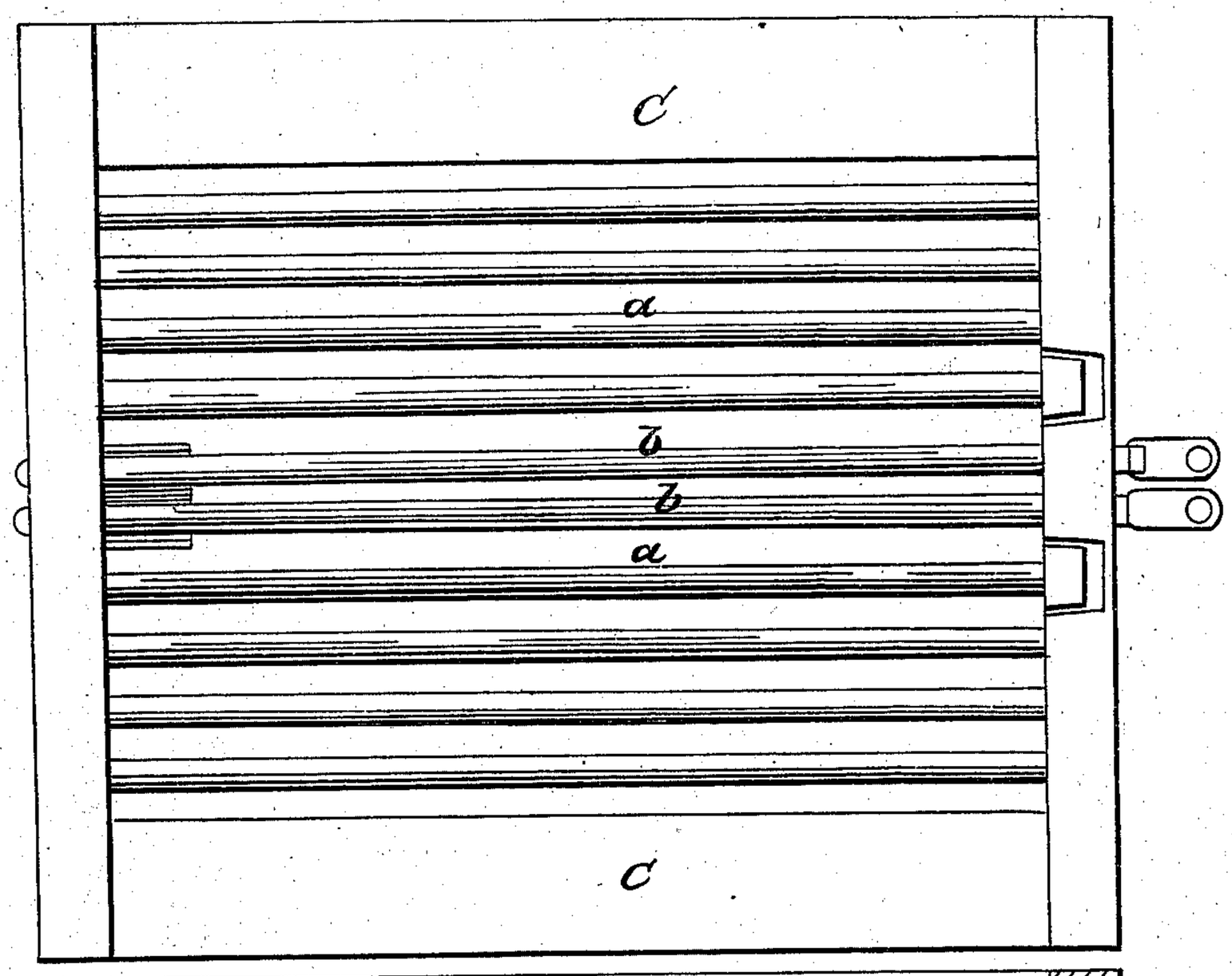


Fig. 2.

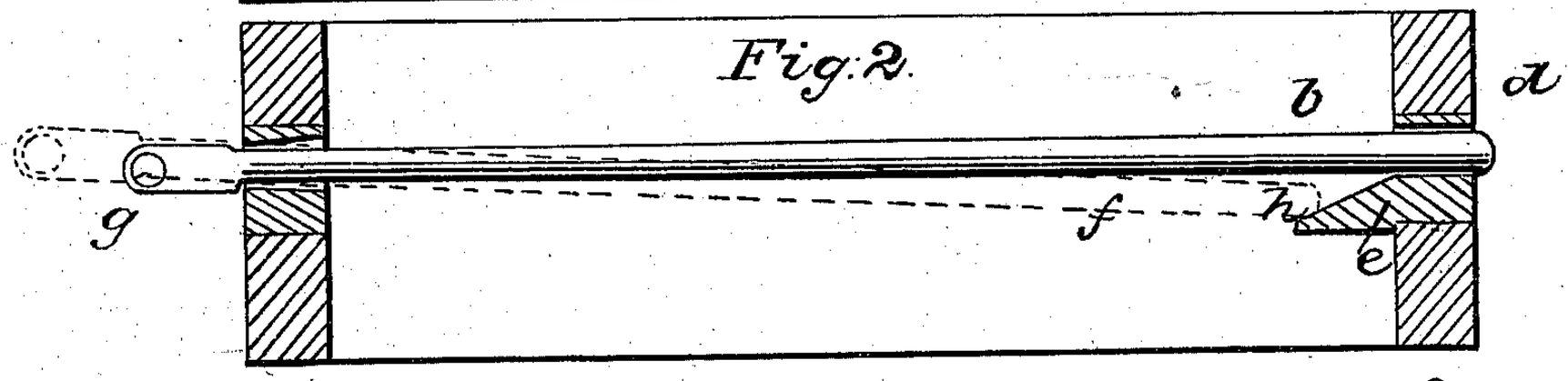
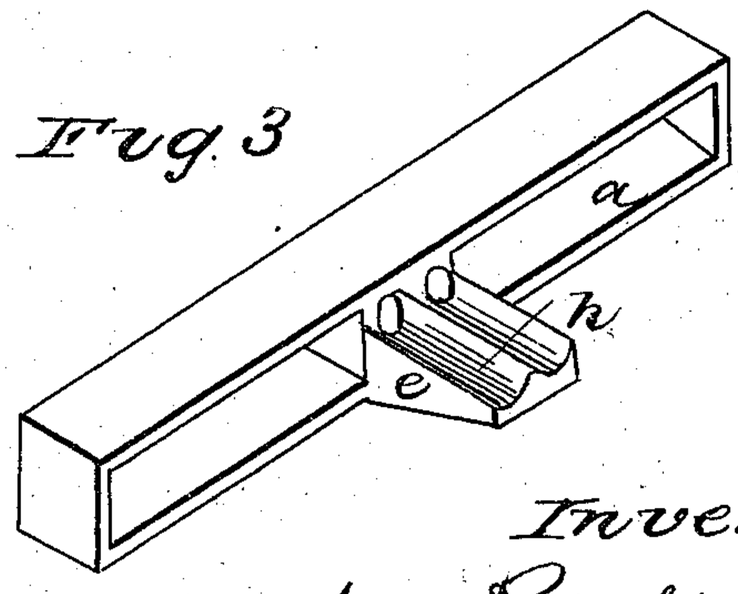


Fig. 3



Witnesses
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United States Patent Office.

JESSE REYNOLDS, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 89,888, *dated May* 11, 1869.

IMPROVEMENT IN GRATE-BARS FOR FURNACES AND HEATERS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JESSE REYNOLDS, of the city of Philadelphia, in the State of Pennsylvania, have invented a certain new and useful Improvement on Grate-Rests or Bearing Bars; and I do hereby declare that the following is a full, clear and exact description of the construction and operation of the same, reference being had to the accompanying drawings, and to the marks and letters thereon, which said drawings form part of this specification, and show a grate with my improvement as a part thereof—

Figure 1 being a top view of the grate;

Figure 2, a view by vertical section of a draw-bar; and

Figure 3, a view of the bearing-bar, shown detached from the grate.

In each of these figures, when like parts are shown, like marks and letters are used to indicate the parts.

In many instances, it is quite important that the bars of grates for furnaces or heaters should be so constructed and arranged as to allow of such movements as will permit the fire to be raked, and partly or wholly withdrawn from the surfaces of the bars and furnace.

An invention having this object in view, was made the subject of Letters Patent, which were granted to me, and bear date on the 9th day of July, 1867.

The present invention has reference to this patented invention, and is of the character of an additional improvement thereto, although not limited in its application and use entirely to the first-named invention.

As is shown by the drawings herewith filed, the grate-surface is made up of flat bars *a*, and round bars *b*, suitably arranged within the grate-frame *c*.

The round bars *b* are commonly known as draw-bars, and are used for the purpose of clearing the fire-pot of cinders, &c., while the fire is hot, by drawing them out and removing the cinders, &c., through the space left after they are withdrawn, and also of emptying the fire-pot or cleaning it when fresh fire is to be made, and without removing the other grate-bars.

It generally is the case that when these bars are removed while the fire is hot, or become withdrawn from the holes in the bearing-bars *d*, made to hold their ends while raking with a poker, or in any other manner become dislodged, it is exceedingly difficult to put them in place, especially when the weight of the coal in the fire-pot is on them; and in many cases it is necessary to empty the fire-pot, in order to replace the ends of the draw-bars.

Now, my present improvement is intended to obviate the difficulties above named; and I do this by attaching a piece of metal, *e*, to that part of the rest where the bars slip in, tapering it gradually from the bottom of the holes to a point much lower than the bottom of the draw-bars, when in their proper place. A section of the fire-pot, with the the draw-bar in place, is shown by fig. 2 of the drawings, the rest or bearing-bar being indicated by the red lines, and the draw-bar by black lines.

Now, if the bar be removed, as is shown by the red lines *f*, by pushing or striking on the outer end *g*, it readily and immediately slides up the incline surface *h* into its place, and on the principle of the wedge, raises any coal or material that may impede its way. This projecting piece *e* may be made of any desirable length or inclination, and may be made along the whole length of the bearing-bars, so that the grate may be all of draw-bars.

If necessary to get the bar in place, should it be drawn out past the end of the projecting piece, all that will be required, is to place its end upon the end of the incline—an operation in no way whatever difficult to be performed—and by a blow, or by pushing the draw-bar, force its end up the inclined surface.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination and arrangement of the tapering or wedge-shaped piece *e* with the bearing-bars *d* of the grate, and sliding bars *b*, whereby the bars may be pushed up to their places, substantially as described.

This specification signed, this 19th day of January, 1869.

JESSE REYNOLDS.

Witnesses:

LEWIS GODLOVE,

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