

L. B. Tupper,
Furnace-Grate Bar.
N^o 52,913. Patented Feb. 27, 1866.

Fig. 1.

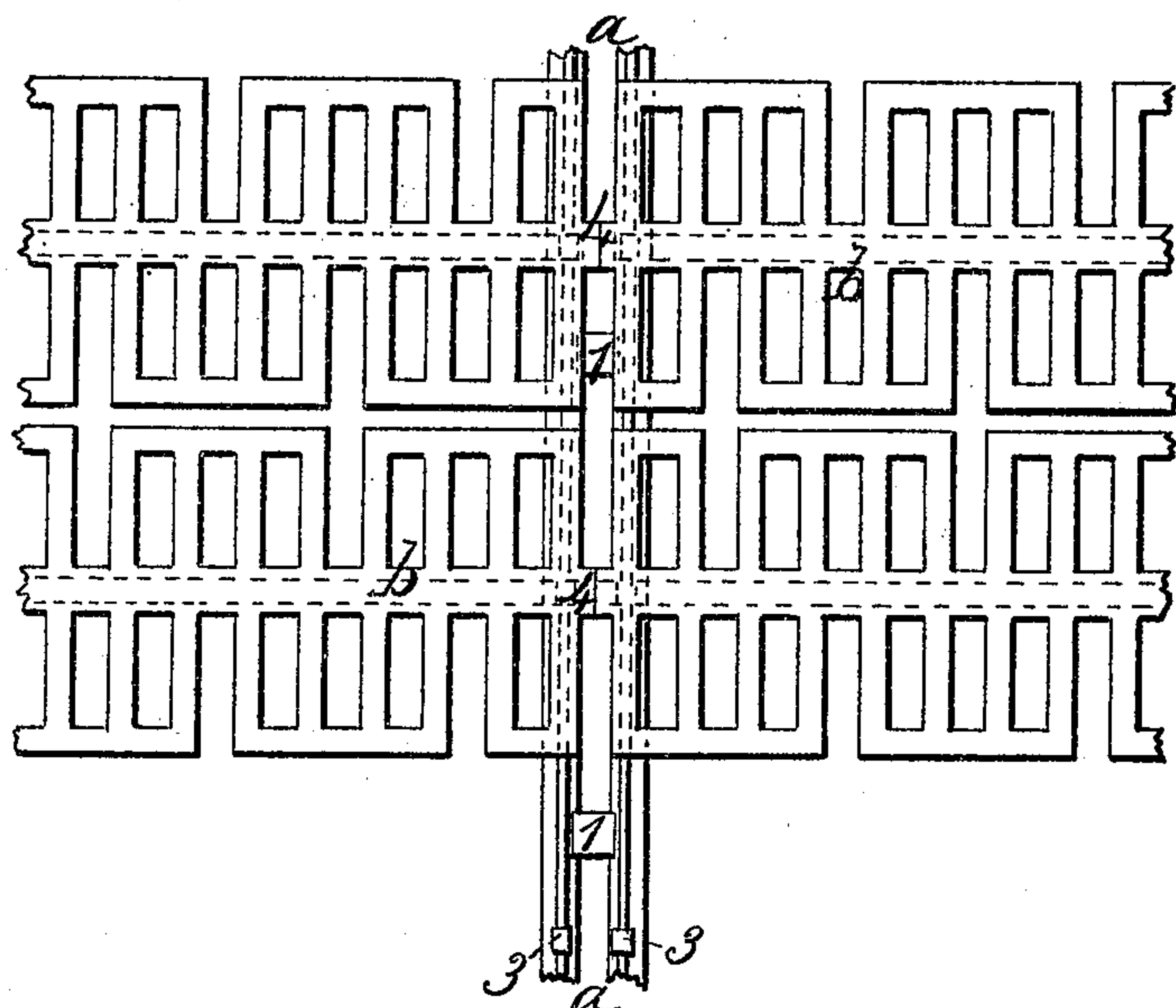
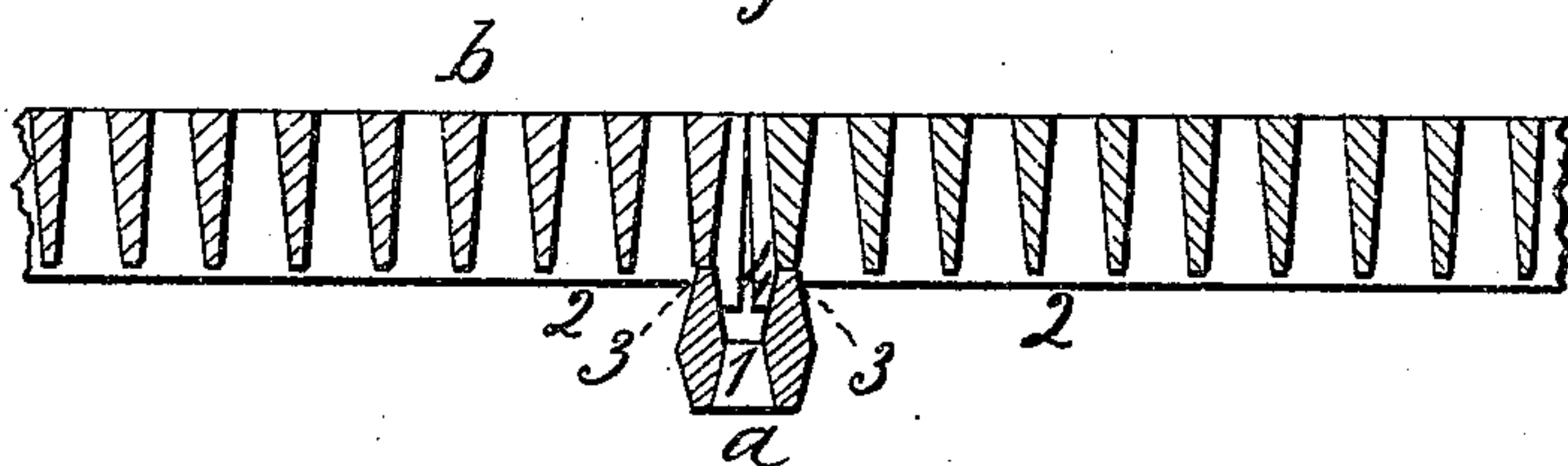


Fig. 2.



Witnesses;
Thos. Harrod
Chas. Smith

Inventor;
L. B. Tupper

UNITED STATES PATENT OFFICE.

LORENZO B. TUPPER, OF NEW YORK, N. Y.

GRATE-BAR.

Specification forming part of Letters Patent No. 52,913, dated February 27, 1866.

To all whom it may concern:

Be it known that I, LORENZO B. TUPPER, of the city and State of New York, have invented, made, and applied to use a certain new and useful Improvement in Grates for Furnaces; and I do hereby declare the following to be a full, clear, and exact description of the said invention, reference being had to the annexed drawings, making part of this specification, wherein—

Figure 1 is a plan of portions of four contiguous bars, and Fig. 2 is a section of said bars and the supporting-bearer.

Similar marks of reference denote the same parts.

Heretofore the grates of furnaces have been made in sections supported upon bars that run longitudinally of the furnace from the front to the back bearers, the sections themselves standing transversely of the furnace. In grates made in this manner the longitudinal bars are apt to obstruct the draft, causing an accumulation of ashes and the burning out of the bars or sections; and the sections have to be kept in position by lugs on the edges, taking against those on the adjoining sections. These obstruct the draft and also prevent the fire being raked.

The nature of my said invention consists in notched bearing-bars, in combination with grate-bars having projections taking said notches for preventing side motion in the bar, and with hooked ends taking within the double bearing-bars to prevent the bars slipping off the bearers at their ends. By this construction the bars or short sections or bars are held in their place without the use of lugs at the sides of the bars, hence the bars are free to expand or contract. They cannot become displaced in making up or raking the fire. The draft is more uniform, and in case of injury to any one of the short bars it can be lifted out and another inserted.

In the drawings, *a* is one bearer of a series

of bearers, made double, the bars being narrow or Λ -shaped at their upper edge, and tied together by the connections 1 1 to form the double bearer. I prefer that these bearers be placed across the furnace, although they might run longitudinally. These bearers are to be sustained at their ends upon ledges or shoes provided at the proper places in the furnace, according to the length of the short section or bar.

b is the short bar or section, formed with any desired fire-surface. I have, however, shown cross-bars connected alternately at their ends, as set forth in Letters Patent granted to me June 14, 1864. The central portion of the bar *b* extends below the cross-pieces of the bar in the form of a rib at 2, and in the upper surfaces of the Λ -bearers are notches at 3 3, receiving these ribs, which thus prevent the bars moving sidewise, and render the lugs on the edges of the bars heretofore employed unnecessary.

The ends of the bars are formed with lugs or hooks at 4 4, that, passing between the bars of the double bearer *a*, prevent the said bars or sections slipping off the bearer.

It will be seen that the air-openings are uniform and unobstructed, the bars of the bearer being beneath the cross end piece of the bars *b*.

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

The bearing-bars *a*, formed with notches in their upper edges to receive the rib of the grate bars or sections and prevent sidewise motion, substantially as specified, and in combination therewith the hook ends 4 to the grate-bars, for the purposes, and as specified.

In witness whereof I have hereunto set my signature this 3d day of January, A. D. 1866.

L. B. TUPPER.

Witnesses:

LEMUEL W. SERRELL,
CHAS. H. SMITH.