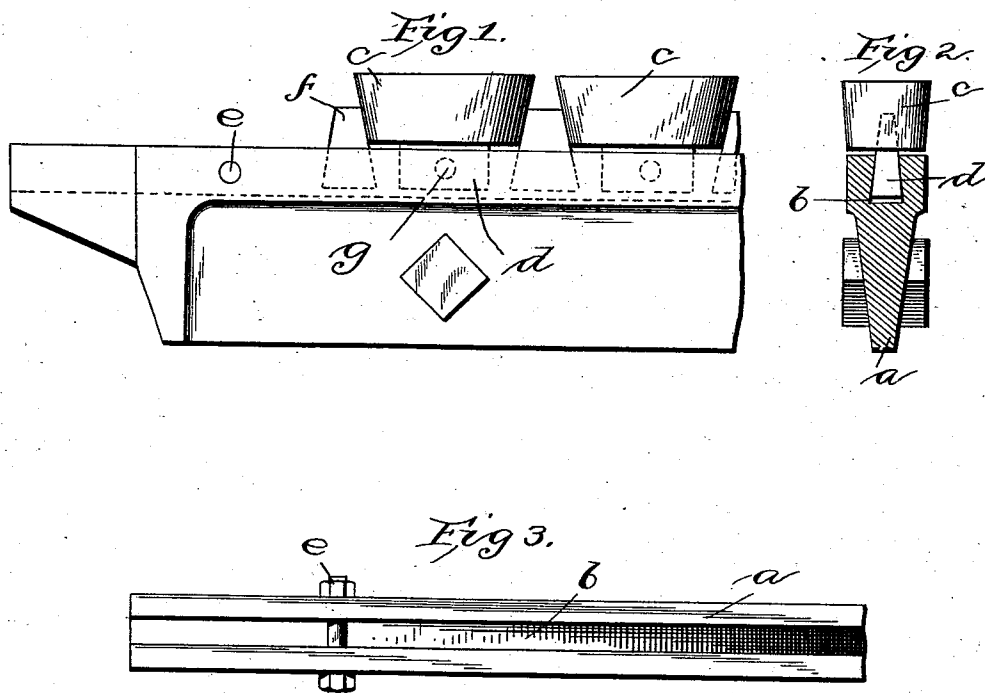


(No Model.)

A. KULBROCK.
FIRE BAR FOR FURNACES.

No. 508,950.

Patented Nov. 21, 1893.



Attest
Wm. F. Hall
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Inventor
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Atty.

UNITED STATES PATENT OFFICE.

AUGUST KULBROCK, OF BERLIN, GERMANY.

FIRE-BAR FOR FURNACES.

SPECIFICATION forming part of Letters Patent No. 508,950, dated November 21, 1893.

Application filed December 17, 1892. Serial No. 455,471. (No model.)

To all whom it may concern:

Be it known that I, AUGUST KULBROCK, of 21 Barutherstrasse, Berlin, in the Kingdom of Prussia and German Empire, have invented a new and useful Improved Fire-Bar for Furnaces, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to fire bars such as are used in boiler and similar furnaces and its object is to enable the burned or otherwise similarly damaged parts of such fire bars to be easily replaced without replacing the whole bar.

In the accompanying drawings reference to which is hereinafter made, Figures 1 and 2 show respectively inside elevation and cross section part of a fire bar with my removable cogs or projections attached thereto. Fig. 3 illustrates in plan the fire bars shown in Figs. 1 and 2, the cogs however being removed.

In the construction illustrated by the figures, the fire bar *a* is provided on its upper side with a dovetailed longitudinal slot *b* which is closed at one end, and into which the cogs *c* are fitted. The cogs are of any desired shape and are furnished with dovetailed projections or feet *d* which fit within the longitudinal slot. They are introduced into the slot at one end of the bar and are passed along until stopped by the screw or rivet *e* at the other end.

For properly spacing the cogs or projections

I provide a series of inverted wedge shaped spacing blocks fitted to said channel and having their projecting inclined faces in contact with the inclined walls of the projecting cogs. If desired each cog may be separately secured in place by a rivet bolt or screw *g*, which may be withdrawn when it is desired to remove the cogs or projections. Any other sectional shape may be given to the longitudinal slot which will prevent the cogs being vertically withdrawn. It is thus evident that the removable cogs can not accidentally drop out, but yet may be easily removed and replaced when desired, any part of the bar being removed at will.

What I claim, and desire to secure by Letters Patent of the United States, is—

In combination with the grate bars *a* having a longitudinal dove-tail channel in its upper face, a series of removable projections having dove-tailed lower ends adapted to said channel, and inverted wedge shaped spacing blocks fitted to said channel and having their projecting inclined faces in contact with the inclined walls of the projections *c*, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

AUGUST KULBROCK.

Witnesses:

PAUL FISCHER,
W. H. EDWARDS.