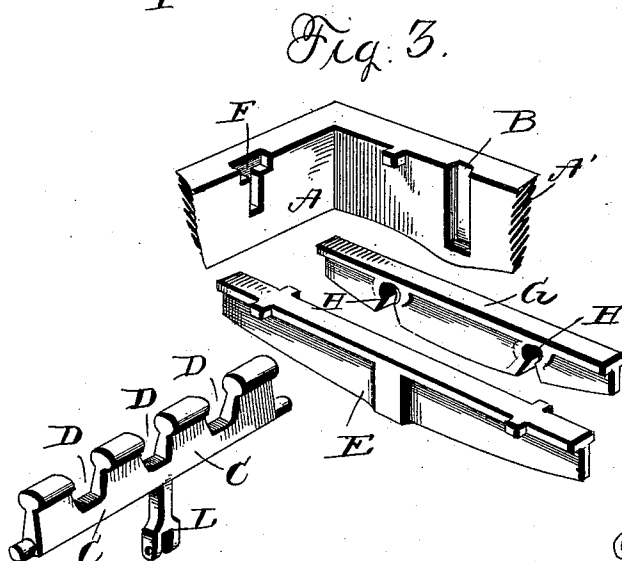
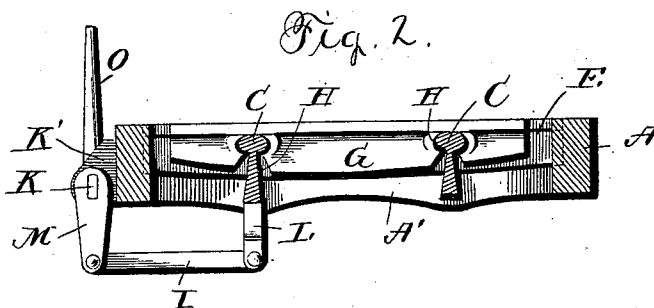
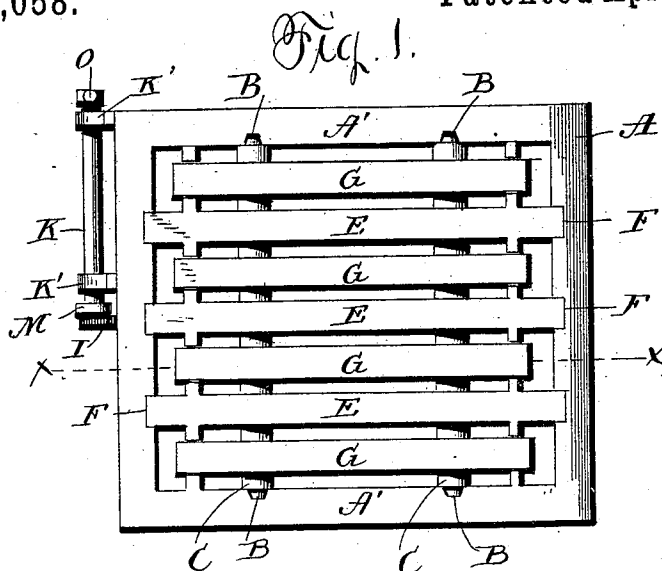


(No Model.)

O. A. KYSER.
FIRE GRATE.

No. 472,058.

Patented Apr. 5, 1892.



Witnesses
J. Williamson.
A. L. Hough

Inventor
Oren A. Kyser
by Franklin H. Hough
His Attorney

UNITED STATES PATENT OFFICE.

OREN A. KYSER, OF LISBON, ILLINOIS.

FIRE-GRATE.

SPECIFICATION forming part of Letters Patent No. 472,058, dated April 5, 1892.

Application filed November 5, 1891. Serial No. 410,900. (No model.)

To all whom it may concern:

Be it known that I, OREN A. KYSER, a citizen of the United States, residing at Lisbon, in the county of Kendall and State of Illinois, have invented certain new and useful Improvements in Fire-Grates; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in fire-grates; and it relates more particularly to that class of grates in which the grate-bars are so constructed and arranged as to permit any one of the said bars to be readily removed from the grate and replaced by a new bar, when for any reason it may be found necessary, thus permitting the bars of the grate being changed at any time without necessitating the substitution of an entire new grate when the bars have become broken or burned out from long usage.

The invention has for its especial object to generally improve upon the construction of the class of grates above mentioned and to provide a grate which may be readily freed from clinkers.

My grate, which will be presently described, is intended more especially for use in connection with the boilers used with steam thrashing-machines; but it will be at once evident that it will be equally serviceable in connection with stoves and furnaces of all kinds.

To the above ends and to such others as the invention may pertain the same consists in the peculiar construction and in the novel combination, arrangement, and adaptation of parts, all as more fully hereinafter described, shown in the accompanying drawings, and then specifically defined in the appended claims.

The invention is fully illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, like letters of reference indicating the same parts throughout the several views, and in which drawings—

Figure 1 is a top plan view of a grate constructed in accordance with my invention.

Fig. 2 is a section upon the line *xx* of Fig. 1. Fig. 3 is a perspective view of one of the rock-shafts with a portion of the grate-bars removed.

Reference now being had to the details of the drawings by letter, A represents a rectangular iron frame having journaled within the lower ends of the vertical recesses B, provided for the purpose upon the inner faces of the side bars A' of the frame, the rock-shafts C C. These rock-shafts are in all respects similar in form to an ordinary T-rail, such as is used upon railways, excepting that they are provided at regularly-spaced intervals of their length with notches D D.

E E are grate-bars, which in cross-section are T-shaped. These bars E have their ends fitted within T-shaped recesses formed upon the inner faces of the end timbers of the frame A, as shown at F F, and the lower portions of the said bars fit within the notches D of the rock-shafts C.

G G are grate-bars, which are of a length slightly greater than the distance between the rock-shafts C. These bars are provided upon their under faces with T-shaped recesses H, which correspond in form with a cross-section through the rock-shafts C between the notches in the same, and in placing the same upon the rock-shafts they are inserted in the said notches in the rock-shafts before the bars E are placed in position and by a side movement are forced over the T-shaped top portions of the shafts, and are held against lateral displacement by the bars E, which are placed within the notches D of the rock-shafts, as described.

Secured pivotally to one of the rock-shafts C is one end of a link I, and the opposite end of said link is connected with the shaft K, which is journaled within suitable bearings K' at the end of the frame A by means of the pivoted or crank levers L and M. The shaft K is rotated by means of the operating-lever O, and by imparting a partial rotation to said shaft the rock-shafts C will be moved, thus imparting to the grate-bars G an end-wise and rocking movement.

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

In a fire-grate for stoves and furnaces, the

combination, with the grate-frame, the rock-shafts C C, journaled therein, said shafts being T-shaped in cross-section and provided at regularly-spaced intervals with notches, as
5 described, of a series of bars adapted to be fitted within said notches in the rock-shafts and having their ends secured to the frame of the grate, a series of bars provided with recesses to receive the T-shaped shafts adapted
10 to be fitted over the rock-shafts between the

notches therein, and to move between the first-named bars when the said shafts are actuated, and lever mechanism for actuating the rock-shafts, substantially as described.

In testimony whereof I affix my signature in 15
presence of two witnesses.

OREN A. KYSER.

Witnesses:

PETER MORRISON,
JOHN WILKINSON.