(No Model.)

J. REAGAN.

FIRE BRIDGE FOR BOILER FURNACES.

No. 589,909. Patented Sept. 14, 1897.

FIG. 1.

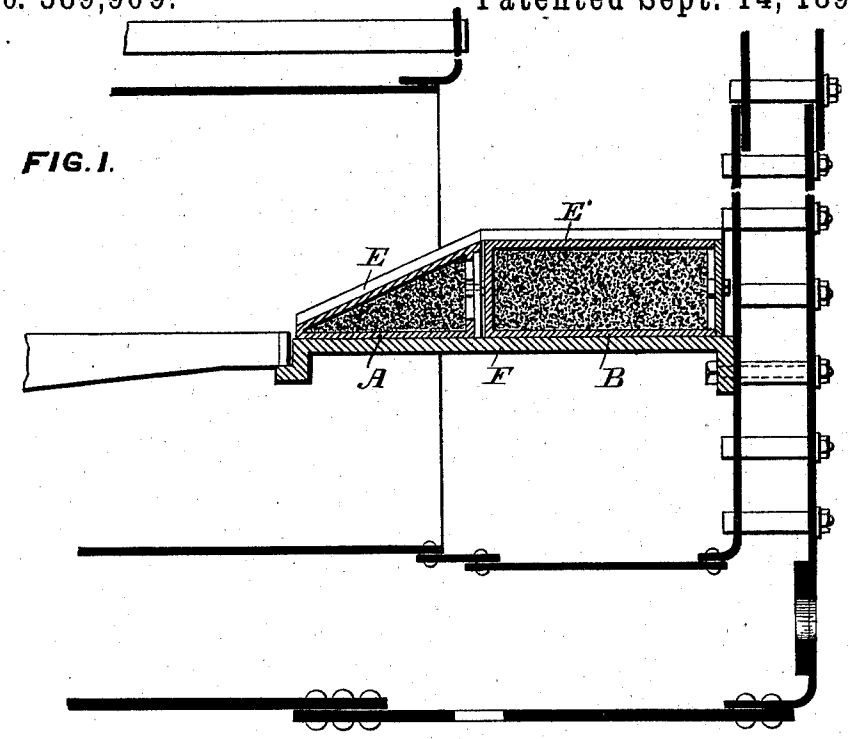


FIG. 2.

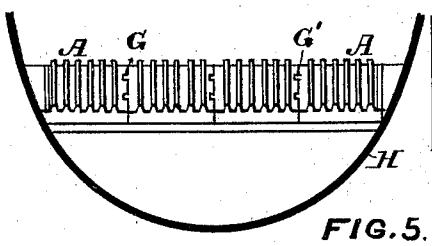


FIG. 4.

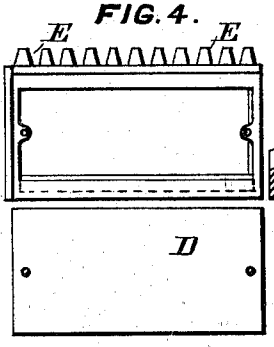


FIG. 3.

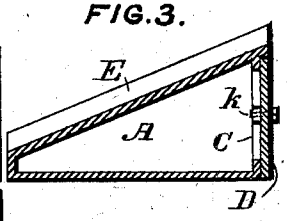


FIG. 5.

FIG. 6.

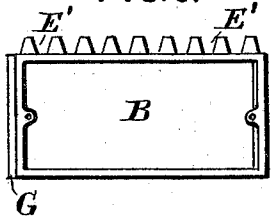


FIG. 7.

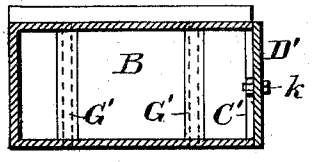
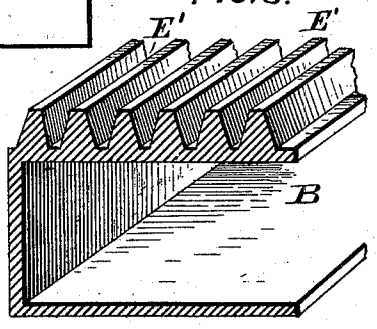


FIG. 8.



WITNESSES.

J. Henry Kaiser.
Walter E. Oakford.

INVENTOR.

James Reagan.
By Isaac P. Oakford
Attorney.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JAMES REAGAN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO FRANK H. FLEER, OF SAME PLACE.

FIRE-BRIDGE FOR BOILER-FURNACES.

SPECIFICATION forming part of Letters Patent No. 589,909, dated September 14, 1897.

Application filed May 6, 1897. Serial No. 635,435. (No model.)

To all whom it may concern:

Be it known that I, JAMES REAGAN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Fire-Bridges for Boiler-Furnaces; 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 improvements on Letters Patent granted me under date of April 13, 1897, No. 580,506, in which a sectional bridge-plate provided with grooves for the lodgment of ashes and embedded in similar substance to resist the action of heat is employed in boiler-furnaces.

My present invention consists in constructing each section of the bridge in a hollow box-like form, with receptacles on the upper surface, consisting of grooves or channels for ashes or other non-conductors of heat, and packing the interior of same with a similar substance. Owing to this peculiar formation of the bridge and the fact that it is shielded from the fire it is rendered fireproof and will retain its normal position and shape in the furnace, avoiding all possibility of its becoming warped, twisted, or burned out.

The object of my present invention is to prepare these sections, forming the bridge proper for immediate use, so as to be handled like and take the place of fire-brick, and by making them independent each section can be more readily and properly packed when detached from the furnace, and when required may be easily passed through the fire-door or other opening and set in position without the aid of skilled labor on the horizontal plate at the rear end of the furnace at the junction of the combustion-chamber.

Reference is had to the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section through the rear portion of a marine boiler-furnace and part of the combustion-chamber, showing my invention applied. Fig. 2 is a transverse section through a furnace-flue, showing the bridge extending across the same. Fig. 3 is a vertical longitudinal division of the hollow section of the bridge which is placed at the front adjacent to the fire. Fig. 4 is a rear open end view of the same through which the packing is introduced. Fig. 5 is a plan view of the lid or cover inclosing the same. Fig. 6 is a rear end view of one of the back sections. Fig. 7 is a longitudinal section of same. Fig. 8 is a perspective view of a portion of one of the sections, showing the grooved upper surface and interior of same.

The sections A and B, Figs. 1, 3, 4, and 6, are inclosed on five sides, forming a box or receptacle, with the remaining sides C and C′, Figs. 3 and 7, made open, or partially so, and closed with a lid or cover D D′, Figs. 5 and 7, for the introduction of filling material. This material may consist of ashes, cinders, or any other substance which is a non-conductor of heat, and is packed thoroughly within each section closely against the metal to prevent heat entering from below to destroy the bridge.

The upper surface of section A, Figs. 1, 2, 3, and 4, which is inclined at any suitable angle to cause an upturn of the flame, is furnished with a series of parallel grooves or channels E E to retain ashes and protect this portion of the bridge from the action of the heat. The upper surface of section B, Figs. 6, 7, and 8, which is made flat, is provided with grooves or channels E′ E′ similar to those of section A, so that ashes or cinders are allowed to accumulate over the surface of the bridge to shield the metal composing the same from the action of the heat.

The section A, Figs. 1 and 2, is placed in front, adjacent to the fire, and is backed by section B to complete the bridge, the whole being supported by the plate F, Fig. 1, which extends across the combustion-chamber.

The sections A and B are packed, as stated, with ashes or other material which will not conduct heat previous to being placed in position within the furnace, and are provided on the abutting sides with tongues and grooves G G′, Figs. 2, 6, and 7, to retain them in line transversely across the rear end of the flue, the small space between the bridge and the curve

of the flue II, Fig. 2, on the right and left side being filled with fire-brick, if desired.

In filling the sections A and B the covers D and D′ are removed and the material packed in with a rammer, so as to thoroughly fill all the corners and leave no vacant places. After this is completed the covers are replaced and secured by means of tap-bolts *k k*, and are then ready for immediate use, and are simply dropped into place on the plate F without the aid of skilled labor or requiring any particular manipulation.

Having now particularly described and ascertained the nature of my invention and in what manner the same is to be performed, I declare that what I claim is—

1. A fire-bridge composed of the sections A and B, of box-like form having inclined and flat tops respectively, and grooves or channels E and E′, formed therein, with the interior and grooves filled with ashes or other non-conductors of heat, substantially as and for the purpose specified.

2. A fire-bridge composed of the hollow sections A and B, having open ends C C′, and covers or lids D D′, for the introduction of ashes or other material, and grooves or channels E E′, on the upper surface for the retention of ashes, substantially as specified.

3. The combination in a fire-bridge, of the hollow sections A and B, covers or lids D D′, tap-bolts *k*, grooves or channels E E′, tongues and grooves G and G′, substantially as specified.

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

JAMES REAGAN.

Witnesses:

E. WARNER BONSALL,

F. G. HULME.