(No Model.) 2 Sheets—Sheet 1.

J. REAGAN.

INDESTRUCTIBLE BLOCK FOR BOILER FURNACES.

No. 605,797. Patented June 14, 1898.

FIG 1

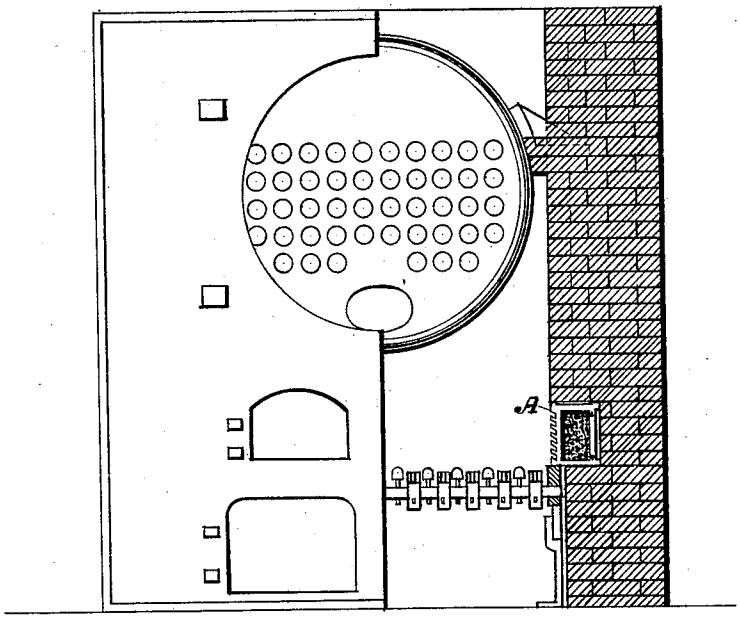
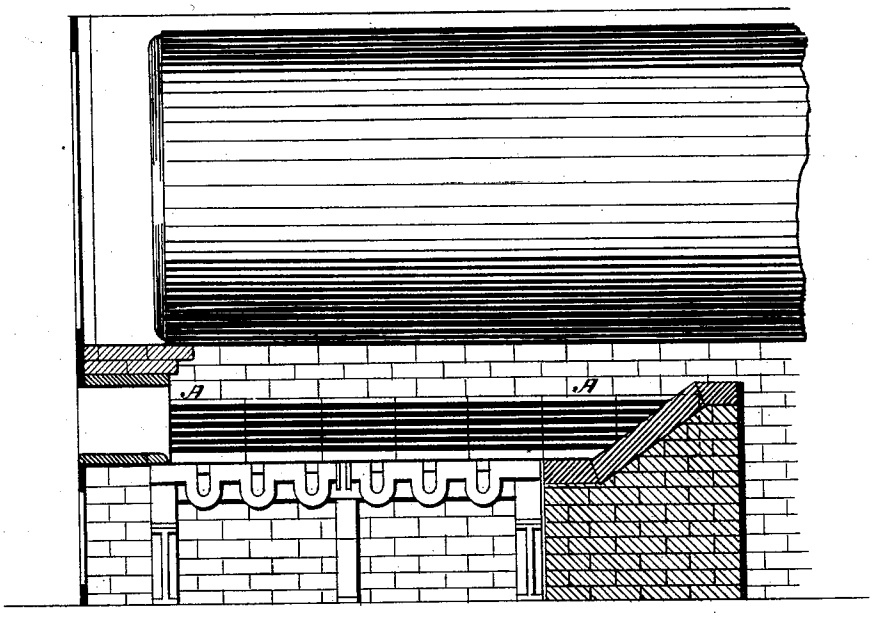


FIG 2.



WITNESSES

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(No Model.) 2 Sheets—Sheet 2.

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FIG 3

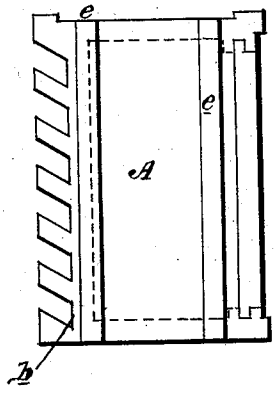


FIG 4

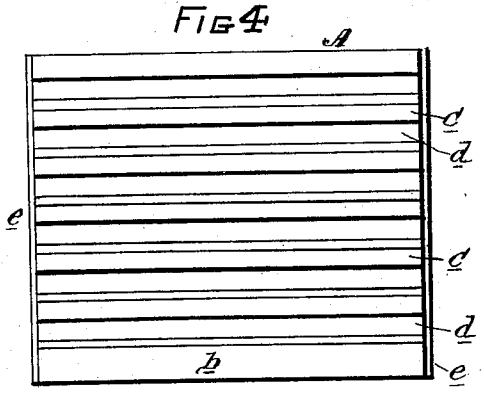


FIG 5

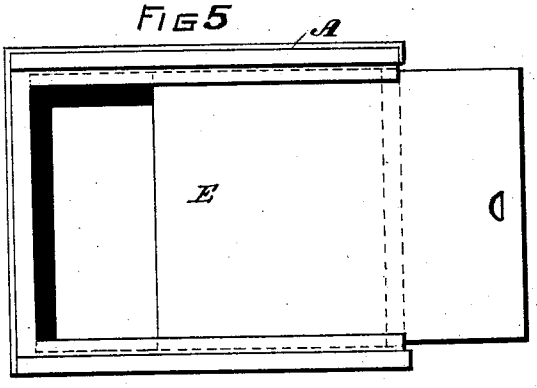
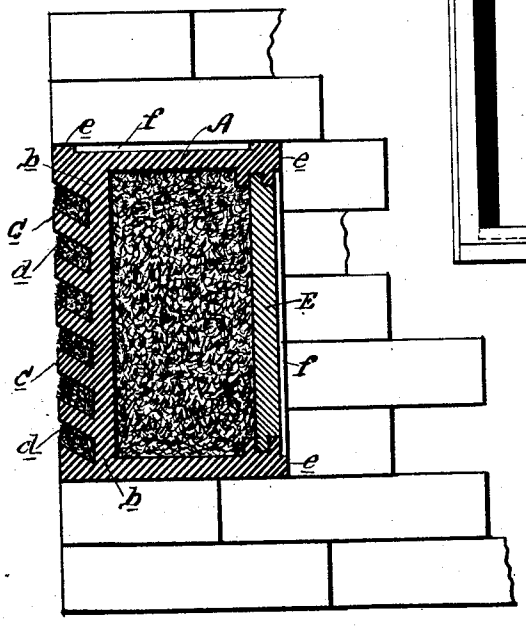


FIG 6



WITNESSES.

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UNITED STATES PATENT OFFICE.

JAMES REAGAN, OF PHILADELPHIA, PENNSYLVANIA.

INDESTRUCTIBLE BLOCK FOR BOILER-FURNACES.

SPECIFICATION forming part of Letters Patent No. 605,797, dated June 14, 1898.

Application filed September 7, 1897. Serial No. 650,811. (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 Indestructible Blocks for the Side Walls of Stationary 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 a former application, allowed me July 8, 1897, for improvement in a fire-bridge for boiler-furnaces, in which the sections are made hollow and packed with ashes, while the grooves on the upper surface are likewise filled with the same material to resist the action of heat, protect the bridge, and render it more durable.

My present invention consists in constructing a hollow cast-metal block of a rectangular form, with the side which is to come in contact with the fire provided with a series of angular ribs or projections arranged alternately to form parallel ledges for the retention of ashes and filled in the interior with the same or other suitable material and embedded in the side walls along the fire-line to take the place of fire-brick. By thus forming the fire side of the block with ribs and intervening spaces for ashes a surface is produced to which clinkers will not adhere.

The object of my present invention is to prevent the formation of clinkers or vitrified matter along the walls on each side of the furnace. These clinkers adhere or knit to the brickwork to such an extent as to require considerable force to remove or knock them off. This act of continual picking at the clinkers causes in time great injury to the walls, breaking and dislodging the fire-bricks to such an extent that frequent removals are necessary.

My invention is also adapted to further protect the walls where the heat is most intense. Inasmuch as the blocks are filled with ashes or other substance which is a non-conductor of heat they act as a shield to prevent heat striking through at this particular point to overheat the brickwork. A large percentage of heat is by this means saved which would otherwise be absorbed by the walls.

Reference is had to the accompanying drawings, in which—

Figure 1 is a front elevation of a stationary boiler and setting, partially in section, showing the hollow blocks of my invention embedded in one of the side walls. Fig. 2 is a horizontal section through the brickwork, showing a line of blocks along one side of the furnace. Fig. 3 is an end view, enlarged, of one of the hollow blocks. Fig. 4 is a side view of same. Fig. 5 is a plan view of the reversed side of same. Fig. 6 is a vertical section through one of the blocks, showing it in proper position in the wall.

The cast-metal block A (shown in Figs. 1 to 6 of the drawings) is made of a rectangular form, although other shapes may be used to conform to the steps or receding angles of different walls with the outer surface of the side *b*, which is placed contiguous to the fire, provided with a series or rows of ribs or projections *c c*, arranged alternatively and extending parallel lengthwise with the block, so as to leave grooves or channels *d d* between them. The said ribs or projections *c c* form ledges for ashes to rest on and fill the grooves or channels *d d*, and are inclined inward at an angle of about thirty degrees, so as to more readily retain the ashes. A surface thus composed of narrow strips of iron and layers of ashes is exposed to the fire, to which clinkers will not adhere when the blocks are set in proper position along the sides of the furnace.

The block A, as stated, is made hollow and provided on the reverse side or on top with an opening, closed by a sliding lid E, through which material is introduced to fill the interior. This material may consist of ashes, pulverized cinders, or any other substance which is a non-conductor of heat, and is packed or rammed into a solid mass.

The blocks, completely packed and the lid closed, are set or bricked in the walls on a line, end to end, along the furnace at the height of the grate, and in some cases where a shaking grate is used they may extend over, so as to rest on the side bars, as shown in Fig.

1. In height the blocks should extend up to or a short distance above the fire-line, so as to fully protect the brickwork. The ends, also the top and inclosed side of the block, are provided with chipping strips *e e*, as shown in Figs. 3 and 6, so as to permit an open space *f* to remain around the outside of the block when the bricks are set to allow for expansion and contraction. This open space or air-chamber *f* will confine a body of air and materially assist in protecting the walls, as it is a well-known fact that a confined body of air is a very poor conductor of heat.

These cast-metal blocks, which are arranged along the furnace where the temperature is the highest, are much stronger than fire-brick and are not liable to become broken or dislodged in cleaning fires, and being filled with ashes or other substance with ashes in the grooves they act as a shield to prevent heat penetrating the walls, to be absorbed by the same.

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

1. A hollow cast-metal block, A, filled with ashes or other non-conductors of heat, and provided on one side or top with an opening and sliding lid E, and on the opposite side with a series of inclined ribs or projections *c c*, to form ledges and grooves or channels for the retention of ashes, substantially as and for the purpose specified.

2. The hollow block, A, packed with ashes or other suitable material, provided with ribs *c c*, and grooves or channels *d d*, inclining inwardly, and chipping strips *e e*, in combination with the side walls of a boiler-furnace, substantially as shown and described.

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

JAMES REAGAN.

Witnesses:
F. G. HULME,
MCCLELLAN EBRIGHT.