No. 771,304. PATENTED OCT. 4, 1904.

E. J. GORDON.

BLAST PIPE FOR BOILER FURNACES.

APPLICATION FILED JAN. 20, 1904.

NO MODEL.

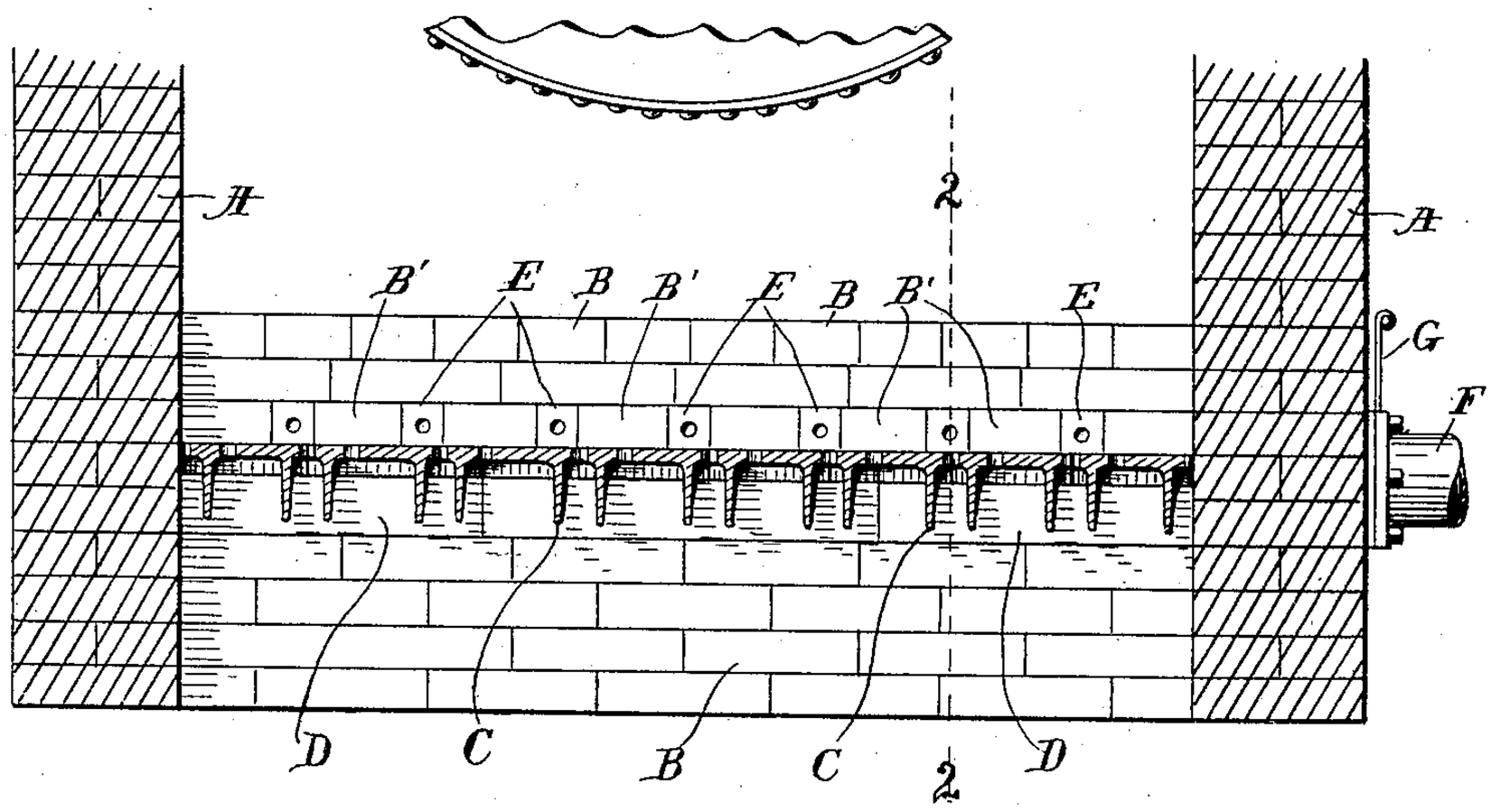

Fig. 1.

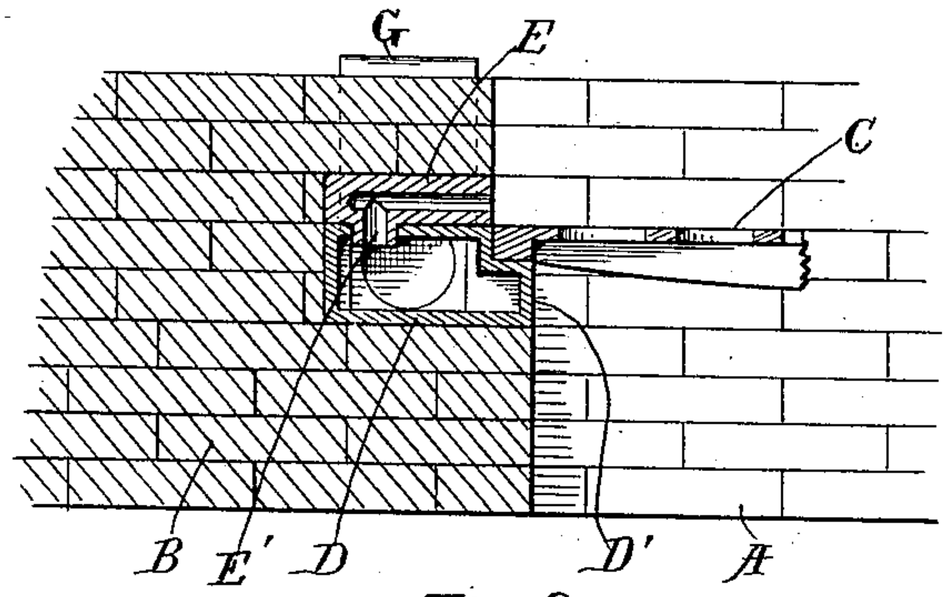

Fig. 2.

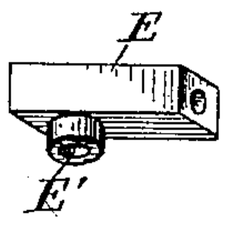

Fig. 3.

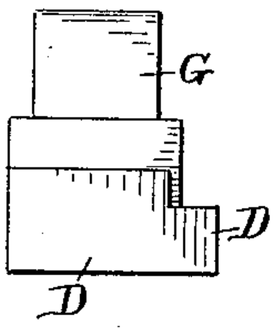

Fig. 4.

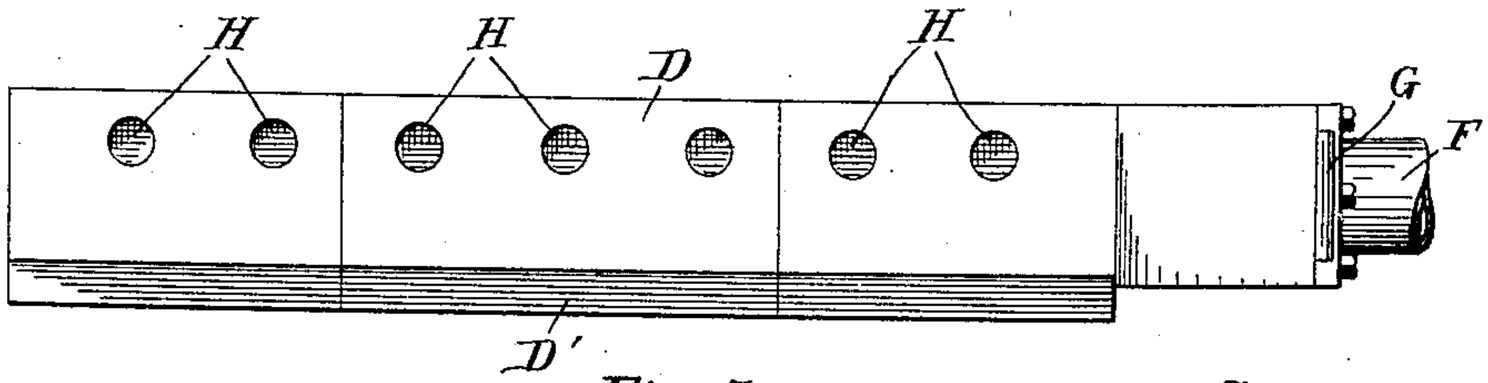

Fig. 5.

Witnesses
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No. 771,304. Patented October 4, 1904.

UNITED STATES PATENT OFFICE.

ELONSO J. GORDON, OF GREENVILLE, MICHIGAN.

BLAST-PIPE FOR BOILER-FURNACES.

SPECIFICATION forming part of Letters Patent No. 771,304, dated October 4, 1904.

Application filed January 20, 1904. Serial No. 189,847. (No model.)

To all whom it may concern:

Be it known that I, ELONSO J. GORDON, a citizen of the United States, residing at Greenville, in the county of Montcalm and State of Michigan, have invented certain new and useful Improvements in Blast-Pipes for Boiler-Furnaces; and I do hereby 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.

My invention relates to improvements in blast-pipes for boiler-furnaces; and its object is to utilize a portion of the bridge-wall for air-conduits, to facilitate repairing the device, to protect the pipe from the action of the heat, to utilize the pipe to support the grates, and to provide the device with various new and useful features, hereinafter more fully described, and particularly pointed out in the claims.

My invention consists, essentially, in a blast-pipe embedded in the bridge-wall and located below the plane of the top of the grate and projecting beneath the grate to support the same and blocks of suitable material forming portions of the bridge-wall and having passages therethrough to convey air from the blast-pipes to the combustion-chamber above the grate and in the combination and arrangement of parts, as will more fully appear by reference to the accompanying drawings, in which—

Figure 1 is a transverse section of a boiler-furnace, showing the bridge-walls in front elevation and embodying my device; Fig. 2, a vertical section of the same, taken on the line 2 2 of Fig. 1; Fig. 3, a perspective detail of one of the blocks forming a portion of the bridge-wall and having passages therethrough for the air; Fig. 4, an end elevation of the blast-pipe, and Fig. 5 a plan view of the same.

Like letters refer to like parts in all of the figures.

A A represent the side walls of the furnace; B, the bridge-wall of the same; C, the grates; D, the blast-pipe, substantially rectangular in form and embedded within the bridge-wall and having its upper surface substantially in the plane of the upper surface of the grate C and also provided with a forwardly-projecting lower portion D′, forming a ledge upon which the grates are supported. This blast-pipe is also provided with a series of openings H in the upper side adapted to receive short nipples E′ on suitable blocks E, said blocks being of such proportions as to form portions of the bridge-wall proper and to combine with the bricks of the upper portion of the bridge-wall and form therewith a continuous wall, with the ends of the blocks E only exposed to the fire and located just above the rear ends of the grates. The blocks E are made, preferably, of some refractory material, like fire-brick, or may be made of cast-iron, if preferred, and are provided with suitable openings extending from the interior of the blast-pipe D to the combustion-chamber of the furnace and opening into the said chamber in a series of openings close above the grate-bars, as shown, and preferably equidistant from each other. These blocks are preferably provided with downwardly-projecting nipples E′, inserted in the openings H of the blast-pipe; but these nipples are not essential, as the blocks would remain in place without their use. In the event that the blocks E are injured by the action of the fire or in any way they are very easily removed and replaced without disturbing the blast-pipe by removing a few of the superposed bricks forming the upper part of the bridge-wall and are held in place laterally by the bridge-wall bricks B, adapted to space apart and fill in between the blocks E. These blocks may be of any suitable proportions, but preferably conform to the dimensions of the ordinary bricks used in building bridge-walls, so that when combined therewith they will form a continuous and solid wall and be spaced apart by the bricks, as indicated by the drawings.

The blast-pipe is connected with any suitable air-supply by means of a pipe F and the flow of air thereto regulated by a gate G in the usual way.

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

1. In combination with a furnace having

grates, a blast-pipe embedded in the furnace-wall, and rectangular blocks of refractory material having openings therethrough to connect the interior of the blast-pipe and the combustion-chamber of the furnace, said blocks also being of the same vertical thickness of the bricks forming the wall and spaced apart by said bricks.

2. In a furnace, a blast-pipe embedded in the wall of the furnace and below the plane of the upper surface of the grates, and having a forwardly-projecting lower portion to support the grates, and blocks above the blast-pipe and forming part of the wall and having openings therethrough connecting the interior of the blast-pipe and the combustion-chamber of the furnace.

3. In a furnace, the combination of a blast-pipe rectangular in cross-section and embedded in the bridge-wall below the plane of the upper surface of the grates and having openings in its upper side, rectangular blocks of the same thickness as the bricks forming the wall, and spaced apart by said bricks, nipples on the blocks and inserted in the openings of the blast-pipe, and air-passages through the nipples and blocks.

4. In a furnace, in combination with the grates and bridge-wall, a blast-pipe rectangular in cross-section and embedded in the bridge-wall below the plane of the upper surface of the grates and having openings in its upper side and also having a forwardly-projecting lower portion supporting the grates, and rectangular blocks forming portions of the bridge-wall, and having openings therethrough connecting the interior of the blast-pipe with the interior of the furnace, said blocks being spaced apart by the bricks of the bridge-wall, and nipples on said blocks inserted in the openings of the blast-pipe.

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

ELONSO J. GORDON.

Witnesses:
NIELS CHRISTENSEN,
H. W. CRAWFORD.