No. 625,916. Patented May 30, 1899.

J. ALVES.

FIRE BRIDGE FOR FURNACES.

(Application filed Mar. 15, 1899.)

(No Model.)

Fig. 1.

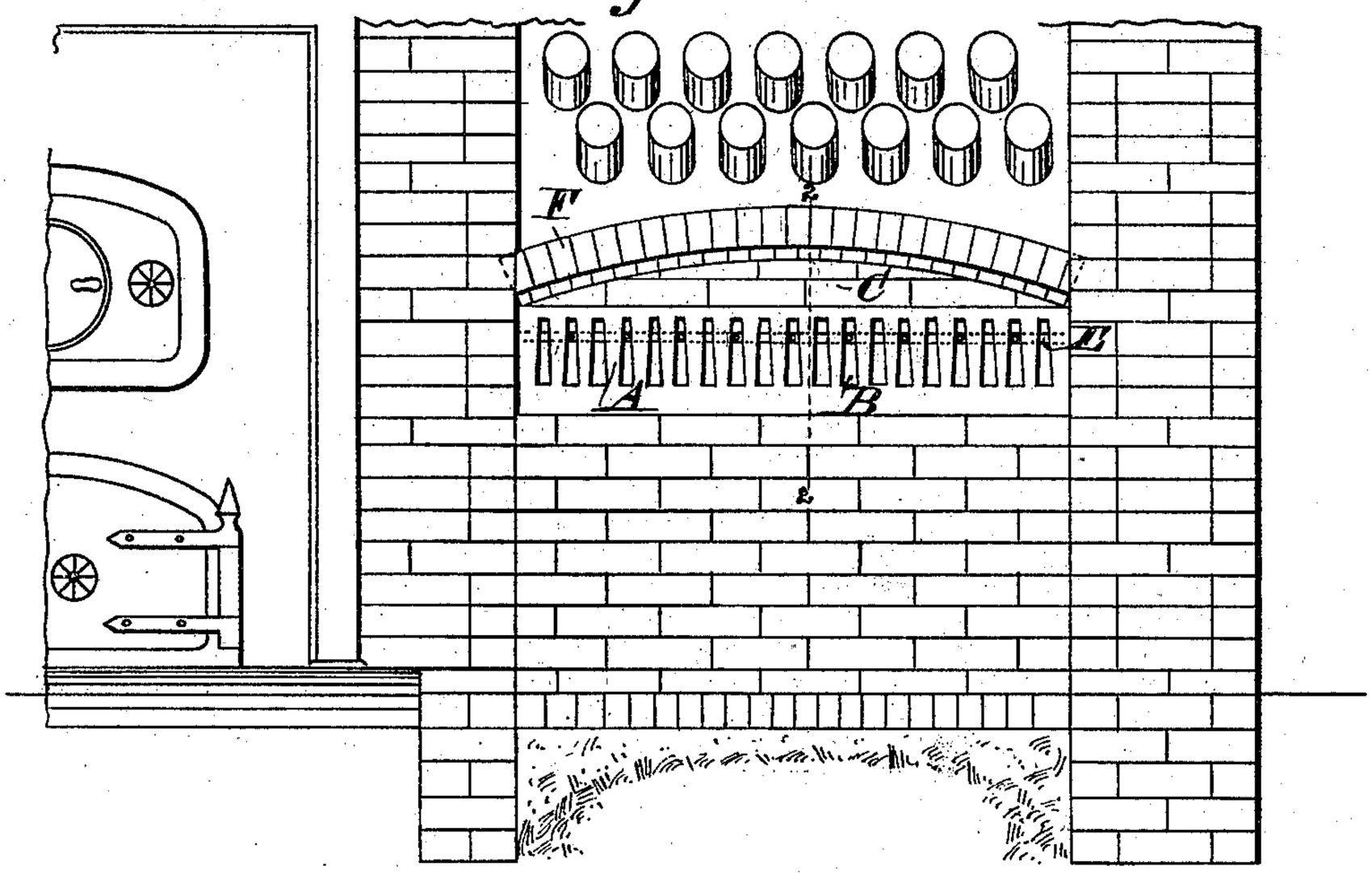


Fig. 2.

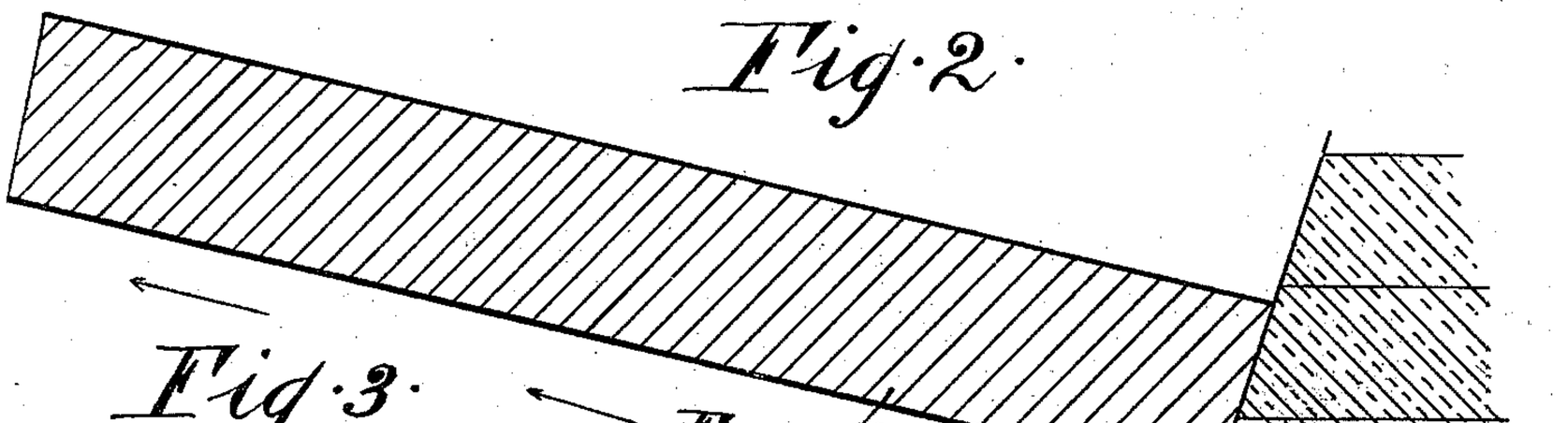
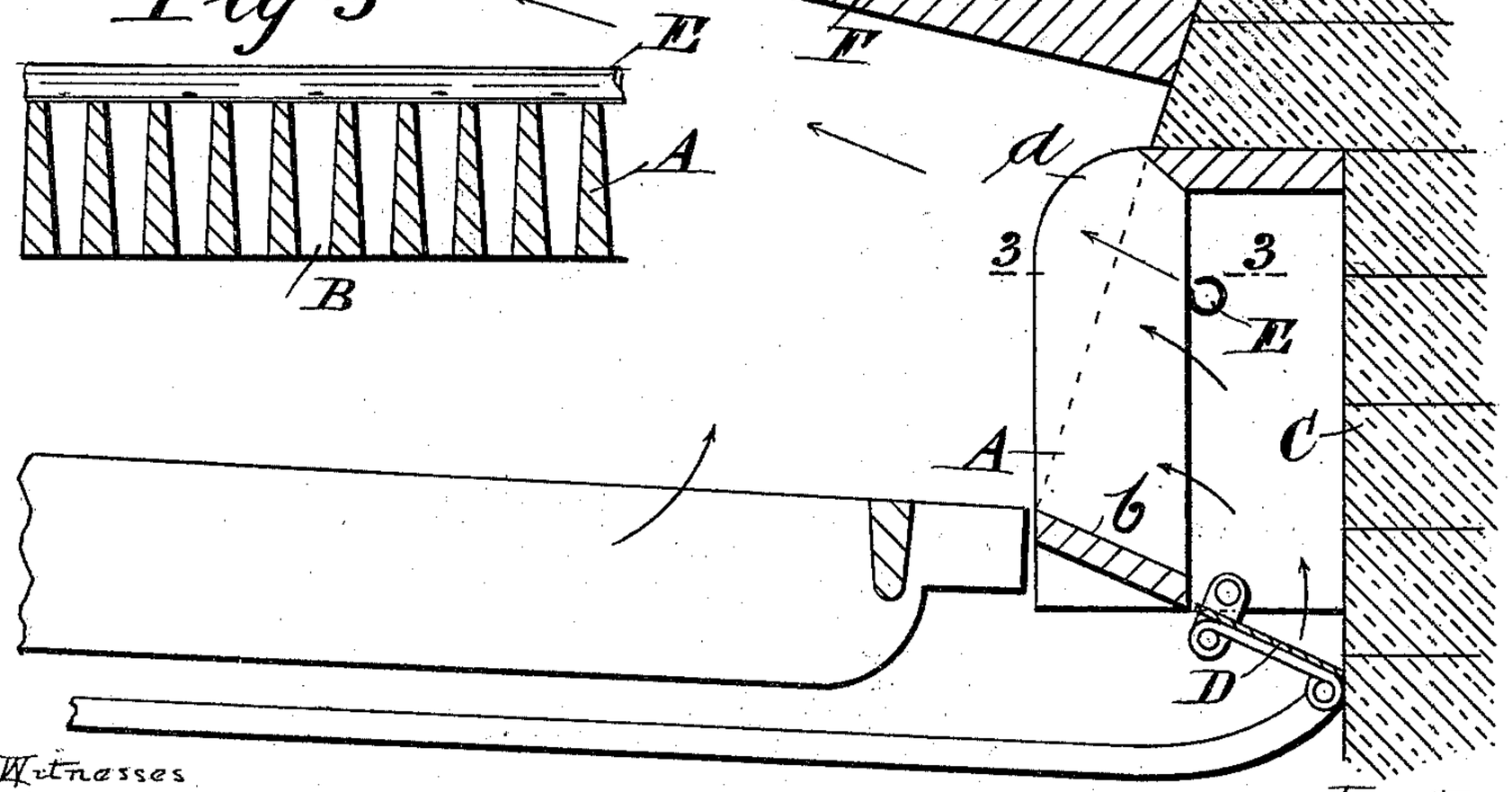


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN ALVES, OF MELBOURNE, VICTORIA.

FIRE-BRIDGE FOR FURNACES.

SPECIFICATION forming part of Letters Patent No. 625,916, dated May 30, 1899.

Application filed March 15, 1899. Serial No. 709,161. (No model.)

To all whom it may concern:

Be it known that I, JOHN ALVES, a subject of the Queen of Great Britain, residing at No. 131 William street, Melbourne, in the British Colony of Victoria, have invented new and useful Improvements in and Relating to Fire-Bridges for Furnaces, of which the following is a specification.

My object in devising this invention has been partly to provide a fire-bridge which will be more durable than the hollow fire-bridges at present in use and that will not be liable to become choked up, and thus rendered inoperative, and partly to provide means for supplying steam to the furnace in such a way as to convert the furnace into a Bunsen burner, thus generating an intense heat with a minimum combustion of fuel and absence of smoke.

I will describe my invention by reference to the accompanying drawings, wherein—

Figure 1 is a front elevation of part of a furnace fitted with a fire-bridge constructed according to this invention. Fig. 2 is a vertical transverse section thereof on line 2 2, Fig. 1. Fig. 3 is a horizontal section on line 3 3, Fig. 2.

The same letters of reference indicate the same parts in all the figures.

A represents a casting which is made long enough to extend across the back of the furnace and which can either be rounded off at the top and front edge, as indicated at *a* in Fig. 2, or can be made square across the top, according to whether the flames are intended to return to the front or be carried to the back of the boiler. This casting is, moreover, provided with a number of elongated vertical apertures or slots B, extending through the casting from front to back and practically from top to bottom thereof. These slots are made to gradually decrease in width toward their upper end, so as to reduce the volume of air supplied to the flames above the line of fuel or passing over the bridge, and said slots are made wider at the back than at the front, as shown in Fig. 3, so that any ashes and clinkers passing into them will fall clear through to the back and thence down into the ash-pit below. For this purpose also the bottom of the casting is inclined toward the back, and the bottom of each slot is similarly inclined, as indicated at *b* in Fig. 2.

The back of the bridge may be closed in with fire-brick, as illustrated at C, and be provided with a door or damper D, whereby the supply of air may be regulated.

E represents a steam-supply pipe which is arranged behind the bridge and is provided with jets or orifices opposite some or all of the slots B, thereby creating a forced draft and converting the furnace into a forced Bunsen burner.

F represents a fire-brick arch projecting over the back part of the fire-grate, as is usual in Babcock and Wilcox boilers.

With the construction above described a thorough combustion of the fuel will be insured and the bridge will not be liable to become choked up, neither will it be so liable to be destroyed by the intense heat.

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

The herein-described fire-bridge for furnaces consisting essentially of a casting extending across the furnace and having vertical elongated apertures or slots of greater width at the back than the front and of decreasing width toward the top and inclined rearwardly at the bottom in combination with a steam-supply pipe arranged behind said bridge and having jets or orifices opposite some or all of the slots in said bridge the whole being constructed and arranged substantially as and for the purposes herein described and explained and as illustrated in the accompanying drawings.

JOHN ALVES.

Witnesses:
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