(No Model.)

H. C. ASHLIN.

STEAM BOILER FURNACE.

No. 480,864. Patented Aug. 16, 1892.

Fig. 1.

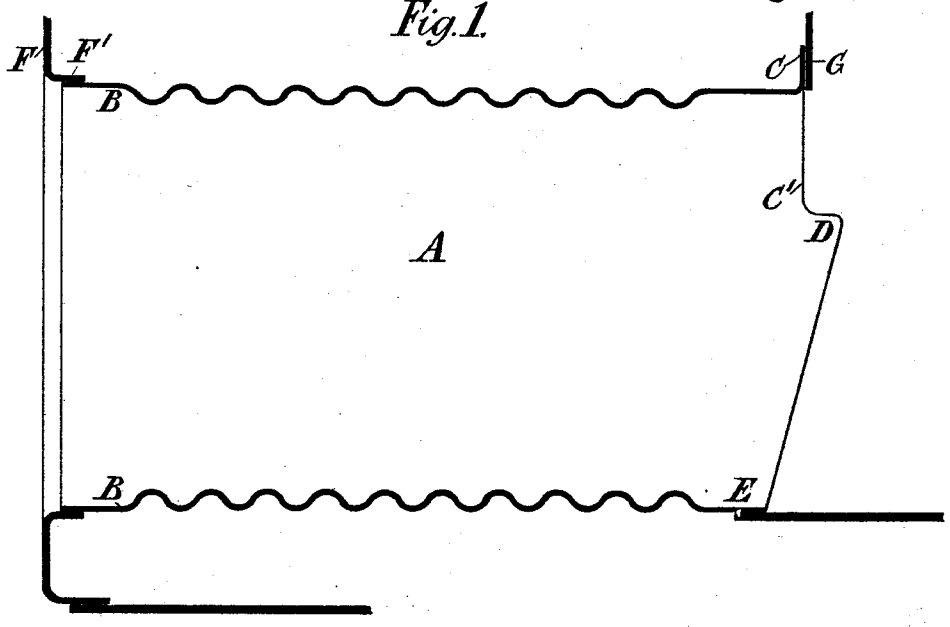
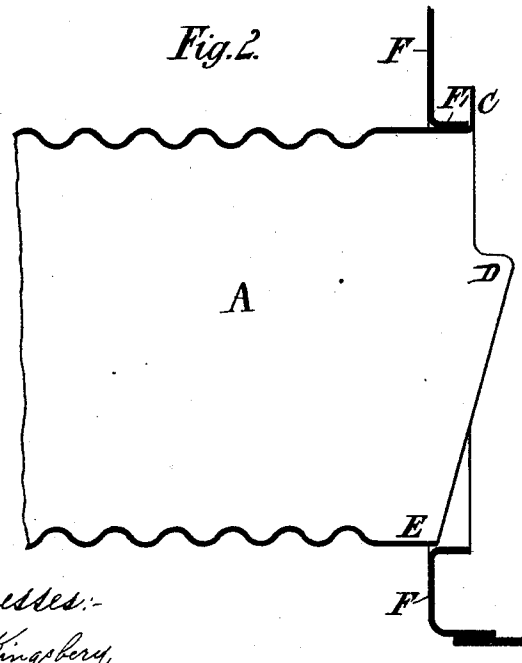


Fig. 2.



Witnesses:-
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UNITED STATES PATENT OFFICE.

HENRY CROMPTON ASHLIN, OF LONDON, ENGLAND.

STEAM-BOILER FURNACE.

SPECIFICATION forming part of Letters Patent No. 480,864, dated August 16, 1892.

Application filed November 18, 1891. Serial No. 412,283. (No model.) Patented in England May 1, 1890, No. 6,718.

To all whom it may concern:

Be it known that I, HENRY CROMPTON ASHLIN, a subject of the Queen of England, residing at London, England, have invented certain new and useful Improvements in Steam-Boiler Furnaces, (for which I have obtained Letters Patent in Great Britain, No. 6,718, dated May 1, 1890,) of which the following is a specification.

The object of this invention is to facilitate the application and removal of the furnaces, more particularly in marine boilers, where great difficulty is at present experienced when an old furnace has to be removed and a new one inserted. Usually the furnace is so secured that it is a most difficult matter to get it out; but by my invention this becomes quite a simple operation.

In carrying out my invention I prefer to flange the front tube-plate or front plate of the boiler around the furnace-opening, but to leave the back tube-plate plain around the said opening. I provide the furnace with a flange at its back or inner end to fit up against the back plate; but I leave it plain at its front end, where it can be riveted to the flanged plate of the boiler. The lower portion of the back end of the furnace I prefer to cut away at an angle to facilitate its removal. By this arrangement it is a comparatively simple matter to remove or replace the furnace, as all that is necessary is to knock out the rivets and draw the furnace forward until the flange at the upper portion of its back end meets the flange of the front plate, when by canting the furnace up the cut-away portion can be caused to clear the lower portion of the flanged furnace-opening in the front plate, and the furnace can then be freely removed.

In the accompanying drawings, Figure 1 is a longitudinal section of the tube in position, and Fig. 2 is a similar view showing the tube in course of removal.

A is the furnace-tube, which may be of any ordinary construction, either corrugated, ribbed, or plain, but having one end, preferably the forward end, terminating in a plain cylindrical portion B and its other end flanged at C for a portion of the way round. The extent of the flange C would depend upon the shape of the combustion-chamber and plates of the boiler against which the tube has to fit; but it might be carried round generally for about one-third (more or less) of the circumference of the tube. In the drawings the flange C is stopped off somewhere about the point C′, the exact position depending, as stated above, upon the shape of the plates to which it has to be attached. The portion of the back end of the tube from D to E is tapered off, by which means, as shown in Fig. 2, when the tube is withdrawn its lower portion clears the front furnace-plate F, so that the tube can be dropped and the flange C cleared from the upper portion of the front plate.

The front plate F is flanged inwardly at F′, the back plate G not requiring to be flanged at all. The rivets at the front end would be placed through the cylindrical portion B of the tube and the flange F′ and at the back through the flange C and plate G at the upper portion and through the tapered portion of the tube D to E and the plate of the boiler at the other part. In Fig. 1 the furnace-tube is shown in position. In Fig. 2 it is in process of removal and has been drawn out as far as the flange C will allow. To complete the removal, it may be tilted, if necessary, until the corner E clears the plate F. By this means it will be seen that an existing furnace-tube may be removed and repaired or a new one replaced without otherwise disturbing the boiler.

I claim—

1. A furnace-tube having no flange at one end and partly flanged and partly cut away at the opposite end in a direction toward the body of said tube, for the purpose specified.

2. A furnace-tube having no flange at one end and provided at its opposite end with a flange C, extending partially around the circumference of the tube, and having the remainder of said circumference cut away obliquely in a direction toward the body of the tube, as at D E, for the purpose specified.

3. The combination, with the front plate F, flanged, as at F′, and the back plate G, having no flange, of the furnace-tube, one end having no flange and fitting within the said plate F and the opposite end of the tube being provided with a flange C, fitting against the exterior of the plate G and being cut away, as at D E, for the purpose specified.

In testimony whereof I have hereto set my hand in the presence of the two subscribing witnesses.

HENRY CROMPTON ASHLIN.

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