C. STEWART.

Mouth-Piece for Steam-Boiler Furnaces.

No. 144,002. Patented Oct. 28, 1873.

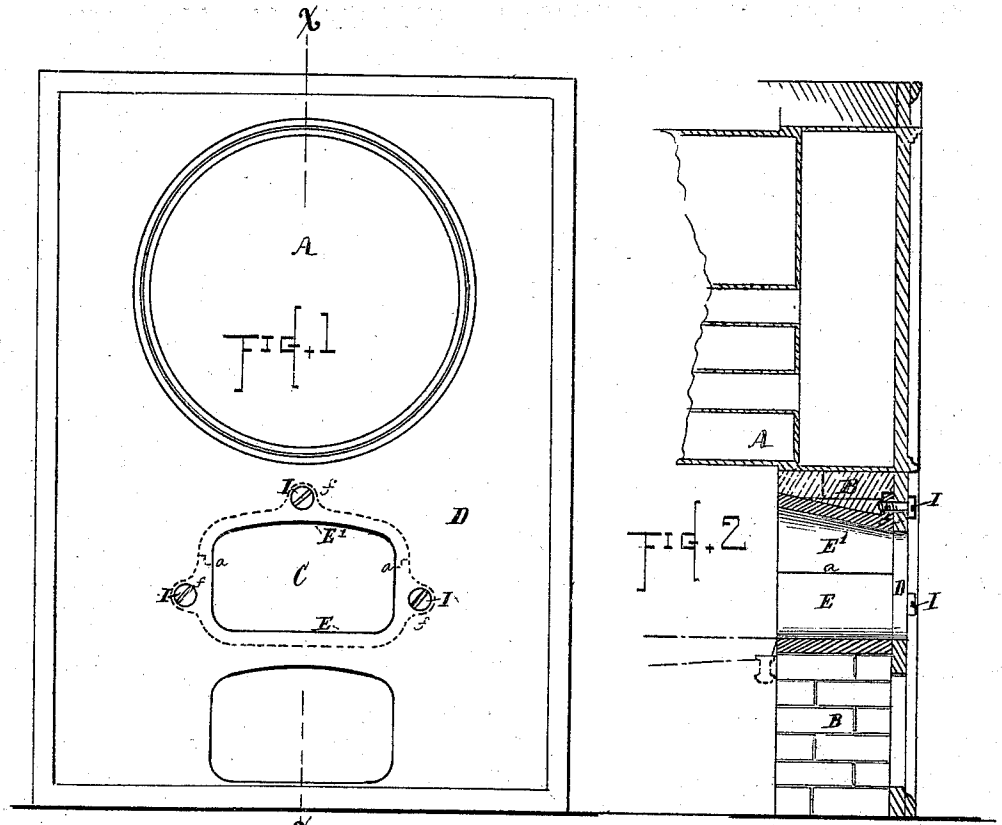

FIG. 1

FIG. 2

FIG. 3

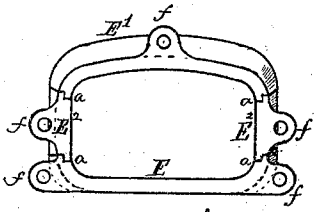

FIG. 4

Inventor

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Witnesses

Chas. F. Burleigh

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UNITED STATES PATENT OFFICE.

CHARLES STEWART, OF WORCESTER, MASSACHUSETTS, ASSIGNOR OF ONE-HALF HIS RIGHT TO WILLIAM ALLEN, OF SAME PLACE.

IMPROVEMENT IN MOUTH-PIECES FOR STEAM-BOILER FURNACES.

Specification forming part of Letters Patent No. **144,002**, dated October 28, 1873; application filed October 1, 1873.

To all whom it may concern:

Be it known that I, CHARLES STEWART, of the city and county of Worcester and State of Massachusetts, have invented a certain new and useful Mouth-Piece for Steam-Boiler Furnaces; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, which represent such portions of a boiler-furnace as are necessary to illustrate my invention.

Figure 1 represents a front elevation view; Fig. 2, a vertical section at line *x x;* Fig. 3, a transverse vertical section, showing an interior view of the furnace-front; and Fig. 4, a front view of the mouth-piece, when made in a slightly-modified form.

The object of my invention is to provide a mouth-piece for steam-boiler furnaces which shall be more durable, and which will protect and support the brick-work of the furnace-front in a better and more thorough manner, than those in ordinary use—one which will facilitate the operation of stoking or firing, and that can be readily and cheaply renewed when burned out. To this end my invention consists in a peculiarly-constructed mouth-piece, combined and arranged substantially as hereinafter set forth.

In the drawings, the part marked A represents the boiler. B indicates the brick-work or furnace-walls; C, the opening into the furnace; D, the metal front-plate, and E E^1 the improved mouth-piece, E indicating the lower and E^1 the upper sections thereof. The two sections of the mouth-piece are in the present instance made of cast metal, in the form shown, section E comprising that portion at the bottom and sides of the opening C, and section E^1 consisting of an elliptically-arched plate fitted to the lower part with flanges and grooves at the sides of the opening, as indicated at *a a.* The top and sides of the mouth-piece are splayed inward to give a greater opening at the inner end of the mouth, and thus facilitate the operation of stoking or firing. Ear-pieces *f* are formed upon the front part of the sections E E^1, and the mouth-piece is fastened to the front plate D by screws or bolts, I, which pass through said ears and plate, so as to permit of their being loosened from the exterior.

The mouth-piece may, if desired, be made with more than two sections, as shown in Fig. 4, wherein the sides E^2 are sections or separate pieces from the top E^1 and bottom E. This construction is desirable in furnaces where the sides E^2 are liable to be rapidly burned out; but generally two sections, or the form shown in Figs. 1, 2, and 3, is to be preferred.

Among the advantages incident to my invention may be mentioned the following: The mouth-piece in itself is much more durable than the plate which is ordinarily used, and when burned out can be renewed with much less trouble and expense. Being made in sections, and secured to the front D by bolts, I, accessible at the outside, the top E^1, which is the portion chiefly acted upon by the heat, can be renewed without disturbing the lower portion; or, when made in the form shown in Fig. 4, either side may be removed without disturbing the other parts. As it requires the removal and relaying of but a small portion of the brick-work, as compared with the amount which has to be removed in furnaces of ordinary construction when renewing the plates, and as it does not require to be renewed nearly as often, while the weight of metal used in its construction is much less, it will readily be observed that the use of my improved mouth-piece tends to reduce the cost of maintaining the furnace in a considerable degree.

This mouth-piece also supports the brick-work of the furnace in the most thorough manner, as the form of the top is such that it does not expand and warp downward by the action of the heat, and thus loosen the bricks beneath the front end of the boiler. It also protects the bricks at the sides of the opening and prevents their being broken away, while its opening is of such shape as to allow free access to all parts of the interior of the furnace, so that the operations of firing can be conveniently performed.

The flanges and grooves, while they lock the parts together similar to a solid piece, permit of either section being removed by sliding it back in a direction parallel to the flanges.

Having described my improved mouth-piece for boiler-furnaces, what I claim therein as new and of my invention, and desire to secure by Letters Patent, is—

1. The mouth-piece E E^1 for steam-boiler furnaces, the parts thereof being constructed and combined with the furnace-front D, substantially as herein shown and described.

2. The combination, with the front D in a steam-boiler furnace, of a sectional mouth-piece, comprising two or more sections, the edges of which are matched to each other with flanges and grooves, whereby, while the parts are held firmly to each other, either section can be removed without disturbing the other section, substantially as and for the purpose set forth.

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Witnesses:
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