E. R. STEGE.

Apparatus for Supplying Steam Blast to Boiler Furnaces.

No. 200,674. Patented Feb. 26, 1878.

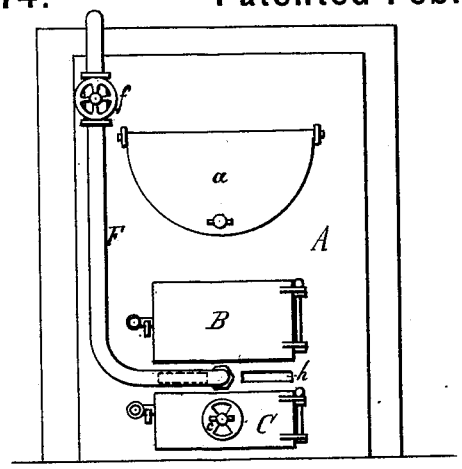

Fig: 1.

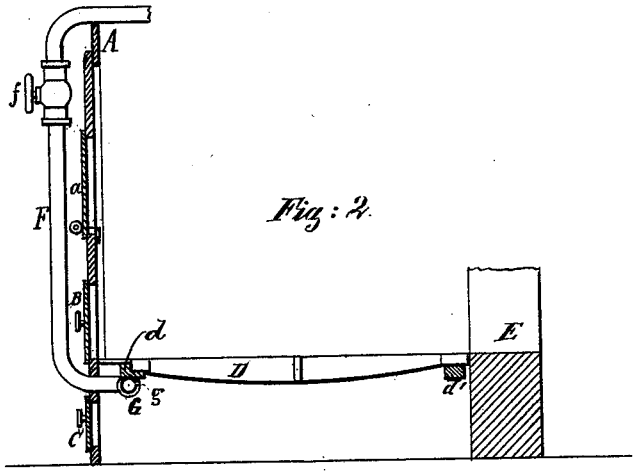

Fig: 2.

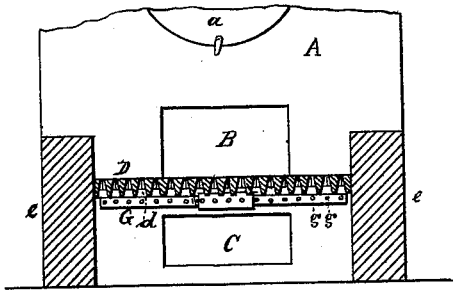

Fig: 3.

Witnesses.
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UNITED STATES PATENT OFFICE.

EDWARD R. STEGE, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN APPARATUS FOR SUPPLYING STEAM-BLAST TO BOILER-FURNACES.

Specification forming part of Letters Patent No. **200,674**, dated February 26, 1878; application filed December 19, 1877.

To all whom it may concern:

Be it known that I, EDWARD R. STEGE, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Devices for Supplying Steam-Blast to Boiler-Furnaces, of which the following is a specification:

The object I have in view is to produce such an arrangement of the steam-supply pipe and the blast-pipe as to protect the blast-pipe from the heat of the furnace, and prevent any ashes from the grate from falling upon such pipe or into the steam-openings in the same, and, in connection with the air-supply openings in the boiler-front, to make a strong blast of steam and air thrown directly against the burning fuel; and my invention therein consists in arranging the blast-pipe transversely beneath the front end of the grate and directly under the front supporting cross-bar to the grate, and providing such blast-pipe with steam-openings, placed in line with the interstices between the grate-bars, in combination with the steam-supply pipe and the air-openings in the boiler-front.

In the drawings, Figure 1 is an elevation of the boiler-front; Fig. 2, a longitudinal vertical section through the boiler-furnace, and Fig. 3 a cross-section of the same.

Like letters denote corresponding parts.

A represents the boiler-front, having flue-cleaning door *a*, fuel-door B, and ash-pit door C, which latter may be provided with an air-register, *e*. D is the grate, composed of a series of longitudinal bars, arranged in the usual manner, and supported at their front and rear ends upon transverse supporting-bars *d d'*. E is the bridge-wall, and *e* the side walls, of the furnace.

The steam-supply pipe F extends down the boiler-front, on one side of the same, so as to avoid the fuel-cleaning and the fuel-doors, and then turns abruptly across to the center of the front, between the fuel and ash-pit doors, where it passes through such boiler-front into the furnace, just below the plane of the grate.

The pipe F is provided with a valve, *f*, arranged at a convenient height, to regulate the supply of steam.

To the inner end of the pipe F is centrally connected the blast-pipe G, which is placed transversely beneath the front support *d* of the grate. This pipe G is closed at its ends, and is provided with steam-openings *g* on one side, arranged in line with the interstices between the grate-bars, and pointing more or less in an upward direction, so as to direct the jets of steam against the burning fuel on the grate.

By having the blast-pipe situated directly under the supporting-bar *d*, it will be seen that this pipe will be protected in some degree from the destructive heat of the furnace, and also from the falling ashes, so that no ashes will fall upon the pipe or into the steam-openings when the blast is not in operation.

In the boiler-front, on each side of the point where the pipe F passes through such front, are situated air-openings *h*, which supply the necessary air to the blast. These openings may be covered by suitable doors, to regulate the admission of the air.

I am aware that a boiler-furnace has before been invented having a blast-pipe placed transversely beneath the front end of the grate, with the grate-bars resting directly upon the same, and provided with several series of openings arranged in line with the interstices between the grate-bars, for the same is shown in patent granted May 23, 1871, to T. P. Scripter; and I am also aware that blast-pipes have been arranged longitudinally and transversely below a perforated fire-bed, and have been provided with blast-openings projecting vertically into the perforations in the fire-bed, so as to direct the blast immediately into the fuel, since such construction is shown in patent granted October 3, 1876, to E. H. Murray; but

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

In a boiler-furnace, the transverse blast-pipe G, placed beneath the front support *d* of the grate, and having steam-openings *g* arranged in line with the interstices between the grate-bars, in combination with the steam-supply pipe F and air-openings *h* in the boiler-front, substantially as described.

EDWARD R. STEGE.

Witnesses:

WM. H. LOTZ,

EMIL H. FROMMANN.