F. KREIN & H. FRANCK.

Tuyeres.

No. 163,211. Patented May 11, 1875.

FIG. 1.

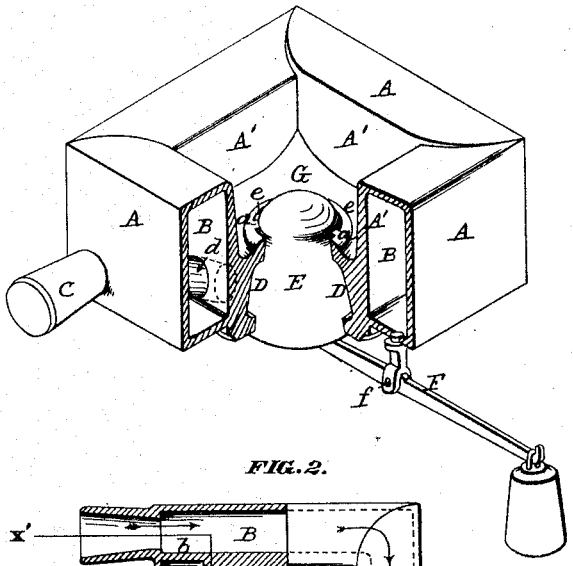


FIG. 2.

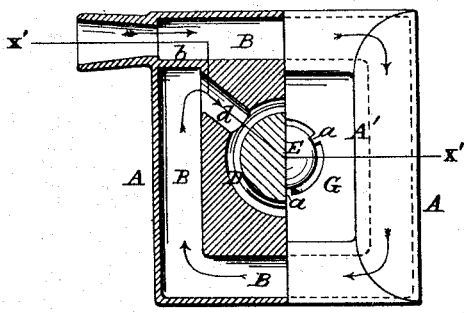
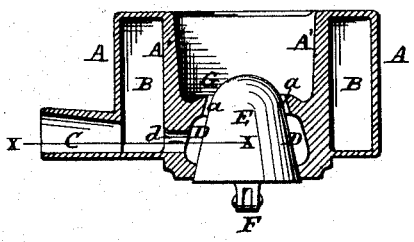


FIG. 3.



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UNITED STATES PATENT OFFICE.

FRANZ KREIN AND HENRY FRANCK, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN TUYERES.

Specification forming part of Letters Patent No. **163,211**, dated May 11, 1875; application filed April 23, 1875.

To all whom it may concern:

Be it known that we, FRANZ KREIN and HENRY FRANCK, both of St. Louis, St. Louis county, State of Missouri, have invented a certain new and useful Improvement in Blacksmiths' Tuyeres, of which the following is a specification:

This improvement consists of a casting which constitutes not only the tuyere proper, but also the walls of the fire-place, so as to dispense with the usual brick walls inclosing said fire-place. Said wall-casting is made rectangular, and the air circulates around inside, so as to keep it cool and prevent rapid injury from heat. This circulation also heats the air. After the air has passed through the chamber in the walls it enters an inner annular chamber, and passes up through an annular opening into the fire. The inner sides of the inner annular chamber and said annular escape opening are formed by a movable plug, which is sustained by a weighted lever, and which may be lowered by raising the weighted end of the lever so as to remove any deposit from the blast opening or from the inner annular chamber.

In the drawings, Figure 1 is a perspective view with parts removed. Fig. 2 is a view half in horizontal section and half in plan. Fig. 3 is a section at line x' x'.

A is a rectangular tuyere-casting formed hollow, with an interior passage or chamber, B, into which the air enters through nozzle C, connected to the pipe of the blower or bellows, the air passing around through the passage B to the wall or end *b*, by which it is deflected through duct *d* into the interior annular chamber D. Beneath the fire-place the air enters the chamber D in a radial direction, and escapes from said chamber through an annular opening, *e*, into the bottom of the fire. E is a plug or valve forming the inner side of the chamber D, and of the opening *e;* and it is held centrally in said opening by ribs or lugs *a*, cast upon the plug or the main casting, as shown. The plug E is supported on a weighted lever, F, pivoted at *f*, so that by raising the weighted end of the lever the plug may be drawn down so as to clear the annular opening *e* or the chamber D from cinders or other deposit. The bottom G of the fire-place has an annular depression, which favors the formation of clinkers in the form of a ring, that can be readily lifted out by a poker.

By the use of the air-passage B the walls A′ of the casting A are kept cool, and constitute the sides of the fire-place, and the air is at the same time heated, so as to supply a heated blast to the fire. This feature of forming the walls of the fire-place of hollow metal in place of bricks is of great value for two reasons: first, when the walls are formed of fire-brick (as is the usual practice) the cavity becomes rapidly enlarged by the disintegration of the bricks at the sides, and the consumption of coal is increased without any advantage resulting from such increase; second, the brick hearths are so destroyed after one or two weeks constant use that it is requisite that they should be built anew, involving loss of time, expense, and hinderance to business.

We claim as our invention—

1. The tuyere A, formed with hollow walls A′, with interior air-passage B, and constituting the walls of the fire-place, and combined with interior annular chamber D and opening *e*, substantially as set forth.

2. The combination of hollow walls A′, passage B, chamber D, blast-opening *e*, and drop-plug E, all substantially as set forth.

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Witnesses:
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