(No Model.)

A. WERNER.

TUYERE.

No. 264,384. Patented Sept. 12, 1882.

Fig. 1.

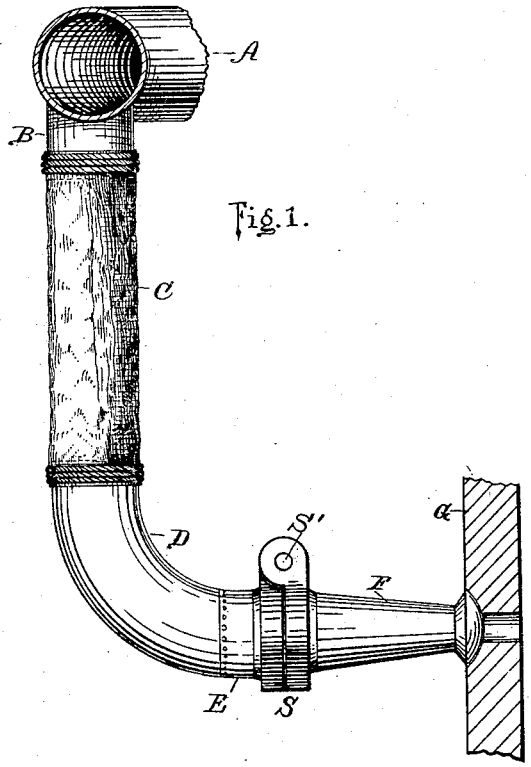
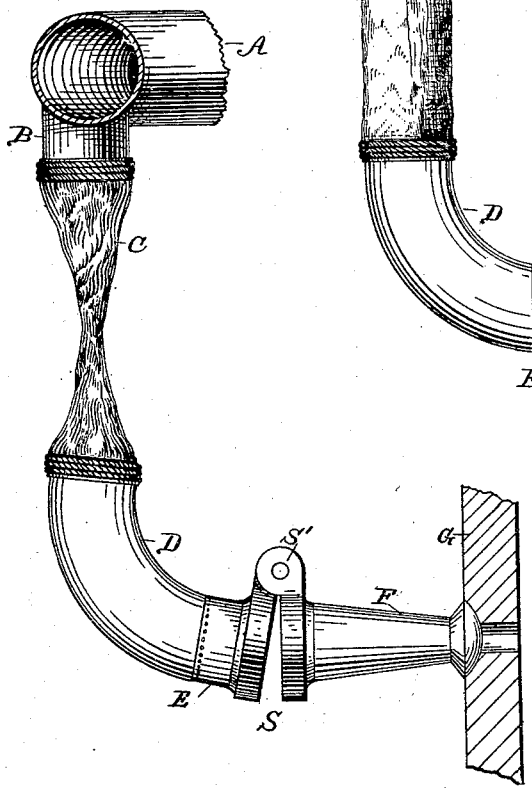


Fig. 2.



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AUGUST WERNER, OF LEADVILLE, COLORADO.

TUYERE.

SPECIFICATION forming part of Letters Patent No. 264,384, dated September 12, 1882.

Application filed January 12, 1882. (No model.)

To all whom it may concern:

Be it known that I, AUGUST WERNER, of Leadville, in the county of Lake and State of Colorado, have invented a new and useful Improvement in Tuyeres for Blast-Furnaces, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, forming part of this specification.

The object of my invention is to prevent injury to the blast-pipe and blower from the backward pressure of gases in the furnace; and to this end the invention consists in forming a flexible joint between the nozzle of the tuyere and the blast-pipe in such manner that provision shall be made for the escape of gases at the base of the nozzle, as hereinafter described.

In the accompanying drawings, Figure 1 is a side elevation of my improved tuyere, showing the relative position of the parts when the blast is on; and Fig. 2 is a similar view, showing the position of the parts when the blast is cut off.

Similar letters of reference indicate corresponding parts in the several views.

The tuyere consists of the cast-iron nozzle F, the cast-iron section E, hinged to the nozzle at S′ to form the joint S, and the light sheet-iron section D, riveted to the section E. The upper end of the section D of the tuyere is connected to the branch nipple B of the main blast-pipe A by the canvas pipe C, and the ball end of the nozzle F plays in the socket-piece G, which is to be secured in the water-jacket of the furnace.

The pipe C, which may be made of any flexible material, is to be of such a length that when fully distended by the blast passing through it it will exert a pressure, in the manner of a toggle-joint, upon the upper end of the section D of the tuyere, and thus cause the joint S, between the nozzle F and the section E, to be closed. The degree of pressure thus exerted will depend upon the manner in which the flexible pipe is adjusted, and also upon the degree of flexibility of the material; but as the nozzle F occupies a horizontal position and the hinge of the joint S is located at the highest point of contact between the hinged parts, the force of the blast acting upon the canvas will tend to hold the joint closed. If, however, an explosive mixture of gas and air is formed near the tuyere and an explosion occurs, the force of the explosion will overcome the force of the blast and cause the portion D E and the nozzle F to swing upon the hinge S′, and thus open the joint S and allow the gas to escape. In this manner damage to the blast-pipe and blower is avoided in case of an explosion. When the blast is cut off the canvas pipe C will collapse, as shown in Fig. 2, and the force of gravity, together with the contractile power of the canvas, will cause the joint to open.

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

1. A tuyere for blast-furnaces, having its nozzle connected to a blast-tube of flexible material, and provided with a hinge-joint between said parts, substantially as shown and described, and for the purpose set forth.

2. The combination, in a tuyere, of the nozzle F, the section E, hinged to the nozzle, and the section D, riveted to section E, substantially as shown and described.

3. The combination, with the blast-pipe A B and the socket-piece G, of the canvas pipe C, and the tuyere D E F, having hinge S′, connecting section E and nozzle F, whereby a joint shall be formed which shall operate automatically to allow the escape of explosive mixtures, substantially as shown and described.

AUGUST WERNER.

Witnesses:
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