

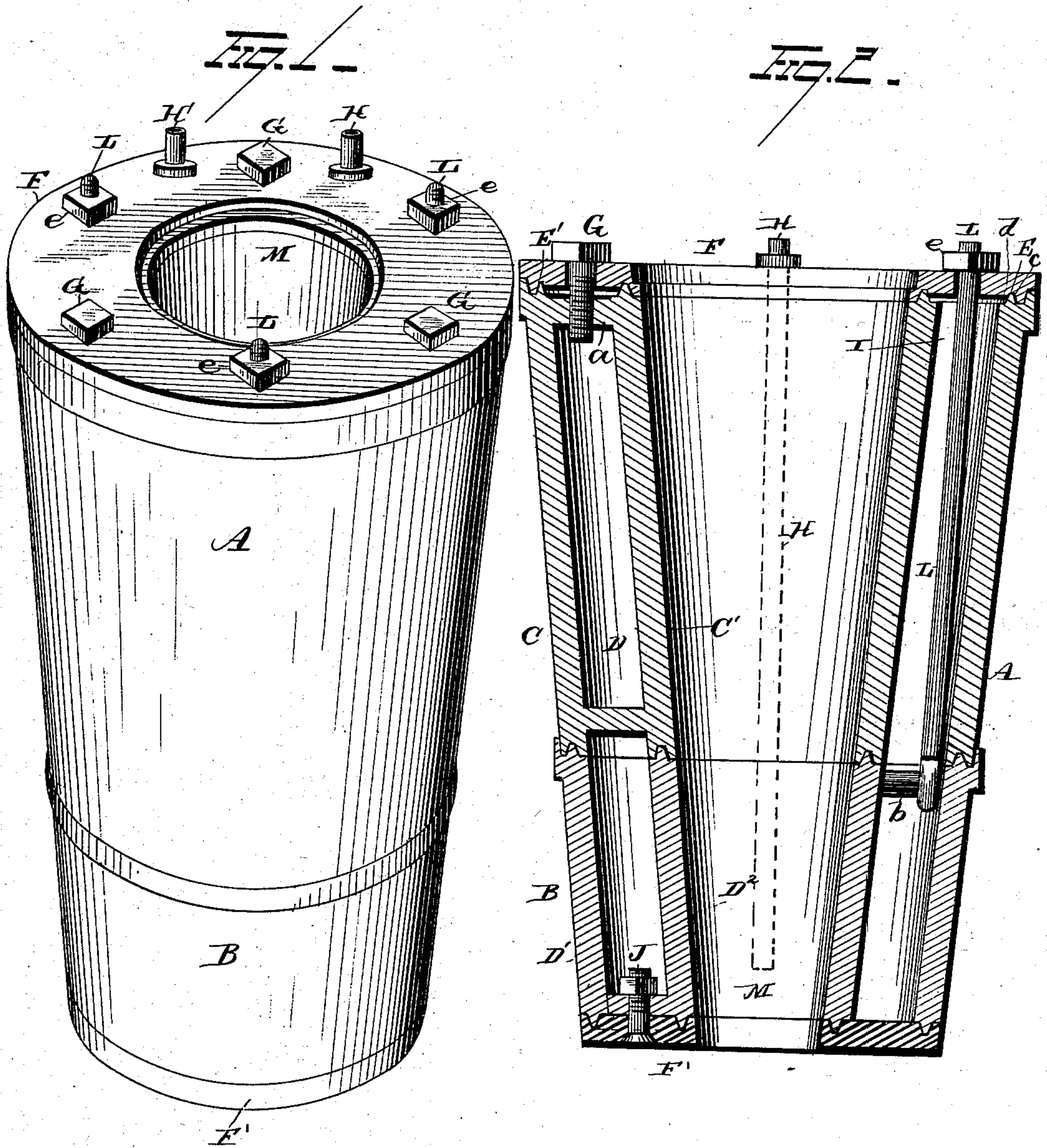
(No Model.)

A. D. GRIFFIN.

TUYERE.

No. 257,863.

Patented May 16, 1882.



WITNESSES -
E. S. Nottingham
Herman Moran

INVENTOR
A. D. Griffin
R. H. A. Symons
Attorney

UNITED STATES PATENT OFFICE.

ARCHIBALD D. GRIFFIN, OF WOODBURY, PENNSYLVANIA.

TUYERE.

SPECIFICATION forming part of Letters Patent No. 257,833, dated May 16, 1882.

Application filed January 17, 1882. (No model.)

To all whom it may concern:

Be it known that I, ARCHIBALD D. GRIFFIN, of Woodbury, in the county of Bedford and State of Pennsylvania, have invented certain new and useful Improvements in Tuyeres; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to an improvement in tuyeres, and more particularly to that class of tuyeres adapted for use in blast and other furnaces wherein the tuyere is provided with a detachable nose-piece; and it consists in forming the tuyere of four separate and distinct parts, two of the said parts being formed of concentric shells separated and held in position by bridges, and the two remaining parts or end pieces adapted to close the opposite end openings between the shells, and secured to the body and nose of the tuyere in any suitable manner.

My invention further consists in certain details in construction and combinations of parts, as will be more fully explained, and pointed out in the claims.

In the accompanying drawings, Figure 1 represents a perspective view of my improved tuyere, and Fig. 2 represents a longitudinal sectional view of the same.

A represents the tapering body of the tuyere, composed of the shells C C', the shell C' being situated within the outer shell C and held in position concentric therewith by the bridges a, thereby leaving a water-space, D, of sufficient size between them.

The nose-piece B is also tapering in form to correspond with the body A, and also consists of two concentric shells, D' D², separated by the bridges b.

The body A of the tuyere is provided at its enlarged or outer end with the circular ridge E, having inclined sides e, and with the flat bearing-faces d on opposite sides of the said ridge, while the end piece, F, is provided with a groove, E', corresponding in shape to the said ridge E. This head or end piece, F, can either be provided with screws G, cast solid therewith and adapted to pass through the bridges a and be secured thereto by nuts, or removable screws can be used and passed

through the head and bridge and secure the head in position. This head or end piece, F, is also provided with the long ingress water-pipe H, adapted to conduct the water into the water-space and discharge it near the extreme inner end thereof, and with the short egress-pipe H', adapted to discharge the water from the chamber D, near the outer end thereof.

The nose-piece B is also provided with an end piece, F', which latter is connected to the said nose-piece by a joint similar to the one on the outer end of the body of the tuyere, and is secured thereto by the bolts J, which may be cast solid with the end piece, F, or by removable screws passing through the bridges b and held by the nuts.

The meeting ends of the nose and body A are also provided with the joint similar to those already described for securing the respective ends to the body and nose, and the said nose and body are adapted to be readily secured together in a manner that will admit of the ready separation of the parts whenever necessary. To accomplish this end I provide three or more hook-bolts, L, slightly longer than the body A of the tuyere, each being provided on one end with a hook and on the opposite end with screw-threads. The hooked ends of the bolts are passed over the bridges b of the nose B, and the opposite screw-threaded ends passed through suitable openings in the outer end of the tuyere and the nuts e secured in position, which draws the parts closely together.

When it is desired to replace a burned nose it is only necessary to loosen the bolts L, remove the nose from the hooked ends of the bolts, put the new one in position, and tighten the nuts. If desired, the bolts L can be of sufficient length to allow the bolts to be manipulated from the outside.

M is the airway or blast-passage.

My improvement overcomes many of the obstacles heretofore encountered in the use of the old tuyeres, as the parts are easily adjusted, capable of being separated without any trouble, while the peculiar formation of the joints and bolts allows the parts to freely expand and contract without rupturing any parts of the device.

Another important feature of my improve-

ment is the bridges *a* and *b* between the shells forming the nose and body. Beside performing the function of assisting in connecting the different parts together, they also prevent the shells of either the nose or body from shrinking and becoming distorted in shape.

It is evident that numerous slight changes in the construction of the different parts might be resorted to without departing from the spirit of my invention, and hence I would have it understood that I do not limit myself to the exact construction of parts shown and described, but consider myself at liberty to make such changes as come within the spirit and scope of my invention.

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

1. In a tuyere, the combination, with a body-section and a detachable nose section, of bolts provided with hooks at their inner ends to engage bridges of the nose-section, and screw-threaded at their outer ends to receive nuts, substantially as set forth.

2. In a tuyere, the combination, with the tapering body-section, composed of two concentric shells separated by bridges, and the tapering detachable nose-piece, composed of two concentric shells separated by bridges, of hook-bolts adapted to engage the two sections in the manner described and hold them together.

3. In a tuyere, the combination, with the body-section composed of concentric shells

separated by bridges and provided on opposite ends with the circular ridges or grooves, as described, and the removable end piece provided with grooves or ridges adapted to register with the ridges or grooves on the body, of the detachable nose-piece provided with the removable end and provided with ridges and grooves described, and means for securing the said nose to the body portion.

4. The combination, with the body of the tuyere provided with a removable end piece, the latter being provided with means for conveying water into and discharging from the water-space, and the detachable nose-piece, also provided with a removable end piece, of hook-bolts adapted to secure the said body and nose piece together, substantially in the manner described.

5. The combination, with the body of the tuyere, constructed substantially as described, of the nose portion provided with a detachable end, the latter being provided with screws adapted to pass through bridges in the said nose portion and be secured therein by nuts and hook-bolts, adapted by engagement with the said body and nose portions to secure them together, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ARCHIBALD D. GRIFFIN.

Witnesses:

JOHN M. DETWILER,
SAMUEL B. FLUKE.