M. SPIDLE & H. HOLMES.

TUYERES.

No. 174,869. Patented March 14, 1876.

Fig. 1

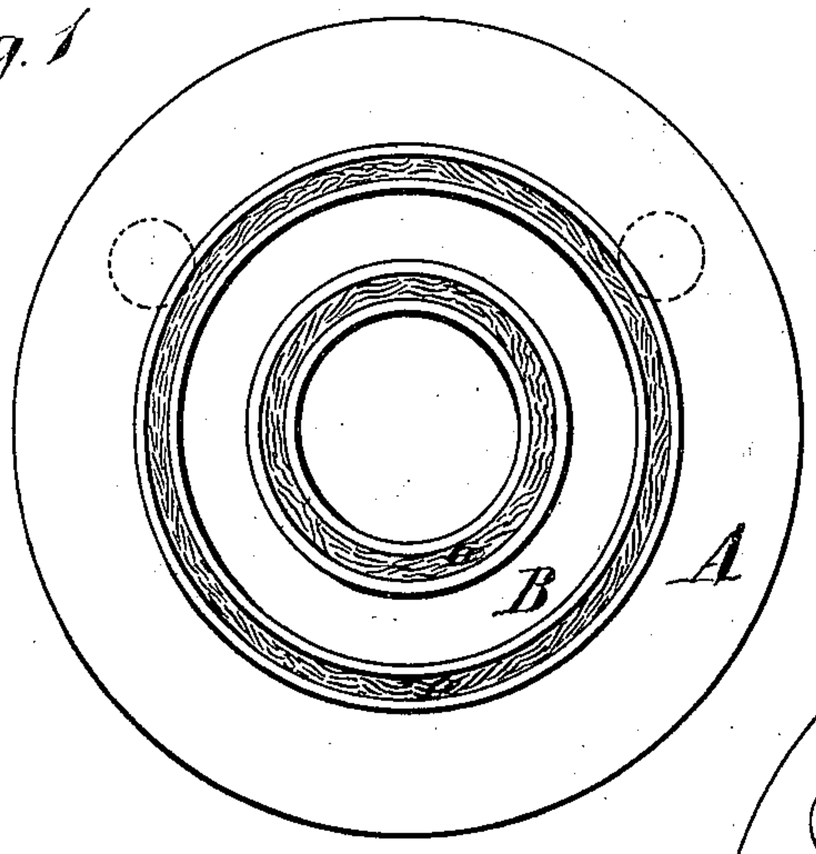


Fig. 2

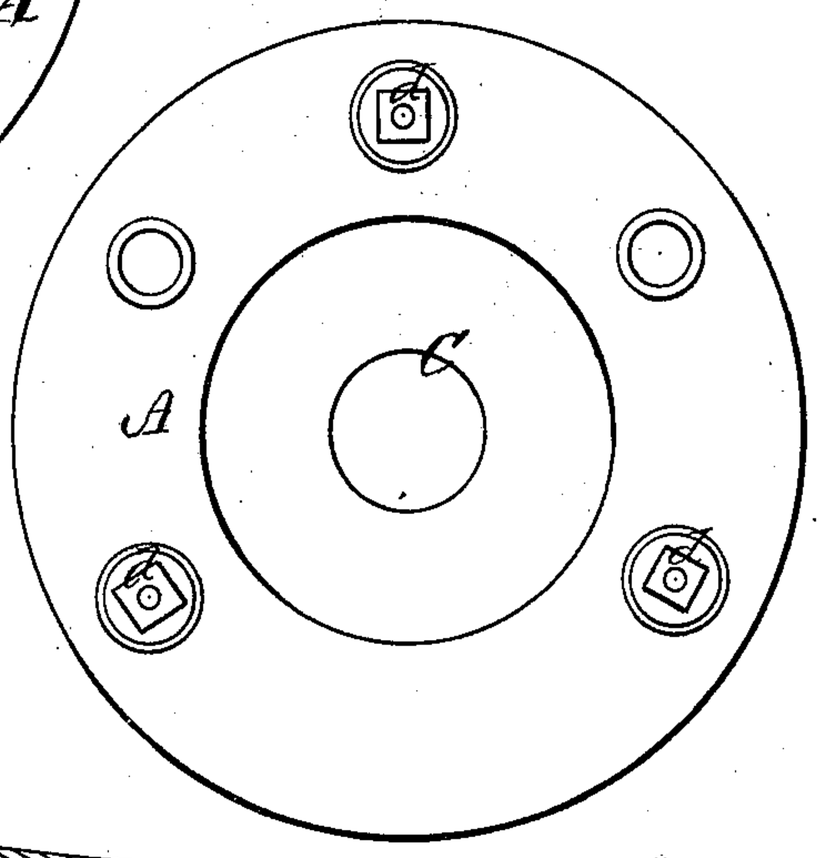
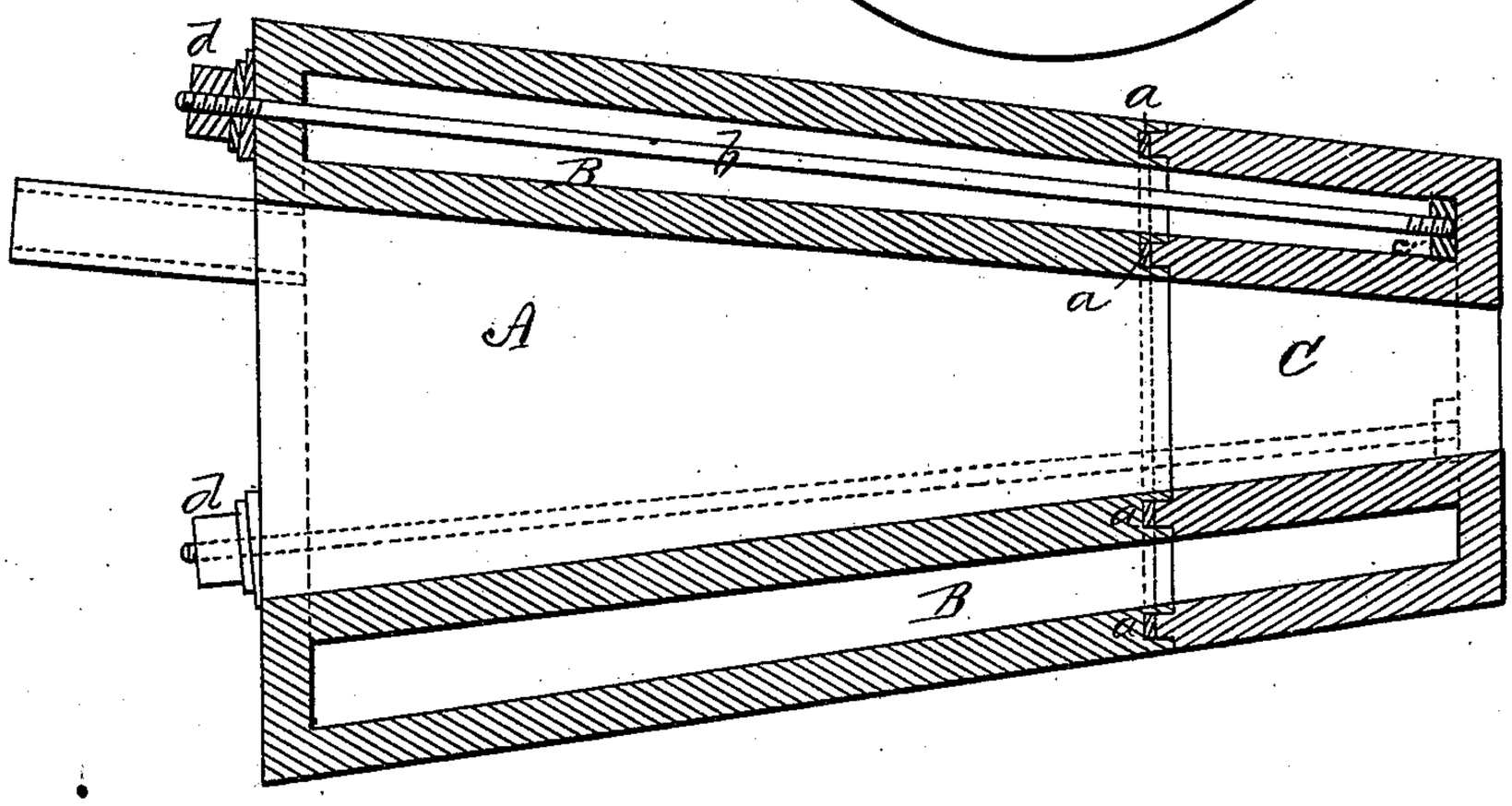


Fig. 3.



WITNESSES

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MILTON SPIDLE AND HERMAN HOLMES, OF WOODBURY, PENNSYLVANIA.

IMPROVEMENT IN TUYERES.

Specification forming part of Letters Patent No. **174,869**, dated March 14, 1876; application filed January 22, 1876.

To all whom it may concern:

Be it known that we, MILTON SPIDLE and HERMAN HOLMES, of Woodbury, in the county of Bedford and State of Pennsylvania, have invented a new and valuable Improvement in Tuyere-Irons; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figures 1 and 2 of the drawings are representations of plan views of our tuyere, and Fig. 3 is a longitudinal central sectional view of the same.

Our invention relates to tuyeres or tuyere-irons; and it consists in the novel method of attaching the detachable nose-pieces to ordinary tuyeres, as will be hereinafter more fully set forth.

In the annexed drawing, A represents an ordinary conical tuyere or tuyere-iron, formed of two concentric shells, with an annular water-space, B, between them. The smaller end of this tuyere has the water-space left open, and to this end is fastened a nose piece or extension, C, also provided with an annular water-space, forming a continuation of the water-space in the main tuyere. The joints between the two parts are formed with tongues and grooves, as shown, and suitable packing-rings *a* inserted between them. The two parts are fastened together by long bolts *b* and nuts *d*. The long rods *b* are screw-threaded at each end, one end being screwed into a corresponding screw-threaded perforation in one of the projections *c* in the nose, and the other end receiving the nut *d*.

By this construction the tuyere and nose are securely united with each other, can be readily detached, and at the same time all liability of burning out the fastening is obviated, by reason of the long rods lying in the water-spaces, and not being exposed to heat.

The joint between the two parts may be arranged in any suitable manner, so as to prevent leakage of air or water.

By this invention a great saving is effected, as when the small end of the tuyere is burned out, or otherwise becomes useless, it can easily be removed and another put on.

These tuyeres may be made with flat or round bottom, and either of cast or wrought iron, as desired.

We are aware that it is not new, broadly, to combine with a tuyere a detachable nose-piece, forming a tight joint therewith, and a continuation of the water-space; but

What we claim as new, and desire to secure by Letters Patent, is—

The conical tuyere A, formed of two conical shells, with an annular water-space between them, in combination with the extension C, provided with the projection *c*, having screw-threaded holes, and with an annular water-space, forming a continuation of the water-space in the main tuyere, said parts being secured together by means of the long rods *b* lying in the water-spaces, substantially as and for the purpose set forth.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

MILTON SPIDLE.
HERMAN HOLMES.

Witnesses:
DAVID M. BAIRD,
J. S. BROWN.