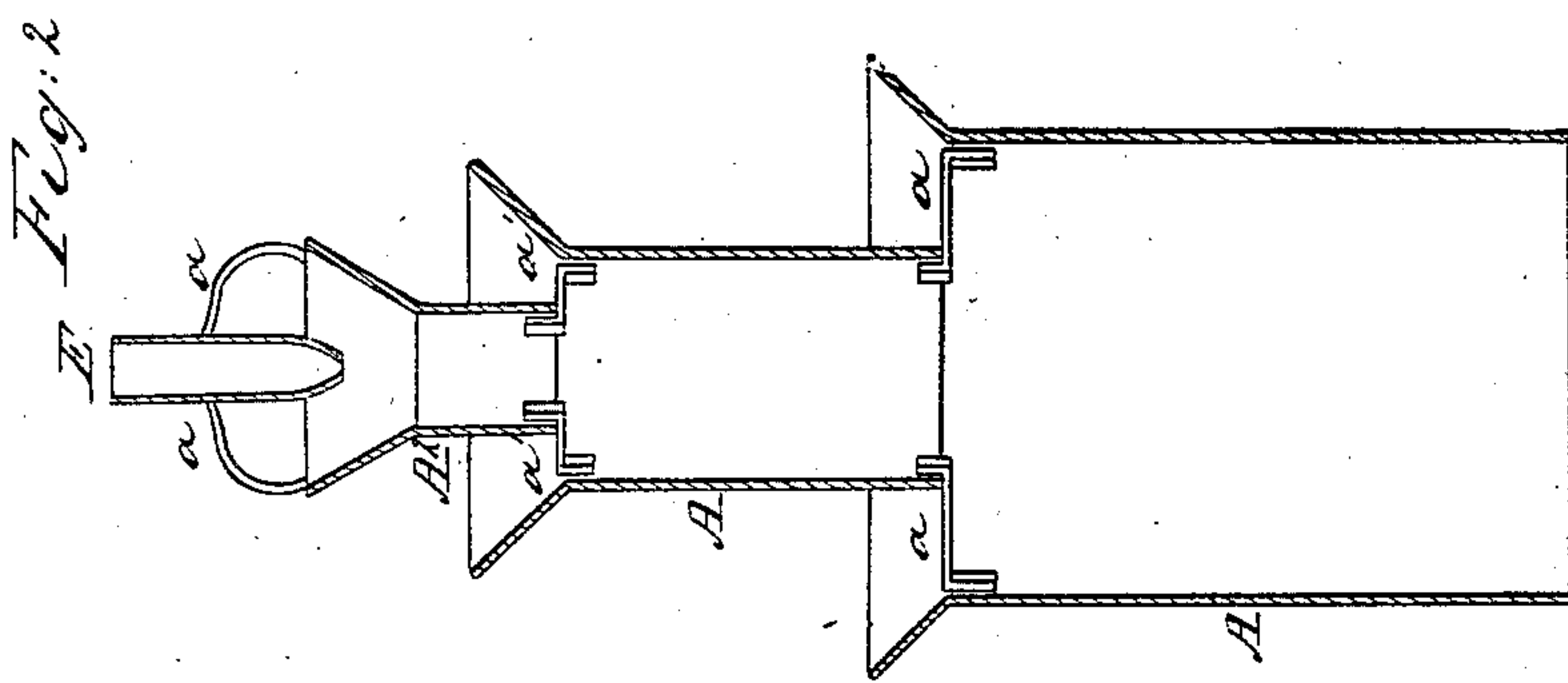
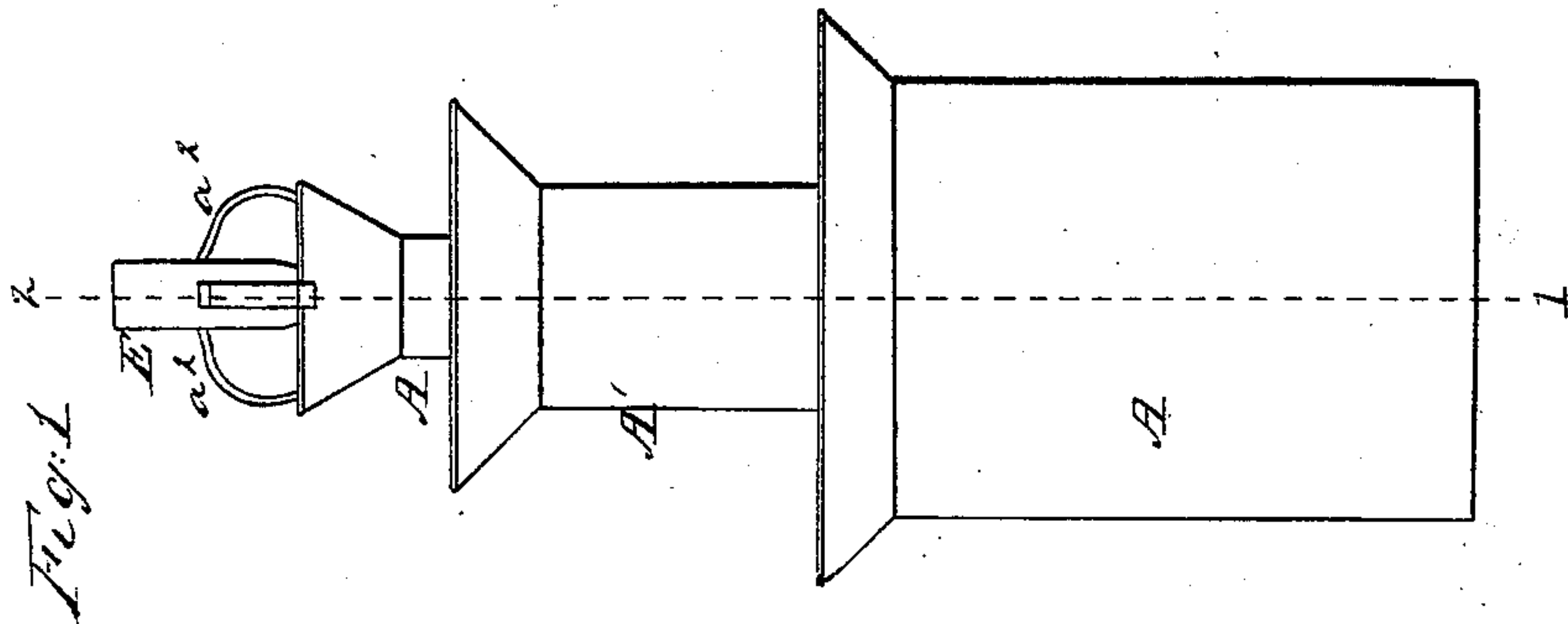


Foreman & Mathewson,

Air Blast,

N^o 64,414.

Patented May-7, 1867.



Witnesses
Wm. Albert Steel
John Parker

Inventor
M. Foreman and
J. R. Mathewson
By their Atty
H. Rowson

United States Patent Office.

MILTON FOREMAN AND JAMES R. MATHEWSON, OF PHILADELPHIA
PENNSYLVANIA.

Letters Patent No. 64,414, dated May 7, 1867.

IMPROVEMENT IN STEAM-BLOWERS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, M. FOREMAN and J. R. MATHEWSON, of Philadelphia, Pennsylvania, have invented an improved Blowing Apparatus; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

Our invention consists of two or more pipes of different diameters, arranged and combined with a steam pipe, as described hereafter, so that a jet of steam may cause a blast of air to be discharged from the largest of the pipes, the whole forming a cheap, simple, and durable blowing apparatus.

In order to enable others to make and use our invention, we will now proceed describe its construction and operation, reference being had to the accompanying drawing, which forms a part of this specification, and in which—

Figure 1 is an exterior view of our improved blowing apparatus; and

Figure 2 a section on the line 1-2, fig. 1.

A, A¹, A², are three cylindrical pipes of different diameters, each pipe having a flaring flange at one end, as shown in the drawing. The smallest end of the pipe A² projects into the flanged end of the pipe A¹, and the opposite end of the latter extends into the flanged end of the largest pipe A, the pipes being secured together in their proper relative positions by any number of braces, *a a'*, or their equivalents. Into the outer end of the pipe A² projects the nozzle of a steam pipe, E, which is secured to the pipe A by braces *a² a²*. The pipe A may communicate with the tuyeres of a forge or furnace, or extend to the space beneath the grate of any fire-place into which it is desired to introduce a blast of air. When a jet of steam is discharged from the pipe E into the pipe A², the air which passes into the latter through its flanged end will be driven by and carried with the steam into the pipe A¹. This air mingling with the steam is heated by contact therewith, and expands and fills the pipe, so that a current of heated air and steam is discharged into the pipe A¹, and passes through the latter into the pipe A, carrying with it the air which is admitted to the pipe A¹ through the annular opening between the said pipe A¹ and the pipe A². The air which passes into the pipe A¹ is also heated as it mingles with the heated current of air and steam, and is expanded, and in this condition passes into the pipe A, and heats and carries with it the air admitted to the latter pipe through the flanged end of the same. A stream of mingled air and steam, moving at a high velocity, is thus projected into the tuyere pipe or into the fire-place of the furnace.

A blowing apparatus of this description is cheap, simple in its construction, cannot get out of order, and may be readily regulated so as to obtain a blast of any required degree of force. But two pipes, A A¹, may be used in connection with the steam tube E, or the number of the pipes may be increased without departing from the main feature of our invention.

We claim as our invention, and desire to secure by Letters Patent—

A steam pipe, E, in combination with two or more pipes, A A¹, of different diameters, the whole being arranged and operating substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

MILTON FOREMAN,
JAMES R. MATHEWSON.

Witnesses:

CHARLES E. FOSTER,
W. J. R. DELANY.