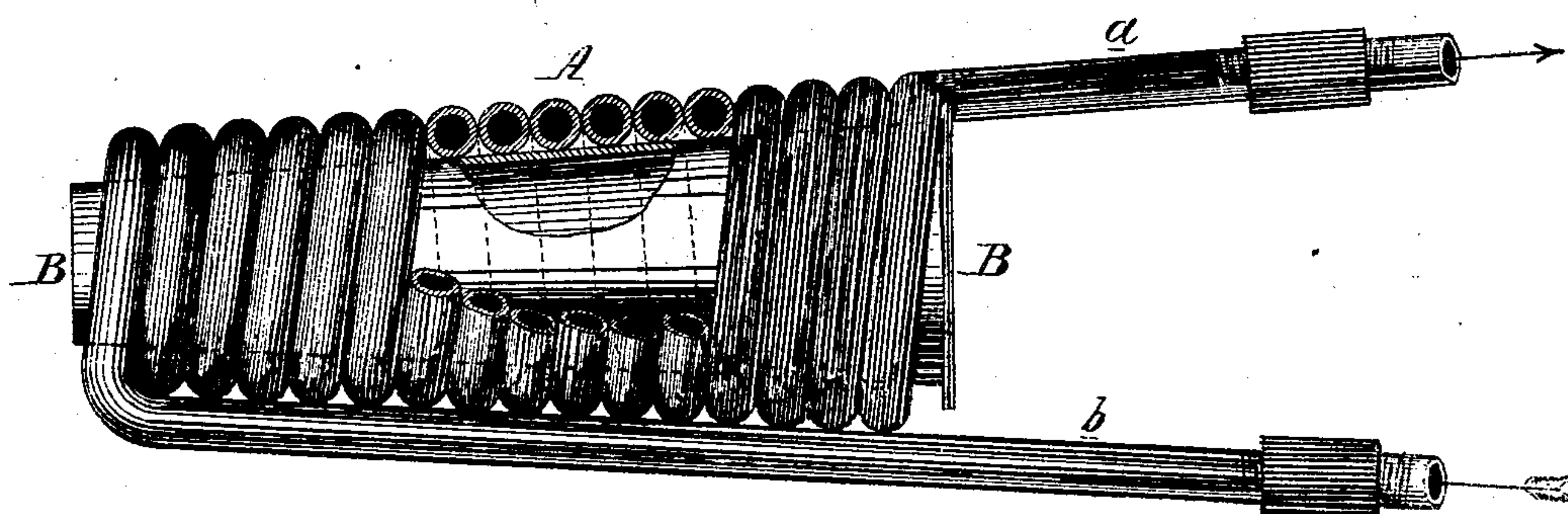


JOHN WOOD, Jr.  
Improvement in Tuyeres.

No. 114,739.

Patented May 9, 1871.



WITNESSES

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# United States Patent Office.

JOHN WOOD, JR., OF CONSHOHOCKEN, PENNSYLVANIA.

Letters Patent No. 114,739, dated May 9, 1871.

## IMPROVEMENT IN TUYERES.

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

I, JOHN WOOD, Jr., of Conshohocken, county of Montgomery, State of Pennsylvania, have invented an Improved Tuyere, of which the following is a specification.

### *Nature and Object of the Invention.*

My invention consists of a tuyere composed of a coil of wrought-iron tubing and a detachable tube or lining of thin metal or other equivalent material, as described hereafter, the whole forming a more durable and economical tuyere than those in which the coil is clothed with cast-iron.

The figure in the accompanying drawing represents my improved tuyere partly in section.

A is a tapering coil of wrought-iron tubing, and through this coil a constant circulation of water is maintained as usual, the water entering the narrow end of the coil through a tube, *b*, and leaving the large end of the coil through a tube, *a*, both tubes being continuations of that of which the coil is formed.

Coils of this description have heretofore been used in connection with tuyeres, but have been entirely clothed with cast-iron by placing the coils in properly-formed molds and pouring the metal around the coil.

Although tuyeres of this class have been extensively used, their rapid destruction by the heat to which they are exposed is a well-known defect, and is owing to the insufficiency of the current of water which circulates through the coil to maintain the cast-iron clothing of the latter cool enough to resist the action of the heat.

Another objection to coils of this class is their worthlessness as scrap-iron after they cease to be effective as tuyeres, the wrought-iron tubing being so embedded in and so intimately connected to the cast-iron clothing that the available scrap produced by the separation of the two would not be commensurate with the labor which that separation demands.

In my invention I use a coil similar to that hereto-

fore, but discard entirely the clothing of cast-iron, and in its place introduce into the coil a tapering tube, B, of sheet-iron, this tube so conforming in shape to the interior of the said coil that when fitted tightly into its place the metal of the tube shall be in intimate contact with the coil, as shown in the drawing.

A portion of the usual blast-nozzle is introduced into the tube B at the enlarged end of the same, but the blast is directed to the furnace by the tube itself, which I have found in practice to be much more durable than the usual cast-iron lining, inasmuch as the metal is thin and is more easily affected by the water which circulates through the tubes than the more dense clothing of cast-iron.

The tube, too, forming a smooth passage for the hot blast, effectually protects the coil, which, if exposed to this action, would be soon deteriorated thereby.

Another advantage of my invention is the facility with which the tube B can be removed when required and replaced by a new one.

A tube of thin cast-iron or of baked fire-clay or other material might be used; but I prefer to make it of ordinary plate or sheet-iron.

### *Claim.*

A tuyere, consisting of a wrought-iron pipe coiled to form a tube, substantially as described, and combined with an internal thin detachable tube, B, as set forth.

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

JOHN WOOD, JR.

Witnesses:

H. HOWSON,  
WM. A. STEEL.