

J. F. Harley,

Tuyere.

No. 97,507.

Patented Dec. 7. 1869.

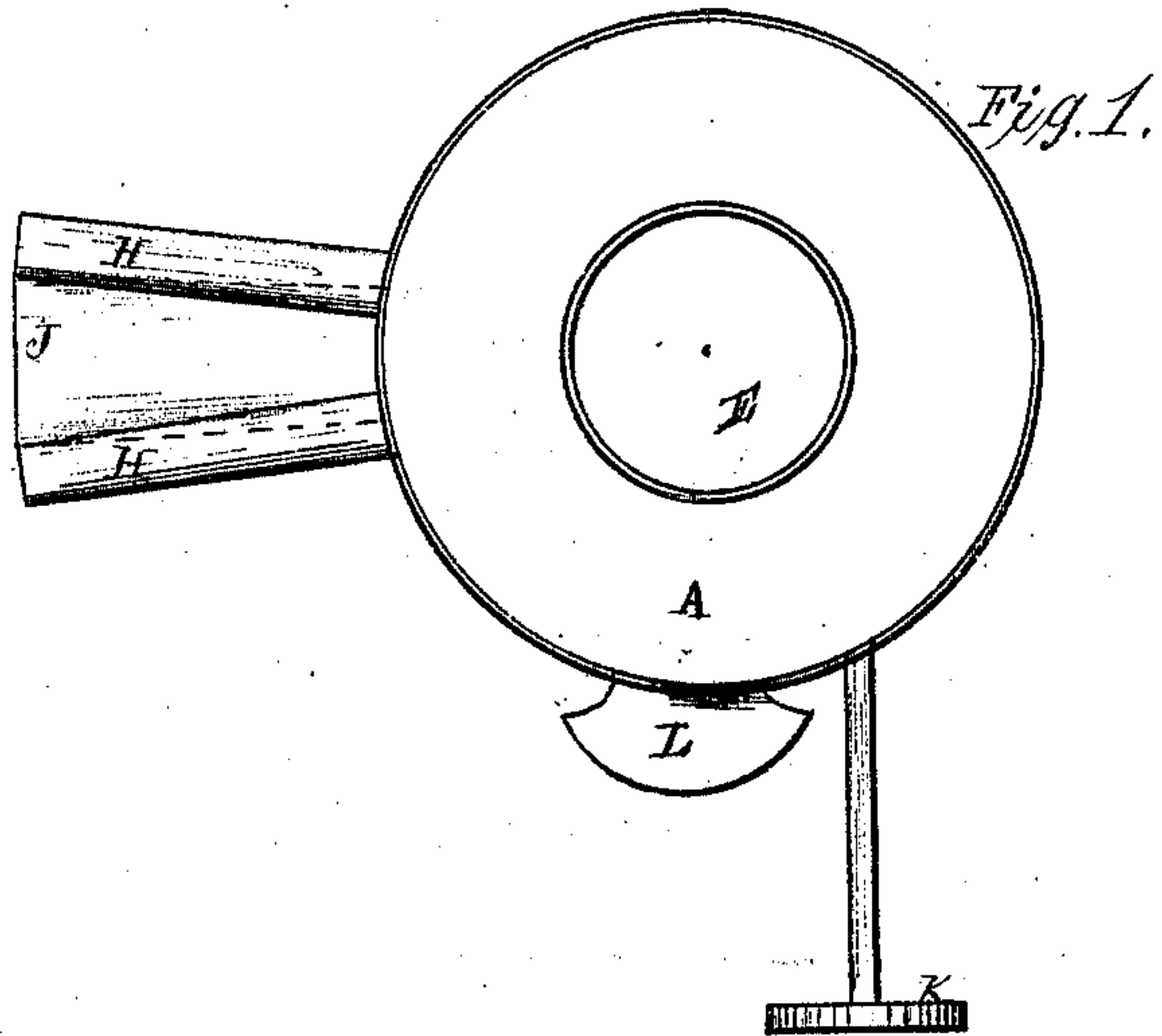


Fig. 2.

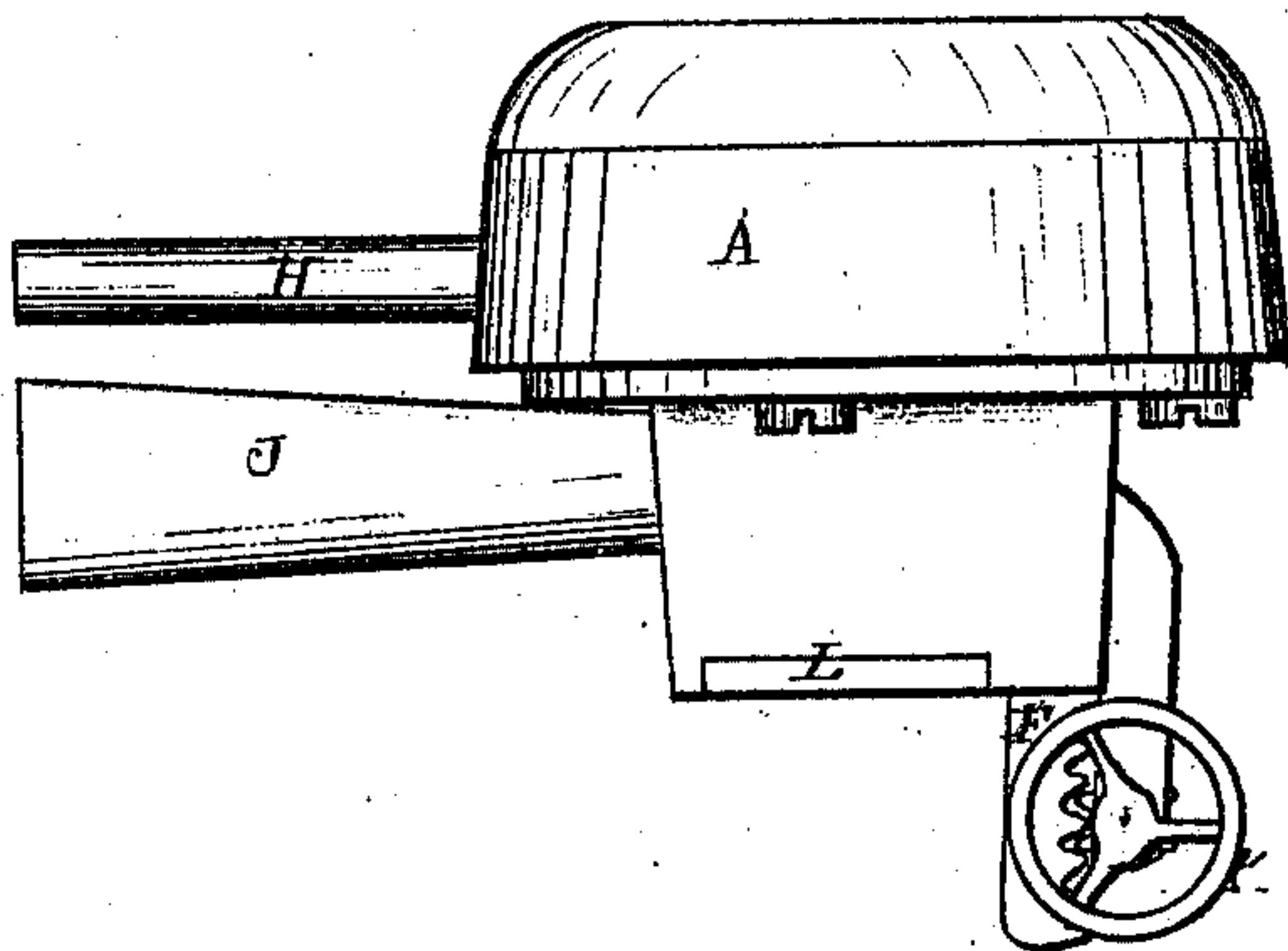


Fig. 3.

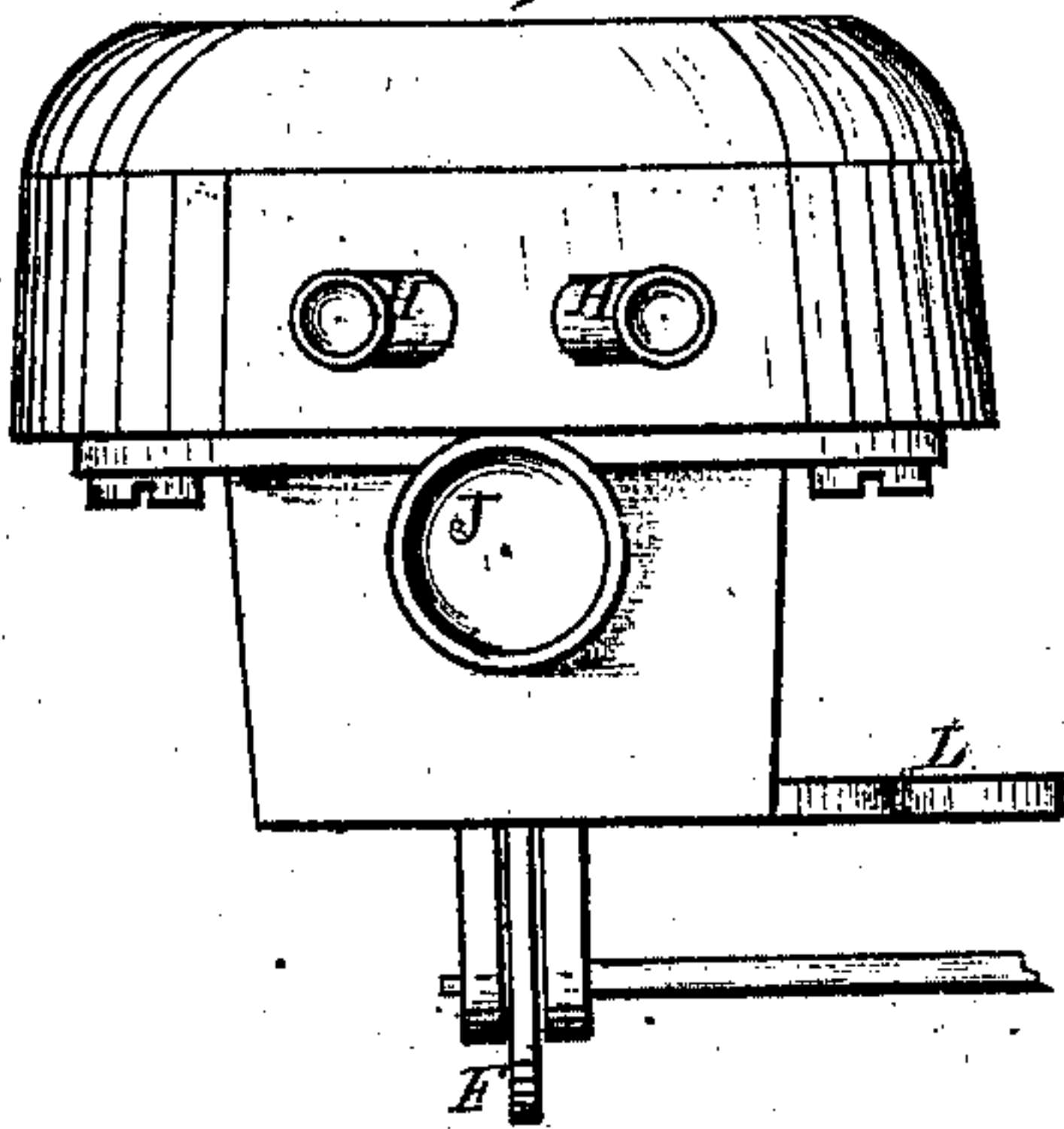
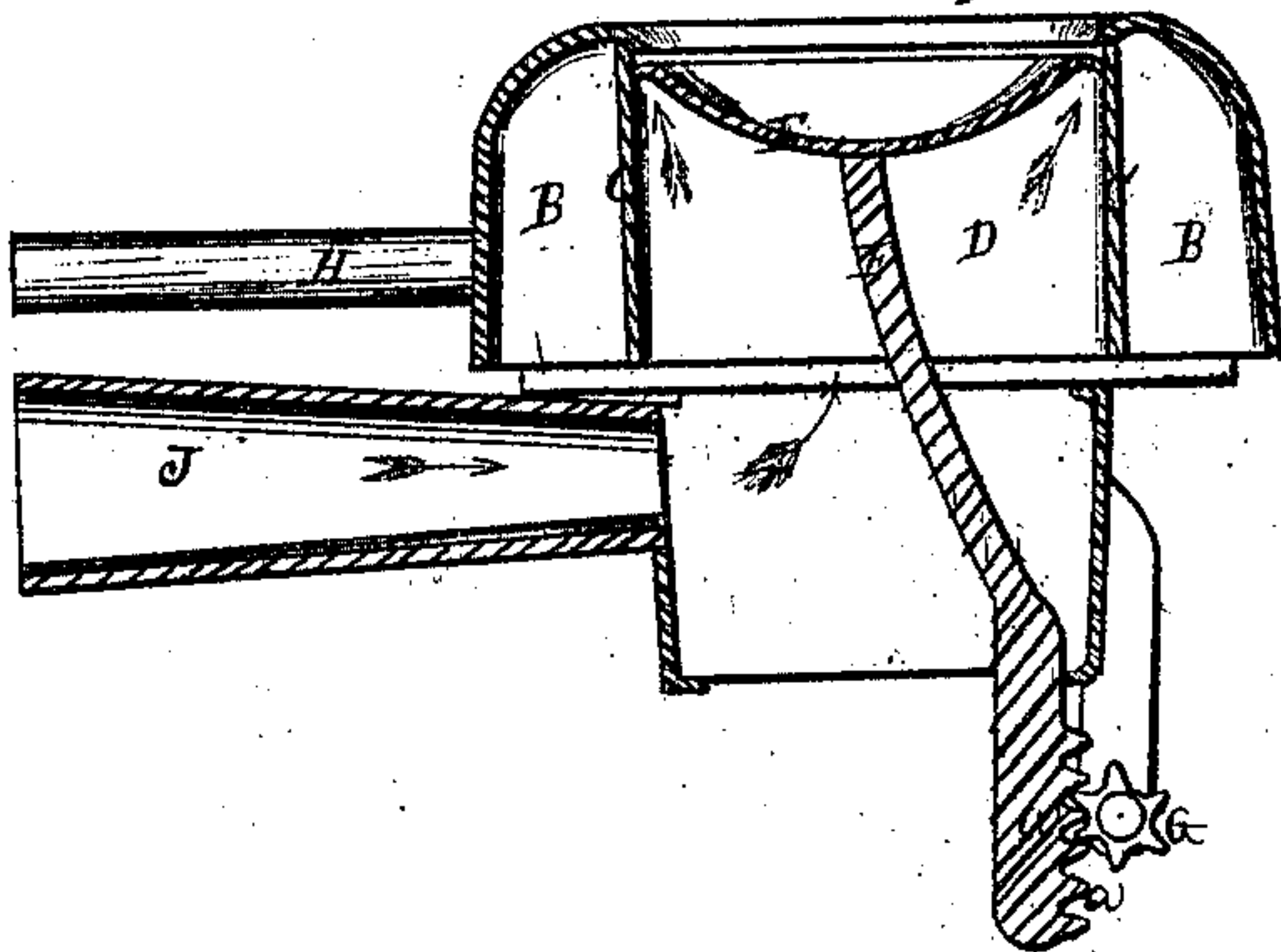


Fig. 4.



Inventor.

J. F. Harley.

Witnesses.

D. G. Humphrey.

W. H. Purdie.

United States Patent Office.

J. F. HARLY, OF KIPTON STATION, OHIO.

Letters Patent No. 97,507, dated December 7, 1869.

IMPROVED TUYERE.

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

To all whom it may concern:

Be it known that I, J. F. HARLY, of Kipton Station, in the county of Lorain, and State of Ohio, have invented certain new and useful Improvements in Tuyere-Irons; and I do hereby declare that the following is a full and complete description of the same, reference being had to the accompanying drawings, making part of this specification.

Objective.

This invention relates to a tuyere-iron for smiths' forges, the construction of which being such that the tuyere is surrounded with a current of water, whereby it is prevented from rapidly burning out; the same being also provided with a valve for regulating the volume of air or blast to the fire, and an ash-box, as hereinafter more particularly described.

Drawings.

Figure 1 is a top view of the tuyere-iron.

Figure 2, a side view.

Figure 3 is also a side view.

Figure 4, a vertical transverse section.

Like letters of reference refer to like parts in the different views.

In fig. 1, A represents the body of the tuyere, a side view of which is shown in fig. 2.

Said body consists of a water-tight annular chamber, B, fig. 4, the inner walls C forming a passage-way or throat, D, in which is fitted a concave valve, E, attached to the upper end of the stem F.

The lower end of said stem is provided with a ratchet, *a*, in which a pinion-wheel, G, is made to engage, and whereby the valve is raised or lowered for closing and opening the throat.

The valve, as will be seen, is made to fit closely therein at the top, so that on being forced upward by the pinion, it will shut the throat tightly, as and for a purpose hereinafter shown.

H are water-tubes or pipes, whereby water is conveyed into the chamber B.

To the under side of the body is attached an ash-box, I communicating directly with the passage-way.

J is an air or blast-pipe, connected with that from the blower.

The practical operation of this tuyere is as follows:

It is built into the forge, in the position shown in fig. 2, so that the pipes H and J will penetrate the back of the fire-place. The tuyere thus forms the bed on which the fire is made, and which, being concave, it holds a portion of the fuel within and upon the valve.

The chamber B is filled with water by connecting the pipe H to the reservoir, which, being placed at a convenient height, will afford a constant supply thereto. The pipe J, on being connected with that of the blower, the blast is fed to the fire by opening the valve, which is readily done by means of the hand-wheel K, whereby is operated the ratchet-pinion, the air passing into the ash-box immediately below the chamber, thence through the passage-way, around the sides of the valve, to the bottom of the fire.

As the valve does not fit closely in the passage-way only at the throat or top thereof, it will be obvious that the volume of air allowed to pass through is easily regulated by the valve, by keeping it more or less open, as the condition of the fire may require.

By keeping the chamber constantly filled with water, it will be obvious that the tuyere cannot soon burn out, thereby saving the expense of a new tuyere, which, if used without the presence of water, requires to be renewed quite often.

The dirt and ashes that may fall through the valve down into the ash-box, are removed therefrom by withdrawing the slide L, which will allow the ashes to fall out through the bottom to the ash-pit.

What I claim as my improvement, and desire to secure by Letters Patent, is—

The herein-described tuyere, consisting of the water-chamber B, ash-box I, valve E, ratchet and pinion *a* and G, and pipes H and J, all constructed and arranged to operate as and for the purpose set forth.

J. F. HARLY.

Witnesses:—

J. H. BURRIDGE,
W. H. BURRIDGE.