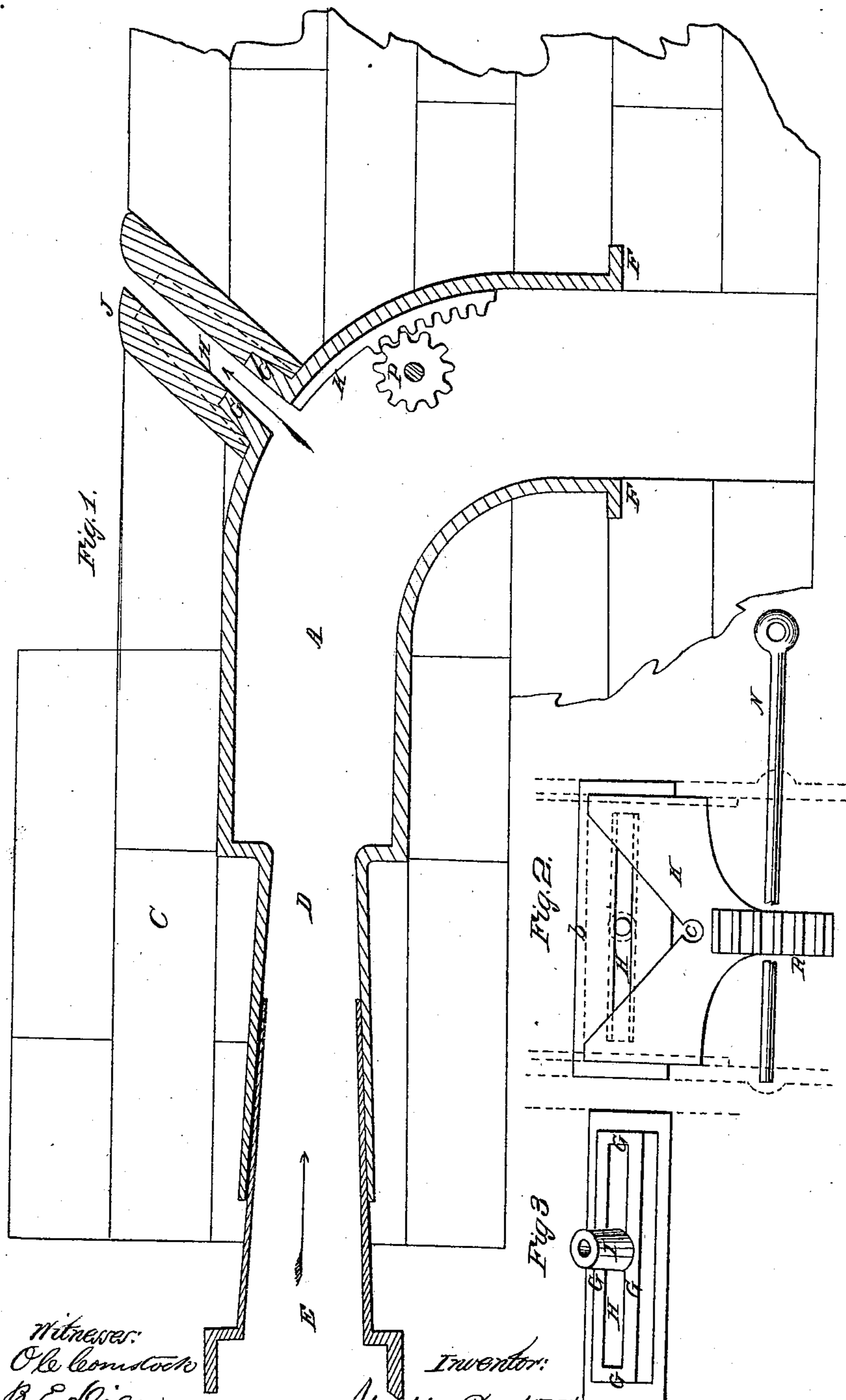


J. P. MARKHAM.
TWYER.

No. 25,129.

Patented Aug. 16, 1859.



Witnesses:
Ole Comstock
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Inventor:
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UNITED STATES PATENT OFFICE.

JOSEPH P. MARKHAM, OF PENFIELD, MICHIGAN.

TWYER.

Specification of Letters Patent No. 25,129, dated August 16, 1859.

To all whom it may concern:

Be it known that I, JOSEPH P. MARKHAM, of the town of Penfield, in the county of Calhoun and State of Michigan, have invented a new and useful Improvement in Twyers for the Use of Blacksmiths; and I 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, in which—

Figure 1, is a longitudinal section taken through the center. Fig. 2, slide valve, and face, detached. Fig. 3, section of outlet passages.

The same letters in all the figures indicate corresponding parts.

The space A represents the interior of the wind chamber, *a, a*, being the upper and lower plates. The side plates (not seen) are straight and parallel. It is merely an elongated square shaped box, of cast iron, rather wider than deep, shaped toward one end in the form of a quarter of a circle, the straight parts forming a right angle with each other. One end projects horizontally into the chimney C, and is inclosed, excepting through the tapered tube, or thimble D with which it is furnished to reach and receive the nozzle of the bellows E. The other end descends vertically into the body of the hearth at a proper distance from the chimney, and is left entirely open. This open end is surrounded with flanches F, F, to form a larger surface to rest on the masonry.

G, G, G, G are narrow ribs projecting above the upper plate of the wind chest and surrounding the outlet passage H which is a long narrow opening extending nearly across the wind chest. This outlet is divided into three parts or issues by a hollow tube I which projects considerably above the ribs G G &c.

J is a loose nozzle piece with an outlet (excepting the tube) to correspond with H, rebated on the lower edge to fit over the ribs G G &c. and with a socket (see dotted lines Fig. 1) to fit the tube I.

K is a slide valve inside the wind chest, to regulate the admission of the wind through the outlets. The edge which traverses the outlet is indented toward the center in the form of an equilateral triangle (or it may be more or less acute) the two lines terminate in a semicircle at *c'* corre-

sponding with the hole in the tube I. The length of the indentation (see dotted line *b*,) is equal to the length of the outlet, while the depth, or from *b* to *c* equals the travel of the valve. It is confined to the face of the chest in a proper position by strips cast on the sides, and is operated by turning the rod N which projects outside of the masonry, on which is hung a small pinion P, working in the rack R.

This twyer is embedded in the masonry of the hearth, so that the upper plate will be covered by one brick, leaving nothing exposed by the action of the fire, but the end of the movable nozzle piece J, which if ever injured can be cheaply and easily replaced without disturbing anything else.

The wind enters at D and passes out in the course of the arrow at H. Should the valve be closed so that the opening at *c'* comes opposite the tube I, the wind will be confined to that tube and make a small fire, which can be increased to any required extent by moving the valve and uncovering the outlet, so as to produce great economy in the consumption of fuel. The outlet passage H, is tapered to more easily dislodge any cinders that may obstruct the wind, by pushing them down when they fall into the vertical part of the chest, and can be removed by any ordinary mode in use, or this space can be extended if necessary into the masonry of the hearth to provide ample room for any debris.

Various contrivances have heretofore been patented and used for admitting the wind through twyers in given graduated quantities to different parts of the forge fire, either by separate supplementary outlets which are changeable with reference to a main one, or by the use of caps or slides applied to branch pipes, &c., and I therefore do not claim broadly the use of a valve for that purpose, independently of its peculiar construction and effect. Neither do I claim a loose nozzle piece, inserted through and supported by masonry for the mere purpose of renewing the same from time to time when injured by the fire, as this has also been previously known and used, but

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

1. The use of the indented valve K, in combination with the outlet passages H, constructed and arranged substantially as herein described, in such manner, that by

moving said valve back and forth underneath the outlet, it will admit the wind to, or shut it off from said outlet, equally and gradually on each side of the central tube I.

- 5 2. I claim the mode of making the loose nozzle J independent of the masonry for support, by the use of the tube I and its

socket, in combination with the ribs G, G, G, G and corresponding rebates, substantially as set forth.

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Witnesses:

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