

Samuel H. Hartman's,
Improvement in Blowing-Apparatus.

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PATENTED AUG 8 1871

Fig. 1.

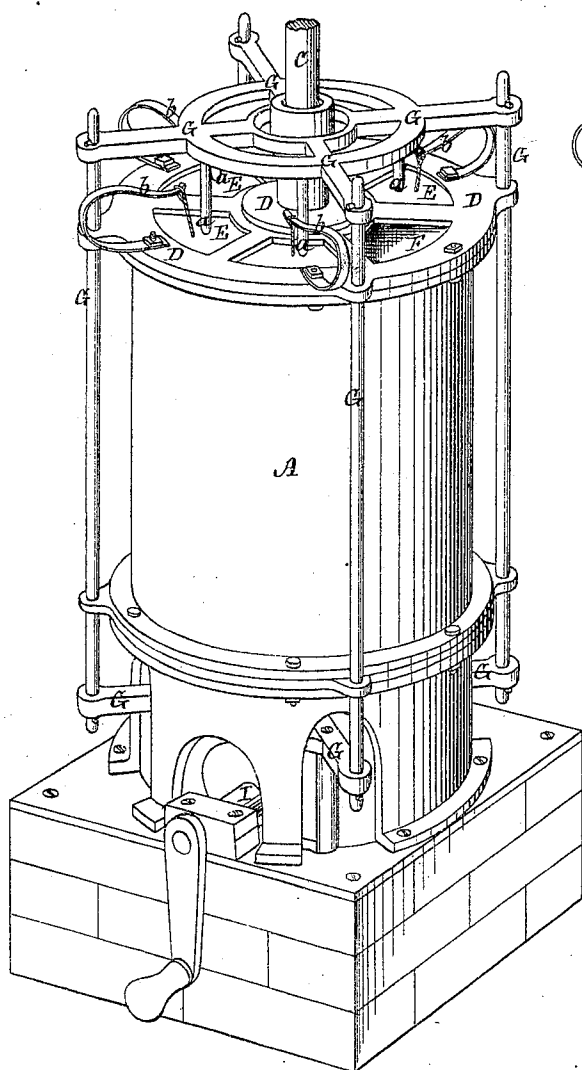
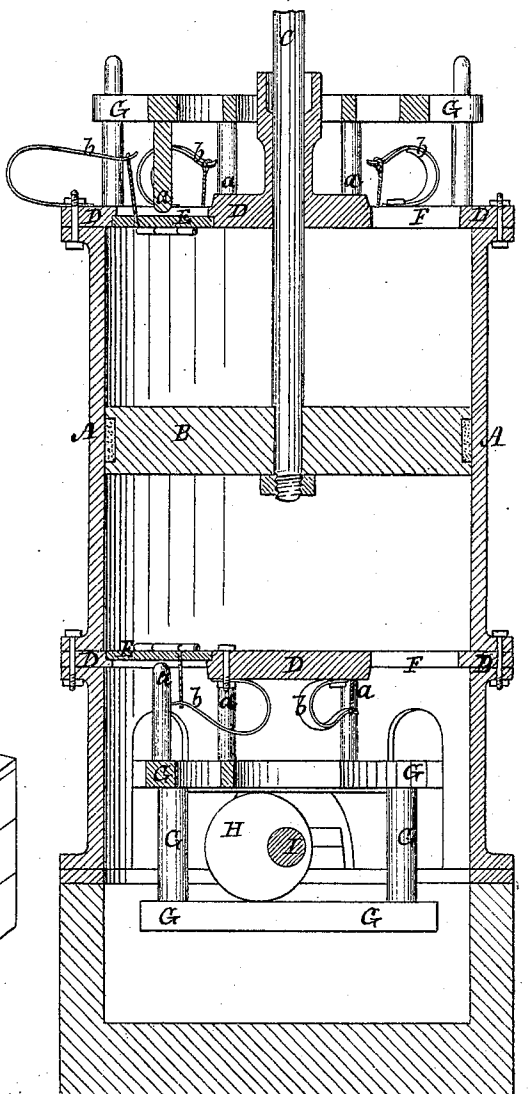


Fig. 2.



Witnesses.
H. G. Henderson } Samuel H. Hartman.
Edmund Masson } By atty A. B. Stoughton.

UNITED STATES PATENT OFFICE.

SAMUEL H. HARTMAN, OF ALLEGHENY, PENNSYLVANIA.

IMPROVEMENT IN BLOWERS.

Specification forming part of Letters Patent No. 117,776, dated August 8, 1871.

To all whom it may concern:

Be it known that I, SAMUEL H. HARTMAN, of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Blowing Apparatus for Furnaces and other purposes; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 represents a perspective view of a blowing-cylinder with my improvement attached. Fig. 2 represents a vertical section through the same.

Similar letters of reference where they occur in the separate figures denote like parts of the apparatus in the drawing.

My invention relates to the use of mechanical devices or appliances for opening and closing the valves of blowing apparatus, said devices or appliances being operated by a force other than that of the blast itself.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawing.

A represents a blowing-cylinder, in which a piston-head, B, is caused to reciprocate by any first-moving power applied to the piston-rod C. In the heads D of the cylinder is made any suitable number of openings, that are controlled by valves E, and one or more openings, F, into and through which the blast is drawn or driven, through suitable air-trunks or pipes, to the furnace where it is to be used. Outside of the cylinder A there is a frame, G, which is reciprocated by force or power applied to it from any ordinary source; and connected with this frame is a number of projections, *a*, one for each valved opening, which projections coming against their respective valves bear them open, and when they move away again the valves are closed by the reaction of the

springs *b*. The valves are thus opened and closed by a positive motion independently of the force of the blast.

I have herein shown the valve-openers as worked from an eccentric, H, on a turning shaft, I. They may be operated and the valves moved and opened by any other mechanism, only so that they are moved independent of the force of the blast or pressure that is upon them. I have shown springs which, by their recoil, close the valves after they have been opened. Other appliances may be used and effect the same purpose. I prefer to arrange the hinges of the valves radial to the cylinder, and so that they shall swing open upon such radial joints; but they may be arranged otherwise and still accomplish a good purpose. The force of the compressed air in front of the piston holds the valves shut, as they are arranged to open inwardly in relation to the cylinder. The cross-heads G that carry the valve-openers *a*, being united by the tie-rods, and all of which I have termed a frame, as they are reciprocated alternately open the valves, first at one end of the cylinder and then at the other end, and the opening of said valves is timed to suit the reciprocation of the piston-head B in the cylinder.

Having thus fully described my invention, what I claim therein as new, and desire to secure by Letters Patent, is—

In combination with the valves of a blowing-cylinder that are closed by a spring or other similar acting device, a mechanism for alternately opening said valves independent of the pressure that may be upon them, substantially as described.

SAML. H. HARTMAN.

Witnesses:

T. W. HARTMAN,
W. GIBSON MILLER.