

G. W. Bigelow,

Fan Blower.

N^o 61919.

Patented Feb. 12, 1867.

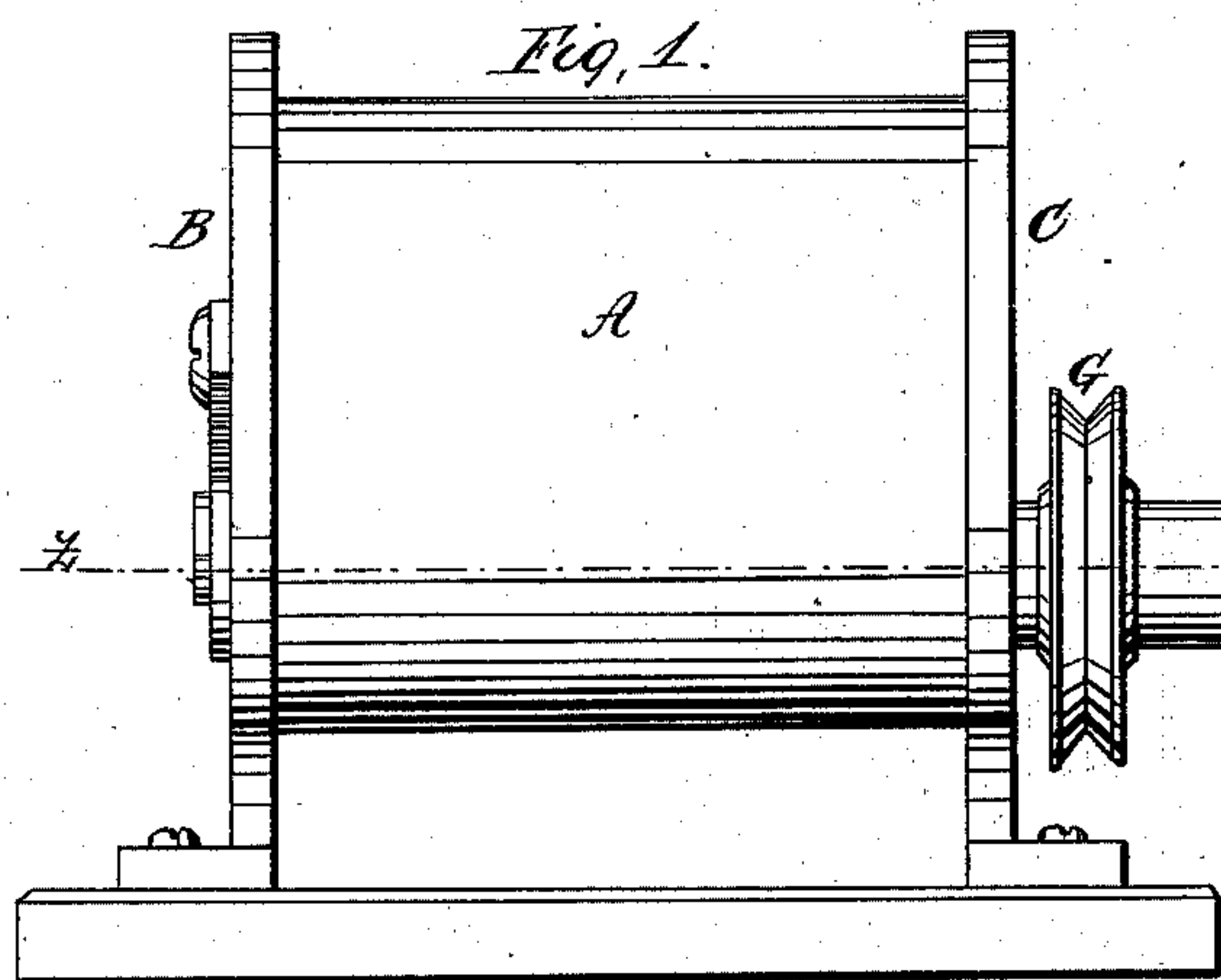
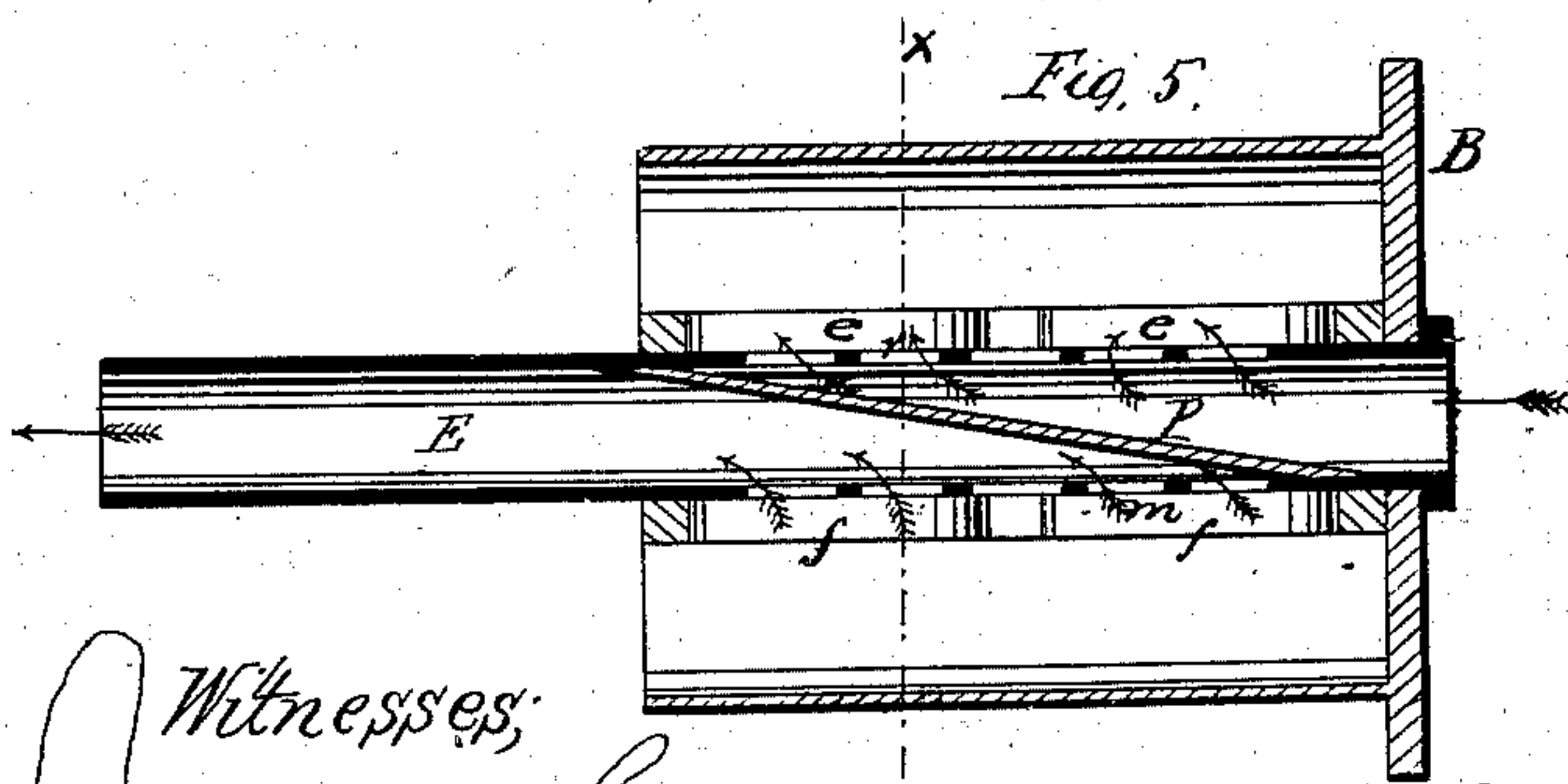
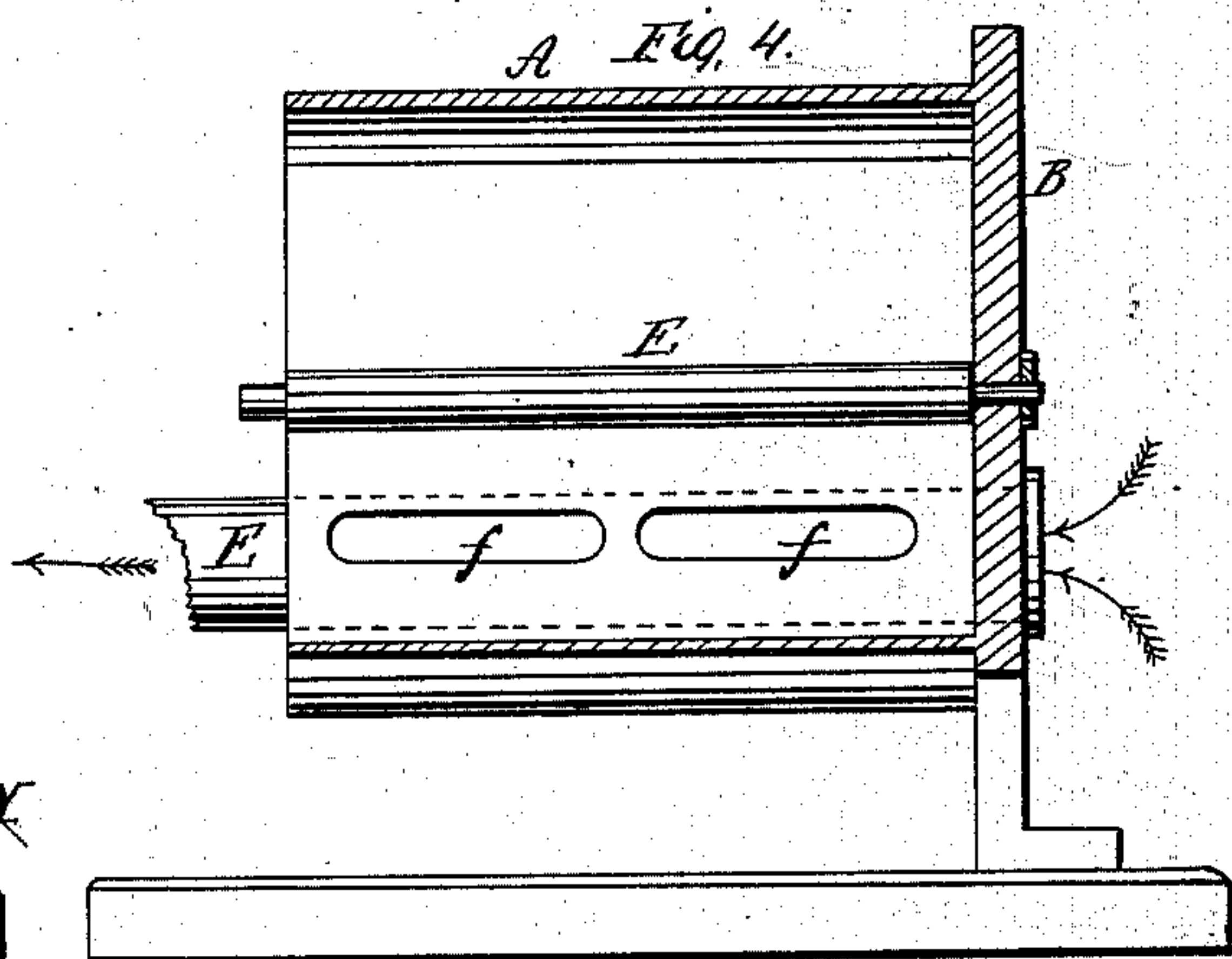
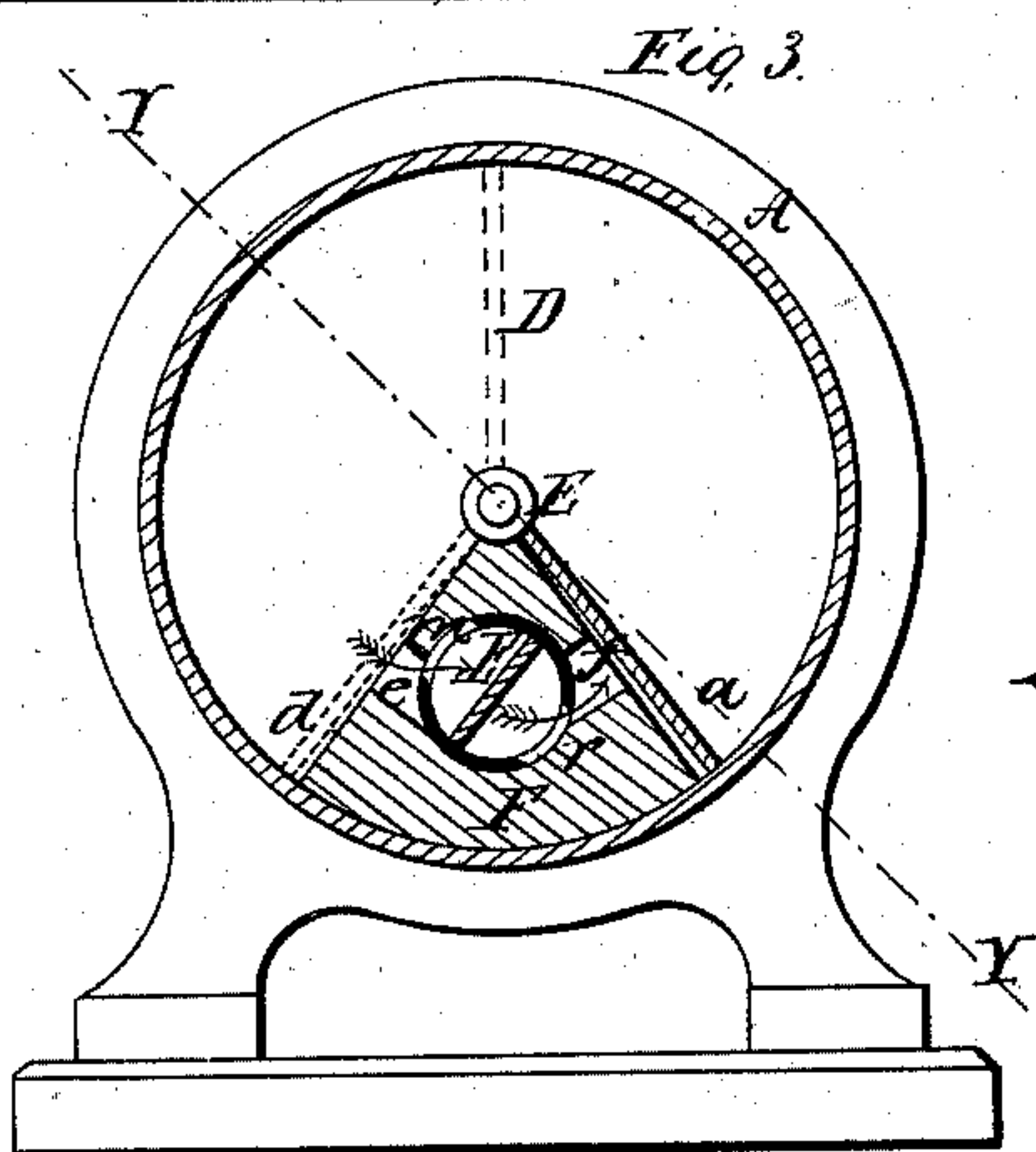
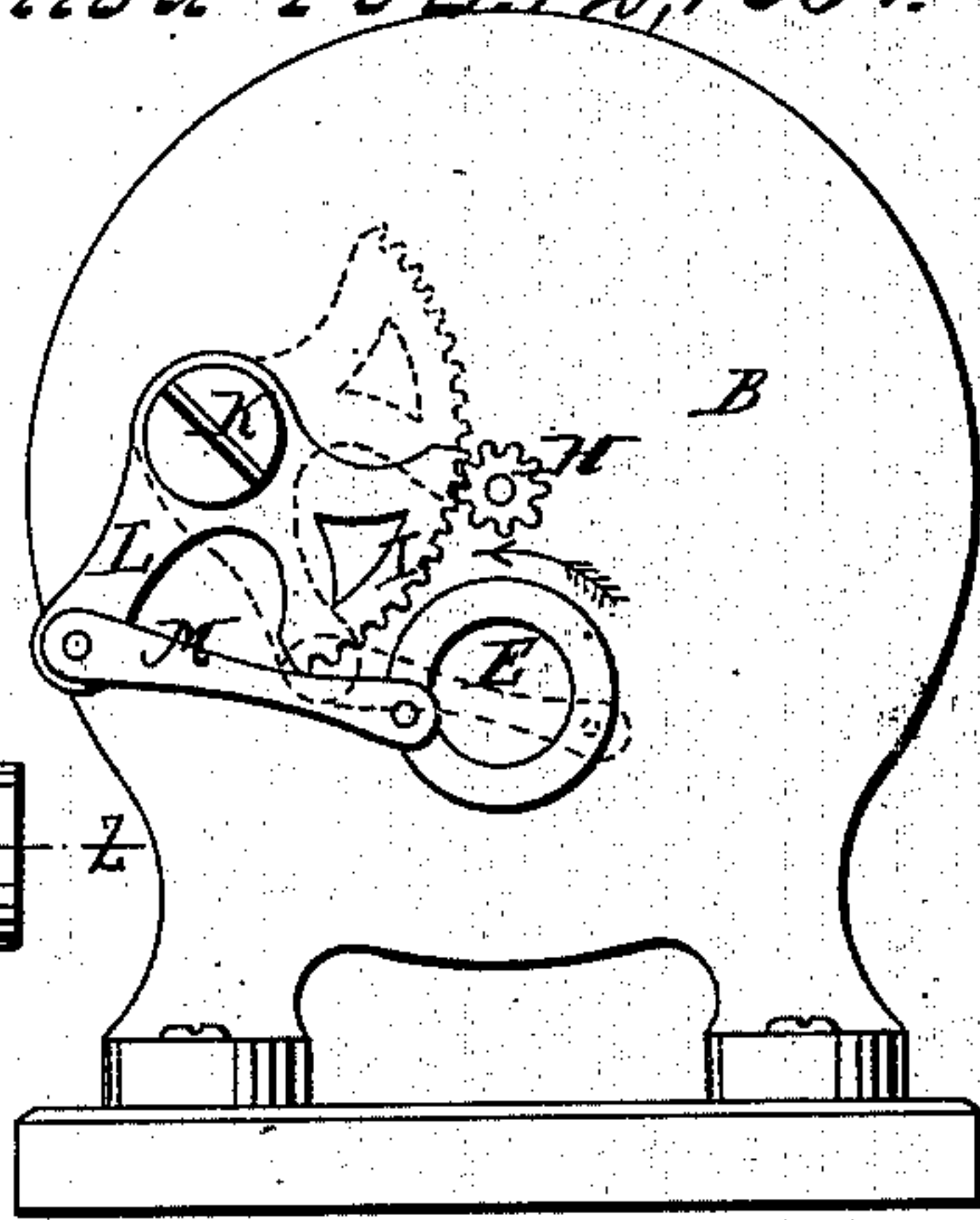


Fig. 2.



Witnesses;
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GEORGE W. BIGELOW, OF NEW HAVEN, CONNECTICUT.

Letters Patent No. 61,919, dated February 12, 1867.

IMPROVEMENT IN 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 I, GEORGE W. BIGELOW, of New Haven, in the county of New Haven, and State of Connecticut, have invented a new Improvement in Blowers; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view.

Figure 2, an end view.

Figure 3, a transverse section on line *x x*.

Figure 4, a longitudinal section on line *y y*; and in

Figure 5, a longitudinal sect on on line *z z*.

The object of this invention is to produce a blower for blast furnaces and for like purposes, and consists in the arrangement of a vibrating piston within a stationary cylinder, and combined with a revolving valve, which admits the air to one side of the piston, while it opens an exit for the air upon the opposite side; and to enable others skilled in the art to construct and use my improvement I will proceed to describe the same as illustrated in the accompanying drawings.

A is a cylindrical case, fixed between two heads, B and C, and so as to be supported in any desired position. D is a piston, formed upon or attached to a shaft, E, in the centre of the case, and so as to revolve freely upon its bearings in each head. E is the valve cylinder, passing through the case and opening through each head, as seen in fig. 5, and arranged so as to revolve freely in that position. Within the case, and surrounding the cylindrical valve, I fit what I term the valve-seat F, provided with ports *e* and *f*. The faces of the valve-seat are radial, so that the piston may approach either face, as denoted in fig. 3. Power is applied to a pulley, G, on the cylinder E, which causes the said cylinder E to revolve, as denoted by the arrow in fig. 2. To the piston shaft E, on the outside of the head B, is fixed a toothed wheel, H, and a corresponding toothed segment, I, hung to the head B at K, and provided with an arm, L, which is connected to the cylinder E by a rod, M, so that, as the cylinder E is revolved, as from the position in black to that denoted in red, fig. 2, the piston will be turned from the position denoted at *d* to that denoted at *a*, fig. 3; continuing its revolution so as to return to the position in black, fig. 2, the piston will be returned from the position at *a* to that denoted at *d*. As seen in fig. 5, the valve cylinder has a diagonal partition P, closing the cylinder; and, upon opposite sides of the cylinder, are formed openings *m* and *r*, corresponding to the openings *f* and *e* in the valve-seat, and opening into the cylinder upon opposite sides of the partition. Air is admitted to the case through the openings *r*, as denoted by the red arrows, and discharged through the openings *f*, as denoted by the blue arrows. Therefore, referring to fig. 3, the piston is supposed to be commencing its movement from the point *a*, and the inlet opening in the valve opens into the passage *f* in the valve-seat and permits air to pass in to supply the space back of the piston as it advances. At the same time the air which already occupies the case is forced before the piston and through the passages *e* and *m* and to the outlet, as denoted by the arrow in blue, until the piston reaches the position at *d*, then the openings *r* and *m* in the valve have changed positions so that the inlet opens into the passage *e* and the outlet into the passage *f*, and so that the piston, returning, will force the air, which it has just received, out from the case and receive a fresh supply upon the opposite side; and thus, while the valve continues to revolve, and, by its connection, cause the piston to vibrate, air will be alternately received and discharged from opposite sides.

I do not wish to be understood as broadly claiming a vibrating piston, as such is common, but always operating in combination with a slide or clapper valve; but, having thus fully described my invention, what I do claim as new and useful, and desire to secure by Letters Patent, is—

The combination of the revolving valve E with the vibrating piston D, substantially as and for the purpose herein set forth.

GEORGE W. BIGELOW.

Witnesses:

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