

F. SHALLER.  
BLOWPIPE.

No. 60,070.

Patented Nov. 27, 1866.

Fig. 1.

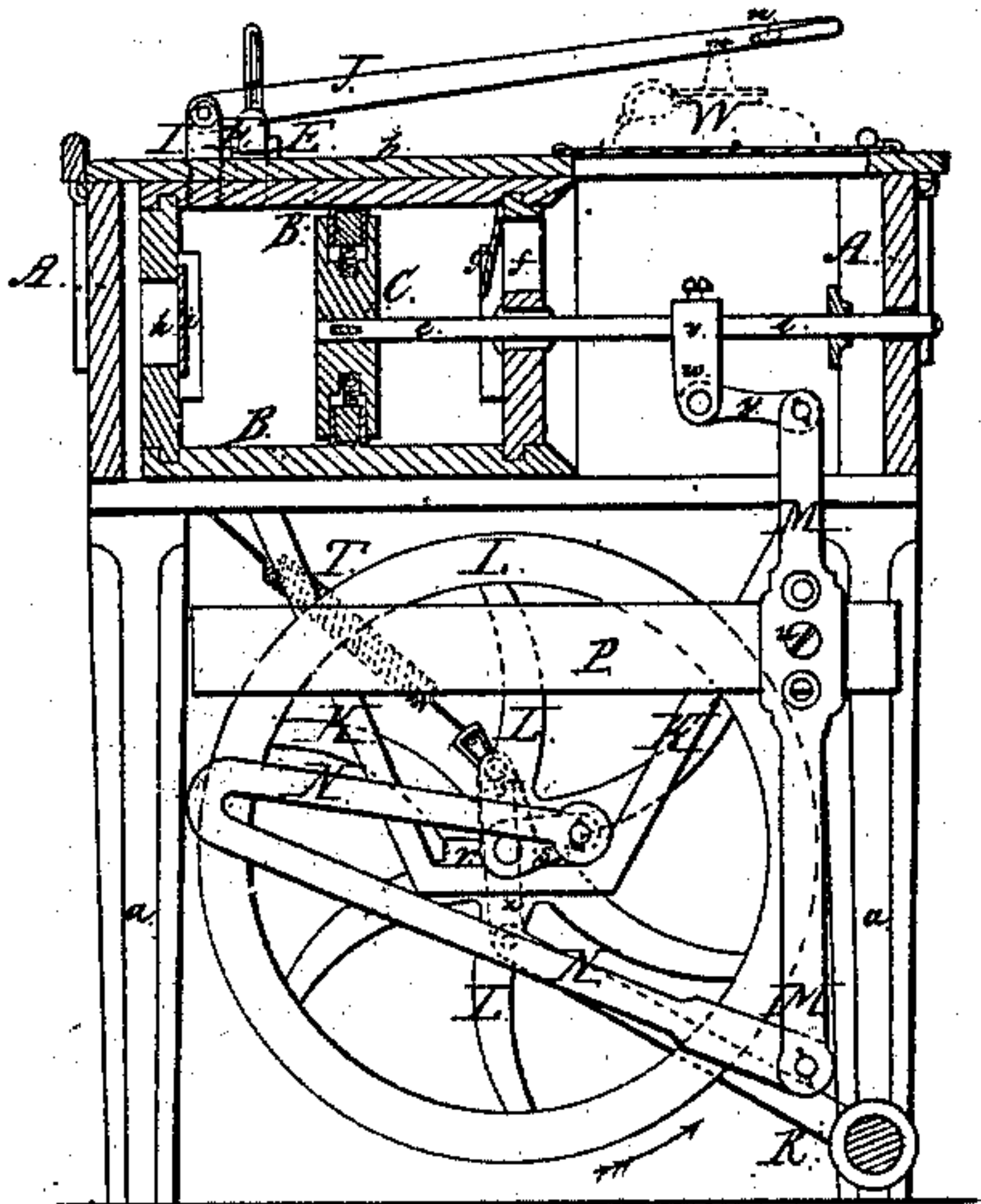


Fig. 2.

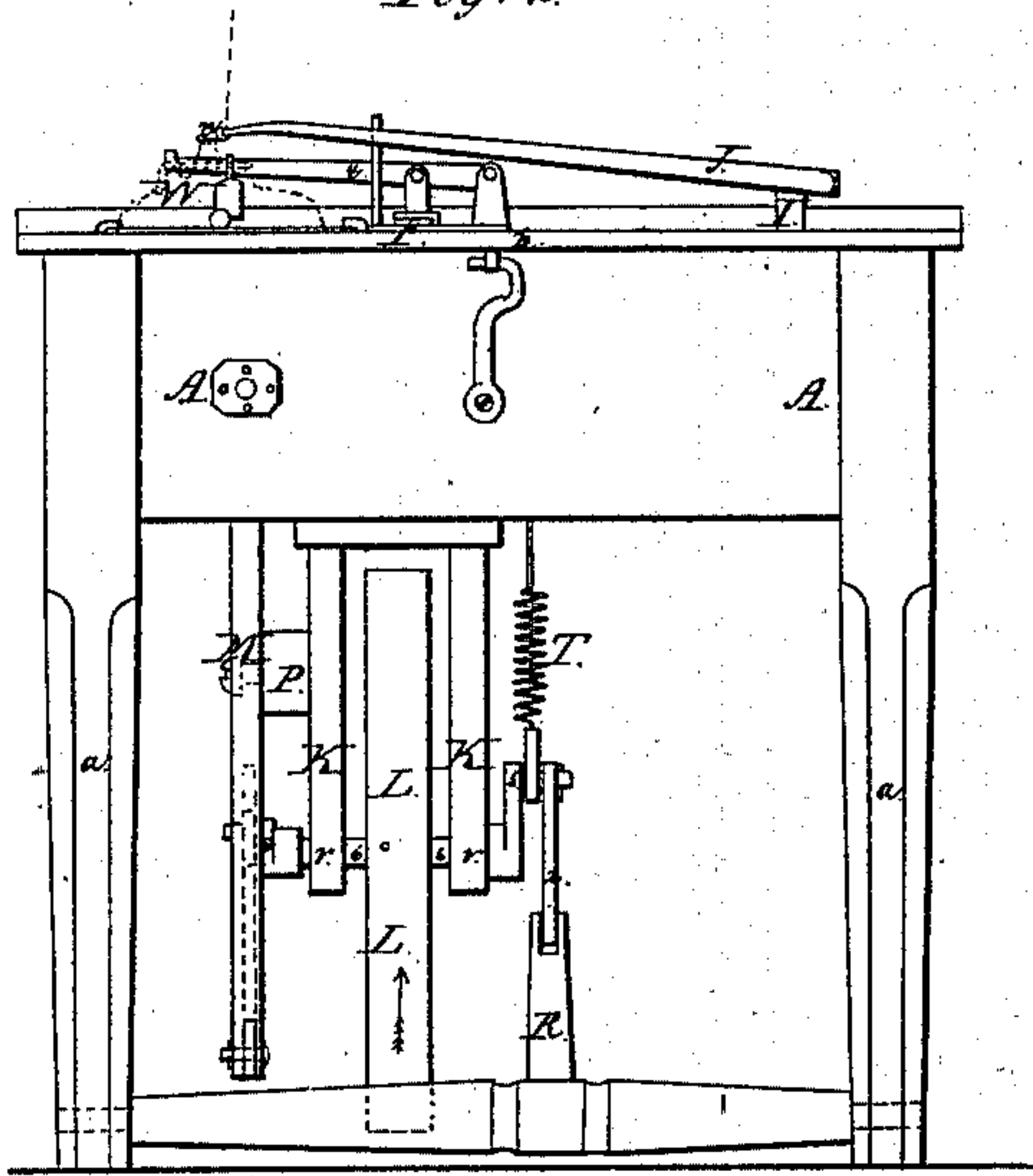


Fig. 4.

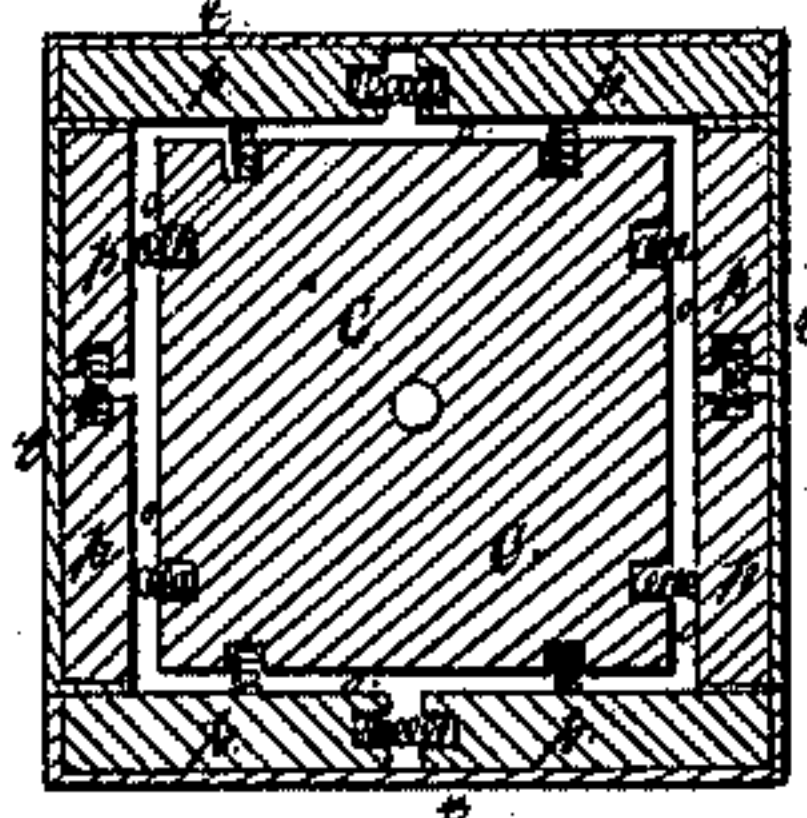
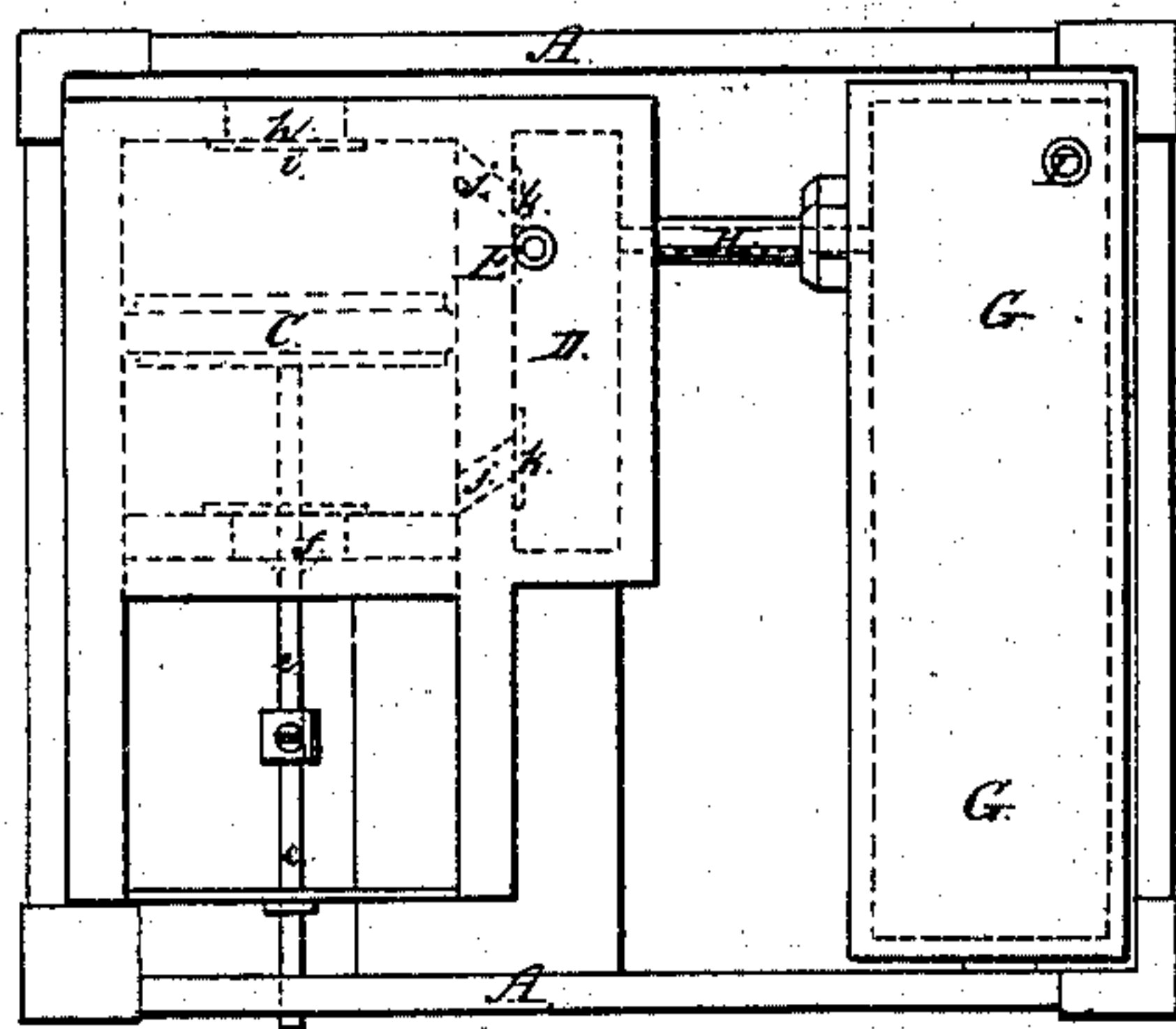


Fig. 3.



Witnesses;

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# United States Patent Office.

## IMPROVED BLOW-PIPE.

FRIEDRICH SHALLER, OF HUDSON, NEW YORK.

*Letters Patent No. 60,070, dated November 27, 1866.*

### SPECIFICATION.

#### TO ALL WHOM IT MAY CONCERN:

Be it known that I, FRIEDRICH SHALLER, of Hudson, in the county of Columbia, and State of New York, have invented certain new and useful improvements in mechanical Blow Pipes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical transverse section taken in the line *x x* of fig. 2.

Figure 2 is a front elevation.

Figure 3 is a plan view of the apparatus with the cover or top removed.

Figure 4 is a section of the piston of the blower taken parallel with the face thereof.

Similar letters of reference indicate corresponding parts in all the figures.

This invention consists in a novel combination and arrangement of a piston blower, a treadle, and connections for operating the same, an air reservoir, an adjustable blow-pipe, and a work-table or bench, whereby a steady and continuous current of air is forced through the blow-pipe, thus enabling the workman or operator to employ both hands instead of one in manipulating the work, at the same time that the blow-pipe may be placed in any desired position to meet the requirements of the same.

A represents a flat rectangular box or casing which is supported upon suitable legs, *a*, and provided with a flat top or cover, *b*, which forms a work-table or bench for the convenience of the operator. Placed within this casing, A, at one side thereof, is a box, B, which constitutes the barrel of the air forcing pump or blower, and may be either cylindrical or rectangular in shape. Formed centrally in one end, *c*, of this barrel, B, is a hole in which is formed or placed a suitable stuffing-box, *d*; the piston-rod, *e*, passes through this stuffing-box, *d*, and has fixed upon its inner end, within the barrel, B, a piston, C, which is fitted with suitable packing, and has a reciprocating motion within the barrel, as will be hereafter more fully explained. Formed in the same end, *c*, of the barrel, is an opening, *f*, the inner end of which is covered by a valve, *g*, and in the opposite end of the said barrel is a similar opening, *h*, the inner end of which is closed in like manner by a valve, *i*. D is a valve-chest situated at one side of the barrel B, and connected therewith by two short passages or openings, *j*, each of which is covered by a valve, *k*, placed within the said valve-chest, as shown in dotted lines in fig. 3. A short tube, E, extends upward from the valve-chest, D, through the top *b*, of the casing A, and has its upper end closed by a safety-valve, F, operated by a weighted lever, *l*. Situated within the casing A, at that side thereof opposite the barrel B, is an air reservoir, G, which communicates with the valve-chest, D, by means of a short tube or pipe, H. The casing A, reservoir G, and barrel B, together with the valve-chest D, may be made of wood or other suitable material. I is a short vertical tube, the lower end of which communicates with the reservoir, G, and is screwed into a suitable socket formed in the upper side or top of the said reservoir, and has the blow-pipe, J, attached to its upper end over or above the table, *b*, by means of a transverse or horizontal joint, *m*, in such manner that the interior of the said blow-pipe communicates with the interior of the tube I, and consequently with that of the reservoir, G, at the same time that the joint *m* allows the outer end or nozzle, *n*, of the blow-pipe to be turned up or down to any desired height with regard to the table *b*, while the tube I, turning around in the socket in which it is screwed, enables the blow-pipe to be turned laterally when desired, so that it is thus made adjustable to any required position. The mode of packing the piston C is shown in fig. 4. A deep groove, *o*, is formed in the outer edges or circumference of the said piston, and in this groove, *o*, are placed any number of wooden strips, *p*, of suitable length, the outer sides of which are covered with leather, felt, or other similar material, as shown at *t*. These strips are pressed outward from the bottom of the groove *o*, into close contact with the inner sides of the barrel B, by means of spiral springs represented in red lines in the said figure, the piston being thus rendered properly air-tight in its operation. L is a balance-wheel, the shaft of which works in bearings, *r*, the said bearings being suspended in a suitable bracket, K, and the balance-wheel being provided with a crank, *s*, which vibrates an upright lever, M, through the agency of a bent pitman, N; the said lever M is pivoted at *u* to a rigid cross-bar, P, secured to the legs *a*. Fixed upon the piston-rod, *e*, is a sleeve or collar, *v*, and projecting downward from this collar, *v*, is a spur, *w*, which is connected with the uppermost arm of the lever M, by a short link or bar, *y*, in such manner that the rotation of the balance-wheel L, acting through the parts first mentioned, communicates a reciprocating movement to the piston C. This rotary motion of the balance-wheel is produced by means of a treadle, R, connected by a link, *z*, with a crank, 5, as shown in dotted lines in fig. 1. T is a spiral spring, one end of which is secured to the bottom of the



casing A, while the other is attached to the crank-pin 5, the tension of the said spring preventing the wheel from stopping at the "dead centre." W represents a lamp of any suitable kind, and which is attached to the upper surface of the casing A, at any desired point thereof.

The operation of the invention is as follows: A reciprocating motion being communicated to the piston by operating the treadle, R, as hereinbefore fully explained, the air enters the barrel B alternately upon opposite sides of the said piston through the inlet openings, *h* and *f*, the valves *i* and *g* opening to admit the air, and closing to prevent its escape through the said openings. The air is then forced by the aforesaid motion of the piston, alternately through the passages *j*, into the valve-chest D, the valves *k* opening to allow its passage into the said chest, from which it passes through the tube or pipe, H, into the air receiver, G, and thence through the short tube, I, into the blow-pipe J, by which it is conducted to the lamp, W, the current or blast thus produced acting upon the flame thereof in the same manner as with an ordinary blow-pipe; and inasmuch as the blow-pipe may be turned and adjusted in any desired position, as hereinbefore explained, and retained in such position by the friction of its joint, *m*, and of the socket in which the short tube, I, is screwed, it follows that the workman or operator may use both hands in holding or manipulating the article to be soldered or otherwise operated upon, instead of only one, as with the common blow-pipe. The safety-valve, F, by allowing the escape of air from the reservoir, G, after a certain pressure has been reached therein, prevents any undue strain or pressure upon any part of the mechanism, while the curved form of the pitman, N, assists the action of the balance-wheel in passing the dead centres of the crank 5.

Having thus described my invention, I do not claim the blow-pipe, or any of its operating parts, *per se*, but what I claim as new, and desire to secure by Letters Patent, is—

1. The arrangement of the blow-pipe J, and the piston blower C B, in relation with each other and with the work-table *b*, and air reservoir G, substantially as herein set forth, for the purpose specified.
2. The arrangement of the treadle R, pitman *z*, cranks 5 and *s*, bent connecting-rod N, and lever M, in combination with each other and with the spring T, substantially as herein set forth for the purpose specified.

FRIEDRICH SHALLER.

Witnesses:

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