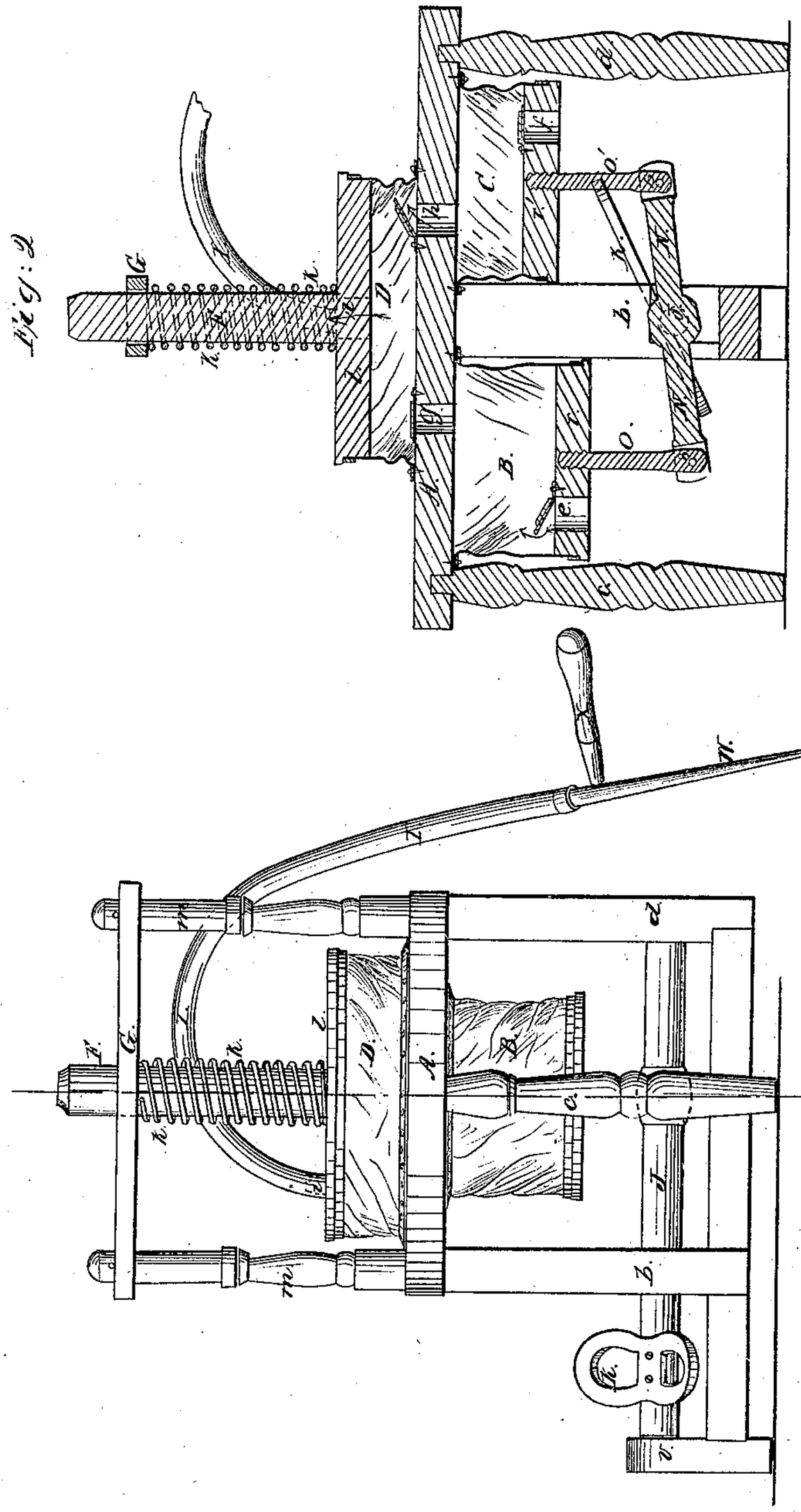
Cassell & Semple,

Blow Pipe.

No. 34,479. Patented Feb. 25, 1862.



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UNITED STATES PATENT OFFICE.

H. CASSELL AND W. F. SEMPLE, OF FREDERICKTOWN, OHIO.

IMPROVEMENT IN BELLOWS FOR BLOW-PIPES.

Specification forming part of Letters Patent No. **34,479**, dated February 25, 1862.

To all whom it may concern:

Be it known that we, H. CASSELL and W. F. SEMPLE, of Fredericktown, in the county of Knox and State of Ohio, have invented a new and Improved Blow-Pipe; and we do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, in which--

Figure 1 is an end elevation of the blow-pipe, and Fig. 2 is a vertical longitudinal section of the same on line *y y*.

Similar letters of reference in the two figures denote the same part.

Our invention consists of a blow-pipe composed of the parts and having the operation as hereinafter set forth.

To enable others skilled in the art to make and use our invention, we will proceed to describe its construction and operation, as follows:

In the drawings, A represents a platform held to position by the uprights *a* and *b* and legs *c* and *d*. Secured to the under side of said platform are the receiving air-chambers B and C, provided with ingress-valves *e* and *f* and egress-valves *g* and *h*.

J is a horizontal shaft, having its bearing in the uprights *a* and *v*, and having secured upon its outer end a treadle, K. Immediately beneath the chambers B and C this shaft has secured upon it the arms or levers N. Connecting said arms with the receiving-chambers B and C are the rods *o* and *o'*, secured at their one end to the head-pieces *r r'* and jointed at their other end to the arms N, as at *s*, as shown by drawings, thereby causing the chambers B and C to be successively depressed and drawn out. Upon the upper side of platform A is the discharge-air chamber D, provided with a discharge-opening, *i*, and receiving air through the egress-valves *g* and *h* of chambers B and C, said chamber being depressed or caused to contract by means of the spiral spring *k*, which is coiled around the upright F and held between the cross-piece G and the head-piece *l*. The upright F is held to position by and has its movement in the cross-piece G, which is secured by supports *m*.

I represents tubing for conveying the air to any desired point, and is provided with a nozzle, W, and also has an arm, X, to enable the operator to direct the same.

The operation of the blow-pipe is as follows: The operator, by pressure upon the treadle K, by reason of the several connections, causes the chambers B and C to be successively depressed and drawn out, as shown, when, owing to the outward pressure of air, the valve *e* is forced open and the air passes into the chamber B. The same movement which effects the above action causes the chamber C to be depressed, when the air in the same forces open the egress-valve *h* and passes from thence into the discharge-chamber D. The air in this chamber is then, by reason of the pressure caused by the spring *k*, forced through the discharge-opening *i* and the conveying-tube I to the desired point. An opposite movement by the operator causes the chamber C to be drawn out and the chamber B to be depressed, effecting the opening of the valves *f* and *g* and the closing of valves *e* and *h*, the air from chamber B passing into the discharge-chamber D, and so the operation may continue, the discharge-chamber D being effectually supplied with air and the same forced through the nozzle W so long as desired.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

The chamber D, acted upon by spring *k*, in combination with the chambers B and C and air-conveying tube or pipe I.

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