

H. CRUMLISH.

Modes of Operating Bellows of Furnaces.

No. 143,439.

Patented Oct. 7, 1873.

Fig. 1.

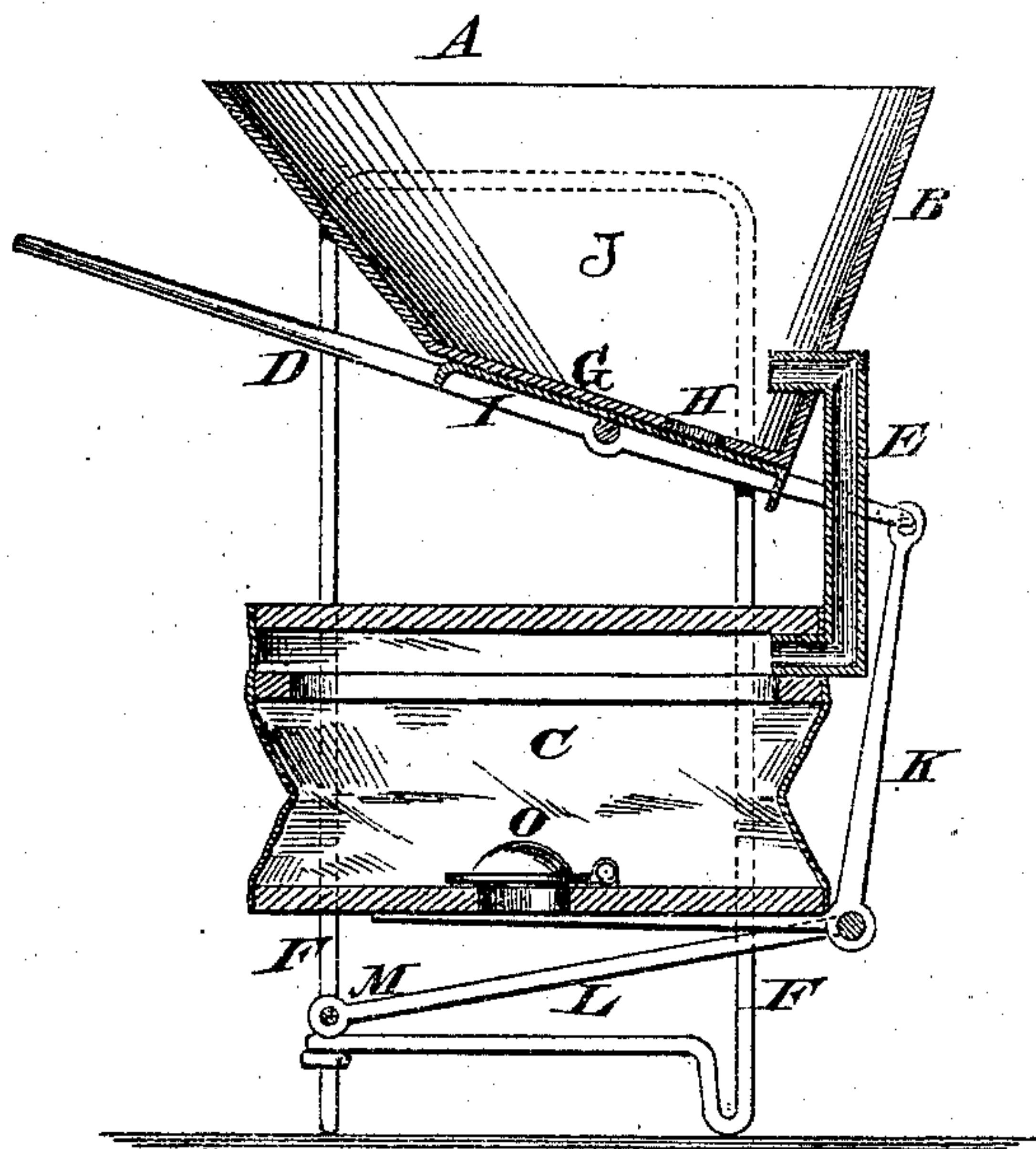
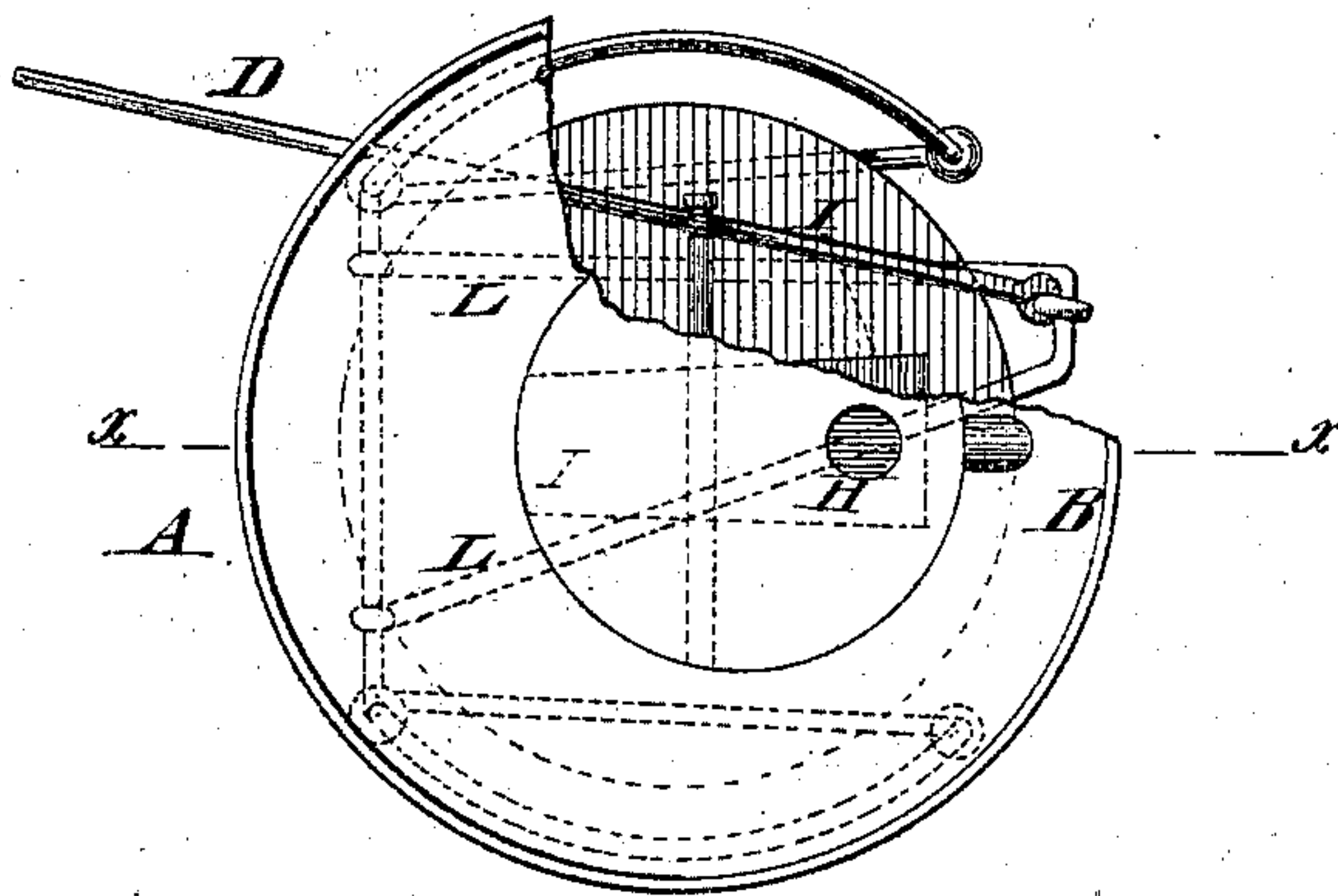


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

HUGH CRUMLISH, OF BUFFALO, NEW YORK.

IMPROVEMENT IN THE MODES OF OPERATING BELLOWS OF FURNACES.

Specification forming part of Letters Patent No. **143,439**, dated October 7, 1873; application filed June 25, 1873.

To all whom it may concern:

Be it known that I, HUGH CRUMLISH, of Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Mode of Operating Bellows of Furnaces, of which the following is a specification:

The invention consists in the means hereinafter described and claimed for causing the bottom of the bellows to remain always parallel with the top while being moved up and down.

In the accompanying drawing, Figure 1 represents a vertical section of the improved furnace, taken on the line *x x* of Fig. 2. Fig. 2 is a top view with a portion of the fire-box broken away.

Similar letters of reference indicate corresponding parts.

A is the furnace, consisting mainly of the fire-box B, bellows C, lever D, pipe E, and legs F. To secure lightness as well as strength I make the legs of a single rod, bent as represented, to form four legs, between which the bellows is supported, and on the upper ends of which the fire-box is supported. The lever D is attached to the bottom of the fire-box, J being

the fulcrum. It is pivoted to the rigid rod K, which is bent at a right angle, and has one arm secured to the bottom of the bellows. A double or bent rod, L, is connected to the frame at M, and pivoted to the angle of rod K. The effect of this arrangement is to cause the bottom of the bellows to move up and down parallel to the top thereof, and thus produce a more forcible expulsion of air with the same expenditure of power through the medium of the lever D. O is the valve of the bellows.

The bellows is what is usually denominated a "cylinder-bellows," and is about the diameter of the top of the fire-box.

The form and position of the legs F are seen in dotted lines in the drawing.

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

The combination of the rigid angle arm or rod K, pivoted, bent, or double rod L, and lever D, with the bottom of the bellows, as and for the purpose specified.

HUGH CRUMLISH.

Witnesses:

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