G. H. Peck,

Bellows.

No. 102,704. Patented May 3. 1870.

Fig. I.

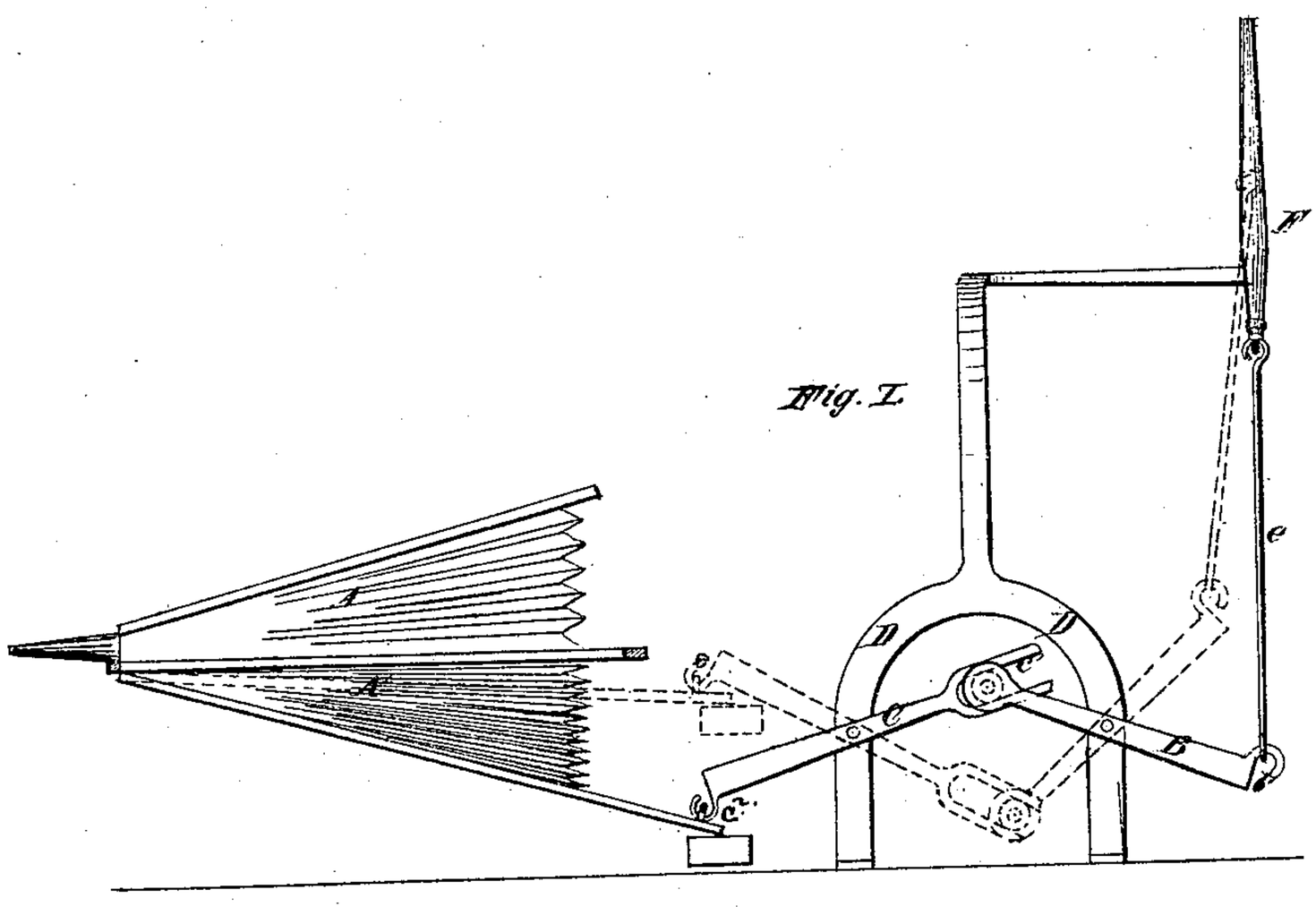
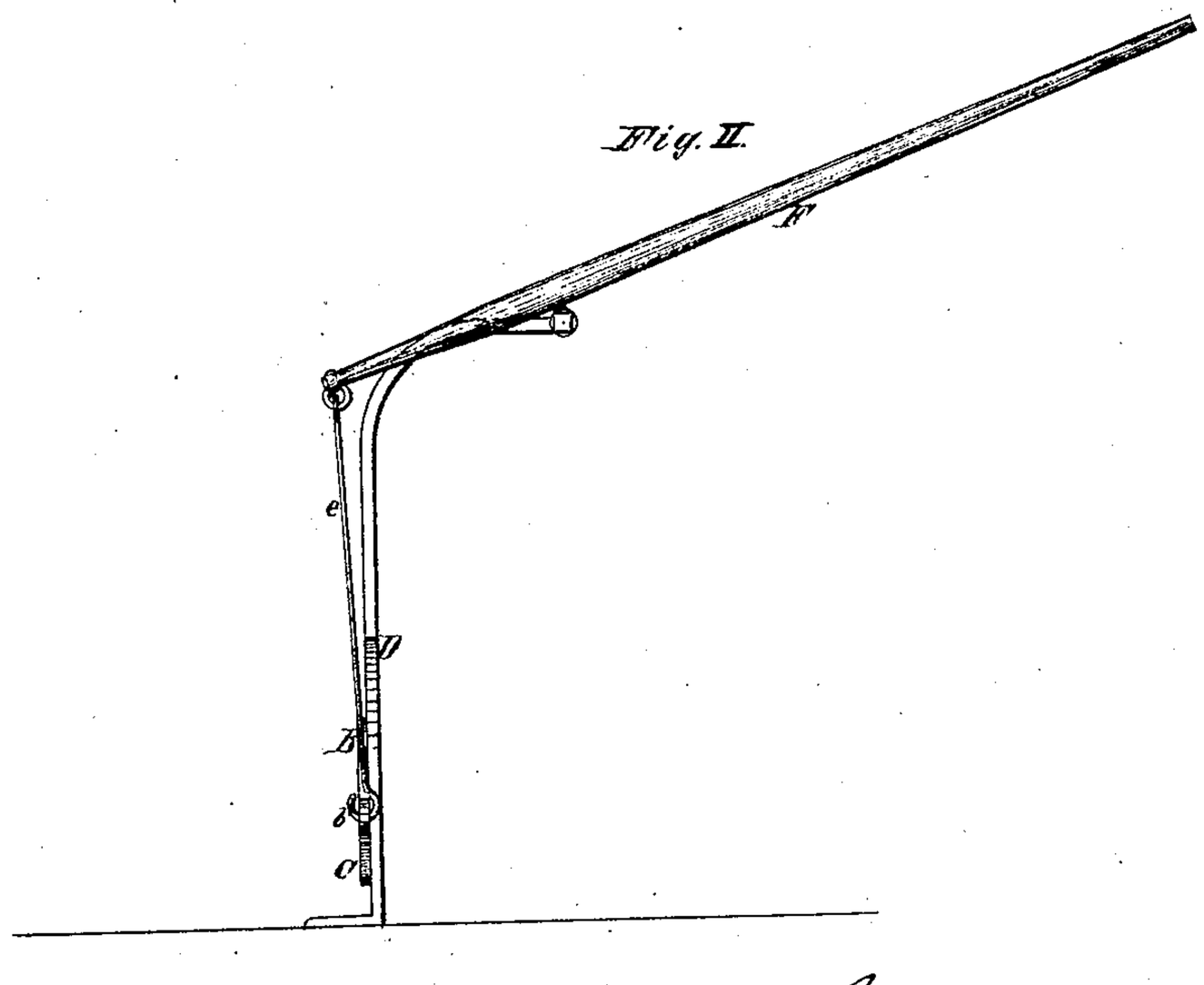


Fig. II.



Witnesses.

Jno. J. Bonner

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United States Patent Office.

GEORGE H. PEEK, OF EAST HAMBURG, NEW YORK.

Letters Patent No. 102,704, *dated May* 3, 1870.

IMPROVEMENT IN SMITHS' BELLOWS.

The Schedule referred to in these Letters Patent and making part of the same.

I, GEORGE H. PEEK, of East Hamburg, in the county of Erie and State of New York, have invented an Improvement in the Means for Actuating Smiths' Bellows, of which the following is a specification.

My invention relates to the ordinary smiths' bellows, which are supported at the center, and divided into two compartments, with weighted and movable upper and lower flaps, the bellows being operated by elevating the lower flap, which forces the air into the upper compartment, which, as it distends, raises the upper flap or top thereof. In order to raise the lower flap with a uniform velocity, a constantly-increasing resistance, due to the partial compression of the air and the distension of the flexible sides of the bellows, has to be overcome, which requires for the purpose a corresponding increase of power during the time it is exerted in effecting the movement.

As a uniform movement of the hand-lever is the natural, common, and easiest movement for the operator, and as such movements of the hand-lever, in the common arrangements for actuating bellows by hand, produces a uniform movement of the lower flap of the bellows, and as this requires an extra exertion of power during the latter part of the movement to overcome the extra resistance, therefore, it becomes a matter of importance to construct and arrange the means employed in working the bellows so as to obviate the necessity of this increased exertion and strain on the part of the operator.

My invention, which is designed to accomplish this object, consists in the combination, with the lower flap of the bellows, of two levers, connected together by a sliding joint or shifting point of contact, so that the length of one of the arms thus united will increase and decrease with the movement of the levers, whereby the increased resistance or weight of the lower flap, during the latter portion of its upward movement, will be overcome, not by increasing the power or the velocity of the same, but by compelling it to travel through a greater space in moving the weight a given distance than is required to move it the same distance during the former part of its movement.

In the accompanying drawings—

Figure I represents an elevation of my improved arrangement for actuating the bellows.

Figure II is an elevation at right angles to Fig. I.

A is the upper and A′ the lower flap of the bellows.

B C, two levers, each pivoted to sides of the uprights or standards D, and having their adjacent arms united by a pin in the end of the arm *b*, fittting in *a* slot, c^1, in the end of the arm *c*.

The power may be applied directly to the arm *b*′ of lever B, or through the intervention of a rod, *e*, connecting with a hand-lever, F, as shown in the drawings.

The arm c^2 of lever C connects with the lower flap A′ of the bellows, which forms the weight to be raised.

The parts are represented in the drawing in the position in which they are at the commencement of the upward movement of the flap A′, the point of contact of the levers B C being in line, or nearly so, with the fulcra thereof, when the length of the arm *c*, which is measured by the distance between the fulcrum of C and the pin or point of contact of the levers, is the shortest. As the flap is being elevated, this distance and length of arm *b* gradually increases till the end of the movement, when its length will be greatest, the point of contact having changed to near the end of the slot c^1, as represented in dotted lines.

With the levers B C constructed and operating as above described, it is evident that a given power applied to the hand-lever F will cause the latter to travel with a uniform, or nearly uniform, velocity throughout the whole of its sweep, the compensation for the increased resistance opposed by the bellows being made by the increase in the length of the arm *c*, and the consequent decrease in the velocity of the weight or flap.

It is not alleged that a new bellows, nor a new crank-connection, has been invented, but a newly organized machine has been made by the combination of hand-lever with the intermediate connections and the bellows; and

I therefore claim as my invention—

The smiths' bellows and its operating hand-lever F, and the intermediate levers B C, constructed, arranged, and operating substantially as and for the purpose hereinbefore set forth.

GEORGE H. PEEK.

Witnesses:

W. H. FORBUSH,

JNO. J. BONNER.