

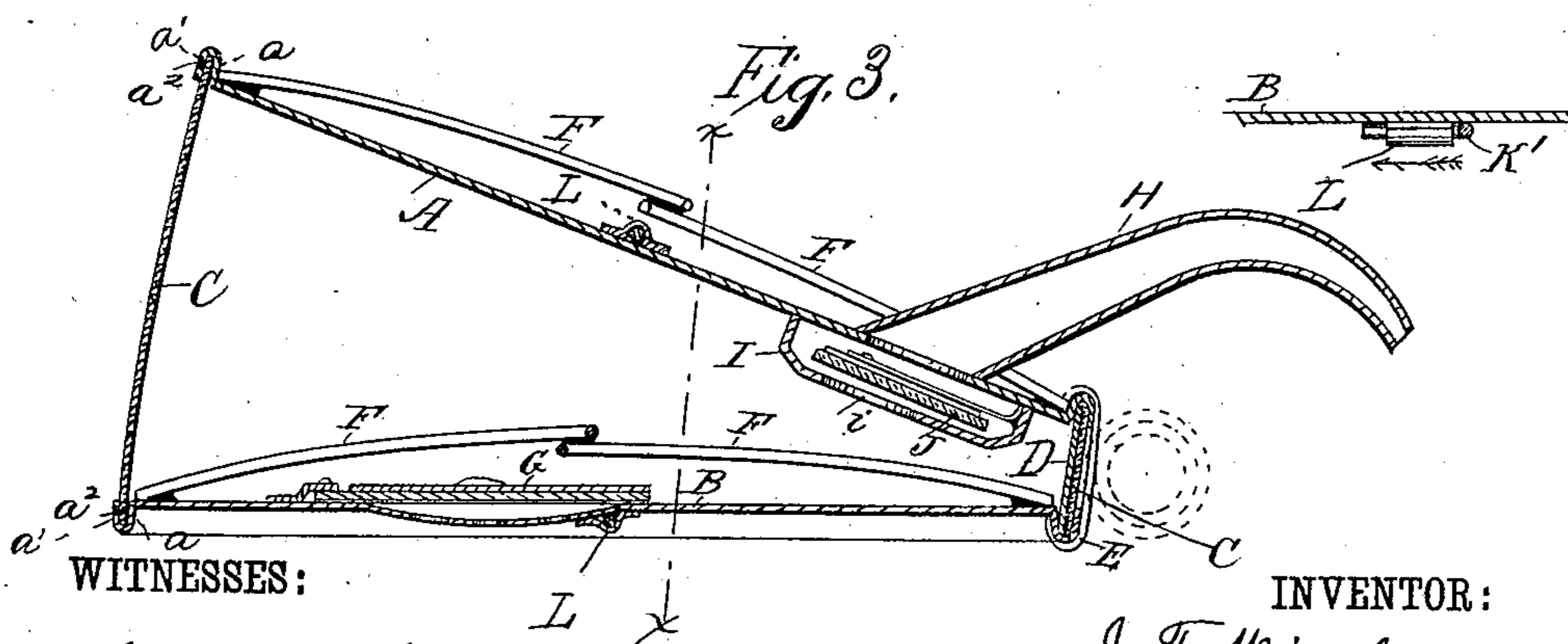
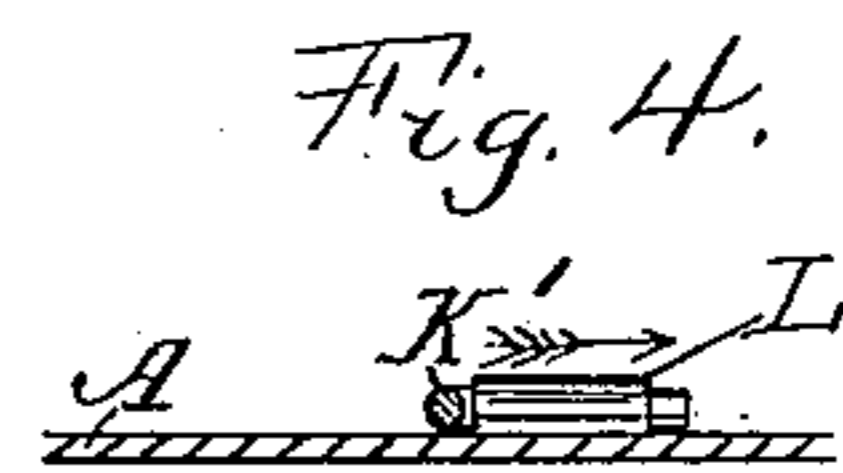
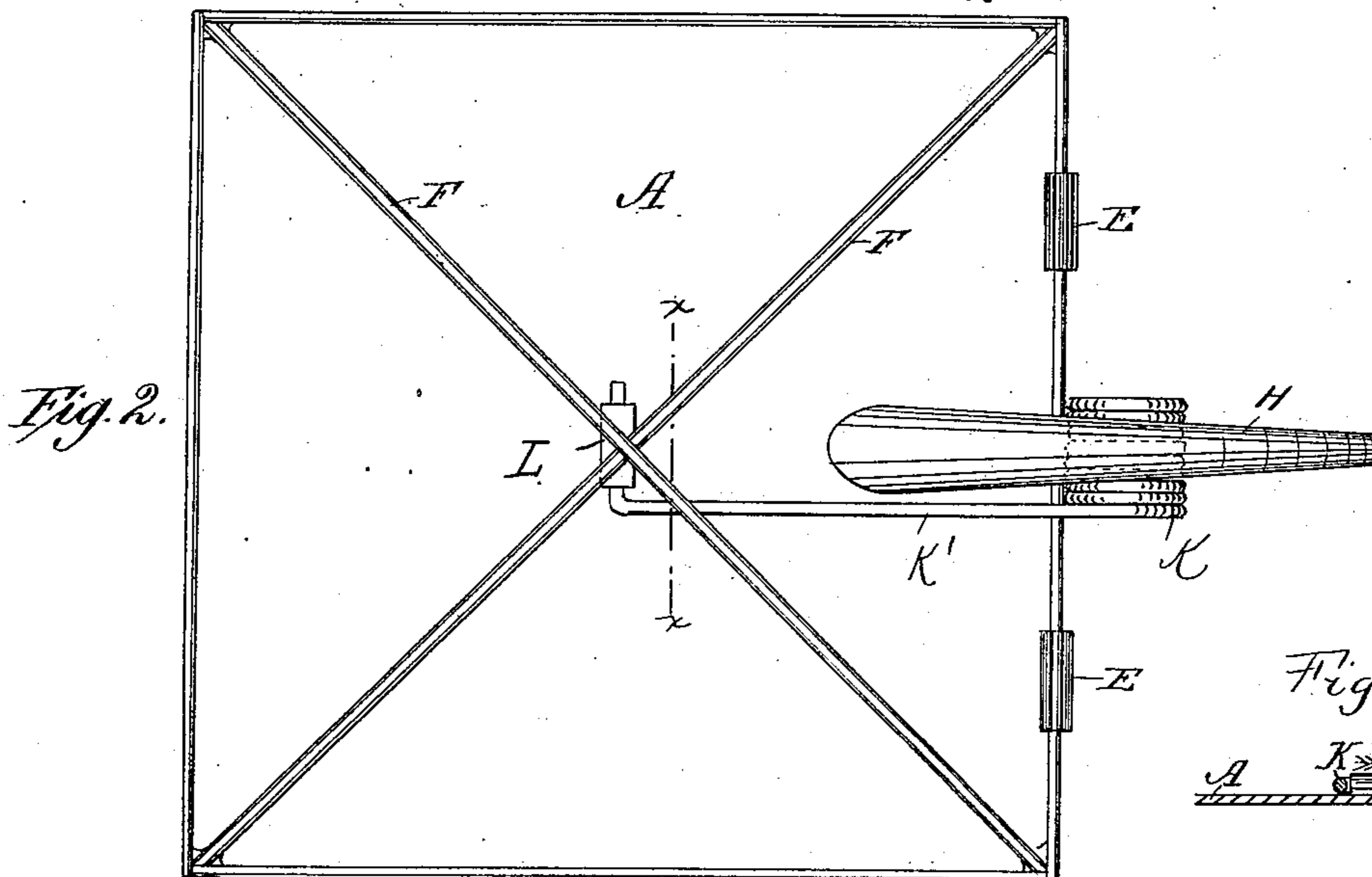
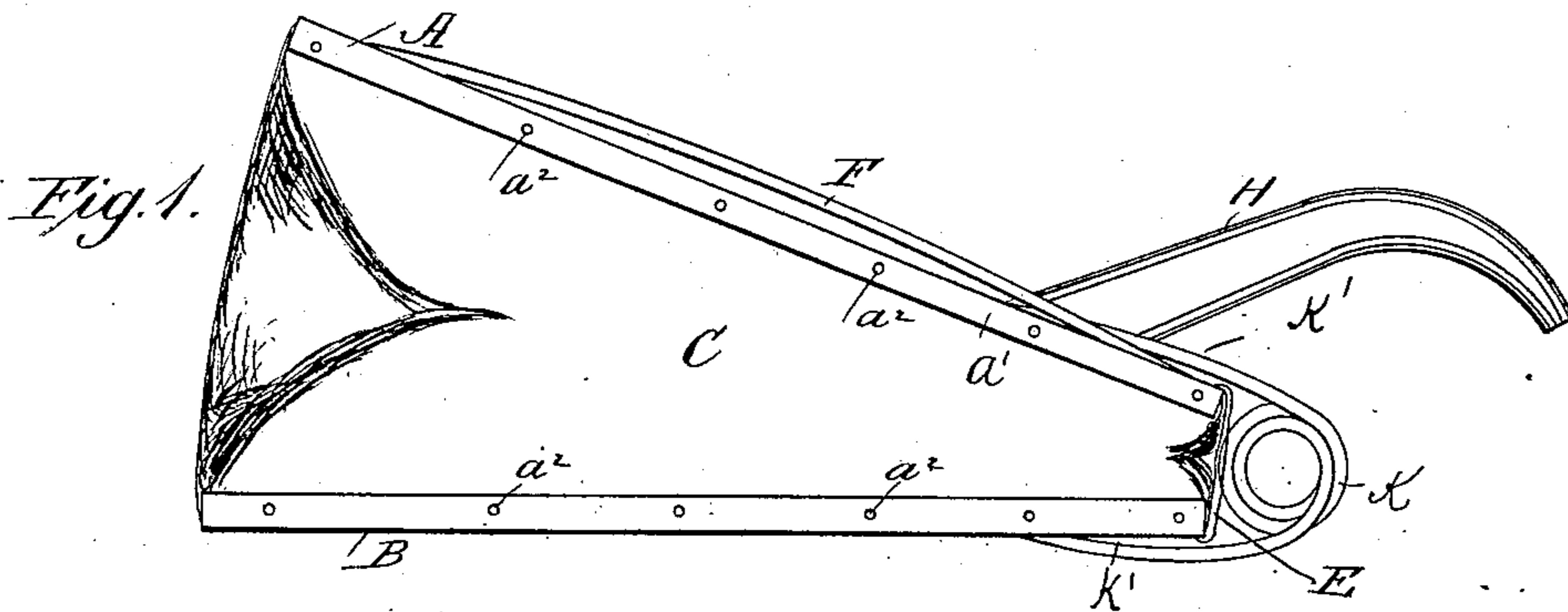
(No Model.)

J. F. WEITZEL.

BELLOWS.

No. 334,319.

Patented Jan. 12, 1886.



WITNESSES:

W. W. Hollingsworth
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UNITED STATES PATENT OFFICE.

JACOB FRED. WEITZEL, OF CINCINNATI, OHIO, ASSIGNOR TO CHARLES F. MUTH, OF SAME PLACE.

BELLOWS.

SPECIFICATION forming part of Letters Patent No. 334,319, dated January 12, 1886.

Application filed September 11, 1885. Serial No. 176,841. (No model.)

To all whom it may concern:

Be it known that I, JACOB F. WEITZEL, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Bellows, of which the following is a description.

This invention is an improvement in bellows intended especially for use in bee-smoking, but which may be used for any of the other purposes to which such devices are applicable.

The invention consists in certain novel constructions and combinations of parts, as will be hereinafter first fully described, and then pointed out in the claims.

In the drawings, Figure 1 is a side view, and Fig. 2 a top plan view, of my bellows. Fig. 3 is a vertical longitudinal section thereof. Fig. 4 is a detached vertical section of the bellows on a line indicated by $x x$ in Figs. 2 and 3.

One object of my invention is to provide a bellows which may be made at a slight initial cost, and which will be serviceable and light.

To this end I seek to avoid the use of separate fastening devices—such as tacks and glue—for securing the bottom plates and flexible bag portions together.

My bellows consists of the top plate, A, the bottom plate, B, and the flexible or bag portion C. These plates, which I call the "main plates," may be of any suitable contour, and in order to give firmness to the structure they are preferably held normally apart by a spring, K, and connected at their forward edges by a plate, D, braced in position by cleats E. These cleats are bent over the edges of the top and bottom main plates and secure the front plate firmly in the ways formed between the edge wings of such main plates, as may be seen. Heretofore these plates A and B have commonly been made of wood and the bag has been tacked or glued to them.

I form my plates of sheet metal and strengthen and brace them by rods F, extending between the diagonally-opposite corners. The brace-rods for the lower plate are located within the bellows and serve as a stop to limit the opening movement of the inlet-valve G.

The discharge-tube H opens into the bellows through a pan-like receiver, I, which in turn communicates with the bellows through an opening, i . This opening is controlled by a check-valve, J, which operates to prevent the suction of dust, &c., into the bellows when the latter is filling. The pan I, it will be noticed, receives any dirt that may be drawn into the tube, and it is discharged by the next operation of the bellows.

In order to secure the bag C, the edges of the sheet-metal plates are crimped into the U shape shown in Fig. 3, forming wings $a a'$, the space between which provides a groove to receive the edges of the bag. In practice the edges of the bag are inserted in such groove, and the wings $a a'$ are pressed firmly together against the bag. This is sometimes sufficient to secure the bag; but it is preferred to indent one or both of the wings, as shown at a^2 , by punch or other suitable device, into the bag, as such construction gives a positive fastening.

It is preferred to connect each pair of brace-rods F at their intersection by solder, or in other suitable manner, as such connection causes each rod to brace the other, as will be manifest.

The top and bottom plates are provided with loops or eyes L L. The spring K has its arms K' extended above and below the bellows, and the extremities of said arms are bent at right angles, forming prongs which project in opposite directions, fitting within the keepers. It is usual to solder or otherwise secure the ends of the spring-arms in the eyes or loops, and by the arrangement of the arms or prongs, if such fastening becomes loose, the tension of the spring will retain it in place and prevent its detachment. Manifestly, where so desired, the solder or other fastening may be dispensed with and the spring be secured solely by its tension.

Heretofore bellows have had their wooden plates lined on their inner sides with sheet metal, and they also have had metal linings on their edges, the inner plates being extended past the edges of the wooden plates and bent back, forming a loop, in which fits a flange on the edge strip of metal, the lateral extension forming a flange, over which the flexible sides of

the bellows pass, the purpose being to provide air and water tight joints by the flexible sides binding against or upon the outer edge of the flange. I do not claim such construction as
5 my invention.

Having thus described my invention, what I claim as new is—

1. A bellows comprising main plates of sheet metal bent at their edges, forming grooves
10 or pockets, and the bag or flexible portion having its edges inserted and held in said pockets, substantially as set forth.

2. In a bellows, and in combination with the main plates having loops or eyes opening
15 laterally, a spring bent, forming arms, the extremities of said arms being provided with prongs extending laterally at right angles to the plane of operation of the spring and in opposite directions, and projected into the

loops or eyes from the opposite sides thereof, 20 whereby such prongs will be held in their respective eyes by a tension of the spring-arms in a plane at right angles to that which operates the bellows, substantially as set forth.

3. The combination, in a bellows, of the top 25 and bottom plates, the front plate, D, and a brace-cleat, E, substantially as set forth.

4. The combination, in a bellows, with the lower main plate and the inlet-valve supported thereon, of the brace-rods for such plate, lo- 30 cated within the bellows and arranged to serve as a stop for the inlet-valve, substantially as set forth.

JACOB FRED. WEITZEL.

Witnesses:

D. SHIELDS,
AUG. J. MUTH.