

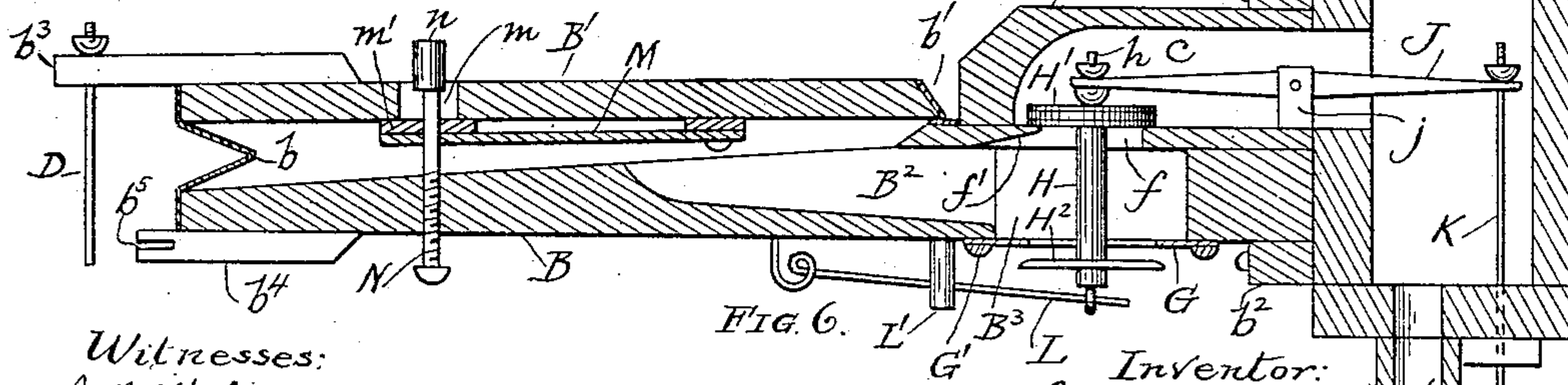
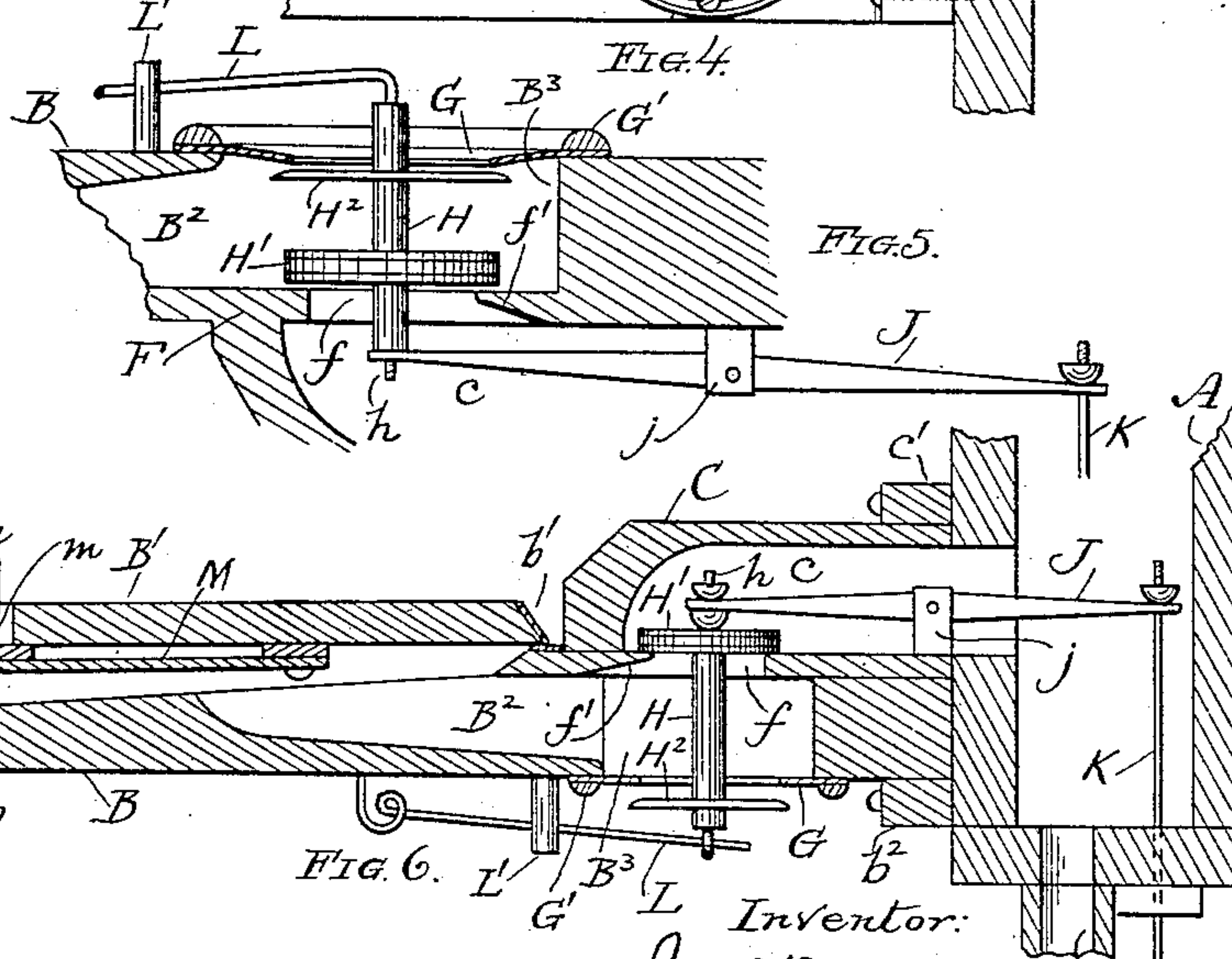
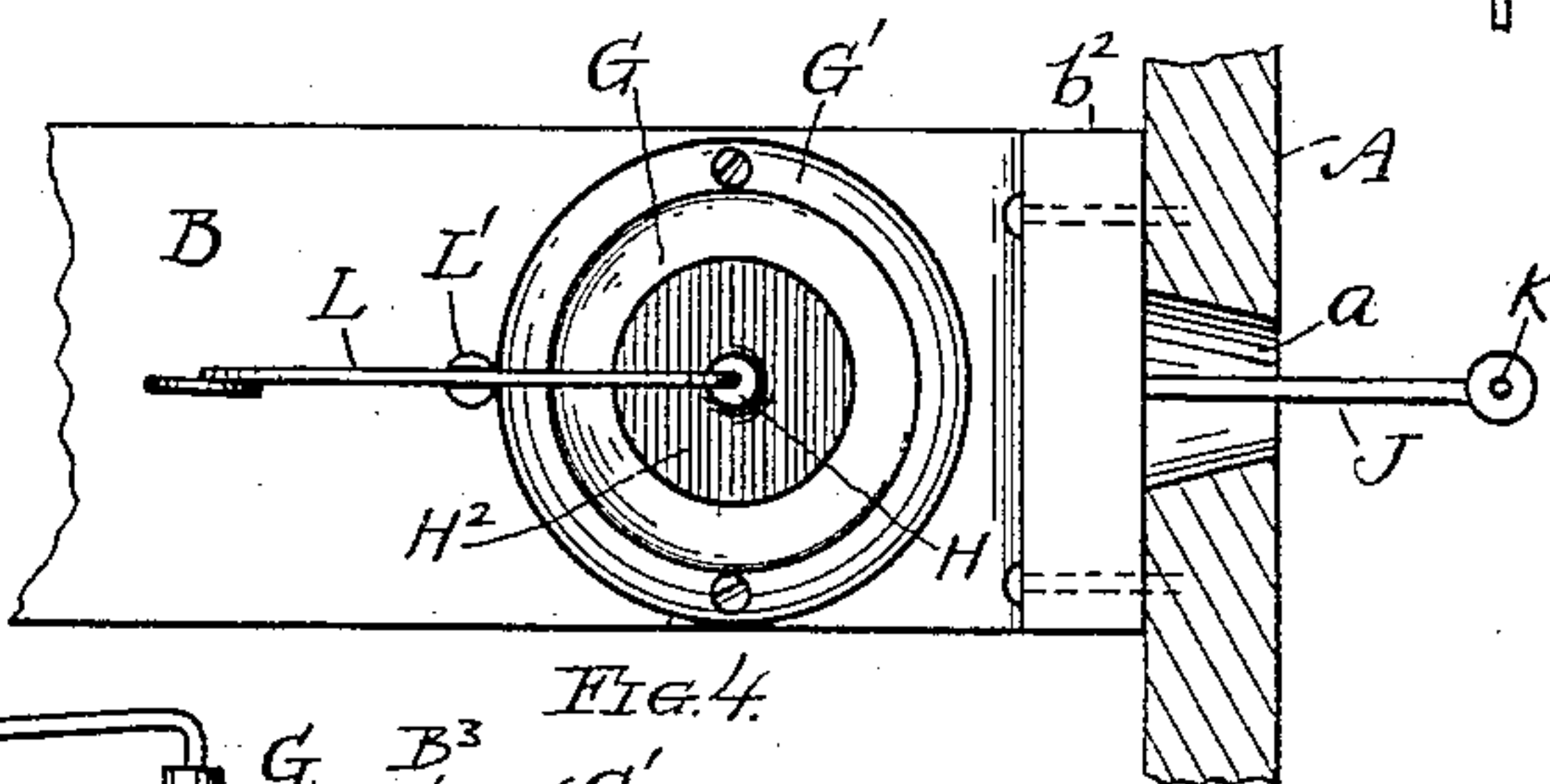
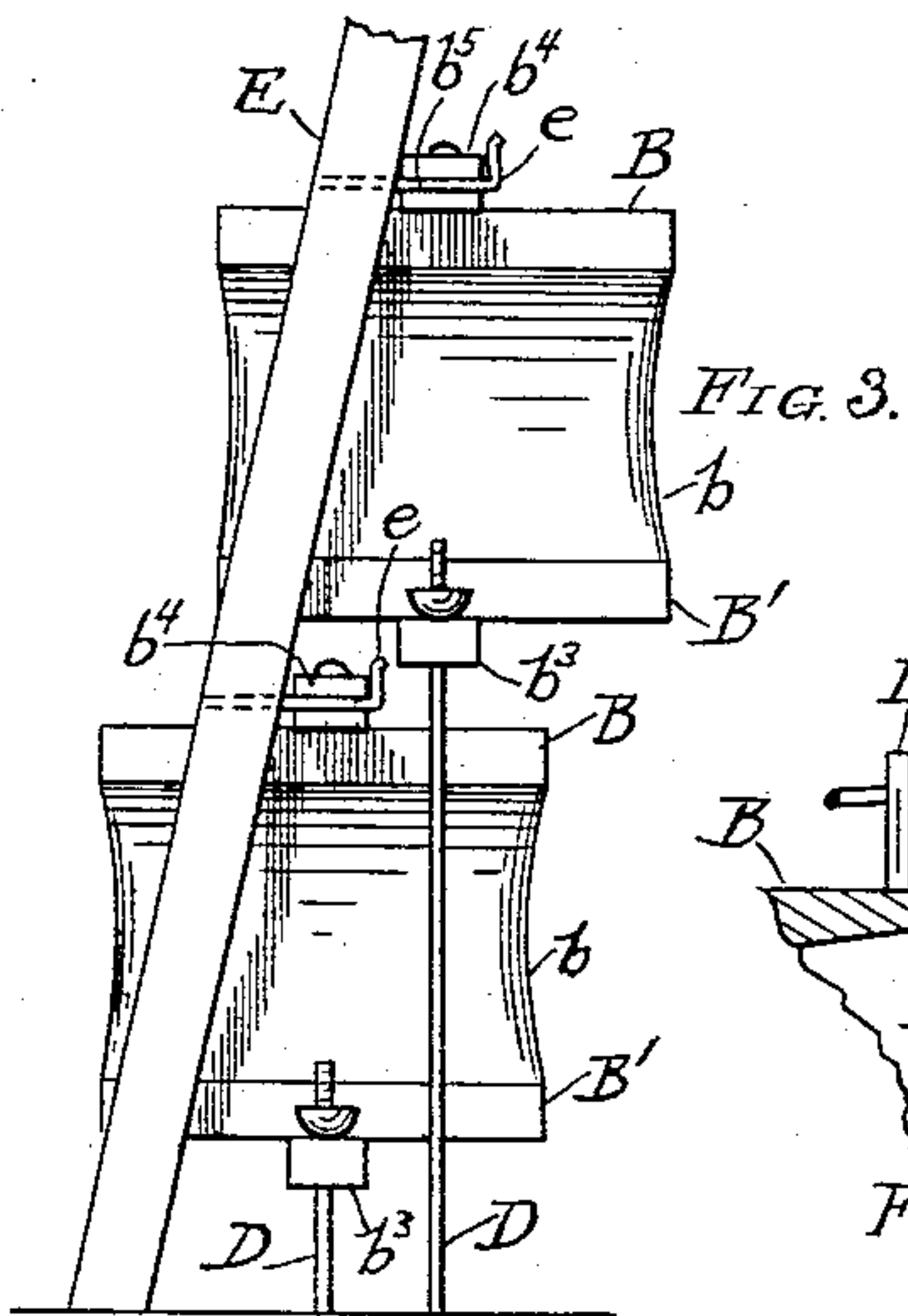
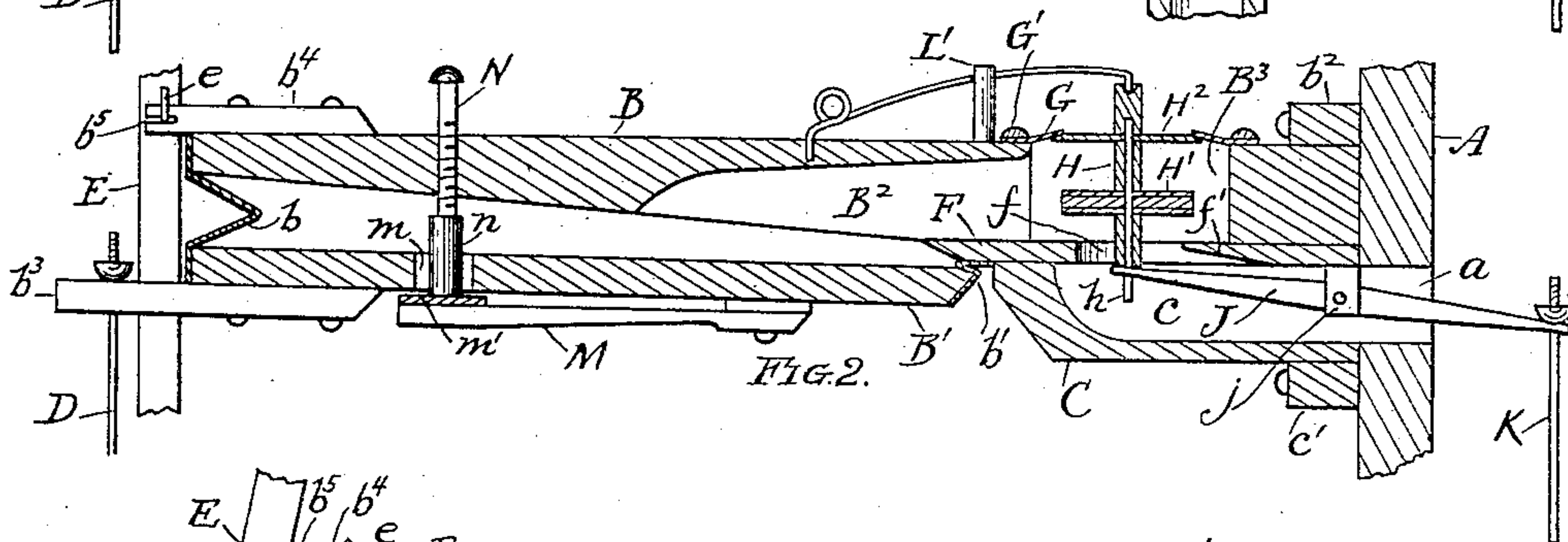
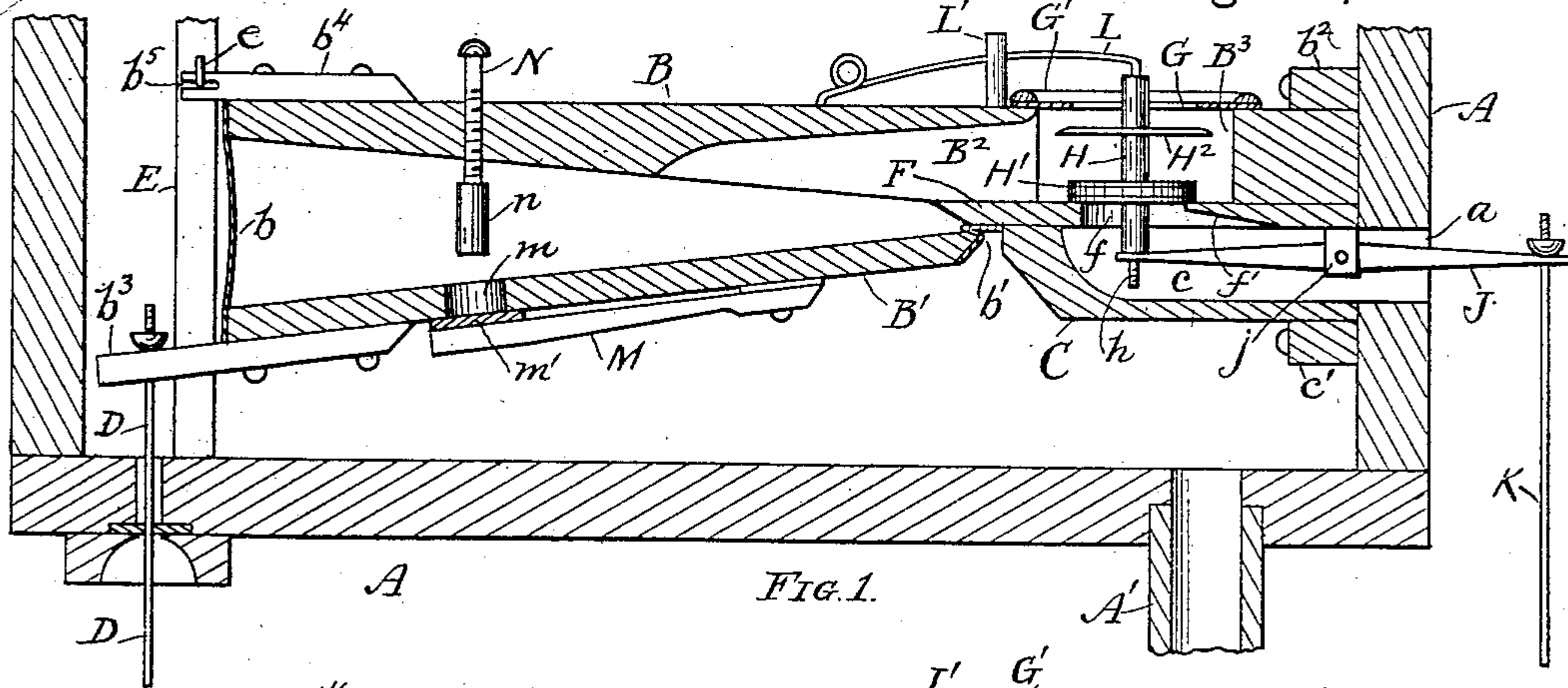
(No Model.)

I. BASSETT.

PNEUMATIC ACTION FOR ORGANS.

No. 387,846.

Patented Aug. 14, 1888.



Witnesses:
J. B. Halpenny.
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Inventor:
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By Bradley & Fletcher,
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UNITED STATES PATENT OFFICE.

IRA BASSETT, OF CHICAGO, ILLINOIS.

PNEUMATIC ACTION FOR ORGANS.

SPECIFICATION forming part of Letters Patent No. 387,846, dated August 14, 1888.

Application filed May 8, 1888. Serial No. 273,264. (No model.)

To all whom it may concern:

Be it known that I, IRA BASSETT, of Chicago, in the county of Cook and State of Illinois, have invented a certain new, useful, and Improved Pneumatic Action for Organs, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a longitudinal vertical sectional view of a portion of an air-box having one of my improved pneumatic bellows therein, which is represented as being in its normal position. Fig. 2 is a like sectional view of said bellows as the same appears when collapsed. Fig. 3 is a rear end view of the bellows, showing the means of supporting the same from the rear. Fig. 4 is a plan view, in detail, of the front end of said bellows, showing the front side of the air-box in section with the escape-port therein. Fig. 5 is a vertical sectional view, in detail, of a portion of said bellows, showing the valve as it appears when partially raised from its seat; and Fig. 6 is a longitudinal sectional view of a modified or inflation form of bellows.

Like letters of reference in the different figures designate like parts.

The object of my invention is to provide a pneumatic action for organs which shall be simple, durable, and compact in its construction, while it is noiseless and rapid in its operation, and which may be easily removed or taken apart for repairs.

To this end my invention consists in the arrangement and combination of elements, as hereinafter more particularly described, and definitely pointed out in the claims.

Referring to the drawings, A, Fig. 1, represents the air-box of my improved pneumatic action, while A' is the wind-trunk leading thereto from the main bellows.

B B', with the leather folds *b* glued thereto in the usual way, constitute the pneumatic bellows, the part B' being hinged at *b'*. Rigidly secured to the heel of the bellows is an offset, C, having a channel, *c*, formed therein, which coincides with an opening, *a*, in the front side of the air-box. To the parts B and C, respectively, are glued blocks *b² c'*, which are in turn rigidly secured, preferably, to the interior of the box A by means of screws. The bellows are placed one above the other in

planes inclined slightly from the perpendicular, as shown in Fig. 3, so as to permit of the adjustment of the trackers D D, which are connected, respectively, with the valves in the organ wind-chest and with the parts B' of the bellows by means of projecting arms *b³*, rigidly attached thereto. To the parts B are also rigidly secured blocks *b⁴*, which project slightly beyond the ends of the parts B and are provided with notches *b⁵*.

In the rear of each tier of bellows is placed a rigid bar, E, which is removably attached to the air-box, and in turn secured to the blocks *b⁴* by means of "dags" *e*, which project laterally therefrom, and are inserted within the notches *b⁵*, so that the rear end of the bellows, upon which the strain of the tracker is exerted, is rigidly and firmly supported by means of supports, which, it is obvious, may be readily removed in case it is necessary to repair the bellows. Between the parts B and C is formed a partition, F, having an opening, *f*, formed therein, which communicates with a channel, B², in the part B. A circular opening, B³, is also formed in the part B, which is partially covered by means of an annular diaphragm, G, of leather or other flexible material, which is removably secured above the opening B³ by means of a ring, G', of metal or other suitable material.

H is a valve-stem, from one end of which projects a wire, *h*, which passes through the end of a lever, J, which is pivoted to a stud, *j*. A tracker, K, serves to connect said lever with the organ-key in the usual way. A spring, L, operating in a slot formed in a post, L', for the purpose of preventing lateral movement, is connected with the opposite end of said valve-stem, preferably in the manner shown in Fig. 2. Said valve-stem is thus retained in a central position with relation to the openings B³ *f*. Upon said valve-stem are mounted valves H' H², the former of which is faced with leather in the usual way, and is normally held to its seat over the openings *f* by means of the spring L, and is unseated by means of a pressure upon the organ-key which operates the lever J.

To prevent the bellows from making a clapping noise when actuated, I form an opening, *m*, in the part B', which is covered by means of a piece of leather or felt, *m'*, which is nor-

mally retained against the opening by means of a spring, M, rigidly attached to said part B'. A set-screw, N, having a wooden block, *n*, upon its end, is secured in the part B opposite the opening *m*, so that the block *n* may be brought into contact with the end of the spring M when the latter is brought forward in its movement, and thus open the valve. The position of said block may be adjusted at will by means of said screw.

To prevent the puffing noise so common in pneumatics, which results from the escape of air through the eduction-channel upon the depression of a key, I taper the opening *a* in the manner shown in Fig. 4, so that it is smaller at the outside. This permits the air to escape without noise.

The operation of said pneumatic is as follows: The air in the wind-chest A being constantly under pressure and the valve H² being normally open the pressure is the same within as without the bellows, and it is normally distended, as shown in Fig. 1. Upon depressing a key the valve H' is unseated, and the air from the bellows, which is being compressed, flows out through the channel *c*. At the same time the pressure within the air-box depresses the diaphragm G to meet the valve H², as shown in Fig. 5. This action of the diaphragm greatly increases the rapidity with which the bellows may be operated. As the bellows is collapsed, the block *n* is brought into contact with the spring M, which uncovers and admits the air through the opening *m*. This forms an air-cushion, which prevents a total collapse of the bellows and renders the action noiseless. The opening *f* is cut away at *f'* to afford a more direct passage of air, and, as the thin disk forming the valve H² offers but little obstruction to the entrance of air when the valve is unseated, the rapidity of the action greatly exceeds that of the devices heretofore in use for a like purpose.

In Fig. 6 I have shown an inflation pneumatic constructed upon a like principle. In that case the conditions are simply reversed. The bellows are inverted and placed outside of the air-box A, the openings *f* and B³ are between the valves H' H², the air enters the channel *c* and exhausts through the opening B³, and the spring M is within the bellows, while the block *n* is without.

Among others my improved pneumatic presents the advantages of being readily and easily removed from the air box and of being firmly supported therein while in use. Upon removing the screws which hold the ring G' the diaphragm G and valves may be taken out without injury to any of the parts.

The construction of my pneumatic and the means shown for sustaining the valves therein enable them to be placed very compactly and to occupy less space than similar devices heretofore constructed.

Having thus described my invention, I claim—

1. The combination, with the valve H², of the flexible diaphragm G and means, as the ring G', for removably securing the same in place, substantially as shown and described.

2. The combination, with the opening *f* and diaphragm G, of the double valves H' H², spring L, and slotted post L', substantially as shown and described.

3. In a pneumatic action for organs, the combination, with the chamber *c*, of the outlet *a*, the width of which is gradually decreased in a regular taper from the width of said chamber until the end of the outlet is reached, whereby the air may be noiselessly expelled, substantially as shown and described.

4. The combination, with a pneumatic bellows, of the opening *m*, valve *m'*, spring M, set-screw N, and block *n*, whereby the extent to which the bellows is permitted to collapse may be regulated and adjusted to meet the requirements of the valves in the main wind-chest and air may be admitted to the bellows to serve as an air-cushion until the valve *m'* is closed, substantially as shown and described.

5. The combination, with a series of pneumatic bellows, of the blocks *b*⁴, attached rigidly to said bellows, notches *b*⁵, bars E, and dags *e*, substantially as shown and described.

In testimony whereof I have signed this specification, in the presence of two subscribing witnesses, this 4th day of May, 1888.

IRA BASSETT.

Witnesses:

D. H. FLETCHER,
J. B. HALPENNY.