(No Model.)

R. W. PAIN & W. B. TREMAINE.

PNEUMATIC MOTOR FOR ORGANS.

No. 356,421. Patented Jan. 18, 1887.

Fig. 1.

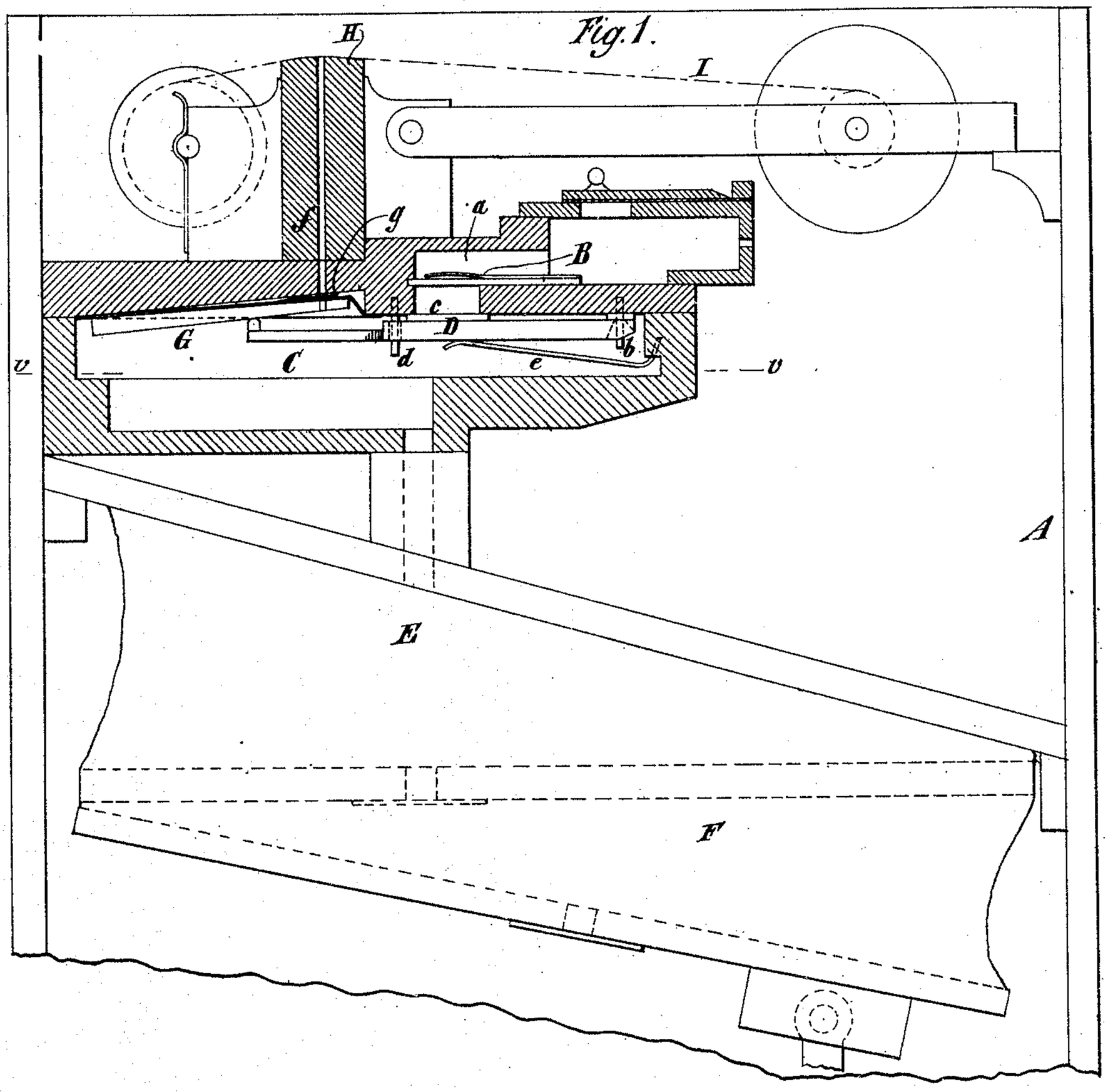


Fig. 2.

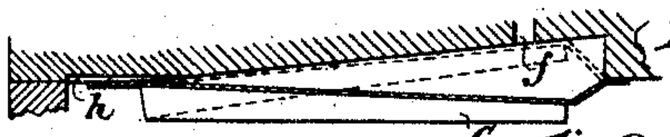
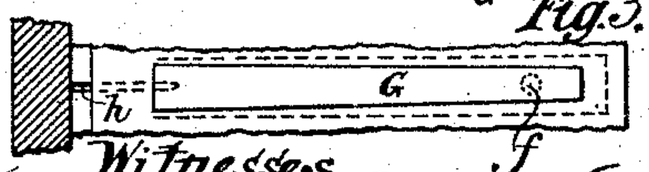


Fig. 3.



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UNITED STATES PATENT OFFICE.

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PNEUMATIC MOTOR FOR ORGANS.

SPECIFICATION forming part of Letters Patent No. 356,421, dated January 18, 1887.

Application filed July 24, 1884. Serial No. 138,619. (No model.)

To all whom it may concern:

Be it known that we, ROBERT W. PAIN and WILLIAM B. TREMAINE, both of New York, in the county and State of New York, have invented a certain new and useful Improvement in Pneumatic Motors for Organs, of which the following is a specification.

Our improvement relates particularly to pneumatic motors which are used in mechanical musical instruments under control of a traveling music sheet, card, or tablet for causing the operation of the sound-producing devices.

The object of our improvement is, primarily, to produce a pneumatic motor which, while it will be simple and effective, shall not occupy much space in the direction of the length of the musical instrument in which it is used.

We will describe a musical instrument embodying our improvement, and then point out its various features in a claim.

In the accompanying drawings, Figure 1 is a transverse vertical section of a mechanical musical instrument embodying our improvement. Figs. 2 and 3 are detail views showing more clearly certain features.

Similar letters of reference designate corresponding parts in all the figures.

Referring first to Fig. 1, A designates the case of the instrument. It may be of any suitable construction.

B designates one of a series of sound-producing devices, consisting of reeds arranged in cells *a*. The cells *a* communicate with a wind-chest, C, under control of valves D. The wind-chest communicates with an equalizer, E, with which are combined bellows F. The bellows F may be of any suitable construction. As here shown, the bellows are suction-bellows. The equalizer E is, as usual, of bellows-like construction. The valves D of the reed-cells are arranged in the wind-chest C. Each valve consists of a lever, which may be made of wood or analogous material, provided with a face of sheepskin or like substance, *c*, and fulcrumed near one end to a pin, *b*. It is preferably guided in its movements by a pin, *d*, extending through it. A spring, *e*, holds it normally in position to cut off communication between the reed-cell and the wind-chest. Each valve D extends over a pneumatic motor, G, arranged in line with it in the wind-chest.

The pneumatic motor consists of a strip of wood or like material fastened by a flexible material to the upper wall of the wind-chest. At one end the strip of wood of the motor is fastened close to the wind-chest.

The motor is similar to an ordinary organ-bellows, only very much smaller. Its strip of wood swings on one end, and hence is similar to a lever fulcrumed at one end. The valve D extends well over the strip of wood comprised in the motor. The motor in operating to open it has, therefore, a very favorable leverage.

From the pneumatic motors G ducts *f* extend to the apex of a rest, H. A perforated music-sheet, I, travels over this rest H and controls the passage of air to the interior of the motors. An opening, *h*, is provided, through which air within the motor may pass out. This opening *h* is located at that end of the strip of wood of the motor at which it swings, as shown more clearly in Figs. 2 and 3. When air is admitted through the duct *f*, leading to the motor, the motor will expand and operate the contiguous valve D. After air is cut off from the duct by the music-sheet the air within the motor escapes through the opening *h*, and the valve D, moving under an impetus from its spring *c*, collapses the motor, and thereby closes the opening *h*.

What we claim as our invention, and desire to secure by Letters Patent, is—

The combination of a reed-cell, a valve for closing the opening to said reed-cell, a pneumatic motor for operating said valve, an opening at the hinged end of said motor through which air confined thereby can escape, and a music-sheet for controlling the operations of the motor, substantially as described.

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Witnesses:
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