H. L. PIERCE.

REED-ORGAN TREMOLOS.

No. 181,472. Patented Aug. 22, 1876.

Fig: 1.

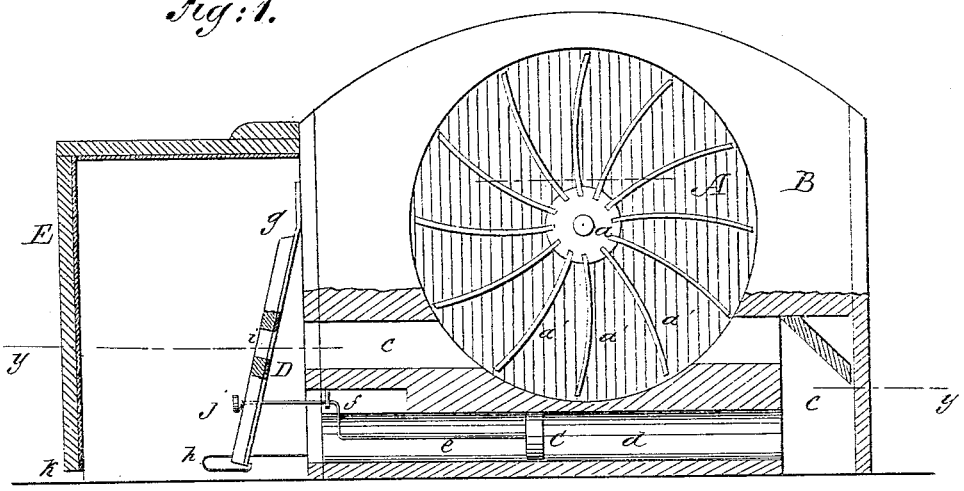


Fig: 2.

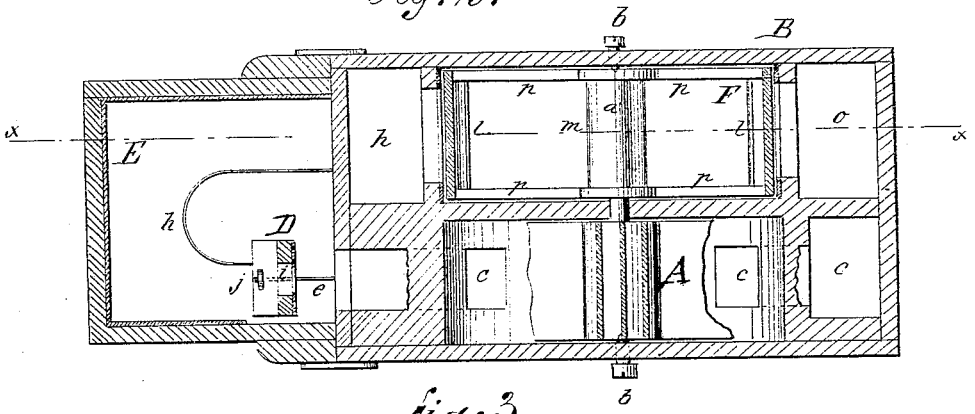
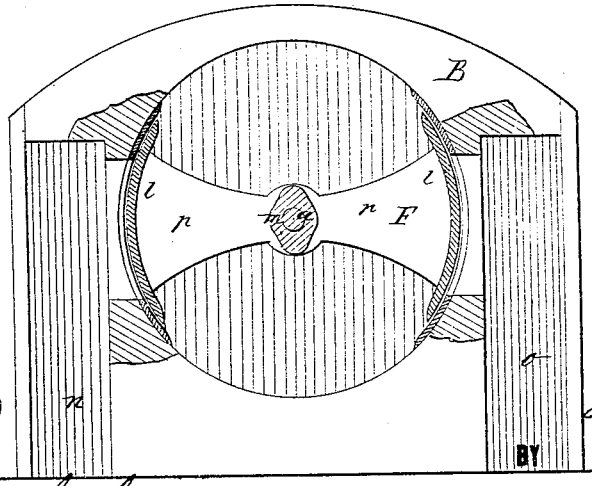


Fig: 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

HENRY L. PIERCE, OF EASTON, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND SAMUEL TRUMBORE, OF SAME PLACE.

IMPROVEMENT IN REED-ORGAN TREMOLOS.

Specification forming part of Letters Patent No. **181,472**, dated August 22, 1876; application filed June 20, 1876.

To all whom it may concern:

Be it known that I, HENRY L. PIERCE, of Easton, in the county of Northampton and State of Pennsylvania, have invented a new and Improved Cut-Off Tremolo for Reed-Organs, of which the following is a specification:

Figure 1 is a vertical section, taken on the line *x x* in Fig. 2. Fig. 2 is a horizontal section on line *y y* in Fig. 1. Fig. 3 is a vertical section through the cut-off wheel.

Similar letters of reference indicate corresponding parts.

The first part of my invention consists in an arrangement of a propelling-wheel having curved blades, and a governor consisting of a piston attached to a valve in such a way that the pressure of air acting on the piston controls the jet of air which propels the wheel.

The second part of my invention consists in a cut-off of peculiar construction, which is rotated by the propelling-wheel.

A is a wheel, the vanes or wings of which are curved so as to present a concave surface to the propelling-current. This wheel is placed on a shaft, *a*, which extends from one side of the casing to the other, and turns on pointed screws *b b*. B is a casing, which surrounds the wheel A, and is provided with the air-passage *c* and the cylindrical passage *d*. C is a piston, which is placed in the passage *d*, and is provided with the rod *e*, which is guided at its outer end by the eye *f*. D is a valve, hinged at *g*, and provided with the spring *h*, which holds it open. *i* is an aperture made in the valve, so that when it goes to its seat the passage *c* will not be entirely closed. The piston-rod *e* passes through the valve D, and is provided with a button or head, *j*, which carries the valve to its seat when the piston moves. E is a casing, which is placed over the valve D, and is lined with cloth, or other fibrous material, to deaden the sound of the air rushing through the valve. The air for propelling the wheel A passes through the opening *k*, and under and through the valve D, and through the passage *d*, into the bellows, turning the wheel A in its course. A small portion of air also passes through the passage *d*, around the piston C, and as the vacuum behind the piston is more or less perfect, the external air presses with greater or less force on the piston, thus closing the valve D, or allowing it to open, as occasion requires, keeping a uniform speed on the wheels.

The vacuum in the organ-bellows is more or less perfect, according as more or less exertion is made on the pedals or "blowing-lever," or as more or less of the keys are opened. Under these circumstances the piston C acts as a governor, maintaining a uniform rate of speed.

The cut-off F is attached to the shaft *a*, but it is located in a compartment in the casing B, which is entirely separate from that occupied by the wheel A. The cut-off F consists of staves or sections of a cylinder, *l*, which are attached to arms *p*, fixed to a hub, *m*. *n* is a passage, which leads from the air-chamber under the reed-board, and *o* is a passage, which leads to the bellows. The part of the cut-off chamber which is near the air-passage is lined with chamois-skin, to deaden the sound caused by constantly breaking the current of air.

When the tremolo attachment is in use the entire current of air which goes into the bellows may be allowed to pass through it, or by an arrangement of stops the tremolo may be made to affect certain portions of the reeds. The cut-off revolves with the wheel A, and breaks the current of air twice at every revolution.

The advantages claimed for my invention are that the governor maintains a uniform rate of speed whether the air passes into the bellows with greater or less force. The curved vanes in the propelling-wheel insure a positive and uniform action. The cut-off by stopping the ingoing current of air at small intervals produces the tremulous effect which is so necessary to the compiete rendering of certain kinds of music.

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

1. In a tremolo for reed-organs, a valve and

piston connected by a rod, the piston being operated by atmospheric pressure in such a way as to control the supply of air admitted to the propelling-wheel by operating the said valve, as shown and described.

2. A cut-off, F, consisting of staves or sections of a cylinder, *l*, arranged at the ends of arms *p*, and provided with the casing B and the passages *n* and *o*, substantially as shown and described.

3. The combination of the wheel A, having the curved vanes *a'*, the casing B, having the passage *c*, the piston C, and the valve D, substantially as shown and described.

4. The combination of the piston C, valve D, spring *h*, opening *i*, and passage *c*, as specified.

HENRY LOUIS PIERCE.

Witnesses:
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CHAS. NIAR.