J. H. POTTER.

Tremolo-Attachment for Organs.

No. 203,932. Patented May 21, 1878.

Fig: 1.

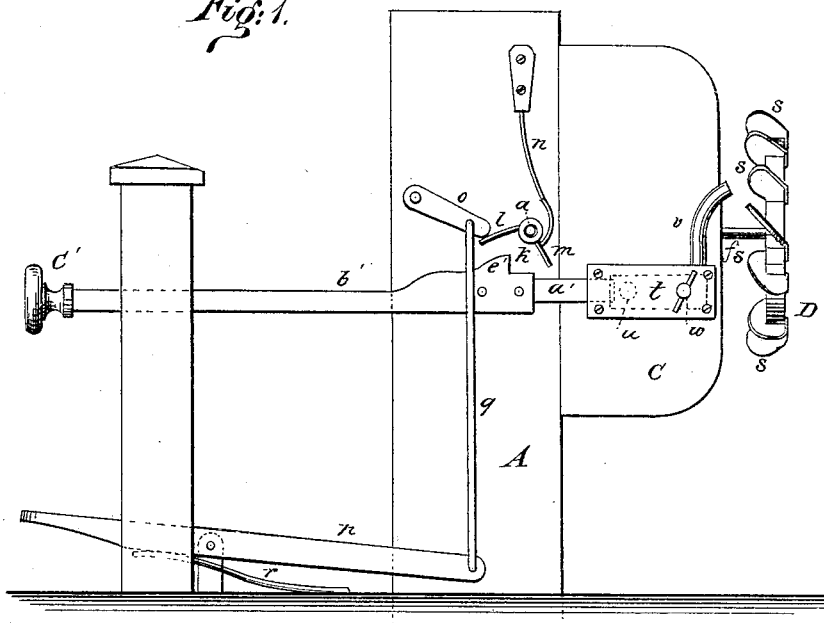


Fig: 2.

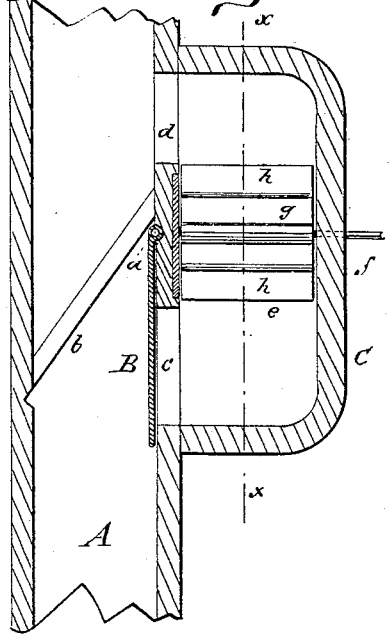


Fig: 3.

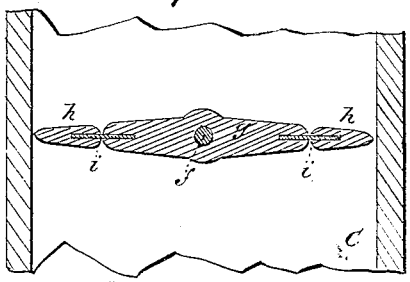
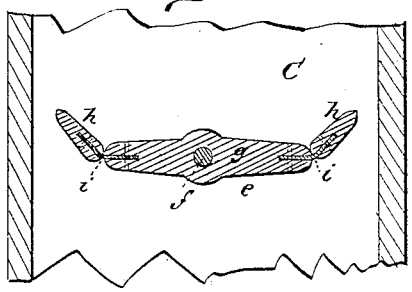


Fig: 4.



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IMPROVEMENT IN TREMOLO ATTACHMENTS FOR ORGANS.

Specification forming part of Letters Patent No. **203,932,** dated May 21, 1878; application filed January 29, 1878.

To all whom it may concern:

Be it known that I, J. HENRY POTTER, of East Bridgewater, in the county of Plymouth and State of Massachusetts, have invented a new and Improved Tremolo for Organs, of which the following is a specification:

Figure 1 is a side elevation of my improved tremolo. Fig. 2 is a vertical section of the wind-trunk and branch containing the tremolo-valve. Figs. 3 and 4 are sectional views of the tremolo-valve, taken on line *x x* in Fig. 2.

Similar letters of reference indicate corresponding parts.

My invention relates to tremolos for pipe or reed organs; and it consists in a rotary valve placed in a chest connected with the main wind-trunk, and driven by a wind-wheel placed outside of the chest, and supplied with wind from the trunk.

It also consists in the arrangement of a regulating-valve for controlling the amount of wind supplied to the wind-wheel, and in a novel device whereby the effect of the tremolo may be delicately shaded, so as to produce, with waves of the same length, a slight waver in tone, or the fullest and strongest effect, according to the requirements of the music to be rendered.

Referring to the drawing, A is the wind-trunk of an ordinary pipe-organ. This trunk supplies wind to the several ranks of pipes or reeds, and is provided with a valve, B, which is attached to a rod, *a*, which passes through opposite sides of the trunk, and forms the pivot on which the valve turns. This valve is fitted to a seat, *b*, arranged diagonally across the trunk. Below the pivot of the valve there is an opening, *c*, in the side of the trunk. Above the rod *a* and the valve-seat *b* there is an opening, *d*, which is of substantially the same size as the opening *c*. A chest, C, which has one open side, and is of the same width as the trunk A, is attached to the trunk by a suitable fastening, so as to cover the openings *c d*. In the chest a valve, *e*, is supported on the arbor *f*. This valve consists of a flat center-piece, *g*, having movable wings *h*. There are slits in opposite edges of the piece *g* for receiving strips *i* of rubber or other elastic material. The projecting edges of these strips are received by slits in the wings *h*. The adjoining edges of the central portion and wings are rounded to permit of a free movement of the wings. The valve *e*, when in a horizontal position, accurately fills the chest, but is capable of rotating therein. Twice during each revolution the valve *e* completely closes the chest, so that, should the valve B be closed and all of the wind compelled to pass through the chest C, a break would be made in the current, which would effect all of the pipes supplied by the trunk A and produce a wavering tremulous effect.

If the valve *g* were made in a single solid piece, the break would be too abrupt and displeasing; but with the movable wings the harsh effect is avoided, as a portion of the wind is permitted to pass, by the yielding of the wings, to the wind-pressure, and thus a continuous tone is preserved, together with the undulating effect.

Upon the end of the arbor *a* a boss, *k*, is placed, from which two arms, *l m*, project. One end of the spring *n*, which is attached to the trunk, presses against the arm *m*, and tends to close the valve B. A lever, *o*, is pivoted to the side of the trunk, and rests upon the arm *l*. This lever is connected with a pedal, *p*, by a rod, *q*, which is actuated by a spring, *r*, so as to press the arm *o* downward with sufficient force to overcome the spring *n* and open the valve B.

The arbor *f* projects through the chest to receive a wind-wheel, D, which is provided with inclined vanes *s*. Upon the side of the chest there is a conduit, *t*, which takes wind through the aperture *u* from the chest C, and is provided with a curved nozzle, *v*, which directs the wind against the vanes of the wheel D. The conduit *t* is provided with a valve, *w*, by which the amount of wind passing through the nozzle may be controlled and the velocity of the wheel D regulated.

A stop-valve, *a'*, which slides over the aperture *u* and stops the wind supplied to the wheel D, is attached to the stop-rod *b'*, which extends through the front of the organ, and is provided with the usual stop handle or knob C'. There is a shoulder, *e'*, on the rod *b'*, that is capable of engaging the arm *m*, so as to hold the valve B open when the stop-rod *b'* is pushed in.

The operation of my improved tremolo is as follows: The valve *w* being adjusted so as to supply to the wheel D the amount of wind necessary to produce the required velocity in the wheel, the tremolo-stop is pulled, opening the aperture *u* and releasing the arm *m*. As the aperture *u* is opened wind escapes through the conduit *t*, and is directed against the vanes of the wheel D by the nozzle *v*. The wheel D and the valve *e* rotate; but the effect of the tremolo is not realized until the trunk A is wholly or partly closed by the valve B, so that part or all of the wind will pass through the chest C. If the said valve be wholly closed, the full effect of the tremolo will be secured, and if it be only partly closed the effect is less audible.

It will thus be seen that any desired effect may be had, varying from the fullest effect of the tremolo to the faintest perceptible undulation, and finally disappearing in the plain tone of the pipe or pipes.

As previously observed, the tremolo-stop may be drawn without affecting the tone of the organ, or the stop may be left in, when the pedal *p* may be moved without producing the tremolo effect.

By this arrangement the swell and tremolo may be operated by the same pedal, and the swell effect will be produced in the tremolo as well as in the general tone of the organ.

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

1. A tremolo-valve, *e*, having movable wings *h*, substantially as and for the purpose specified.

2. An organ provided with rotary valves having wings that impart an undulating or tremolo effect to the tone, as described.

3. The combination of the diagonal valve B in the wind-trunk and the pedal, for the purpose of regulating the tremolo effect, as set forth.

4. The stop-bar *b'*, having the shoulder *e'*, in combination with the arm *m* on the valve-rod *a*, combined with the valve B, substantially as shown and described.

5. The combination of the spring-acted pedal *p*, rod *q*, and lever *o* with the valve-lever *l*, substantially as and for the purpose specified.

J. HENRY POTTER.

Witnesses:
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