

A. HITCHCOCK.

Motors for Tremolos of Reed Organs.

No. 149,398.

Patented April 7, 1874.

Fig. 1.

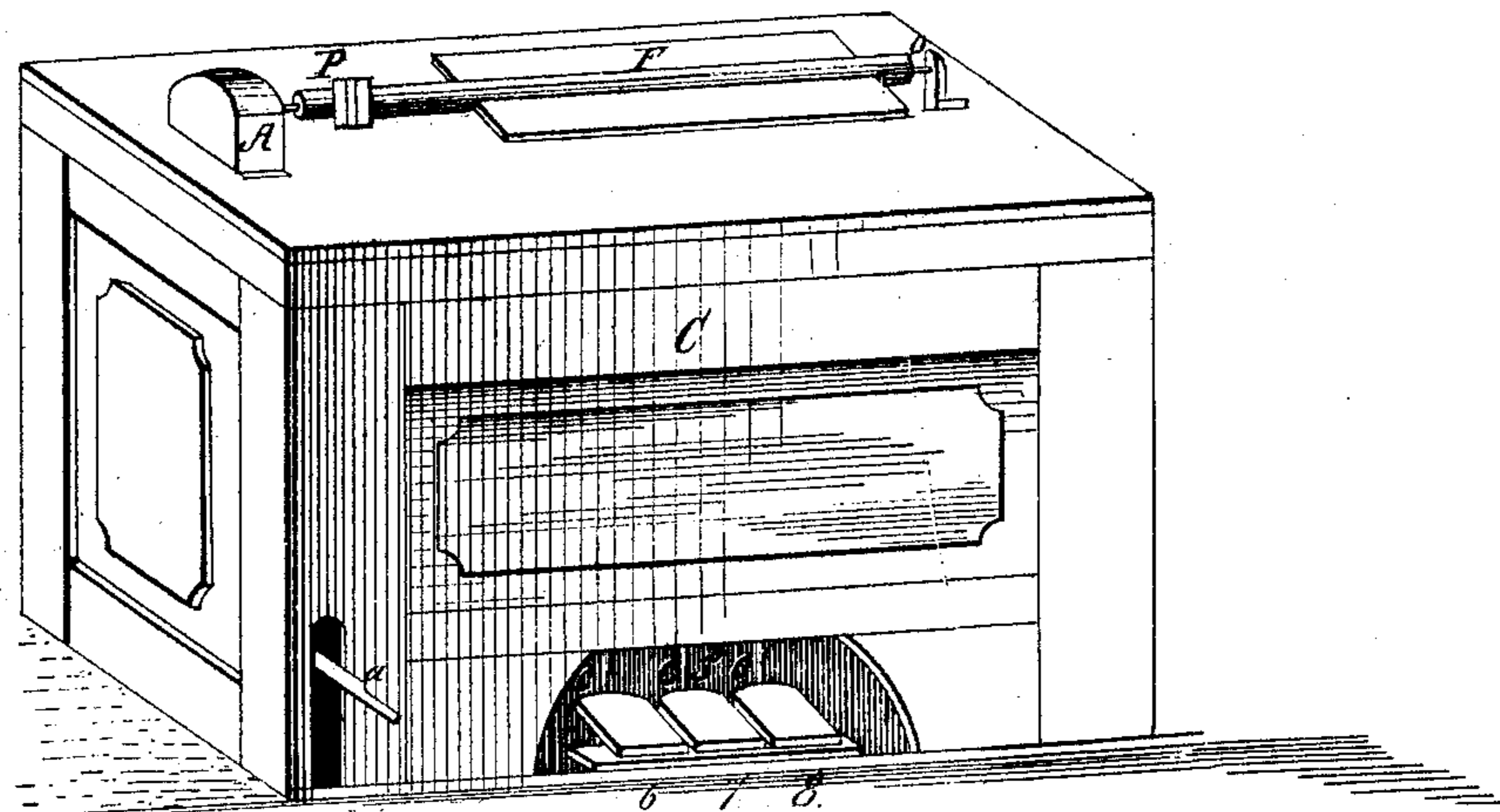


Fig. 2.

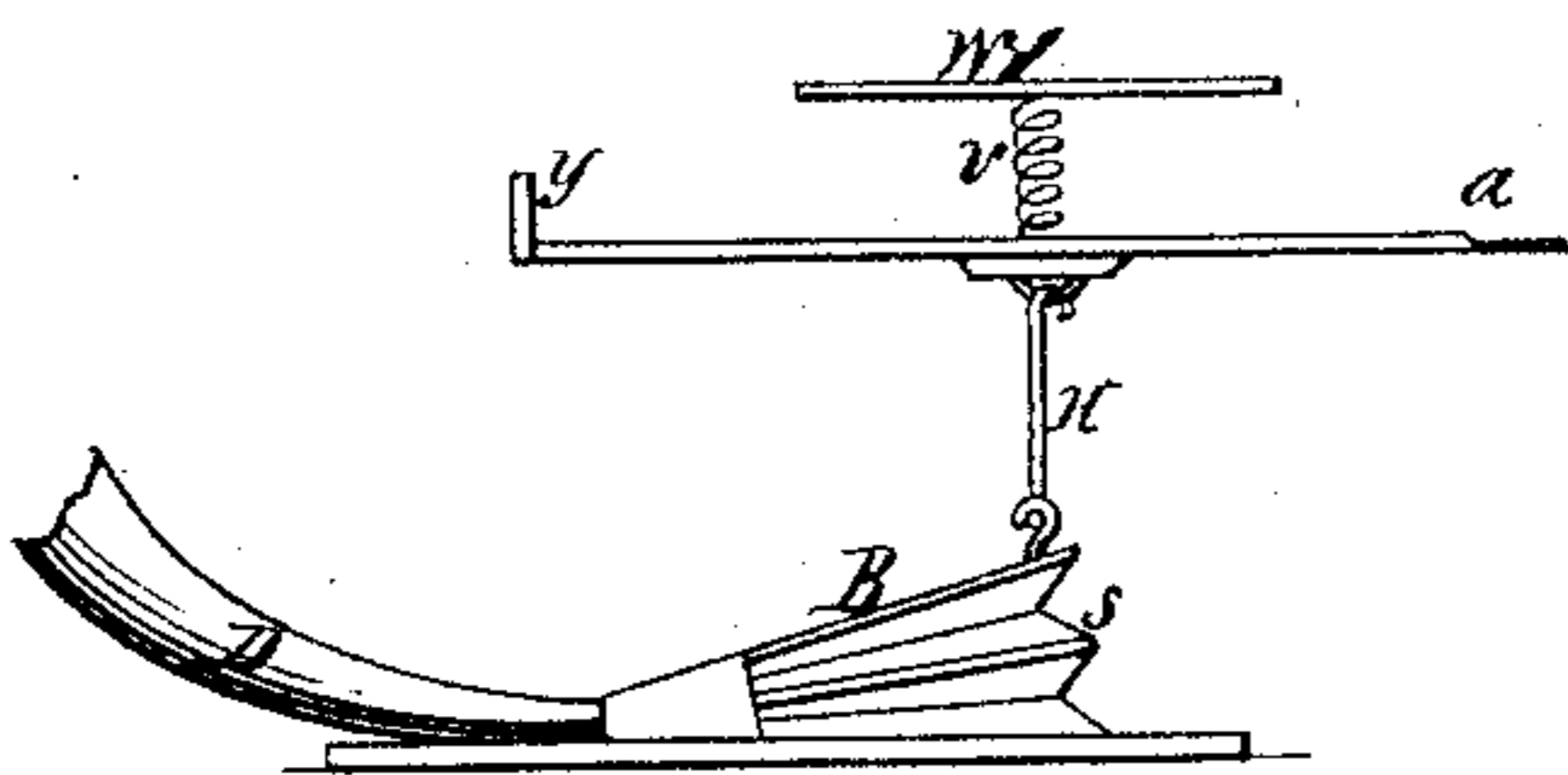
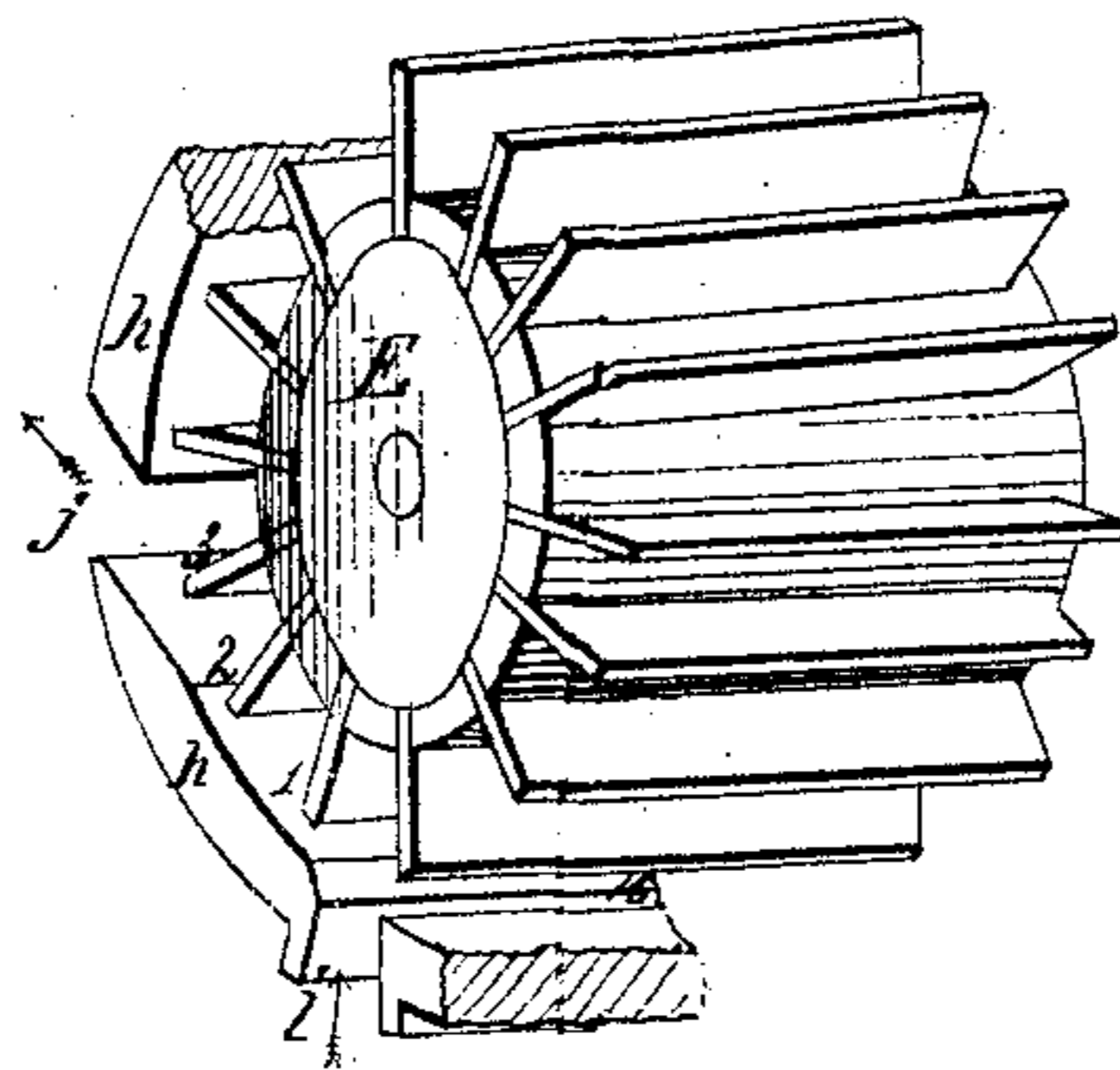


Fig. 3.



Witnesses.

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ALONZO HITCHCOCK, OF NEW YORK, N. Y.

IMPROVEMENT IN MOTORS FOR TREMOLO OF REED-ORGANS.

Specification forming part of Letters Patent No. **149,398**, dated April 7, 1874; application filed March 26, 1873.

To all whom it may concern:

Be it known that I, ALONZO HITCHCOCK, of New York, N. Y., have invented a Wind-Motor for Musical Instruments, of which the following is a specification:

The nature of my invention is to drive a fan in a reed-organ or melodeon to produce a tremolo, in which the exhaust power of a bellows is used to produce the musical notes, the motive power to drive the fan in said musical instrument being an auxiliary blast or pressure bellows.

In nearly all of the musical instruments commonly known as the melodeon, cabinet-organ, or parlor-organ the reeds are made to vibrate by the action of an exhaust-bellows in connection with the instrument.

Late improvements have made it almost a necessity to use a fan, as an auxiliary to such instruments, to produce what is known in the trade as a tremolo. This fan has to be operated by some mechanical means, which is now done by mechanical gearing, or by operating an independent wind-wheel, said wheel to be driven by the exhaust power of the bellows that produces the musical notes, thus combining the power to produce the musical note with the power to drive the fan. The practical difficulty in this combination is that when the tremolo is required most the exhaust power of the bellows is the least—that is to say, the tremolo to be most effective should only be used on the softer stops or diminuendo passages; consequently the exhaust power of the bellows is not adequate to operate a wind-motor of sufficient strength to drive a fan of the most desirable size and with sufficient speed to produce the best effect. Besides, in operating a fan to produce the best tremolo, it is absolutely necessary to vary the speed or revolution of the same; but, as now combined with the exhaust-bellows, with a full power, the fan will revolve too fast, and when the power diminishes to that point when the fan should be most effective it runs too slowly, and there is no means under these circumstances of increasing the speed, as is frequently required, without increasing the power of the musical notes from diminuendo to crescendo, which would, in a measure, destroy the musical spirit of the composition.

To obviate this difficulty, the fan must be operated by some means independent of the wind-power that produces the musical notes. This has been done by machinery, such as clock-work, but is found too costly, and is otherwise objectionable; but I prefer to use, in connection with a musical instrument having an exhaust-bellows, like the common reed-organ, a blast or pressure bellows to drive a wind-motor, which motor is to operate a fan, either revolving or vibrating. By this arrangement, it is at the option of the performer to run the fan fast or slow, and vary the speed as often as thought proper in the different passages of the music, which is very essential to a perfect tremolo. This pressure-bellows is to be attached to or connected with the instrument, so as to be worked in any suitable way—by preference, by an independent treadle; or it may be worked by making connection with one or both of the treadles that work the exhaust-bellows in the instrument.

C, Figure 1, is a perspective view of a common reed-organ case with the top removed, showing what is technically known as the “deck” of the organ, or top of the wind-chest. A is a case, which, by preference, is set on the deck of the organ, which case contains a wind wheel or motor to drive the fan F. The wind-wheel in the case A is driven by the pressure or blast bellows B, Fig. 2, represented, for convenience, as being placed in the bottom of the case C, and operated by the pedal *a*. D is a section of a tube or conduit, broken off, but must lead to the wind-wheel in case A on the deck. Fig. 3 is an exaggerated perspective view of an ordinary wind-wheel, and receives its motion from the air being forced through the pipe or tube D from the bellows B, and is made to impinge on the fan-blades of the motor at *i*, and pass out of the case at *j*, in the direction of the arrows. *h h* represent the inner circle of the case A, Fig. 1, corresponding to the outside of the fan-blades 1, 2, 3, &c. *i* and *j* represent slots running clear across the case A, parallel to the fan-blades; or they may be simple holes to admit and conduct the air in its passage through the wind-case A. This is describing the common wind-wheel, when driven by simple pressure or blast of the wind against the wings of the wind

wheel, Fig. 3; but it is evident that various kinds of wind-motors, such as reaction-wheels, may be substituted, to be operated always by an auxiliary blast or pressure bellows, when connected with a reed-organ.

a in Fig. 2 is a pedal hinged to a bracket, y , and connected to the top of the bellows B by a long link or connection rod, x . The spring v is fastened to bracket w , and takes hold of the pedal a , and is sufficiently strong to hold up the pedal and keep the bellows expanded. This is, however, only one way of accomplishing the same work by springs and levers.

The bellows B may be placed directly under either one of the pedals 6, 7, and 8, and it may be operated by one or two of those pedals that operate the exhaust-bellows; or the top of the bellows B may be made a substitute for the middle pedal 7, on which the foot of the oper-

ator may rest and press the top down without any intermediate connections between the foot and the bellows B, in which case the bellows will be placed in the instrument in the reverse position from what it is represented in the drawings, s , Fig. 2, then corresponding to s' , Fig. 1. The top of the bellows should be made to correspond with the pedals 6 and 8, to secure uniformity in appearance.

What I claim is—

In combination with a reed-organ having an exhaust-bellows, an auxiliary pressure or blast bellows and tremolo mechanism, substantially as described.

ALONZO HITCHCOCK.

Witnesses:

HARLYN HITCHCOCK,
E. R. BISHOP.