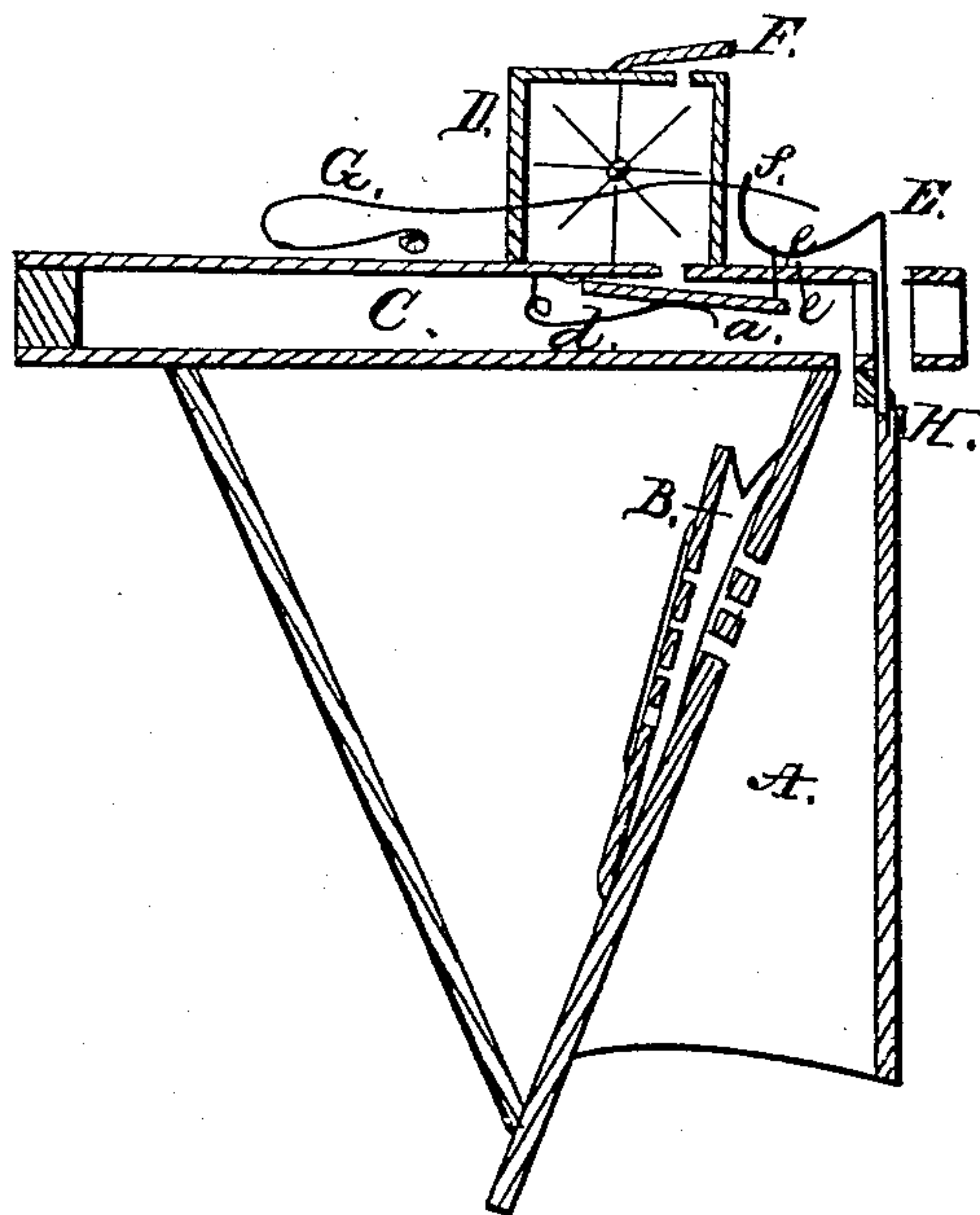


I. T. Packard.

Tremolo Regulator.

Nº 88,328.

Patented Mar. 30, 1869.



Witnesses.

R. F. Keith

W. O. Pratt.

Inventor.

Isaac T. Packard.



ISAAC T. PACKARD, OF CHICAGO, ILLINOIS.

Letters Patent No. 88,328, dated March 30, 1869.

TREMOLO-REGULATOR FOR REED MUSICAL INSTRUMENTS.

The Schedule referred to in these Letters Patent and making part of the same.

Be it known that I, ISAAC T. PACKARD, of Chicago, in the county of Cook, and State of Illinois, have invented a new and useful Mode of Regulating the Revolutions of the Propelling-Wheel Used in Reed Musical Instruments, for the purpose of operating a fan-wheel, or a roller, which produces the tremolo quality of tone; and I do declare the following to be a full and correct description of the same, reference being had to the accompanying drawing, making a part of this specification, and the letters of reference thereon.

This invention consists of an automatic arrangement, whereby a lever, attached to the bellows, operates upon a friction-spring and upon a valve, or upon either, separately, in such a manner as to regulate the velocity of the propelling-wheel.

The drawing represents a transverse section of a suction-bellows, similar to those used by many makers of reed musical instruments, together with the wind-chest and the tremolo-propelling wheel.

A is the bellows.

B is the exhauster which draws the air from the bellows, and also from the wind-chest C, and from the box D, which encloses the propelling-wheel.

On the top of the box D is a valve, marked F, which, upon being opened when the bellows is exhausted, admits the air, which puts the wheel in motion as the air is drawn through to the bellows.

My invention consists, first, of the application of the lever E and the friction-spring G. The lever E is attached to the bellows at the joint of the movable part, which is at H.

Here the lever enters the bellows, and running upward, passes through an aperture in the wind-chest; then turning to the left, goes nearly as far as the box over the wheel; then turning upward, terminates with a hole, through which the friction-spring G can pass freely. This lever and spring are so placed that the spring passes along under the axis of the wheel on the outside of the box.

The operation of the lever and friction-spring is as follows:

The valve F being opened, and the process of exhaustion of the bellows commenced, the wheel begins

to revolve, and if the exhausting is carried to its full extent, the force increases, and the wheel naturally accelerates. But this is here prevented, as the bellows, in closing, moves to the left, and consequently the lever E, at the part where the spring passes through at f, rises upward and carries up the spring, which, pressing against the axis of the wheel, retards its motion.

The spring, which is made of about No. 18 hard brass wire, is readily and easily graduated so as to cause friction enough to prevent any material increase of speed to the wheel, and thus secure uniformity to the revolutions of the tremolo-apparatus.

My invention consists, in the second place, in placing the valve *a* on the inside of the wind-chest, so as to cover the aperture under the wheel; also the tracker-rod *e*, which passes up from the valve at *a*, through the top of the wind-chest, and is so adjusted as to length as to be operated upon by the lever E. As the bellows closes, and exhaustion increases, the tracker-rod *e* rises, and the valve permits less air to be drawn through, the valve being closed by the action of the spring *d*.

Thus it will be seen, that by the action of the air alone, when controlled by the valve *a*, and its connections, or by the friction-spring alone, with its connections, or by both together, I am enabled to control the movement of the wheel and secure greater uniformity in its revolutions. My preference is, however, given to the action of the friction-spring alone, as this is so easily adjusted, and more delicate and sensitive in its action.

Having now described my invention, its manner of construction and use,

What I claim, and desire Letters Patent therefor, is as follows:

I claim the lever E, the friction-spring G, the valve *a*, and the tracker *e*, when they are made as herein described, or equivalent thereto, and operated and used for the purpose herein set forth.

ISAAC T. PACKARD.

Witnesses:

R. F. KEITH,
W. O. PRATT.