(No Model.)

F. MENZENHAUER.

TREMOLO ATTACHMENT FOR CORNETS.

No. 377,860. Patented Feb. 14, 1888.

Fig. 1.

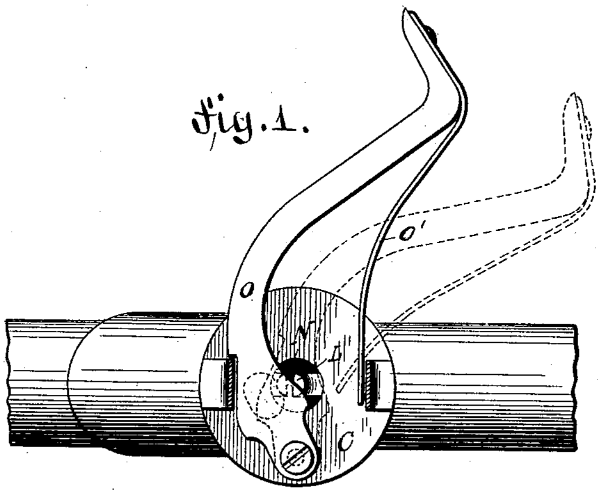


Fig. 3.

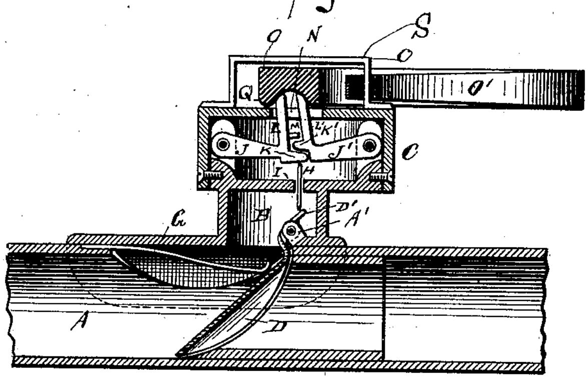


Fig. 5.

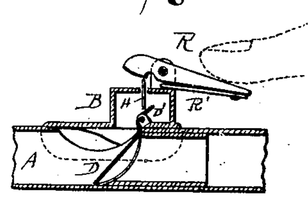
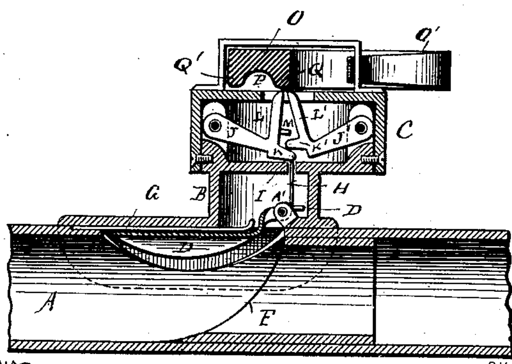


Fig. 4.

Fig. 2.



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TREMOLO ATTACHMENT FOR CORNETS.

SPECIFICATION forming part of Letters Patent No. 377,860, dated February 14, 1888.

Application filed July 8, 1887. Serial No. 243,733. (No model.)

To all whom it may concern:

Be it known that I, FRIEDRICH MENZENHAUER, of Jersey City, in the county of Hudson, State of New Jersey, have invented certain new and useful Improvements in Tremolo Attachments for Cornets and Like Wind-Instruments, of which the following is a specification.

The object of my invention is to provide a new and improved tremolo attachment which can be applied to or introduced in a cornet or like wind-instrument, said tremolo attachment being adapted to be worked by the fingers of the player.

The invention consists in the combination, with a swinging valve in the wind-pipe, of a spring acting on said valve, and a spring-lever by means of which said valve can be lowered and raised alternately.

The invention also consists in the construction and combination of parts and details, as will be fully described and set forth hereinafter, and then pointed out in the claims.

In the accompanying drawings, Figure 1 is a top view of my improved tremolo attachment, parts being broken out and others being in section. Fig. 2 is a longitudinal sectional elevation of the same, the valve being raised and the wind-pipe opened. Fig. 3 is a similar view, the valve being lowered and the wind-pipe closed. Fig. 4 is an enlarged detail cross-sectional view of a modified construction of one end of the lever. Fig. 5 is a longitudinal sectional view of a slightly-modified construction.

Similar letters of reference indicate corresponding parts.

The short tube B projects upward from the wind-pipe A and is in communication with the same, and on the top of said tube the casing C is provided, which is not in communication with the said tube. Jaws A′ project up into the tube A at the bottom of the same, and between said jaws the lug D′ is pivoted, which is formed on one end of an elliptical valve-plate, D, which is curved in cross-section on the same radius as the wind-tube, so as to fit snugly against the same, the said wind-pipe being provided on the inside with a recess into which the valve can swing, as shown in Fig. 2.

A curved seat, F, is formed on the inside of the wind-pipe, upon which seat the edges of the valve D can rest, as shown in Fig. 3, so as to completely close the wind-pipe. A spring strip or tongue, G, fixed on the wind-pipe, has its free end rested on the top of the valve near the pivoted end of the same. A pin, H, is fixed or pivoted in any suitable manner on the top of the lug D′ of the valve D, and projects upward through the opening I in the bottom of the casing C, the upper end of said pin or stem projecting a short distance above the bottom of the casing.

In the casing C two opposite levers, J and J′, are pivoted in such a manner that their free ends are adjacent to each other, and said levers are provided on their swinging ends with the lugs or projections K and K′, the lug K′ being above the lug K, and the said levers are also provided on their free ends with the upwardly-projecting arms L L′, the upper or free ends of which are beveled in opposite directions.

A pin, M, projects from the arm L over the lug K′ of the lever J. The upper beveled arms, L L′, project through an opening, N, in the top of the casing and can be acted upon by a lever, O, pivoted on the top of the casing and provided with a spring, O′, for throwing it back into the normal position. Part of said lever is adapted to swing over the opening N, and is provided in its under side with a groove or recess, P, forming two ridges or projecting parts, or a cam-surface which can act on the upper ends of the arms L L′. If desired, the lever O may be provided in its under side with two grooves forming three ridges, as shown in Fig. 4.

If desired, the levers J J′ may be dispensed with and the lever R be pivoted on the top of the casing, the end of which lever R rests directly on the upper end of the stem or pin H.

S is a yoke on the top of the casing C.

The operation is follows: The spring G tends to press down the valve D, and thus keep the wind-pipe closed, as shown in Fig. 3; but when the lug D′ of the valve D is pressed down the valve is raised, as shown in Fig. 2, and thus by alternately raising and lowering the valve the air-current is interrupted at intervals and the tremolo produced. Every time the lever R, Fig. 5, is pressed down the pressure is taken from the lug D′ of the valve D, and

the spring G can swing down said valve D, and when the lever R is released the spring R′ of said lever raises the lever and presses down the lug D′, whereby the valve D is raised, the pressure or power of the spring R′ being greater than that of the spring G. It is thus evident that every time the lever R is pressed down the current of air is interrupted and a comparatively slow tremolo is produced. In case a more rapid tremolo is desired, the construction shown in Figs. 1, 2, and 3 is used. When the lever O is in the position shown in Fig. 1, one of the ridges Q rests upon the upper ends of the arms L L′ of the levers J J′, as shown in Fig. 2, whereby the levers J J′ are pressed down, and by means of the pin or stem H hold down the lug D′ of the valve D, which valve is thus held in the raised position, the power of the spring G being overcome by the spring O′ of the lever O. The player then, by means of a finger, swings the lever O toward the position shown in dotted lines in Fig. 1, permitting the ends of the arms L L′ to pass into the recess or groove P in the under side of the lever O under the action of the spring G, which can now operate. Thereby the valve D is lowered and the current of air interrupted. When the lever O is in the position shown in dotted lines in Fig. 1, the other ridge Q rests upon the upper ends of the arms L L′ and the valve D is again raised. When the lever O is released, the spring O′ brings it back to the position shown in full lines in Fig. 1, and the ends of the arms L L′ again pass into the notch or recess P, and the valve D is again lowered to be raised immediately after when the first ridge Q again acts on the upper ends of the arms L L′.

It is evident that when the lever O is swung from the position shown in full lines in Fig. 1 into the position shown in dotted lines the valve D is lowered once and then raised, and when the lever O swings back from the position shown in dotted lines into the position shown in full lines the valve is again lowered and then raised.

For each forward and return movement of the lever O the valve is thus lowered twice and the current of air is interrupted twice, and a more rapid tremolo is produced than with the construction shown in Fig. 5, in which the current of air is interrupted only once for each time the lever is pressed. If the lever O is provided with two grooves in its under side, as shown in Fig. 4, the valve D is lowered four times for each forward and return movement of the lever, and thus a still more rapid tremolo is produced.

This device can be applied at any part of a cornet or like wind-instrument, and the valve always remains raised, except when the lever of the tremolo attachment is depressed.

In this application I do not claim the combination, with a swinging valve in the wind-pipe, of a motor for operating said valve, as set forth in my application, Serial No. 228,289, allowed on the 23d of March, 1887.

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

1. A tremolo attachment for cornets or like instruments, consisting of a swinging valve in the wind-pipe and a finger-lever for operating said valve, substantially as herein shown and described.

2. A tremolo attachment for cornets or like instruments, consisting of a swinging valve in the wind-pipe, a spring acting on said valve, and a finger-lever for actuating said valve, substantially as herein shown and described.

3. A tremolo attachment for cornets or like instruments, consisting of a swinging valve in the wind-pipe, a spring acting on said valve, a finger-lever for actuating the valve, and a spring acting on said finger-lever, substantially as herein shown and described.

4. In a tremolo attachment for cornets or like instruments, the combination, with a pipe, of a swinging valve in the same, pivoted levers for actuating the valve, and a finger-lever for actuating said levers, substantially as herein shown and described.

5. In a tremolo attachment for cornets or like instruments, the combination, with a pipe, of a swinging valve in the same, a lug on one end of the valve, a pin or stem on said lug, pivoted levers above the upper end of said pin or stem, and a finger-lever for actuating said levers above the upper end of the pin or stem, substantially as herein shown and described.

6. In a tremolo attachment for cornets and like instruments, the combination, with a pipe, of a valve in the same and a finger-lever for actuating the valve, which finger-lever is provided with a recess in its under side, substantially as herein shown and described.

7. In a tremolo attachment for cornets or like instruments, the combination, with a pipe, of a valve in the same, pivoted levers provided with upwardly-projecting arms, which levers actuate the valve, and a finger-lever mounted to move over the upper ends of said arms, that part of the finger-lever which passes over the upper ends of the said arms being provided with a cam-surface on its under side, substantially as herein shown and described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

FRIEDRICH MENZENHAUER.

Witnesses:
PAUL GOEPEL,
CARL KARP.