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WIND INSTRUMENT OF THE REED TYPE

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4 Claims. (Cl. 84—385)

This invention relates to wind instruments of the reed type, such as the saxophone, and the clarinet. The invention aims to improve and to simplify the G# key mechanism, whose prime function is to control the interval G—G#. This mechanism is simplified, as compared with the prior art, by the employment of a three-function spring.

The invention will best be understood by reference to the following description when taken in connection with the accompanying drawing of one specific embodiment thereof, while its scope will be pointed out more particularly in the appended claims.

In the drawing:

Figs. 1, 2 and 3 are elevations illustrating in different positions mechanism operated by the fourth finger of the left hand to play the note G#;

Fig. 4 is a longitudinal, sectional view of the mechanism in a plane containing the axis of the shaft; and

Fig. 5 is a sectional view on line 5—5 of Fig. 4 looking in the direction of the arrows on said line.

Referring to the drawing, and to the embodiment of the invention illustrated therein by way of example, there is shown a portion of a saxophone whose general construction and mode of operation are usual and well known, and only those parts which are necessary to an understanding of the present invention are shown and will be described in detail.

The saxophone has a pipe comprising a body 25 to which the usual neck and mouthpiece (not shown) are secured. The instrument will, of course, be provided with a full set of tone holes and covers, together with appropriate octave mechanisms. The tone holes include one which is provided with a normally elevated cover 31 operated in the usual manner, and another which is provided with a cover 31 carried by an arm 118 which is rigidly carried by a sleeve 119 loosely mounted on and about a fixed shaft 120 whose ends are mounted in brackets 121 and 122. Also fixedly mounted on the sleeve 119 is an arm 123 having a lug 124 overlying the outer side (underneath, as viewed in Figs. 1, 2, 3 and 4) of an arm 125 which is rigidly mounted on a second sleeve 126 loosely mounted on and about the shaft 120, and on this sleeve a key 4—L operated by the fourth finger of the left hand is rigidly mounted.

A spring 127 is rigidly secured at one end to the bracket 122 and its free end is received in a recess 128 in one end of a lever 129 which presents two rounded pivots 130 and 131 having pivotal connection with the arms 123 and 125, respectively, as by being received in holes therein.

Normally, the key 4—L is maintained in an elevated position, the tone hole cover 30 is elevated and the tone hole cover 31 is maintained depressed (see Fig. 1) by the spring 127 whose thrust is in a direction perpendicular to the plane of the paper in Figs. 1, 2, 3 and 4 and from the observer and clockwise about the shaft 120 as viewed in Fig. 5. The key 4—L is elevated because the thrust of the spring tends to move the lever 129 bodily from the observer, as viewed in Figs. 1, 2 and 3 and thus to swing the arm 125 from the observer and to rock the sleeve 126 clockwise as viewed in Fig. 5. The tone hole cover 31 is depressed because the arm 125 is urging the overlying lug 124 outwardly and the latter is rigidly connected by the arm 123, sleeve 119 and arm 118 to the cover 31.

When the key 4—L is pressed toward the horn body, in opposition to the spring 127, the arm 125 moves in an inward direction until it strikes the horn body. But the thrust of the spring, transferred through the lever 129 to the arm 123, maintains the arm 125 against the lug 124 of the arm 123, and therefore the latter rocks the sleeve 119, and through the arm 118 lifts the cover 31. This is the condition shown in Fig. 2, and exists when the tone hole cover 30 is in its elevated position. In this position, the cover 31 may be closed by closing the cover 30 whose arm 132 overlies and engages the cover 31.

Now, with the key 4—L depressed and with the arm 125 held fixed, the pivot 131 of the lever 129 becomes its fulcrum, and if any one or all of the tone hole keys operated by the first, second and third fingers of the right hand are depressed, an arm 132, rigidly carried by the tone hole cover 30 and overlying the tone hole cover 31, depresses the latter, in opposition to the resistance of the spring 127. This is because of the fact that the rocking of the arm 118, sleeve 119 and arm 123 causes the latter, connected to the pivot 130, to swing the lower end of the lever 129 inwardly, said lever rocking about the pivot 131 as a fulcrum, and the upper end of said lever swinging toward the observer, in opposition to the spring 127. During this movement, the lug 124 of the arm 123 swings away from the underlying arm 125. This condition is shown in Fig. 3.

This same condition is sometimes obtained by