

## UNITED STATES PATENT OFFICE

2,180,383

## SINGLE REED INSTRUMENT TUNING DEVICE

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4 Claims. (Cl. 84—383)

This invention relates to an instrument tuning device for single reed instruments, such as clarinets, saxophones, and the like.

The principal object of this invention is the provision of such a device adapted to vary the vibratory length of the reed and to vary the clearance of the said reed in relation to the mouth piece of the instrument.

A further object of this invention is the provision of such a device so formed that a simple mechanical movement results in the desirable variations above mentioned, it being practical to make the said adjustment and resulting variations while the instrument is being played. It is thus obvious that the tuning of such instruments is greatly simplified by the use of this invention as the instrument player simply assembles the instrument in the usual manner and tunes the instrument by playing it and making the simple mechanical adjustment simultaneously.

A still further object of this invention is the provision of a modified form of mouth piece in that the lay has been formed in a slight convex curve throughout its length thus providing unlimited variations of the reed in relation to the lay when used in connection with the tuning device.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, can be made within the scope of what is claimed, without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawing, wherein:

Figure 1 is a side elevation of a single reed instrument mouth piece showing the tuning device in detail, attached to the ligature or clamp of the mouth piece.

Figure 2 is a bottom plan view of the mouth piece showing the tuning device thereon.

Figure 3 is a greatly enlarged cross sectional view of a portion of the mouth piece showing in detail the curve of the lay, the reed, and the portions of the tuning device that are adjacent thereto. Dotted lines on Figure 3 show an alternate position of the reed and a part of the tuning device adjacent thereto.

Referring to the drawing it will be seen that 1 represents the mouth piece of a single reed instrument; and 2 designates the vibratory reed

positioned thereon by means of a ligature 3. This ligature 3 may be of any suitable type and is in effect a clamp being held in position on the mouth piece by suitable means. Attached to this ligature 3 and forming a secondary portion thereof, there is a body member 4 which is preferably formed in channel shape and adapted to carry partially within the channel a spring 5. The spring 5 being held firmly in position in the channel by means of a plate 6 which in turn is bolted to the body member 4.

In order that the tension of the spring 5 may be controlled, an outer curved end of the spring 5 rests upon a lifter 7 which in turn rests upon the reed 2. This lifter 7 is shaped to conform with the shape of the reed 2 against which it rests.

Pivot arms 8 formed as a part of the lifter 7 extend from the sides thereof and serve to hold it in position. One of the pivot arms 8 being received in a socket formed in a projection 9 of the body member 4 and the other received by and extending through a carrying arm 10 which is in turn bolted to the body member 4. This pivot arm 8 after extending through the carrying arm 10 terminates in a squared end 11 adapted to receive and retain a lever 12. In order that motion may be imparted to this lever 12 a thumb screw 13 has been positioned in a projection 14 of the body member 4 and in such manner that the thumb screw 13 engages a socket 15 formed in the lever 12.

It will be seen that when the thumb screw 13 is rotated so that it pushes against the lever 12, the resulting motion of the lever 12 will, through the pivot arms 8, cause the lifter 7 to lift the curved end of the spring 5 thus releasing some of the tension on the reed 2 and increasing its vibratory length. The increase of the vibratory length of the reed resulting in a lower tone. When this has occurred the relative position of the reed and the lay are as shown in solid lines in Figure 3. By rotating the thumb screw 13 so that it backs away from the lever 12, the reverse action results and the curved outer end of the spring 5, through the lifter 7, depresses the reed 2 and shortens the vibratory length thereof. This results in a high tone. It is obvious that due to the fine adjustment possible, the tension upon the reed, and its vibratory length may be varied so gradually that the instrument itself is readily tuned.

It will be apparent that in some slight degree the tension upon the reed may be varied by the adjustment of the tightness of the ligature and that the reed is at all times under tension of the

spring 5, the mechanical adjustment simply serving to vary this tension.

It is highly important to the successful operation of this instrument tuning device that the lay of the mouth piece be curved over a majority of its length so that the control of the reed results in varying the relation of the reed to the lay throughout the entire vibratory length of the reed.

10 What I claim is:

1. The combination of a single reed instrument mouth piece having a curved lay thereon and a vibratory reed positioned thereon by means of a ligature; a spring attached to the said ligature; a lifter pivotally positioned on the said ligature, the said lifter being in positive engagement with both the reed and the spring, the spring adapted to exert pressure on the lifter which in turn exerts pressure on the reed, a lever attached to the said lifter and adapted to raise the portion of the said lifter in contact with the said reed and a thumb screw positioned in the said ligature and adapted to control the position of the said lever so as to vary the clearance between the said reed and the said curved lay of the mouth piece and thus vary the vibratory length of the reed.

2. The combination of a single reed instrument mouth piece having a curved lay thereon and a vibratory reed positioned thereon by means of a ligature; a spring attached to the said ligature; a lifter positioned on the said body member by means of pivot arms formed on the said lifter and adapted to engage parts of the said body member so as to pivot the said lifter thereon, the said lifter being in a positive engagement with both the reed and the spring, the spring adapted to exert pressure on the lifter which in turn exerts pressure on the reed, a lever attached to one of the said pivot arms, the said lever adapted to rock the lifter upon its pivots in such manner that it raises and lowers

the engaging spring and thus varies the pressure upon the said reed, and a thumb screw positioned in the said body member and adapted to move and control the movement of the said lever and lifter in relation to the said body member so as to vary the vibratory length of the said reed by controlling the tension of the said spring on the said reed.

3. A reed adjusting device comprising a ligature adapted to hold a reed upon a wind instrument mouth piece, a body member positioned on the said ligature, a lifter pivoted to the said body member, a spring attached to the said body member and adapted to exert pressure on the said lifter which in turn exerts pressure on the reed, the said lifter being in positive engagement with both the reed and the spring, a lever attached to the said lifter so that the lifter can be rocked upon its pivots thereby, and thus vary the spring pressure upon the reed and change the vibratory length thereof.

4. The combination of a reed instrument mouth piece having a lay curved over its entire area and a reed adjusting device adapted to position and hold a reed thereon, the said reed adjusting device comprising a ligature, a body member formed on the said ligature; a lifter pivoted to the said body member by means of pivot arms formed on the said lifter adapted to engage slot-like openings in the said body member; a spring attached to the said body member and adapted to exert tension on the said lifter which in turn exerts tension on the reed, the said lifter being in positive engagement with both the reed and the spring, a lever positioned on one of the said pivot arms of the said lifter so that the reed engaging portion of the lifter can be raised and lowered in relation to the said reed by rocking the lifter upon its pivots thus varying the tension of the spring against the lifter and reed and varying the vibratory length of the reed.

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FIG 1

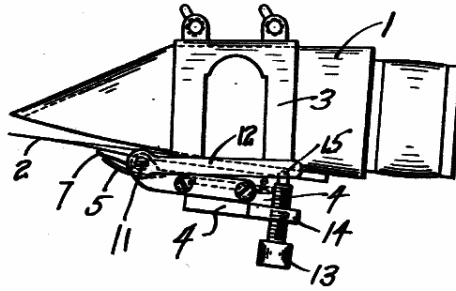


FIG 2

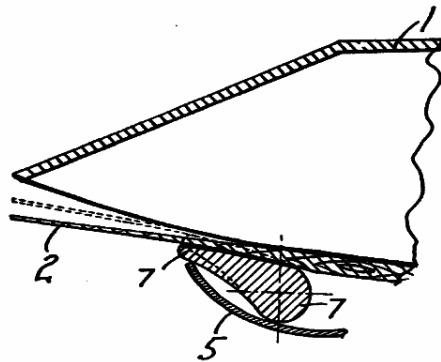
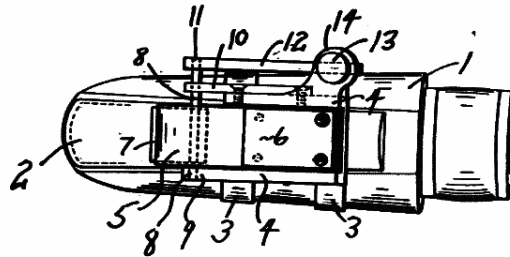


FIG 3

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