

1

2,837,003

MOUTHPIECE AND LIGATURE FOR REED INSTRUMENTS

James Collis, New York, N. Y.

Application November 28, 1955, Serial No. 549,343

4 Claims. (Cl. 84—383)

This invention relates to reed mountings and fastening means for attaching the reeds of musical instruments to the latter, and particularly to a ligature for attaching a reed to the mouthpiece of a clarinet, saxophone and the like.

The main object of my invention is to provide the mouthpiece of a woodwind instrument with a special ligature for securing the reed thereon in a musically effective manner in order to improve the sound produced by the instrument involved.

An ancillary object of this invention is to mount upon such an instrument mouthpiece a reed ligature of novel form and nature which serves to mount the reed upon the mouthpiece in a free and undamped position in order to allow unlimited vibration of the reed and sympathetic vibration in the mouthpiece to occur in true response to the capacity and timbre of the instrument.

Another object of the invention is to have an improved reed ligature of the character indicated upon the mouthpiece of a woodwind instrument, and which may be installed upon instruments of known type and style without the necessity of altering or changing the construction or form of the instrument or its mouthpiece in any manner.

A further object herein is to have such a reed ligature which has a wrap-around portion capable of variation in different forms such as wire and strip of metal which may also be integral with the ligature cap or clamp.

Yet another object is to have such a reed ligature for an instrument mouthpiece which is simple in construction, likewise simple to mount in place upon a mouthpiece and also unobtrusive in use.

It is, of course, a practical object of the invention to have a reed ligature for a woodwind musical instrument which is easy to make and use in order to encourage wide distribution on the musical market.

Other objects and advantages will appear in greater detail as the specification proceeds.

In order to facilitate ready comprehension of this invention for a proper appreciation of the salient features thereof, the invention is illustrated on the accompanying drawing forming part hereof, and in which:

Figure 1 is a side elevation of the mouthpiece of a clarinet, saxophone or the like with the reed thereon mounted in place and held by a ligature made according to the invention and embodying the same in a practical form; a cap being shown thereon in section;

Figure 2 is a plan view of the same mouthpiece as seen from below in Figure 1, with the cap removed;

Figure 3 is a transverse section of the mouthpiece assembly as taken on line 3—3 in Figure 1;

Figure 4 is a developed view of a ligature showing the same made from a strip of flat sheet metal having rings secured upon the ends thereof;

Figure 5 is a developed view of a modification;

Figure 6 is a fragmentary plan view of another modification.

In these views, the same reference numerals indicate the same or like parts.

2

In musical instruments, it is a matter of special knowledge that small and apparently trivial adjustments may be important and frequently can greatly alter and even improve the tone and timbre of the instrument as a whole. This is particularly true of the reeds upon the woodwind instruments, such as the clarinet and saxophone, and the like, for the mounting and actual contact of the ligature with the reed has proved to be very important to the sound produced by the reed. Ordinarily, the ligature merely clamps around the mouthpiece and the shank of the reed like a hose clamp, and is thus too direct in its contact with the reed to allow the latter to vibrate freely in full response to the capacity and timbre of the instrument.

I have discovered that the ligature should only make limited point contact with the reed intermediate the side edges thereof in order to liberate the reed and mouthpiece from a serious damping effect usually imposed thereon by conventional ligatures. As a result of such consideration, I have succeeded in producing a new musically improved ligature for such instrument reeds which retains the reed in correct position upon the mouthpiece of the instrument but in a characteristic and designed manner avoids contact with the reed at any portion thereof that would tend to damp the sound and free vibration thereof, as will now be set forth in further detail in the following.

Hence, in the practice of my invention, and referring also again to the drawing, a typical mouthpiece, generally indicated at 8 used upon a clarinet or like woodwind instrument, displays a neck 9 with its cork or other yielding collar 10 adapting it to be inserted and frictionally retained in the upper end of the instrument. The main body 11 of this mouthpiece is substantially round and somewhat tapering toward its outer end along a short distance and has a substantially flat straight surface 12 upon the working side of the mouthpiece, adapting the mouthpiece to receive a reed 13 thereon. The reed 13 is shaved off to a thin edge at its far outer end 14 and overlies the mouthpiece opening 15 indicated in broken lines in Figure 2, while the heavier shank portion extends much farther along flat surface 12 almost to the rear end of the mouthpiece. Thus far, the construction described follows conventional lines.

However, the novelty of this invention resides in the ligature for retaining the reed in operative position on the mouthpiece and the relation of this ligature to the mouthpiece as provided for by a certain novel feature of the latter. Hence, for the purpose of retaining the reed in approved position, the ligature indicated at 16 has a wrap around band or strip 17 of metal or alloy surrounding the mouthpiece body 11 and provided intermediate the ends thereof with a metal bridge member 18 welded, brazed or soldered to the inside thereof. Upon the inner portion of this bridge member are four inwardly projecting corner points 19, 19, 19, etc., which rest directly upon a limited intermediate area of the reed shank 13 while avoiding contact with the edges thereof, as best seen in Figures 2 and 3. The corner points 19, therefore, exert pressure upon an intermediate portion only of the reed and the mouthpiece beneath it.

Due to such limited contact between the reed and the mouthpiece actually under pressure, the reed is unusually free to vibrate from air blown into the mouthpiece past the reed. The ligature is further provided at the ends of flat strip 17 with a pair of opposed bolt rings 20, 21 through which a clamping screw 22 extends with a manually adjustable wing piece 23 at one end, the other threaded end 24 being screwed into ring 21, so that turning wing piece 23 will either draw rings 20 and 21 together or release them from each other. In any event, the screw and the end rings serve to draw band 17 tight

3

about the mouthpiece body 11 and hold down bridge or holding plate member 18 upon the reed at any desired pressure, as adjusted by screw 22.

While the ligature 16 retains the reed 13 in the manner just described, the freedom of the reed is increased by still further reducing the contact of the ligature with the reed and also with the mouthpiece body in which a certain amount of sympathetic vibration takes place. This is accomplished by forming a series of limited longitudinal flutings 25, 25, etc. round the body portion 11, except at the reed seat or surface 12 so as to provide a series of parallel longitudinal ridges 26, 26 about the mouthpiece on which the band or flat strip 17 of the ligature rests without any other substantial actual contact with the mouthpiece as such. Thus, the ligature is in contact only with a number of isolated high points on the mouthpiece and beneath its bridge or holding plate 18 in contact with the reed only upon points 19, 19 etc. The result is that the reed is no longer damped as in conventional reed mountings, but is free to vibrate with all of the timbre and capacity of the instrument involved. The ridges 26 are grooved at 26a, and it is into these grooves that the strip 17 is positioned. The grooves 26a serve to prevent the strip 17 from moving lengthwise along the mouthpiece 8.

The ligature can be made in other ways than as shown in Figures 1 to 3, for the holding plate 18 may be integral with the strip or band 17. Thus, as shown in Figure 4, the flat metal strip 27 may have an enlarged intermediate plate 28 to form the plate and four corner points 29, 29, 29, etc., which may be bent down to press upon the reed, while the end rings 30 and 31 serve to engage with adjusting screw 22.

Another form of holding plate or bridge member 32 is shown in Figure 5 mounted upon the mid section of the wire 33 and provided with end rings 34 and 35 for the adjusting screw. The plate 32 has two opposite concavely curved contact edges 36, 36 bent to make simultaneous spaced contact with a limited area of the reed to form substantially a four point contact with the reed.

As shown in Figure 6, only a portion of the wire 37 appears and this is attached to the bridge member or holding plate 38. Holding plate 38 is quite flat except that its corners provided with turned down points 39, 39, 39, etc. The plate 38 itself is sufficiently heavy to resist bending in use. The wire 37 is preferably provided with end rings (not shown) for receiving and adjusting screw.

In any case, the result will be the same, namely that the reed and mouthpiece are free to vibrate without any appreciable damping effect being imposed by the ligature.

The mouthpiece is provided with a protective cap 42, which has one cutout portion 43 for the ligature rings 20 and 21 as well as the adjusting screw and a second opposite cutout portion 44 for the bridge member or holding plate 18 of the ligature and for the raised portion at the band, as best seen in Figure 1.

It is thus evident that the ligature mounting of the invention provides effective means for retaining the reed

4

in playing position with a minimum contact with the ligature in order to avoid damping the free vibrations of the reed and mouthpiece. The freedom from damping is enhanced by preventing the ligature itself from having any extension or continuous contact with the mouthpiece body by providing contact therebetween only at a number of spaced ridges on the body.

I have described what I believe to be the best embodiments of my invention. I do not wish, however, to be confined to the embodiments shown, but what I desire to cover by Letters Patent is set forth in the appended claims.

I claim:

1. In a reed instrument, including a mouthpiece, a reed and a ligature, said mouthpiece having a series of longitudinally extending grooves around its outer surface forming ridges therebetween, said ridges being formed with transverse slots, said ligature including an elongated wrap-around metal lying in said slots and encircling said mouthpiece and reed, means for bringing and holding the ends of said metal member together, a ligature clamping element elongated with respect to the width of the elongated metal member and secured thereto diametrically opposite said bringing and holding means, said ligature clamping element having points disposed at its corners thereof toward the reed, said points forming the sole engaging means between the clamping element and the reed.

2. A combination set forth in claim 1, wherein said ligature clamping element is a plate disposed transversely of the elongated metal member and has its opposite edges transverse to the elongated member concavely curved and bent forward, and wherein the reed holding points are at the ends of said curved opposite edges.

3. A combination set forth in claim 1, wherein the elongated metal member is a flat metal band.

4. A combination set forth in claim 1, wherein the elongated metal member is a wire.

References Cited in the file of this patent

UNITED STATES PATENTS

1,085,684	Hershey	Feb. 3, 1914
1,449,868	Miller	Mar. 27, 1923
1,575,621	Chiron	Mar. 9, 1926
2,411,380	Maccaferri	Nov. 19, 1946
2,672,782	Topor	Mar. 23, 1954

FOREIGN PATENTS

89,067	Germany	Nov. 10, 1896
611,992	France	July 20, 1926
645,185	France	June 26, 1928
746,871	Germany	Aug. 28, 1944
66,134	Denmark	Dec. 29, 1947

OTHER REFERENCES

Selmer: Reedplayer's Handbook, copyright 1936, H & A Selmer, Inc. Elkhart, Indiana, page 18.

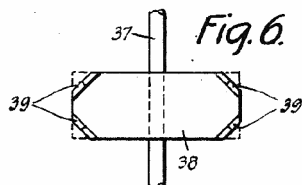
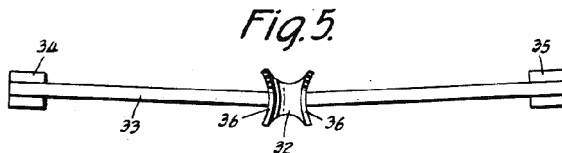
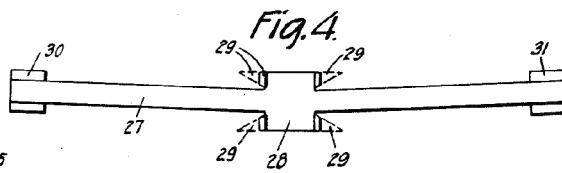
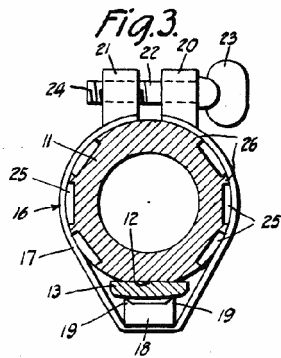
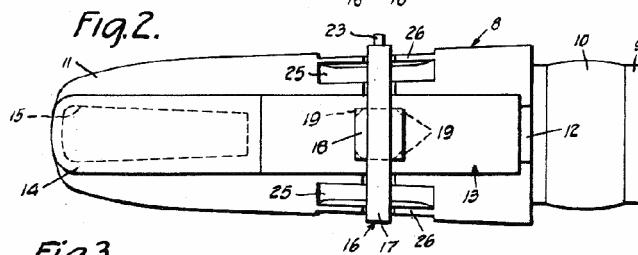
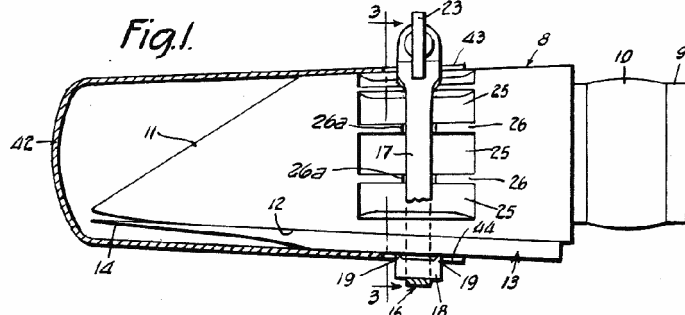
June 3, 1958

J. COLLIS

2,837,003

MOUTHPIECE AND LIGATURE FOR REED INSTRUMENTS

Filed Nov. 28, 1955



INVENTOR.
James Collis

BY

Moses, Noble, Grew & Berry
ATTORNEYS