Aug. 11, 1953 W. W. MUELLER 2,648,246

LIGATURE FOR MUSICAL INSTRUMENTS

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Fig. 1.

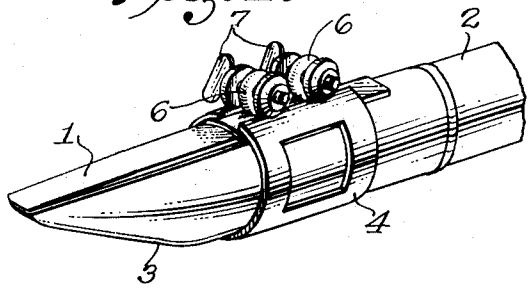


Fig. 2.

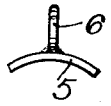


Fig. 3.



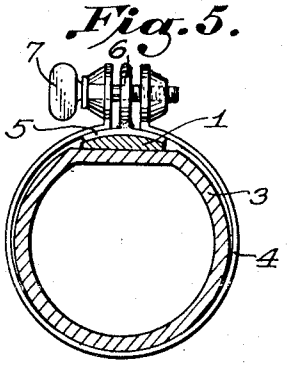
Fig. 4.



Fig. 6.



Fig. 5.



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LIGATURE FOR MUSICAL INSTRUMENTS

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2 Claims. (Cl. 84—383)

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This invention relates to a novel type of ligature for musical instruments, and more particularly it relates to a novel and improved plate to be used in applying pressure on a musical instrument reed when attaching same to the mouthpiece of instruments such as the clarinet, saxophone, etc., by means of a ligature or reed holder.

Heretofore many different types of ligatures have been proposed for attaching cane reeds to the mouthpiece of the clarinet or other wood-wind instruments. Some of these have embodied some type of pressure plate intended to hold the reed firmly in position when a suitable screw or other type of means is applied to the ligature. However, none of these prior suggestions have proved entirely satisfactory because either they do not apply the pressure as evenly as desired or they cause an undesirable pinching of certain parts of the reed surface when the ligature is tightened. For those and other reasons it has been considered impossible or impractical to use plastic reeds for such wood-wind instruments. It is one object of the present invention to overcome these difficulties of the prior art by providing a pressure equalizing plate which will distribute the pressure evenly over the reed when the ligature is tightened, so that the reed will be held firmly in the desired position without binding in certain spots and without being pinched by the ligature or pressure plate. Another object of the invention is to provide a pressure equalizing plate which accomplishes these results so satisfactorily that plastic reeds, which are slightly subject to deformation under pressure is concentrated in small surface areas, may be used with entire satisfaction.

These and other objects and advantages of the invention will be better understood from the following description of the invention read in conjunction with the accompanying drawing, in which Figure 1 represents a prospective view of the mouthpiece end of a clarinet showing a reed held in proper place by ligature, Figures 2, 3, and 4 show, respectively, end view, side view and prospective view of the pressure equalizing plate of this invention, Figure 5 shows a cross section of a clarinet mouthpiece showing the reed, pressure equalizing plate and ligature in place though not tightened, and Figure 6 shows a side view of an alternative construction of the pressure equalizing plate.

As shown in Figure 1, the reed 1 which produces the tone vibrations in the clarinet 2 is put into proper position on the mouthpiece 3 of the clarinet and then the ligature 4 or reed holder,

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which consists of a split circular metal band (which may be solid or cut out in sections in order to lighten the weight, economize on metal and permit better distribution of pressure) is slipped over the end of the mouthpiece and reed. After having inserted the novel pressure equalizing plate of this invention, which cannot be seen in this figure, the ligature is then tightened by means of two small violin screws 7.

Figure 2, showing the end view of the pressure equalizing plate 5, shows that the plate per se has a slight curvature to conform to the curvature on the upper side of the reed and the inside of the ligature. The vertical portion by which the pressure equalizing plate is attached to the ligature has one or more, preferably two, eyes or eyelets to accommodate the violin screws 7 and is attached to the upper surface of the plate by welding, soldering, or other suitable means. It may, as shown in Figures 3, 4, and 6, be made of either two small flat ring-shaped pieces of metal or a solid strip with two circular holes cut through it or, particularly as shown in Figure 6, a strip of metal with one circular hole and one oval-shaped or slot-shaped hole permitting adjustability for various types of ligatures in which the tightening screws are spaced apart by different distances. The pressure equalizing plate 5 is preferably made of metal and preferably a metal which is strong enough to distribute the pressure equally over the reed surface when the ligature is tightened and yet just sufficiently resilient to accommodate itself to possible slight differences in the curvature of the reed surface and ligature. For instance, this pressure equalizing plate may be conveniently made of silver or various silver alloys, such as one consisting of 92.5% of silver and 7.5% of copper, or even nickel steel, chromium plated steel, nickel silver, brass, etc.

Figure 5 shows the ligature 4 in position around the clarinet mouthpiece 3 with the reed 1 in proper position and the pressure equalizing plate 5 in proper position to apply pressure to the reed when the ligature screws 7 are tightened.

Although the construction of the ligature per se, exclusive of the pressure equalizing plate, may be of any suitable construction, is is preferably made of a general design such as shown in Figures 1 and 5 and preferably made of metals similar to those listed above for manufacture of the pressure equalizing plate.

As stated above, the reed 1 may be made of the usual bamboo cane or of suitable plastic material, such as polystyrene, Bakelite, polyvinyl

acetate, polyvinyl chloride, or copolymers, such as a copolymer of vinyl chloride and vinyl acetate, etc.

Although the invention has been described more particularly as applied to a clarinet, it may also be used in connection with ligatures for saxophones, and other wood-wind musical instruments.

The outstanding advantage of the invention is that it prevents the ligature or reed holder from gouging into the upper surface of the reed and prevents deformation of the reed which would both reduce its useful life and would impair its proper tone vibrating qualities.

In the appended claims it is intended to claim all novelty inherent in the invention as well as all modifications coming within the scope and spirit of the invention.

I claim:

1. A ligature assembly for attaching the reed to the mouthpiece of a reed-type musical instrument, comprising a ligature consisting of a split circular band having upturned ends provided with two tangentially positioned screws and lugs for tightening said upturned ends, and a smooth pressure equalizing plate curved to conform approximately to the curvature of the outer surface of said reed and the inner surface of said ligature, said plate having a width sufficient to cover said reed but not great enough to bind on said musical instrument mouthpiece when said ligature is tightened in position, said plate also having a length at least as great as the longitudinal dimension of said ligature, said plate being made of material substantially as strong as metal and strong enough to distribute the pressure equally over the reed surface when said ligature is tightened in position and yet just sufficiently resilient to accommodate itself to possible slight differences in the curvature of the reed surface and ligature, said plate having vertical fastening means attached thereto longitudinally along its midline and said fastening means having two holes therein so positioned as to cooperate with the two tightening screws and lugs of said ligature, whereby, when said ligature and pressure equalizing plate and a reed are positioned on a mouthpiece of a musical instrument, and the screws are tightened, there results substantially even pressure between said ligature and said pressure plate and between said pressure plate and the reed, and whereby said reed is held firmly in the desired position without binding in certain spots and without being pinched by said ligature or said pressure plate.

2. Ligature assembly according to claim 1, in which one of the holes in the vertical fastening means on the pressure equalizing plate has a longitudinally elongated shape to permit ready adjustment to ligatures having tightening screws spaced apart by varying distances.

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