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MOUTHPIECE FOR MUSICAL INSTRUMENTS

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15 Claims. (Cl. 84—383)

This invention relates to mouthpieces for musical instruments of the reed type, for example clarinets and saxophones.

One object of the present invention is to provide a mouthpiece having means positioned in the tone chamber thereof for producing in the playing of the instrument a tone quality which is different than that produced in the absence of such means.

Another object is to provide a mouthpiece with means positioned in the tone chamber for producing a more brilliant musical tone when the instrument is played.

Another object of the invention is to provide a tone-modifying device adapted to be readily positioned in the tone chamber of a clarinet or other musical reed instrument.

Another object of the invention is to provide a mouthpiece with means adapted to be removably positioned in the tone chamber for modifying the tone quality of the instrument.

A further object of the invention is to provide a mouthpiece with a removable tone-modifying device, so constructed that it is capable of being mounted with the tone chamber in proper position therein without supporting means other than the walls of the tone chamber.

Another object of the invention is to provide a mouthpiece with a tone-modifying device which is adjustable in the tone chamber for varying the character of the musical tone of the instrument.

The above and other objects, features and advantages of this invention will be more fully understood from the following description considered with reference to the accompanying illustrative drawing.

In the drawing:

Fig. 1 is a side view of a mouthpiece embodying the present invention;

Fig. 2 is a bottom view of the mouthpiece;

Fig. 3 is a sectional view on the line 3—3 of Fig. 2;

Fig. 4 is a sectional view on the line 4—4 of Fig. 3;

Fig. 5 is a sectional view on the line 5—5 of Fig. 3;

Fig. 6 is a view similar to Fig. 2 showing another form of the invention;

Fig. 7 is a sectional view on the line 7—7 of Fig. 6;

Fig. 8 is a sectional view on the line 8—8 of Fig. 7;

Fig. 9 is a perspective view of the tone-modifying device provided in the mouthpiece illustrated in Figs. 6 to 8;

Fig. 10 is a view similar to Fig. 3 showing a mouthpiece provided with an adjustable tone-modifying device;

Fig. 11 is a view similar to Fig. 3 showing a mouthpiece provided with a tone-modifying device which is removable for the purpose of increasing the softness of the tone of the instrument;

Fig. 12 is a sectional view on the line 12—12 of Fig. 11.

Referring now to the drawing in further detail, the mouthpiece 10 embodying the present invention comprises a hollow tubular member 12 having at its forward end the upper inclined wall 14 and the opposite side walls 16 which define the tone chamber. Said tone chamber has the usual opening 20 over which the tongue of the reed (not shown) is positioned. Said opening 20 is defined by the front end 22 of wall 14, by the forward edge 24 of the lay of the mouthpiece to which said reed is fastened by the usual ligature, and by the free edges 28 of side walls 16. The inner surfaces 30 of side walls 16 are in converging relation in a direction toward opening 20 and are in diverging relation from the rear end of the tone chamber to the front end 22 of upper wall 14. Upper wall 14 of the tone chamber tapers in width toward the front end of the mouthpiece and is somewhat curved on its inner and outer surfaces as shown more clearly in Fig. 4. The bore 32 of the mouthpiece is somewhat larger in diameter than tone chamber 18, the forward end of said bore terminating at the shoulders 34 which define the inner rear ends of side walls 16.

In accordance with the present invention, the mouthpiece is provided with means positioned in the tone chamber for improving the brilliancy of the musical tone of the instrument. Said means comprises a member 36 which is preferably formed of a plastic, for example "lucite," but which can be formed of metal, cane or other wood, or of any other material depending upon the desired character of the tone. Said member 36 is preferably formed initially separate from the mouthpiece and is secured thereto, being as here shown set into a recess 38, which is dove-tailed to securely hold said member in position. The tubular member 12 of the mouthpiece being formed of a plastic, can be readily produced in a mold in which member 36 is positioned, said tubular member being thus simultaneously molded and secured to said tone-modifying member 36. As clearly shown in Fig. 3, tone-modifying member 36 tapers in thickness toward the forward end 40 thereof which faces the forward end of the tone

chamber and is substantially flush with the inner surface of upper wall 14, while said member 36 projects increasingly into the tone chamber from said forward end 40 to its rear end 42 along a line extending toward the rear end of the tone chamber.

The present invention also contemplates a construction of the tone-modifying device whereby it can be easily inserted within and removed from the tone chamber of the mouthpiece as may be desired by the player of the instrument. Further, by making the tone-modifying device removable, it is possible to provide two or more tone-modifying devices of different sizes and shapes or of different materials for use selectively by the player of the instrument. This feature of the invention is illustrated in Figs. 6 to 9. As here shown, the tubular member 12 of the mouthpiece is of the same construction as the tubular member of the mouthpiece 10 described above with reference to Figs. 1 to 5 with the exception that the inner surface of the upper inclined wall 14 of the tone chamber is not provided with a recess, but has an uninterrupted inner surface. The tone-modifying device 36A, shown in perspective in Fig. 9, is removably positioned within the tone chamber in engagement with the inner surface of upper wall 14 and with the inner surface 30 of side walls 16. Tone-modifying device 36A is generally wedge-shaped and tapers in thickness from the rear edge 46 thereof to the thin forward end 48 so that when said tone-modifying device is in position in the tone chamber, the thin forward end 48 lies substantially flush with the inner surface of wall 14 while said tone-modifying device projects increasingly into the tone chamber in a direction from the front to the rear of the latter. As the inner surface of wall 14 has a transverse curvature, the adjacent surface 50 has a similar curvature. Likewise, since walls 30 are in converging relation away from the inner surface of wall 14, the opposite sides 52 converge slightly toward each other in a direction away from surface 50 so that when member 36A is in proper position within the tone chamber, said sides 52 abut the adjacent portions of said walls 30 of the tone chamber while surface 50 abuts the adjacent surface portion of wall 14. It will be understood also that since walls 30 are in diverging relation toward the front end of the mouthpiece, the width of tone-modifying device 36A increases in width, although slightly from the rear end 46 to the front end 48 thereof. It will be understood that tone chamber device 36A is dimensioned so that when it is inserted in the tone chamber through the forward end of opening 20, with surface 50 confronting the inner surface of wall 14 and with the thicker edge 46 facing toward the rear of the tone chamber, said tone-modifying device is movable into said tone chamber toward the rear end thereof to a position automatically determined by the size and shape of said tone-modifying device. In this connection it will be observed that movement of the tone-modifying device 36A rearwardly beyond the point at which said tone-modifying device is correctly positioned is prevented by the rearwardly converging relation of side walls 30, and it will be noted further that said side walls 30 support the tone-modifying device 36A against movement away from wall 14 since said side walls 30 converge toward each other in a direction away from said wall 14. Thus tone-modifying device 36A can be readily inserted in the tone chamber. When it is desired to remove said device from the mouthpiece, this can be readily accomplished by pushing the same forwardly of the mouthpiece for which purpose a pencil or similar rod-like member can be inserted into the bore of the mouthpiece at the rear end of the latter to engage the rear edge 46 of said device.

In the form of the invention illustrated in Fig. 10, the tone-modifying device 36B is adjustable in the tone chamber for varying the tone quality of the instrument in respect to the softness or brilliancy of the tone. As here shown, said tone-modifying device 36B comprises a plate 54 which is pivotally connected at its forward end to inclined wall 14 as indicated at 56 whereby said plate is movable toward and away from the opening 20 of the tone chamber. The width of plate 54 is approximately the same as the width of the tone chamber. Said plate can be formed of any of the materials referred to above in reference to devices 36A and 36B. For adjusting said plate the latter is provided at its rear end with a screw-threaded stem or pin 58 which is in threaded engagement in an opening 60 provided in the upper wall 14 of the mouthpiece. The lower end of stem 58 has a loose connection with plate 54, as indicated at 60, sufficient to permit the arcuate movement of said plate when said stem is rotated in opening 60 for adjusting the position of said plate. The outer end of stem 58 is provided with an operating knob 62. Thus by rotating said stem 58 pursuant to the turning of knob 62 in one direction or the other, plate 54 can be moved to the desired position in the tone chamber for producing the desired tonal quality of the instrument. It will be understood that in the position of plate 54 shown in Fig. 10 the musical tone of the instrument is more brilliant than it is when said plate is moved toward wall 14.

Referring to Fig. 11, the mouthpiece is constructed so that the softness of the musical tone can be increased. For this purpose, the mouthpiece is provided with a device 36C removably positioned in a recess 64 formed in the inner surface of upper inclined wall 14 of the mouthpiece. Device 36C can be made of plastic or of any of the other materials referred to above in reference to devices 36, 36A and 36B and as here shown is in the form of a plate 66 which extends for the full width of the tone chamber adjacent wall 14. Member 66 can be secured in recess 64 in any suitable way as by a screw 68 threaded into said member and partly into wall 14 above recess 64. When member 66 is in position the tonal quality has a normal characteristic as to the brilliancy thereof, while on the other hand, when said member is removed, the tonal quality is softer or more mellow than that provided by the usual mouthpiece. If desired, member 66 can be of such thickness as to project into the tone chamber. In this connection it will be understood that a plurality of members of varying thicknesses can be provided so that the player can select the one he desires for obtaining the desired brilliance of tone. Accordingly, by removing a member 66 of one thickness and by inserting a member 66 of a different thickness, the brilliance or softness of tone can be altered to suit the player's wishes. Further, by leaving recess 64 empty, the maximum softness of tone is achieved.

While I have shown and described various embodiments of my invention, it will be understood that the latter may be embodied otherwise than as herein shown and described, and that in the illustrated embodiments certain changes may be made. Accordingly, I do not wish to be limited

specifically to the mouthpiece herein specifically illustrated or described except to the extent which may be required by the scope of the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A mouthpiece for a musical instrument of the reed type comprising a hollow member having a tone chamber including an inclined upper wall near the forward end thereof, side walls and an opening opposite said upper wall and over which the forward part of the reed is to be placed, and means positioned within said chamber centrally between said side walls of said member in contact with said inclined upper wall and spaced from said opening for modifying the sound of the instrument produced pursuant to the vibration of the reed when the instrument is played, said means being out of engagement with the reed when the latter is in position over said opening.

2. A mouthpiece for a musical instrument of the reed type comprising a hollow member having a tone chamber including an inclined upper wall near the forward end thereof, side walls and an opening opposite said upper wall and over which the forward part of the reed is to be placed, and a member positioned in said chamber centrally between said side walls in contact with and projecting from said inclined wall into the space between the latter and said opening, said last mentioned member being spaced from said opening and out of engagement with the reed when the latter is in position over said opening.

3. A mouthpiece for a musical instrument of the reed type comprising a hollow member having a tone chamber including an inclined upper wall near the forward end thereof and an opening opposite said wall and over which the forward part of the reed is to be placed, and said upper wall having a recess in its inner surface, and a member mounted in said recess and projecting outwardly therefrom into the space between said wall and said opening, said last mentioned member being spaced from said opening and out of engagement with the reed when the latter is in position over said opening.

4. A mouthpiece for a musical instrument of the reed type comprising a hollow member having a tone chamber and an inclined upper wall near the forward end thereof, spaced side walls extending downwardly from said inclined wall and terminating in an opening over which the tongue of the reed is to be positioned, the inner surfaces of said side walls being in converging relation toward said opening, and a member contacting said inclined wall removably mounted in the space between said side walls and supported by said converging surfaces.

5. A mouthpiece for a musical instrument of the reed type comprising a hollow member having a tone chamber including an inclined upper wall near the forward end thereof, spaced side walls extending downwardly from said inclined wall and terminating in an opening over which the tongue of the reed is to be positioned, the inner surfaces of said side walls being in converging relation toward said opening, said inner surfaces being in diverging relation toward the front end of the mouthpiece, and a member contacting said inclined wall removably mounted centrally in the space between said side walls for modifying the tone of the instrument, said member having opposed sides in slidable engagement with said surfaces, respectively, of said side walls.

6. A mouthpiece for a musical instrument of the reed type comprising a hollow member having a tone chamber including an inclined upper wall near the forward end thereof, spaced side walls extending downwardly from said inclined wall and terminating in an opening over which the tongue of the reed is to be positioned, the inner surfaces of said side walls being in converging relation toward said opening, said inner surfaces being in diverging relation toward the front end of the mouthpiece, and a member removably mounted centrally in the space between said side walls for modifying the tone of the instrument, said member having a surface in contact with the inner surface of said upper inclined wall and opposed sides in slidable engagement with said surfaces, respectively, of said side walls, said member tapering in thickness and terminating in a thin front end engaging the inner surface of said inclined wall.

7. A mouthpiece for a musical instrument of the reed type comprising a hollow member having a tone chamber including an inclined upper wall near the forward end thereof, side walls and an opening opposite said wall and over which the forward part of the reed is to be placed, and means positioned within said tone chamber of said member centrally between said side walls adjacent said inclined upper wall for modifying the sound of the instrument produced pursuant to the vibration of the reed when the instrument is played, said means comprising a member in contact with said upper wall and projecting increasingly away from said upper wall along a line directed toward the rear of said tone chamber, said last mentioned member being spaced from said opening and out of engagement with the reed when the latter is in position over said opening.

8. A mouthpiece for a musical instrument of the reed type comprising a hollow member having a tone chamber including an inclined upper wall near the forward end thereof, side walls and an opening opposite said wall and over which the forward part of the reed is to be placed, and means positioned within said chamber of said member adjacent said inclined upper wall and centrally of said side walls for modifying the sound of the instrument produced pursuant to the vibration of the reed when the instrument is played, said means comprising a member in contact with said upper wall and projecting increasingly away from said upper wall along a line directed toward the rear of said tone chamber, the forward end of said member lying close to the inner surface of said upper wall, said last mentioned member being spaced from said opening and out of engagement with the reed when the latter is in position over said opening.

9. A mouthpiece for a musical instrument of the reed type comprising a hollow member having a tone chamber, said tone chamber having side walls, and a member positioned in said tone chamber near the top thereof centrally between said side walls thereof and between the opposite ends of said inclined wall for modifying the tone of the instrument, said member being in engagement with said top of the tone chamber and spaced from the reed when the latter is in position on the mouthpiece.

10. A mouthpiece for a musical instrument of the reed type comprising a hollow member having a tone chamber, and a member positioned in said tone chamber near the top thereof and between its ends for modifying the tone of the in-

strument, said tone-modifying member being movably mounted in said chamber in engagement with the top of said chamber and spaced from the reed when the latter is in position on the mouthpiece, and means for adjusting said tone-modifying member in said chamber.

11. A mouthpiece for a musical instrument of the reed type, comprising a hollow member having a tone chamber provided with an upper wall and side walls, and a member positioned in said tone chamber centrally between said side walls and adjacent said upper wall in contact therewith, said member tapering in thickness and having its thinner end facing the forward end of said tone chamber.

12. A mouthpiece for a musical instrument of the reed type, comprising a hollow member having a tone chamber defined by an inclined upper wall tapering in width from the front end of the mouthpiece and by spaced side walls converging toward each other from said front end and from said upper wall, and a wedge shaped member insertable into said tone chamber through the forward part of the tone-chamber opening, said wedge shaped member corresponding in size and shape to an upper intermediate part of the tone chamber whereby said wedge-shaped member contacts said inclined upper wall and is supported in predetermined position in said tone chamber when moved to said intermediate part of said chamber.

13. A tone modifying device for the tone chamber of a mouthpiece of a musical instrument of the reed type and in which said tone chamber is defined by an inclined upper wall tapering in width from the front end of the mouthpiece and by spaced side walls converging toward each other from said front end and from said upper wall, said tone-modifying device comprising a wedge shaped member insertable into said tone chamber through the forward part of the tone-chamber opening, said wedge shaped member corresponding in size and shape to an upper intermediate part of the tone chamber whereby said wedge-shaped member engages the inner surface of said inclined upper wall and is supported in predetermined position in said tone chamber when moved to said intermediate part of said chamber.

14. A tone modifying device for the tone chamber of a mouthpiece of a musical instrument of the reed type and in which said tone chamber is defined by an inclined upper wall having a transversely curved inner surface and tapering in width from the front end of the mouthpiece and by spaced side walls converging toward each other from said front end and from said upper wall, a wedge shaped member insertable into said tone chamber through the forward part of the tone-chamber opening, said wedge shaped member corresponding in size and shape to an upper intermediate part of the tone chamber whereby said wedge-shaped member is supported in predetermined position in said tone chamber when moved to said intermediate part of said chamber, said wedge shaped member having a transversely curved surface which abuts said transversely curved surface of the upper wall of the tone chamber.

15. A mouthpiece for a musical instrument of the reed type comprising a hollow member having a tone chamber, and a unitary member positioned in said tone chamber near the top thereof, said member engaging the top of said chamber and being spaced from the reed when the latter is in position on the mouthpiece, said member being removable whereby the tonal characteristic of the instrument can be changed by removing said member from the tone chamber.

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MOUTHPIECE FOR MUSICAL INSTRUMENTS

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Fig. 4

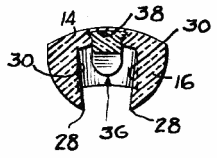


Fig. 1

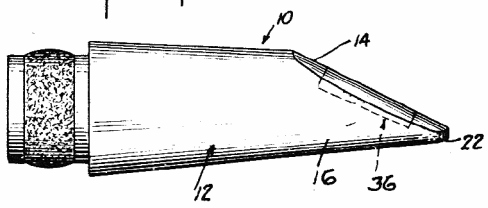


Fig. 5

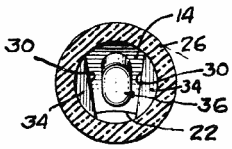


Fig. 2

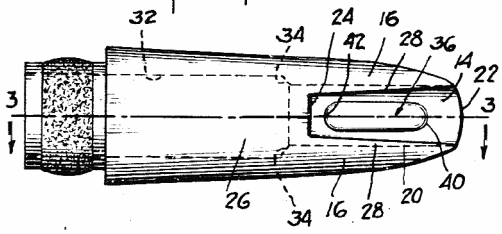


Fig. 3

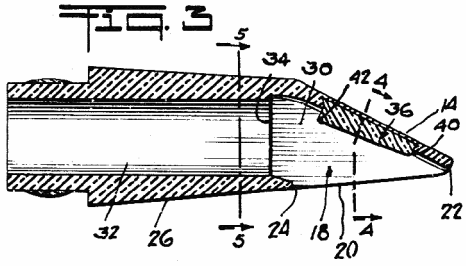


Fig. 11

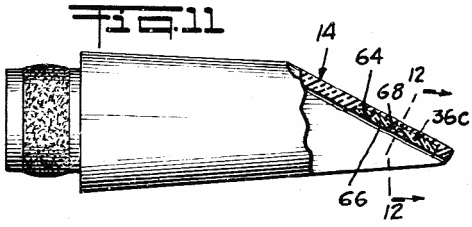


Fig. 10

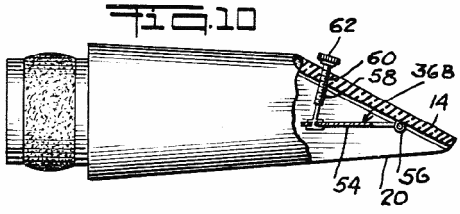


Fig. 7

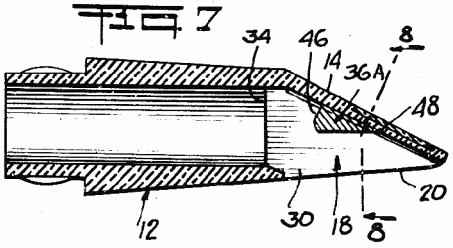


Fig. 6

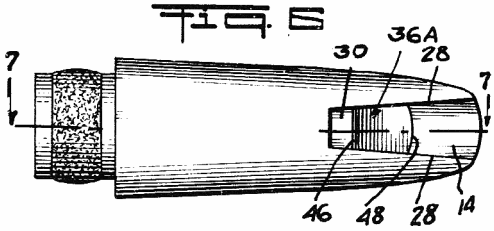


Fig. 8

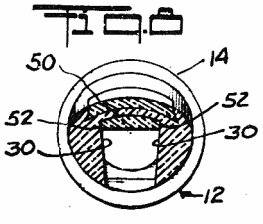


Fig. 12

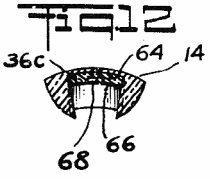
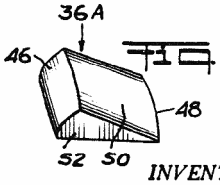


Fig. 9



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