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F. A. BERG

COMPOUND REGULATED MUTE

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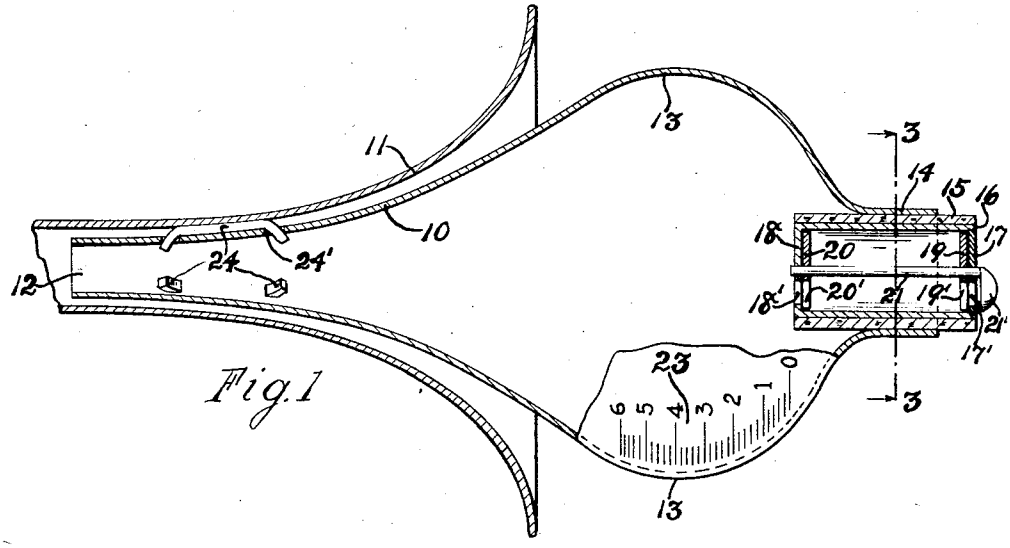


Fig. 1

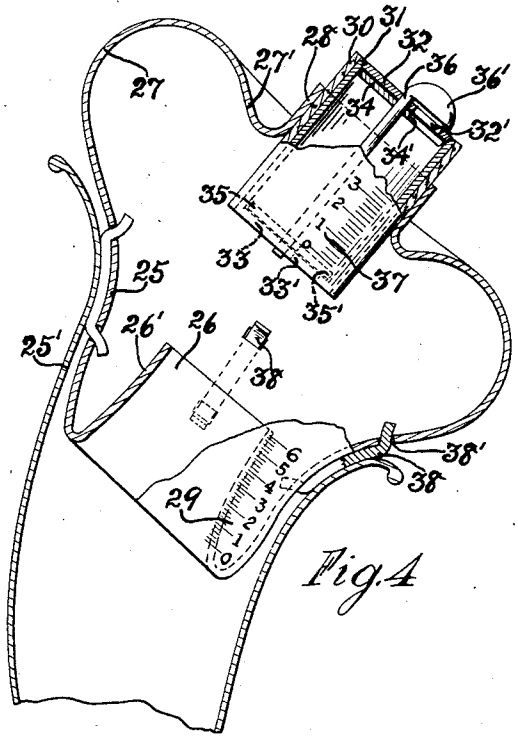


Fig. 4



Fig. 2

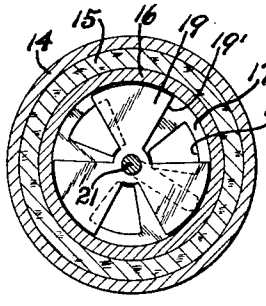


Fig. 3

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COMPOUND REGULATED MUTE.

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My invention pertains to a compound regulated mute, especially adapted and arranged for insertion in the bell of a musical wind instrument.

The main object of the invention is to provide a mute which comprises a body having a portion substantially bell-shaped or concaved longitudinally on the exterior, to harmonize with and fit into the bell of a wind instrument, and which is then curved or convexed on the exterior and substantially bulb-shaped, outward of said bell of the instrument, and then terminates in a neck or sleeve providing a vent port for the outlet of sound waves. A further object is to provide the sleeve or vent port with a compound plunger mechanism, adjustably movable therein into the body, and having vent openings with shutter means therefor, providing a compound tone modifier. Another object is to construct the body so as to contain a liquid, for modifying the tone effect, and so that the liquid may be used in addition to and in conjunction with the plunger mechanism. A still further object is to provide holding strips or elements of frictional and compressible material to be movably mounted in holes in the wall of the mute, and adjustable to adapt the mute for the bell of instruments of various sizes.

Other objects and advantages are attained with my invention, as will become apparent from the following description taken in connection with the accompanying drawing, which illustrates the preferred forms of construction, and in which,

Fig. 1 is a sectional view showing my invention in the form of a mute particularly shaped to fit the bell of a cornet or similar musical wind instrument;

Fig. 2 is a detail view of the plunger mechanism;

Fig. 3 is an enlarged cross-sectional view on line 3—3 of Fig. 1; and,

Fig. 4 is a sectional view showing my invention in the form of a mute particularly adapted to fit the bell of a saxaphone.

The particular form of my invention illustrated in Fig. 1 of the drawing comprises a substantially conical tubular body member having its smaller end or part 10 shaped like a bell or concaved longitudinally on the exterior, to harmonize with and fit within the bell of a cornet or similar instrument 11, and having an air or sound receiving opening 12 at the inner or smaller end; while the larger or outer end of the body is curved or convexed on the exterior providing a bulb-like portion 13, which terminates in a neck or sleeve 14 providing a suitable outlet or vent port for the outlet of part of the sound waves. This body is preferably made of diri-gold steel, aluminum, or other suitable metal, and may also be made of vitreous material, and is bulbed to contain liquid.

The means for closing and controlling the vent port comprises a compound plunger means or mechanism including a tube 15 of compressible and frictional material, like rubber, cork, or the like, slidably mounted in sleeve 14, to be moved and extended into the body of the mute; and an inner tube 16, preferably of metal, is mounted in tube 15 and movable therewith and fixed firmly thereto. The outer end of this tube 16 has a disk or member 17 threaded or removably mounted therein and containing vent openings 17′, while the inner end member 18 of this tube may be fixed or integral, and has openings 18′ therein. A plate or disk 19 with openings 19′ is placed adjacent end disk 17, and a plate or disk 20 with openings 20′ is placed adjacent end member 18. A lever or rod 21, with outer handle means 21′, is fastened to said disks 19 and 20 to turn them and register the openings 19′ and 20′ with the openings 17′ and 18′ simultaneously, to the desired extent, or to close the same, for producing the desired tonal effect. Index numbers 22 with suitable marks are placed on member 15 to provide graduated gage means.

This compound plunger means thus provides a combination or compound tone modifier for the mute, as it may be moved and adjusted into the body of the mute to the desired extent, and the disks 19 and 20 may be turned by means of lever 21 to open and adjust or to close the sound emitting openings in the end members 17 and 18; and furthermore this plunger mechanism may be used without the aid of any liquid in the mute, or may be used along with liquid therein, said liquid being gaged and varied by the index marks and numbers 23 on bulb portion 13, to produce the desired tonal effect, especially a jazz effect.

The means for holding the mute in the bell of the instrument includes strips or members 24 of compressible and frictional material, such as rubber, cork, or suitable composition, said strips being extended through holes 24′ provided in the wall of the mute and being compressed therein to fully fill and close these

holes, and being adjustable in said holes to adapt them for mounting the mute in various sized instruments.

The form of construction illustrated in Fig. 4 is more particularly constructed for use with a saxophone, and this form also comprises a body containing a tubular or substantially bell-shaped portion 25, to harmonize with and fit in the bell of a saxophone 25′, and having an air or sound receiving opening 26 at its smaller end which is formed by an inwardly extending or inverted conical part or throat 26′, while its opposite larger end or outer end is substantially closed by a convexed or bulbed portion 27 which is curved inwardly, as at 27′, and terminates in a tubular neck or sleeve 28 which provides an outlet or vent port for the passage of part of the sound waves. The body is adapted to contain liquid, and has index marks and numbers 29 provided, preferably near the conical throat 26′, for gaging the amount of liquid used, and it is preferably made of metal, like the preceding form.

The plunger mechanism for this form of construction, like in the preceding form, comprises an outer tubular member 30 of compressible and frictional material, like cork or rubber, slidably mounted in neck 28, and an inner tubular member 31, preferably of metal, fixedly mounted therein and movable therewith. The outer end of this member 31 has a disk 32 threaded therein and containing vent openings 32′; while the inner end 33 of said member 31 may be fixed or integral and has vent openings 33′ therein. A plate or disk 34 with openings 34′ and a similar plate or disk 35 with openings 35′ are placed respectively adjacent disks 32 and 33, and a lever 36, with a handle end 36′, is fastened to said disks 34 and 35, for registering the openings 34′ and 35′ with the openings 32′ and 33′ simultaneously, to adjust or to close the same; while index numbers and marks 37 on member 30 provide gage means for adjusting the plunger mechanism into the body of the mute.

Holding strips 38 are made of compressible and frictional material, such as cork, rubber, or the like, and are extended through holes 38′ in the wall of the mute, to completely fill and close said holes, and being adjustable therein for mounting the mute in various sized instruments.

In either of the forms of construction the compound plunger mechanism is adjusted in the neck of the mute to extend the particular distance into the bulb portion of the body of the mute, to produce the desired tonal effect, and the lever control means or shutter means is turned and adjusted to provide the necessary size of vent openings to exactly harmonize with the particular position of the plunger mechanism in the neck and into the body of the mute, thereby controlling the effect of the mute as to sound and to volume of the musical tones of the instrument, for exactly providing the desired tonal effect.

It should also be noted that the entire plunger mechanism may be adjusted, and also the lever means therein alone, during the use of the mute and the playing of the instrument.

What I claim as my invention and desire to secure by Letters Patent is:

1. A mute comprising a body which has a part with a sound opening and is concaved longitudinally and entirely smooth on the exterior to fit within the bell of a wind musical instrument, and is then convexed or bulbed and terminates in a neck curved gradually from said bulbed part providing a vent port.

2. A mute comprising a body which has a part with a sound opening and is concaved longitudinally on the exterior to fit in the bell of a wind musical instrument, and is then convexed or bulbed and terminates in a tubular neck providing a vent port, and means mounted in said neck to be adjustably movable into said body and for partly or entirely closing said port.

3. A mute comprising a body which has a bell-shaped part with a sound opening at the smaller end to suit the bell of a wind musical instrument for mounting it therein, and is then bulb-shaped at the larger end to be placed outside of said bell, then terminates in a tubular neck providing a vent port, indices upon the body, a quantity of liquid adapted to be contained within the body, the said indices adapted to indicate the quantity of water in the body for modifying the tone effect.

4. A mute comprising a body having a bell-shaped part and a bulb-shaped part thereon with a tubular neck providing a vent port, there being a sound opening in said bell-shaped part and tubular means in said neck with vent openings at both ends and means for controlling the size of said openings at both ends simultaneously.

5. A mute comprising a body having a bell-shaped part and a bulb-shaped part thereon terminating in a tubular neck providing a vent port, there being a sound opening in said bell-shaped part, means mounted in said neck to be adjustably movable into said body and having vent openings, and shutter means for adjusting the size of said openings.

6. A mute comprising a body shaped to fit the bell of a wind musical instrument, having a sound inlet at the inner end and terminating in a tubular neck providing a sound outlet at the other end, tubular means in said neck with openings at both ends, and means with a handle at the outer end for controlling said openings at both ends simultaneously.

7. A mute comprising a body shaped to fit the bell of a wind musical instrument, having

a sound inlet at the inner end and terminating in a tubular neck providing a sound outlet at the other end, tubular means mounted in said neck to be adjustably movable into said body, and having means with vent openings at both ends, and disk means cooperating with both of said end means for adjusting and for closing both of the groups of end openings simultaneously.

8. A mute comprising a body having at one end a sound inlet opening and at the other a sound outlet in the form of a tubular neck, a tubular member with frictional and compressible material on the exterior mounted slidably in said neck to be extended into said body, and having metallic means on the interior, and adjustable means on the ends of said tubular member arranged to simultaneously control both ends of said member for the passage of sound waves therethrough.

9. A mute comprising a body having at one end a sound inlet opening and at the other a sound outlet in the form of a tubular neck, a tubular member slidably mounted therein and having an exterior of frictional and compressible material and an interior of metallic material, means at both ends of said member providing vent openings, and shutter means at said ends simultaneously operable for adjusting and for closing said openings, so as to harmonize with the position of said tubular member in said body.

10. A mute comprising a body mountable in the bell of a wind musical instrument and having a sound inlet and opposite it a sound outlet in the form of a tubular neck, and plunger mechanism movably mounted in said neck to be extended into said body and having lever control means for modifying the effect of the mute as to sound and volume.

11. A mute comprising a tubular body having pairs of holes in its wall, and members of compressible and frictional material mounted each in a pair of said holes to completely close the same and for engaging the interior of an instrument.

12. A mute comprising a tubular body having pairs of holes in its wall, and strips of compressible and frictional material adjustably mounted each in a pair of said holes to completely close the same and being arrangeable in said holes to engage and fit in the bells of various sized instruments.

In testimony whereof I have signed my name to this specification.

FREDERICK A. BERG.