Jan. 10, 1928.

W. N. MORRIS

1,655,656

MUSICAL INSTRUMENT MOUTHPIECE

Filed Dec. 18, 1926

Fig. 2.

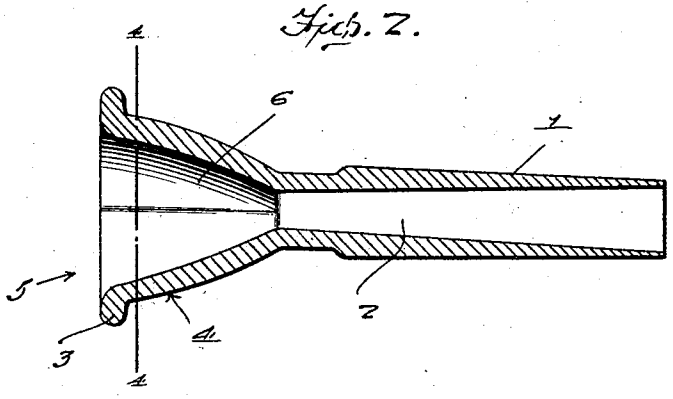


Fig. 1.

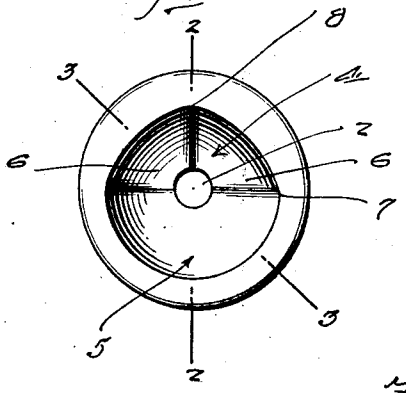


Fig. 4.

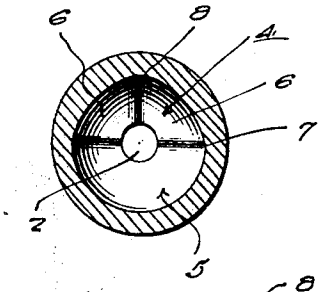


Fig. 5.

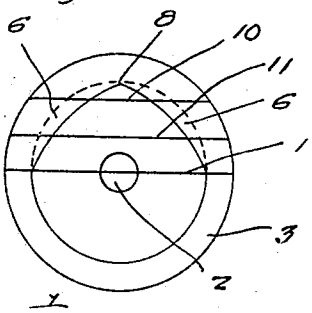


Fig. 6.

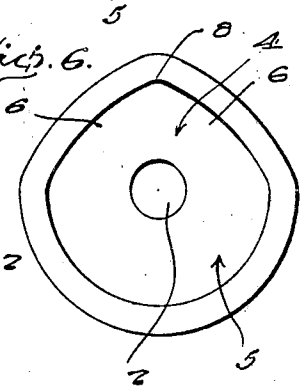
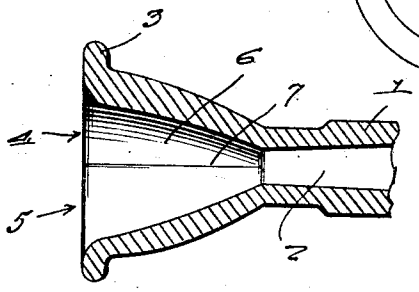


Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM N. MORRIS, OF SALT LAKE CITY, UTAH.

MUSICAL INSTRUMENT MOUTHPIECE.

Application filed December 18, 1926. Serial No. 155,727.

This invention relates to an improved mouthpiece for musical instruments of the brass instrument family of the type employing a cup mouthpiece.

As is well known, one of the outstanding difficulties confronted by a performer on a trumpet, trombone, or the like, is the development and maintenance of an embouchure. Whereas constant practice is necessary for a development of tensile strength of the lips which operate as the vibratory medium, many players not having the benefit of extensive practice are unable to develop a reliable embouchure under all conditions, that is whether playing high tones or low tones.

The outstading aim in the present instance, is to provide a mouthpiece constructed on a new principle to relieve the vibratory "lip-strings" of undue strain, when playing lengthy passages involving a succession of high tones.

It is of course well known that high tones require rapid frequency vibrations of the lip strings, whereas medium and low tones require a much slower rate of vibration. Naturally then, when one is compelled to perform in the high register for a considerable time, the lips become unduly tired and unable to withstand the concentrated tension and pressure as now used.

It has been noted that the average performer constantly shifts the mouthpiece up and down according to the pitch of the tone being produced. For instance, when playing a low tone, the upper lip is usually lowered to about the center of the mouthpiece in order that it will span a greater space and will be free to vibrate. On the other hand when producing high tones, the mouthpiece is pulled down so that in addition to pinching the lip, a smaller and shorter span of space is provided for the lip strings.

Briefly, the present invention has reference to a cupped mouthpiece for brass instruments which has customary external configuration, is provided with a somewhat conventional circular rim, but is formed at its interior with thickened portions of peculiar shape and location such as to provide a more efficient seating for the lips to permit easy production of high and low tones without shifting the mouthpiece.

In the drawings:—

Figure 1 is a front elevation, on an enlarged scale, of a mouthpiece constructed in accordance with the invention.

Fig. 2 is a longitudinal section through the same on the line 2—2 of Fig. 1,

Fig. 3 is a similar section taken on the line 3—3 of Fig. 1,

Fig. 4 is a transverse section taken on the line 4—4 of Fig. 2,

Fig. 5 is a diagrammatic view explaining more in detail, the theory of operation, and

Fig. 6 is a front elevation of a slightly different embodiment of the invention.

Referring now to the drawings in detail, it will be seen that the reference character 1 designates the customary neck or connection having a tapered bore 2 communicating with the cupped recess of the mouthpiece proper.

As before stated, the mouthpiece is of the customary external configuration and is provided with an outstanding marginal rim 3 and is also provided adjacent to said rim with a square end—i. e., an end disposed at right angles to its longitudinal mean line. For the purpose of explanation, the mouthpiece may be said to be composed of upper and lower halves 4 and 5 respectively. The lower half is of a configuration corresponding to that of the ordinary mouthpiece. The upper half, however, is characterized by thickening of the metal to provide a pair of converging walls or sectors 6 extending, in end elevation in Fig. 1, from the ends of the lower arcuate half 5 at 7 to a longitudinal central apex 8.

To demonstrate the theory upon which this construction operates, attention is invited to Fig. 5, wherein it will be seen that three imaginary lines 10, 11, and 12 are drawn. It is to be assumed that the line 10 at the top represents high tones ordinarily difficult to obtain; and that the middle line 11 represents the tones readily produced in the middle register, and the line 12, low tones sometimes difficult to produce, but usually within the ability of the average performer.

The line 12 might correspond somewhat to the aforesaid line of demarkation 7 in Fig. 1. This represents probably, the greatest distance to span and the approximate proper location for the upper lip in producing low tones. Moving the lips slightly upward to the approximate point 11, a comparatively shorter bridge of the lip strings is obtained, this being true by

the presence of the thickened area 6. Also the converging portions of these areas permit proper placement of the upper lip at the point 10 for readily producing the highest tones on the instrument.

The longitudinal taper of the thickened areas 6 is such as to cause the interior formed by said areas 6 to merge into the tone conducting bore 2. From the foregoing description and drawings, it will be seen that I have evolved and produced a novel mouthpiece, having a conventional external appearance (as well as original design), and shaped in its interior at predetermined points so that the lip strings may be shortened in proportion to the pitch of the tone desired to be produced.

Referring now to Fig. 6, it will be seen that the same principle is carried out with the exception that the external configuration of the upper half of the mouthpiece corresponds to the configuration of the restricted portion of the cup. In other words, the rim here instead of being wide at the top is made uniform throughout the diameter. This will insure more efficient seating of the lips, particularly for a player of the old school.

With this arrangement the performer is always assured of a firm comfortable seating of the lips and this assures unlimited endurance, and insures development and maintenance of a proper relaxed embouchure.

Of course, changes in the configuration of the surface of the mouthpiece may be resorted to in order to accommodate improperly located teeth, thick lips, etc.

Having thus described my invention, what I claim as new is:—

A mouthpiece for brass musical instruments having a cup, the interior of which comprises a lower portion of arcuate cross section and an upper portion with walls converging from the sides of the arcuate portions to an apex at an upper point in the cup.

In testimony whereof I affix my signature.

WILLIAM N. MORRIS.