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MOUTHPIECE FOR MUSICAL INSTRUMENTS

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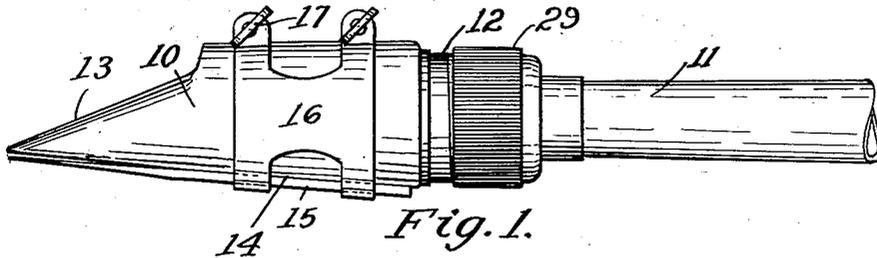


Fig. 1.

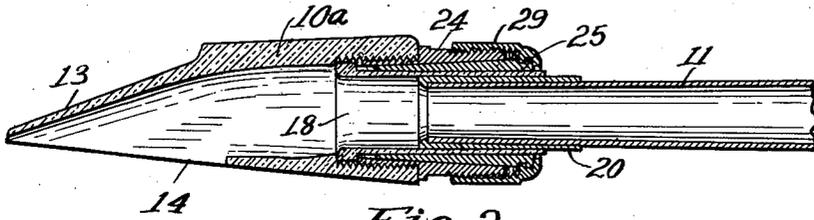


Fig. 2.

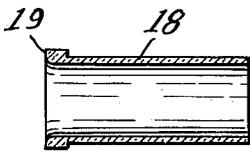


Fig. 3.

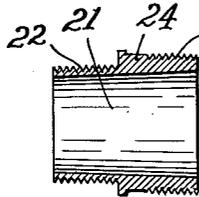


Fig. 4.

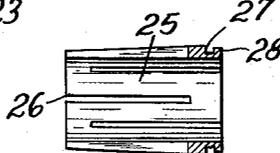


Fig. 5.

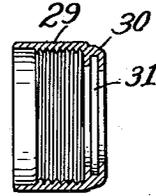


Fig. 6.

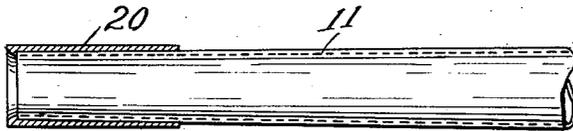


Fig. 7.

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MOUTHPIECE FOR MUSICAL INSTRUMENTS

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2 Claims. (Cl. 84-383)

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This invention relates to musical instruments and, in particular, to a mouthpiece for wind instruments of the single-reed type, such as saxophones, clarinets, or the like, having an improved adjustable friction grip for engaging the neck or upper end of the body of the instrument.

Saxophones and clarinets as heretofore made have been provided with a neck having a cork ring or sleeve over which the mouthpiece of the instrument is slipped, making an adjustable separable friction coupling therewith. The adjustability thus afforded permits tuning the instrument to the proper pitch, while separability is necessary for cleaning and protection of the instrument in its case. Considerable difficulty results, however, from the use of cork for the friction ring and sleeve. In the first place, cork is absorbent and thus collects moisture of condensation resulting in a generally unsanitary condition of the mouthpiece. Secondly, the cork is subject to shrinkage and hardening with age, so that the fit of the mouthpiece on the neck of the instrument becomes loose after a time. This may produce an accidental change of pitch while the instrument is being played which is, of course, ruinous to any musical performance. Finally, the cork lacks durability as evidenced by the fact that the friction ring of a mouthpiece ordinarily has to be replaced after about four or five months' use. This requires the services of a skilled instrument repair man.

I have invented a novel mouthpiece having an improved friction grip or joint seal whereby all the aforementioned disadvantages of the prior construction are eliminated. In a preferred embodiment, I provide a friction sleeve, separate from the mouthpiece, composed of synthetic material having characteristics of softness and flexibility which adapt it to make a tight fit with the instrument neck. The sleeve extends within the body of the mouthpiece and is adapted to receive the neck of the instrument. I also provide means on the mouthpiece for contracting the sleeve snugly about the neck. This means includes a bushing having a tapered bore, threaded into the body of the mouthpiece, and an exteriorly tapered contractible collet fitting therein and surrounding the sleeve. A thimble or ferrule is threaded on the bushing and swiveled to the collet for actuating it into or out of the bushing to establish or release frictional engagement of the sleeve with the instrument neck.

A complete understanding of the invention may be obtained from the following detailed description and explanation which refer to the ac-

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companying drawings illustrating the present preferred embodiment briefly described above. In the drawings:

Fig. 1 is a side elevation of my improved mouthpiece;

Fig. 2 is a central longitudinal section there-through taken on a plane normal to that of the vibrating reed;

Figs. 3 through 6 are axial sections of the sleeve, bushing, collet and thimble, respectively; and

Fig. 7 is an elevation of an instrument neck showing an adapter thereon in section.

Referring now in detail to the drawings, and for the present to Fig. 1, the illustrated embodiment of the invention comprises a mouthpiece having a body 10 adapted to be secured adjustably to the end of the neck 11 of a wind instrument such as a saxophone, by a frictional gripping means indicated generally at 12. The body is molded from hard rubber or the like as usual, and is largely of conventional shape, but has the end thereof adjacent the neck specially adapted for cooperation with the gripping means 12. It has the usual sloping tubular intermediate portion 10a terminating in a sloping upper lip-engaging surface 13 and a plane surface 14 on the bottom adapted to receive the reed 15, which is held in place by a clamping ring 16 having wing screws 17.

Referring now more particularly to Figs. 2 through 7, the frictional gripping means 12 includes a sleeve 18 having a flange or collar 19, adapted to fit in the instrument end of the body 10 of the mouthpiece which is threaded internally. The sleeve has an internal diameter such as to accommodate the instrument neck 11 with or without an adapter 20. The neck 11 as shown corresponds to that of a standard saxophone as now made, and when the improved mouthpiece is applied to such instrument the adapter is necessary, but it will be understood that the neck may be originally made of such size as to fit snugly in the sleeve without any adapter. The adapter is merely for the purpose of permitting use of the invention on instruments already existing and may replace the present cork sleeve.

The sleeve 18 is a cylindrical tube of synthetic material having characteristics of softness and flexibility rendering it suitable for use as a compressible friction member or joint packing. The material should be moisture-repellent, non-absorbent, stable and durable. The class of materials known as synthetic resins include several suitable examples, one of which is polyethylene.

Others are vinyl resins, or even synthetic rubber such as thiokol and butadiene copolymers. These materials are inexpensive, easily shaped as by molding, and sufficiently soft and yielding at normal temperatures to be slightly compressible while maintaining their original dimensions within narrow limits for long periods, despite changes in atmospheric conditions. In addition they are waterproof and quite durable for the use herein disclosed. Polyethylene, however, is most suitable because it has a wax-like surface characteristic, is tough, adequately pliable and elastic.

A bushing 21 has a tapered bore therethrough and has one end 22 reduced and threaded externally so that it may be screwed into the body 10. The other end is also threaded as at 23. The bushing has a shoulder 24 intermediate its ends adapted to abut against the instrument end of the body 10.

A collet 25 adapted to fit on the sleeve 18 has its exterior tapered to conform with the interior of the bushing. Slots 26 extend longitudinally of the collet, starting alternately from opposite ends thereof, to permit it to be contracted slightly. A circumferential groove 27 is formed at the thicker end of the collet leaving a bead or tongue 28 for a purpose which will appear shortly. As shown in Fig. 2, when the gripping means 12 is assembled, the collet 25 is substantially co-terminous with the bushing 21.

A thimble or ferrule 29 is threaded internally so as to screw on the end 23 of bushing 21. It has an turned flange 30 at one end in which a groove 31 is formed. The thimble serves when screwed on the bushing to advance or retract the collet. For this purpose, the thimble and collet are preliminarily assembled by contracting the latter until its tongue or bead 28 snaps into the groove 31 in the former. This affords a swivel connection between them, permitting screwing or unscrewing of the thimble without turning the collet, but effecting the desired axial movement thereof.

The preferred manner of assembling the gripping means will now be explained. Assuming that the adapter 20 is fixed on the neck as by being sweated thereto, the sleeve 18 is fitted into the body 10 with its flanged end inward, and the bushing 21 screwed home in the body. This holds the sleeve securely in place in the body. The collet 25 and the thimble 29, swivelly united as explained above, are then slipped over the neck 11. The body 10 with the sleeve therein is then placed on the neck so that the sleeve accommodates the adapter for the greater portion of its length. The collet and thimble are then slid back toward the body until the former enters the bushing and embraces the sleeve and the latter is threadedly engageable with the exposed end of the bushing. By turning the thimble home on the bushing, the collet is forced within the latter and is contracted by the taper of the bore therein whereby the sleeve is radially compressed to make an air-tight frictional fit with the adapter.

The position of the body on the neck may be readily adjusted for tuning, by backing off the thimble. This retracts the collet and releases its grip on the sleeve. When the desired adjustment has been made, the thimble is again turned down tight to hold the parts in adjusted relation and re-establish the tight fit between the sleeve and the adapter.

It will be apparent that the invention has numerous advantages over mouthpieces as previously made. In the first place, a tight fit be-

tween the mouthpiece and instrument neck is assured at all times, even though slight shrinkage of the sleeve should occur, since the original friction fit thereof is not relied on but means are provided for positively contracting it tightly about the neck. In the second place, the synthetic material of which the sleeve is composed, in addition to being particularly well adapted to make an air-tight joint under compression, is non-absorbent and is durable. It is a loose part, however, and should it show wear after prolonged service, may be easily replaced at low cost without requiring a skilled repair man as in the case of the cork sealing rings and sleeves previously employed. Adjustment for tuning is easily made and accidental change of tuning is prevented. Moreover, the frictional coupling secured by my invention is such that the body of the instrument may be rotated and clamped to any desired angle with respect to the mouthpiece and will remain so positioned until released.

The several parts of the gripping means are simple, light in weight, and inexpensive to manufacture. They should last almost indefinitely with ordinary care.

Although I have illustrated and described herein only the present preferred embodiment of my invention, it will be understood that changes in the details or arrangement thereof may be made without departing from the spirit of the invention or the scope of the appended claims.

I claim:

1. An adjustable mouthpiece for wind instruments of the character described comprising a body having a threaded opening with an annular shoulder at its inner end, a sleeve receivable in said opening and having a flange at one end thereof for abutting against said shoulder, a bushing having threaded engagement in said opening for holding said sleeve flange against said shoulder to secure said sleeve in position with its other end projecting from said opening for engagement over the end of an instrument to which the mouthpiece is to be connected, said bushing having an internal surface tapering in an axial direction but spaced from and concentric to said sleeve to provide an annular space between said sleeve and bushing, a collet receivable in said space and having a surface engageable with said tapered bushing surface but having a taper in an opposite axial direction so that axial movement of said collet will be effective to apply and release a clamping force to said sleeve for adjustably clamping said sleeve to the end of an instrument received therein, and a nut threaded on said bushing and having a connection with said collet so that rotational movement thereof will be effective to move the collet axially to apply and release said clamping force so that the axial position of the mouthpiece on the end of an instrument may be adjusted.

2. An adjustable mouthpiece for wind instruments of the character described comprising a body having a threaded opening with an annular shoulder at its inner end, a sleeve receivable in said opening and having a flange at one end thereof for abutting against said shoulder, a bushing having threaded engagement in said opening for holding said sleeve flange against said shoulder to secure said sleeve in position with its other end projecting from said opening for engagement over the end of an instrument to which the mouthpiece is to be connected, said bushing having an internal surface tapering in an axial direction but spaced from and concen-

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tric to said sleeve to provide an annular space between said sleeve and bushing, a collet receivable in said space and having a surface engageable with said tapered bushing surface but having a taper in an opposite axial direction so that axial movement of said collet will be effective to apply and release a clamping force to said sleeve for adjustably clamping said sleeve to the end of an instrument received therein, said collet having a plurality of circumferentially spaced and axially extending slots each extending axially inwardly from an end thereof to a point adjacent the other end thereof, said slots being alternately arranged with adjacent slots respectively extending inwardly from opposite ends so that the collet may be circumferentially compressed by the action of said tapered surfaces in response to axial movement of the collet to apply a clamping

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force to the external surface of said sleeve over substantially the entire length of the collet.

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