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3,144,801

MUSICAL INSTRUMENT

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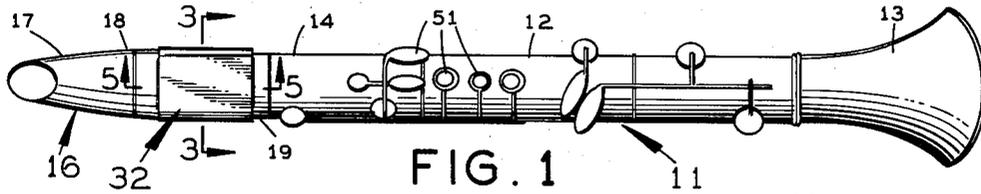


FIG. 1

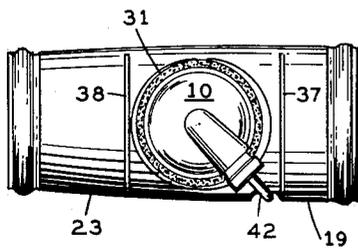


FIG. 2

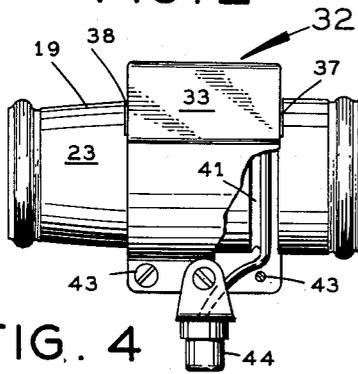


FIG. 4

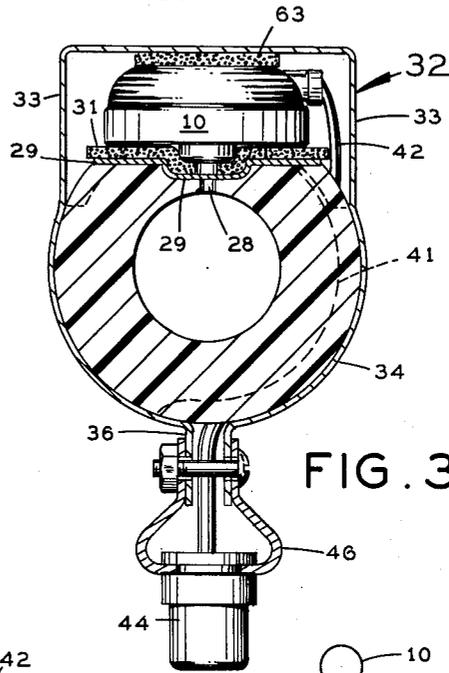


FIG. 3

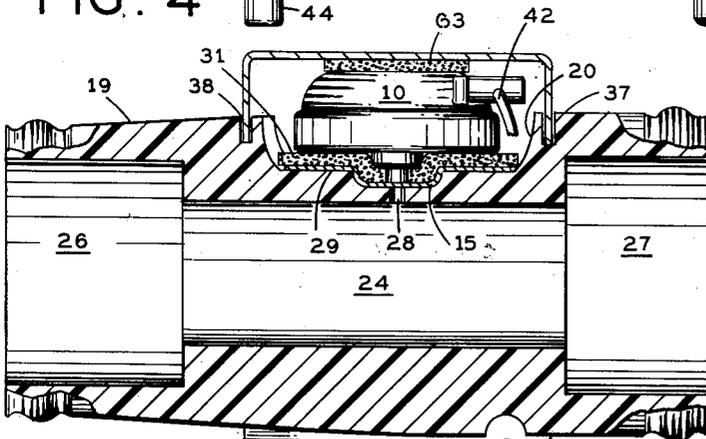


FIG. 5

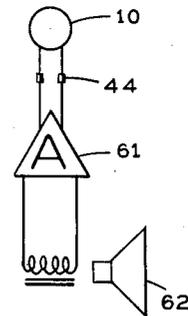


FIG. 6

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**MUSICAL INSTRUMENT**

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3 Claims. (Cl. 84-380)

This invention relates to the amplification of music from musical instruments of the woodwind type such as clarinets, saxophones, bassoons, flutes, piccolos and oboes, and, more particularly, this invention relates to a mounting for a sound pickup for woodwind type instruments and constitutes an improvement on my co-pending patent application, Serial No. 124,144, filed July 14, 1961, and which is now abandoned.

The invention will generally be understood with reference to the following example. As in perhaps well known, a clarinet comprises an elongated tube having valves communicating with the interior sound column thereof and a mouthpiece with a single reed affixed thereto. In use, a noise comprising a basic tone is generated by vibration of the reed causing air waves to travel through the sound column of the instrument. Along the elongated tube and communicating with the sound column, there are a series of spaced apart tone openings with valves or keys covering the openings. Depending upon which keys are manipulated, the pitch of the tone produced may be modified, and, in order to obtain tone amplification of a woodwind instrument, it has been necessary for one playing the instrument to continually maneuver the instrument relative to a microphone in order to achieve some uniformity of tone output and amplification. It has been found that by mounting an electrical pickup near the mouthpiece and amplifying the signals obtained thereby, the basic tone of the instrument may be reproduced in its purest quality.

It is a principal object of this invention to provide a mounting for electrical pickups for woodwind type instruments whereby the pickup is cushioned against mechanical vibrations between it and the instrument and whereby the pickup is maintained relatively dry in relation to moisture which characterizes the sound column of such instruments in use.

It is also an object of this invention to provide a housing for an electrical pickup for woodwind instruments of the type specified hereinafter.

It is a general object of this invention to provide a device of the type described hereinafter which is simple in construction, relatively inexpensive to manufacture, is adapted to mass distribution and which is well adapted for the purpose intended.

In accordance with these and other objects which will become apparent hereinafter, the instant invention will now be described with reference to the accompanying drawings illustrating a preferred embodiment thereof.

In the drawings:

FIG. 1 is a plan view of a clarinet illustrating the pickup mounting;

FIG. 2 is a plan view of the instant mounting for a woodwind instrument pickup with the housing therefor removed;

FIG. 3 is an elevation view on an enlarged scale in cross section taken along the line 3-3 of FIG. 1 and looking in the direction of the arrows;

FIG. 4 is a reduced side elevation view of FIG. 3;

FIG. 5 is a cross sectional view on an enlarged scale taken along the line 5-5 of FIG. 1 and looking in the direction of the arrows; and

FIG. 6 is an electrical schematic drawing showing the arrangement of the combination of the components.

Referring more particularly to the drawings, wherein like reference characters designate like or corresponding

parts throughout the different views, and referring particularly to FIGURE 1, the numeral 11 designates generally a clarinet comprising an elongated tube 12 having a flared end 13 and normal end 14, said clarinet being provided with a mouthpiece 16 having a tapered end 17 and a normal end 18. Disposed between said elongated tube and said mouthpiece a barrel portion, generally designated 19, is provided.

Referring to FIGURES 3 and 4, it will be seen that the barrel portion comprises a body 23 of tubular construction defining a longitudinal passageway 24 therethrough, said passageway having an enlarged portion at each end thereof as at 26 and 27 defining chambers for receiving therein the normal ends of the mouthpiece and tube. A passageway 28 is provided communicating between the exterior periphery of the insert body 23 and the passageway 24, said passageway having an enlarged portion at the periphery defining an inner recess 15 and an outer recess 20. A pickup of a hearing aid 10 of the type widely distributed and commercially used by persons having a hearing impediment is mounted in the outer recess with a portion thereof extending into the inner recess. The hearing aid, which is hereinafter referred to as an electrical pickup, includes means responsive to sound waves impinging thereon for causing an electrical signal corresponding to the sounds. Disposed in the recesses 15 and 20 between the pickup and the insert body are a filter 29 and a cushion 31.

The pickup, cushion and filter are housed in a housing 32 having a hollow body 33, a barrel engaging portion 34 and a clamp section 36. Grooves 37 and 38 are provided on the top of the insert body for receiving therein depending forward and rearward edges of the housing. Also a slot 41 for a conductor 42 leading from the pickup is provided in the outer peripheral wall of the insert body. The clamp section 36 is provided with holes therethrough for receiving screws and bolts and at 43 and for having mounted thereto a jack 44 and mounting element 46.

In use, one using a woodwind type instrument such as that illustrated causes sound waves to travel through the sound column of the tube. The sound waves comprise a basic tone which may be modified by manipulating keys 51. The basic tone may be preserved and not be subjected to such modifications and to distortions caused by turbulence within the sound column of the elongated tube, by the pickup 10 being mounted to the insert over the passageway communicating with the main sound column. The pickup converts the sound waves into electric signals which are conducted to an amplifier 61 following which it is reproduced as a strong sound by a speaker 62 which overrides the modifications and deviations.

The filter 31 which comprises a thin sheet of paper, prohibits drops of spittle from reaching the electrical pickup while at the same time permitting the sound waves to pass therethrough. The cushion 29 absorbs any mechanical vibration of the pickup against the insert. A second cushion 63 may be provided between the pickup and the housing to absorb any vibration which may occur between the housing and the pickup.

It has been found that when the passageway 28 is inclined approximately five degrees with respect to the vertical, with the mouth of the opening on the interior of the passageway 28 and pointed toward the mouthpiece, that the resulting pickup is of increased quality and effectiveness.

While the instant invention has been shown and described herein in what is conceived to be the most practical and preferred embodiment, it is recognized that departures may be made therefrom within the scope of the invention, which is therefore not to be limited to the details disclosed herein but is to be accorded the full scope

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of the claims so as to embrace any and all equivalent apparatus and articles.

What is claimed is:

1. In combination with a woodwind type instrument having a main sound column, an electrical pickup mounted securely to the sound column with a passageway communicating from the point of the pickup mounting to the interior of said column, an amplifier for amplifying an electric signal generated by sound waves striking said pickup, an electrical conductor communicating between the pickup and the amplifier and a speaker electrically connected to said amplifier whereby sound caused by passage of air waves in said column is adapted to be amplified; the improvement which resides in a recessed surface on the instrument and a flat cushion nested on the recessed surface and disposed between said pickup and said sound column for eliminating mechanical noises of the pickup vibrating against the sound column and movement of the pickup with respect to the instrument.

2. The combination as set forth in claim 1 wherein a flat filter is provided between said electrical pickup and

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said passageway communicating between the sound column and the pickup, said filter being adapted to permit sound waves to pass therethrough and offer resistance to the passage of moisture.

3. The combination as set forth in claim 2 wherein a housing including a cushion is mounted to said instrument over said passageway providing a housing for said pickup, filter and cushion with the cushion of the housing in tight abutting overlying relation to the pickup, the said housing removably securing the pickup, filter and cushion in fixed relation on the instrument.

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