Dec. 7, 1948. H. DE ARMOND 2,455,567

MICROPHONE PICKUP AND VOLUME CONTROL

Filed Nov. 14, 1946

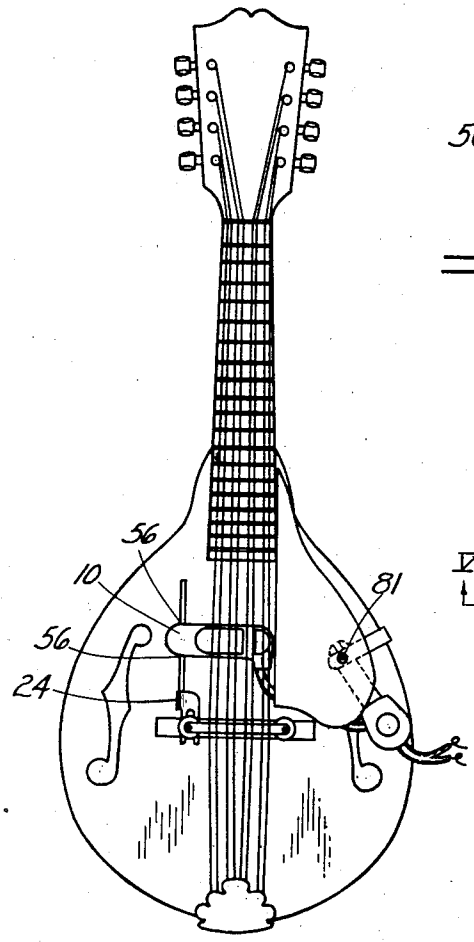


Fig I

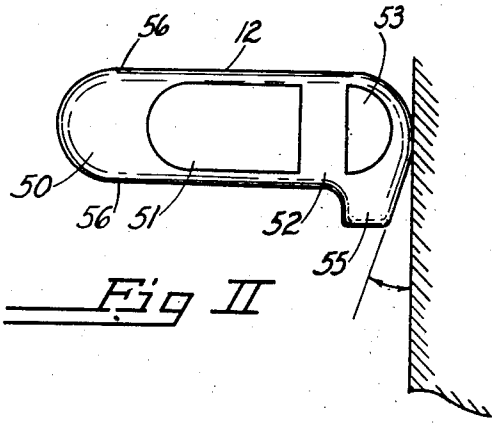


Fig II

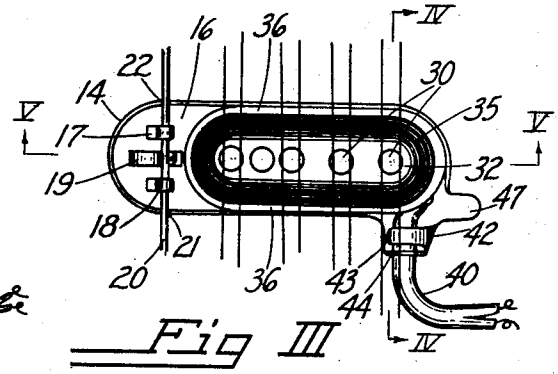


Fig III

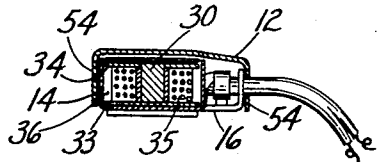


Fig IV

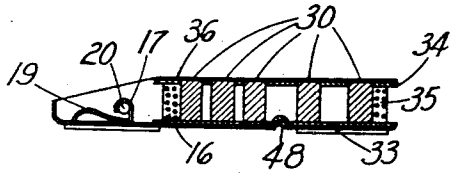


Fig V

INVENTOR.
HARRY DE ARMOND
BY
Edmund B. Whitcomb
ATTORNEY

Patented Dec. 7, 1948

2,455,567

UNITED STATES PATENT OFFICE

2,455,567

MICROPHONE PICKUP AND VOLUME CONTROL

Harry De Armond, Toledo, Ohio, assignor to Rowe Industries, Toledo, Ohio

Application November 14, 1946, Serial No. 709,864

2 Claims. (Cl. 84—1.16)

1

The present invention relates to an electric pick up device for use with stringed instruments in which the tones produced may be passed to a suitable amplifier and not only enlarged, but also the individual action of the string may be changed as desired, and it is an object of the present invention to provide a simplified arrangement of parts in which the pick up mechanism may be suitably located on the face of a stringed instrument and readily positioned with the proper magnets under the proper strings for correct use of the device; to further simplify arrangement of the several parts and particularly the mounting of the same on the instrument in addition to locating the same with respect to the pick guard normally used in such instruments.

A further object of the invention is to provide a unique construction of rheostat or volume control of a compact type which may be also mounted on the instrument and which is so arranged as to permit the same to be very economically manufactured and yet provide a large range of variation in volume control for the instrument with which it is to be used.

Further objects and advantages are within the scope of this invention such as relate to arrangement, operation, and function of the related elements of the structure, to various details of construction and to combinations of parts, elements per se, and to economies of manufacture and numerous other features as will be apparent from a consideration of the specification and drawing of a form of the invention, which may be preferred, in which:

Figure I is a top plan view of my invention applied to a mandolin;

Figure II is a diagrammatic view of the pick up showing formation and location with respect to the pick guard of the instrument;

Figure III is a top plan view with the cover of the pick up removed;

Figure IV is a transverse, sectional view taken on the line IV—IV of Figure III;

Figure V is a transverse, longitudinal sectional view taken on the line V—V of Figure III.

Referring to Figure I in the embodiment of my invention illustrated in connection therewith, I provide a pick up electromagnetic unit 10 adapted to be located under the strings of the mandolin as shown in Figure I. The pick up unit has a top cover 12 and a bottom support or base 14. The cover plate 12 is made of brass and the base 14 may be made of steel sheet metal. The base unit 14 carries the magnet unit and also is provided with means whereby the complete pick

2

up 10 is supported on the instrument. To this end, the bottom 16 of the base unit 14 is provided with a plurality of spaced struck up spring fingers 17 and 18 formed from the metal of the bottom 16. Between these spring clips 17 and 18 is located a tongue 19 also struck up from the bottom 16 and since the same may be made of sheet steel these elements may be made resilient. In order to connect the pick up 10 to the instrument, I provide a supporting rod 20 which is arranged to be passed through the eyes formed by the curved fingers 17 and 18 underneath which is the spring tongue 19 arranged to press the same against the fingers 17 and 18 and hold the rod 20 by friction in any particular position of adjustment with respect to the pick up 10. Suitable openings 21 and 22 in the sides of the base unit 14 are provided through which the rod 20 passes so that the rod 20 supports the pick up in this manner.

The other end of the rod 20 is provided with a bifurcated supporting bracket 24, the two ends of which are adapted to slide under the knurled nut of the bridge clamping the bracket 24 in place, and since the rod 20 is fixed to the bracket, it will be seen that the pick up 10 is supported therefrom with the magnet unit arranged to be locked under the required strings of the mandolin.

The electromagnetic unit itself consists of a plurality of cylindrical magnets 30 inserted into a plastic core 32 which has a base 33 and a top flange 34 forming, in effect, a spool around which a large number of turns of extremely fine wire 35 may be wound as required, the same constituting the magnet unit 36.

I provide a magnet 30 for each pair of strings of the instrument (or each single string in a guitar or the like) and accurately align each magnet with respect to its corresponding string or strings. Moreover, I vary the magnetic effect of certain of said magnets for some of the strings compared with others. This, I accomplish by varying the space between the upper end of the magnet and the strings (as by cutting off some of the magnets or lowering them in the core) or by using magnets of varying magnetic strength. For instance, I may obtain stick magnets from No. 1 to No. 5, graded according to the magnetic power thereof. In this way, these are made all the same length and arranged under each string as desired to bring out the correct amplification for that particular string.

The wires 35 are connected to the microphone cable 40 and to this end, I provide a unique

method of supporting the cable 40. To this end, I provide the bottom 16 of the base 14 with a tongue 42 adjacent one end thereof which is bent over the cable 40 as shown in Figure III. Moreover, I provide the bottom 16 with a supporting shelf 43 which has an end upwardly turned portion 44 with an opening therein through which the cable 40 passes to be secured to the wire 35, the tongue 42 being pressed around the cable 40, as shown so that the same is securely and satisfactorily held in place, and there is no danger of the cable being disconnected from the magnet wires.

It will be also noted that I provide an attaching and locating pad 47 forming an end extension on the base 14, the tab or foot 47 being adapted to extend under the pick guard and aid in properly locking the pick up 10 on the instrument.

One suitable means for locking the magnet unit 36 in the base 14 consists in providing an anchoring pin or indentation 48 in the bottom 16 as shown in Figure V, which extends upwardly therefrom a short distance and through which the plastic core 32 of the magnet unit 36 may be pressed to properly anchor the unit in the base 14.

Referring to the cover 12, illustrated in Figure II, it will be seen that the same has a top plate 50 provided with a longitudinal opening 51, a transverse bridge 52 and an end opening 53. The cover 50 has a depending peripheral flange 54 and a small tunnel formation 55 to fit over the cable 40. The cover 12 is retained on the upstanding sides of the base 14 by being made to form a press fit thereover and the depending flange 54 has suitable openings 56 through which the rod 20 passes to further secure the cover 12 to the base 14.

It will be noted that the bridge 52 forms a reinforcement for the cover and when the cover unit is made of brass this bridge 52 is intended to pass under said strings of the mandolin which it is desired not to amplify in view of the normal string thereof.

It is apparent that, within the scope of the invention, modifications and different arrangements may be made other than is herein disclosed, and the present disclosure is illustrative merely, the invention comprehending all variations thereof.

What I claim is:

1. An electronic pick up device for stringed instruments adapted to be located between the strings of said instrument and the front face thereof, said device including a relatively thin electromagnetic pick up unit including a core comprising a plurality of vertically arranged individual magnets and a body of plastic insulation having a flat top and bottom into which said magnets are inserted; a winding surrounding said core; a casing therefor comprising an elongated base having a bottom plate; means in said bottom plate to locate said plastic mold in the casing, said base having a cover therefor, said cover having an elongated opening beneath some of the strings of the instrument between the same and said magnets and a connecting bridge across said opening, said bridge adapted to be located between certain other of said strings and the corresponding magnet.

2. An electronic pick up device for stringed instruments adapted to be located between the strings of said instrument and the front face thereof, said device including a relatively thin electromagnetic pick up unit including a core comprising a plurality of vertically arranged individual magnets and a body of plastic insulation having a flat top and bottom into which said magnets are inserted; a winding surrounding said core; a microphone cable for connection to an amplifier; a casing having an elongated base having a bottom plate; means in said bottom plate to locate said plastic mold therein; said base having a transverse extension adjacent one end; an upstanding outer flange thereon; said flange having an opening therein to receive said cable; and a lateral tongue on said extension folded around said cable to secure said cable to said casing.

HARRY DE ARMOND.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,376,841	Tirrill	May 3, 1921
2,207,341	Dickerson	July 9, 1940
2,294,861	Fuller	Sept. 1, 1942