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1,454,923

A. D. GROVER

MUTE FOR STRINGED MUSICAL INSTRUMENTS

Filed April 19, 1921

Fig. 1.

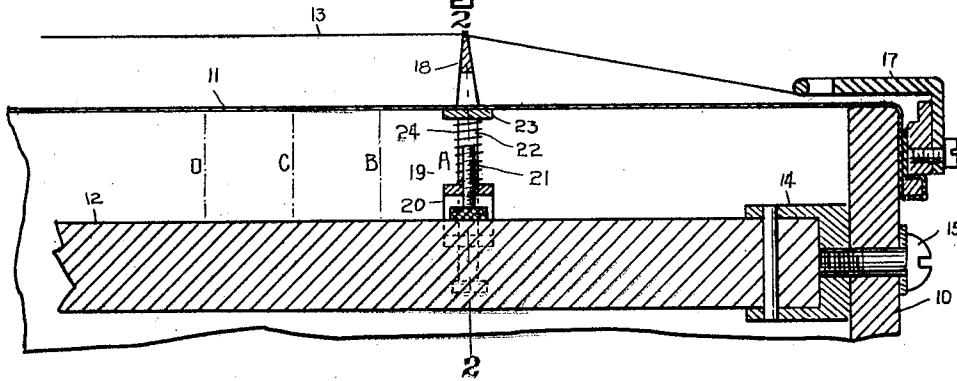


Fig. 2.

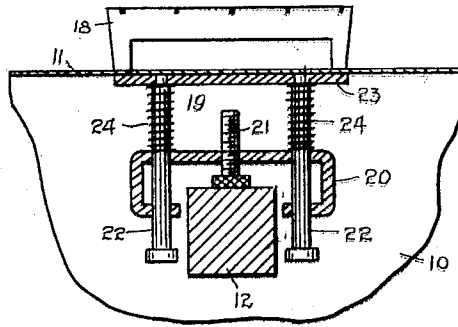


Fig. 3.

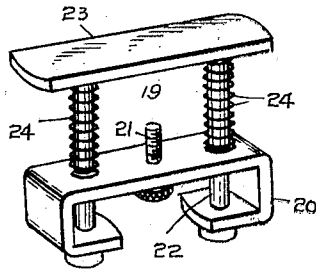


Fig. 5.

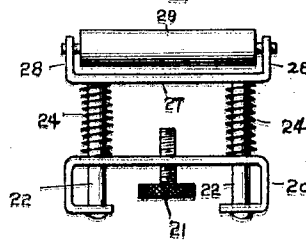
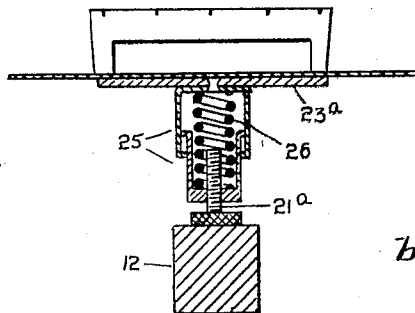


Fig. 4.



INVENTOR.
Albert D. Grover.

by *Otto Wunt*
his Atty.

UNITED STATES PATENT OFFICE.

ALBERT D. GROVER, OF LONG ISLAND CITY, NEW YORK.

MUTE FOR STRINGED MUSICAL INSTRUMENTS.

Application filed April 19, 1921. Serial No. 462,635.

To all whom it may concern:

Be it known that ALBERT D. GROVER, citizen of the United States, residing at 180 13th Street, Long Island City, in the county of Queens and State of New York, has invented certain new and useful Improvements in Mutes for Stringed Musical Instruments, of which the following is a specification.

My invention relates to mutes for stringed instruments, more particularly to banjos; and has for its object to produce such a device as will modify to varying degrees the vibratory action in the head of the instrument.

It has been found that when a banjo accompanies other stringed instruments the result is unsatisfactory, due principally to the lack of control of the natural loud and coarse tones of the banjos. It is also difficult to synchronize the vibrations, of the strings of a banjo with those of other instruments, such as mandolins and guitars, the rapid vibrations transmitted to the head of the banjo producing a loud, coarse sound, while in an instrument having a wooden sounding board the molecular activity is less rapid and therefore sharp vibrations are not retained, but an over and an under tone is set up about the original tone. The soft mellow sound of these instruments does not harmonize with the natural constant full sharp tone of the banjo.

To overcome this unpleasantness in the tonal value of the banjo and to render the latter capable of producing soft harmonic sounds, the present invention contemplates the use of a supporting mute beneath the head of the banjo at a point directly in line with the bridge or within a prescribed radius thereof, the position of the mute depending upon the volume of sound required. It will be noted that by establishing this more or less rigid portion in the head of the instrument by suitable positioning of the mute, a direct transmission of the vibrations from the strings to the more substantial parts or body of the instrument is made possible. Therefore, the quality of the tone may be varied proportionally to the distance between the bridge and the supporting mute.

The invention is illustratively exemplified in the accompanying drawing, in which:

Fig. 1 is a substantially vertical cross sectional view of the body portion of a banjo

having the improved supporting mute directly in line with the bridge.

Fig. 2, is a transverse sectional view taken on the lines 2—2 of Fig. 1.

Fig. 3, is a perspective view of the mute; and

Figs. 4 and 5 are detailed views of modified forms of the invention.

Referring to Figs. 1, 2 and 3, 10 denotes the rim of the instrument and 11 the vibrating diaphragm, in the present instance comprising a calf-skin or vellum head. A bar 12 is secured to the inner side of the rim 10 and is parallel with the strings 13. The bar 12 may be the continuation of the neck (not shown) which may extend through the wall of the rim 10. A suitable device such as a bracket 14 is provided to receive the bar 12 and is anchored to the rim 10 by the screw 15. The strings 13 are secured at their lower ends to a tail piece 17 and extended over the bridge 18 in the usual manner.

The parts mentioned above are those which constitute the banjo as it is generally constructed. The supporting mute 19 comprises a channel member 20 having its open side adapted to receive the bar 12. An adjustment screw 21 is carried by the member 20 and is provided with a head portion which rests upon the upper side of the bar 12 and adjustably supports the member 20. Slidably mounted adjacent the opposite edges of the channel member 20 are upright pins 22 riveted at their upper ends to a supporting plate 23, which is adapted to bear against the under side of the vibrating diaphragm 11. The free lower ends of the pins 22 are provided with enlarged heads. Intermediate the plate 23 and the face of the member 20 and surrounding the pins 22 are coiled springs 24. The springs 24 provide a resilient support for the plate 23 against the under side of the diaphragm 11.

In banjos of various makes it has been found that the distance between the bar 12 and the under side of the diaphragm 11 varies. In order to provide for these multifarious designs the adjustment screw 21 may be moved to adjust the tension of the springs 24 against the plate 23, and in this way more or less upward pressure may be exerted against the diaphragm 11.

In Fig. 4, the supporting disk or plate 23^a is provided with telescoping cup shaped members 25. A coil spring 26 is carried

within the cup shaped members 25 tending to separate the two elements. An adjustment screw 21^a mounted in the free lower portion of the cup shaped members is adapted to rest, as in the other form, upon the bar 12.

A still further modified form of the mute is shown in Fig. 5. The channel member 20, adjustment screw 21, pins 22 and springs 24 are identical with those shown in Fig. 1, but the upper ends of the pins 21 are riveted to a channel plate 27. The upturned edges 28 provide bearings for a roller 29. The roller 29 is preferably constructed of soft rubber and extends transversely of the strings 13 and beneath the vibrating diaphragm 11. This form of construction is particularly desirable where the strings are of silk or gut.

As stated in the forgoing description, the position of the mute 19 in relation to the bridge 18 controls the vibrations permitted to be transmitted from the strings 13 to the diaphragm 11. In Fig. 1, the mute 19 is shown directly below the bridge 18; in this position substantially all of the vibrations from the strings 13 are absorbed by the mute and the bar 12, and practically none of the vibrations are transmitted to the diaphragm 11. A soft tone will result from this arrangement which brings out the over and under tones to a larger degree than where there is no resistance to the vibrations, while the direct tone itself is greatly modified. At A, B, C and D, in Fig. 1, the several possible positions of the mute are indicated. By sliding the mute 19 along the bar 12 from A to B and so on, the radius in which the diaphragm is permitted to vibrate is increased in proportion, and with this increased area there will be a relatively proportional increase in sound. At D the mute will be practically at the center of the diaphragm 11 and at that point the full normal tone of the banjo may be obtained.

The invention is particularly adapted for use with a mandolin-banjo from which either the full tone of a banjo may be produced or the softer over and under tones of the mandolin: this is a feature which is impossible with the instrument as it is now constructed.

I claim:

1. A mute for the vibrating diaphragm of a stringed musical instrument in which the rim thereof is provided with a stick,

comprising a slidably mounted member spaced from said stick, a supporting device resiliently carried by said member and adapted to bear against the vibrating diaphragm of said instrument, and adjustable means carried by the said member and supported on the stick.

2. A mute for the vibrating diaphragm of a stringed musical instrument in which the rim is provided with a stick, comprising a slidably mounted member spaced from said stick and capable of vertical adjustment, a supporting platform carried by said member, and means whereby said platform may be normally and yieldably held against the inner surface of said vibrating diaphragm of said instrument.

3. A mute for the vibrating diaphragm of stringed musical instruments in which the rim is provided with a stick, comprising a spring actuated member adapted to engage a portion of the vibrating diaphragm of said instrument, and adjustable base spaced from the stick, and an adjustable screw mounted in the base and supported by the stick of said instrument.

4. A mute for the vibrating diaphragm of musical instruments in which the rim is provided with a stick, including a substantially inverted U shaped member spaced from said stick, spring actuated members carried by said U shaped member, and an adjusting device mounted in said U shaped member and movable against said stick to support the said U shaped member, and a plate carried by the spring actuated members whereby the former may be yieldably held against the inner surface of a portion of the vibrating diaphragm of said instrument.

5. A mute for the vibrating diaphragm of a stringed musical instrument in which the rim is provided with a stick, including a slidably mounted channel member, parallel spring actuated pins carried by said channel member, a plate integral with the upper ends of said pins, said plate adapted to bear against the inner surface of a portion of the vibrating diaphragm of said instrument, and an adjustment screw carried by said slidable channel member and adapted to be supported by contact with the stick of said instrument.

In testimony whereof I affix my signature.

ALBERT D. GROVER.