Nov. 6, 1934. W. A. SCHMITTGEN 1,979,350

SUPPORT FOR PHONOGRAPH TURNTABLES

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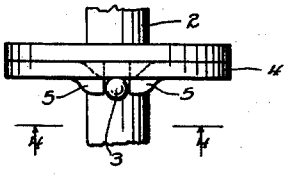


Fig. 3

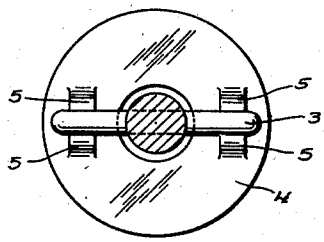


Fig. 4

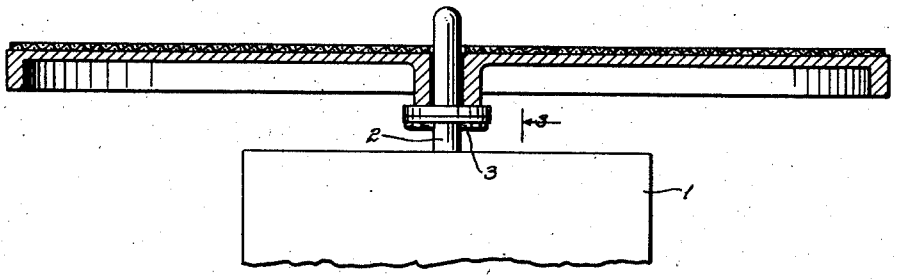


Fig. 1

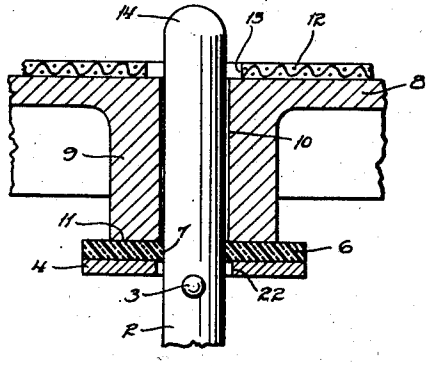


Fig. 2

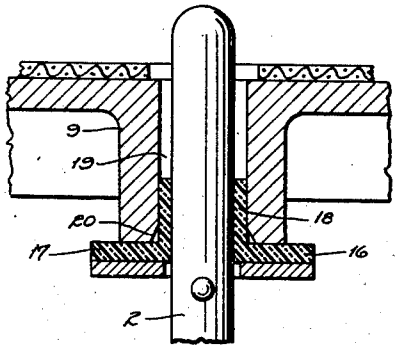


Fig. 5

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SUPPORT FOR PHONOGRAPH TURNTABLES

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4 Claims. (Cl. 274—39)

This invention relates to phonograph mechanisms and particularly to supports for the turntables thereof.

It has heretofore been generally customary to drive the horizontally disposed turntable of a phonograph by a vertically disposed shaft rotatably driven by a motor mechanism, and to rigidly connect the turntable to the shaft and in direct contact therewith. An important disadvantage of this arrangement is that vibrations of the rotating shaft created therein by vibrations in the motor mechanism driving the shaft, are transmitted from the shaft to the turntable and thence are transmitted to the record on the turntable. During the operation of the phonograph, the sound reproduction is to a greater or lesser degree marred by these vibrations in the record.

It is one of the objects of this invention to provide a support for phonograph turntables whereby rotating power may be transmitted thereto free from vibration.

It is another object to provide a support for phonograph turntables in which vibrations of the driving shaft may be absorbed before reaching the turntable driven by the shaft.

Another object is to provide an improved means for transmitting power from the rotating shaft of a phonograph turntable driving mechanism, to the turntable to drive it, and whereby the turntable may be supported upon the driving shaft in a manner to render it free from vibrations in the shaft.

Other objects will be apparent to those skilled in the art to which my invention appertains.

My invention is fully disclosed in the following description taken in connection with the accompanying drawing, in which:

Fig. 1 is a cross-sectional view of a phonograph turntable, illustrating in simplified form a driving mechanism and shaft, and illustrating an embodiment of my invention;

Fig. 2 is a view to an enlarged scale of a part of Fig. 1;

Fig. 3 is a view taken approximately from the plane 3 of Fig. 1, to an enlarged scale and illustrating only the turntable driving shaft and a clutch or driving element which I may employ;

Fig. 4 is a view taken from the plane 4 of Fig. 3 and with the view rotated through 90°;

Fig. 5 is a view similar to Fig. 2, showing a modification.

Referring to the drawing, I have indicated generally at 1 a housing within which is mounted the phonograph driving motor. At 2 is the vertically extending motor driving shaft illustrated as projecting upwardly out of the housing 1. A pin 3 extends diametrically through the shaft above the housing 1. A metal clutch device or washer 4 rests upon the pin 3, the perforation 22 in the washer being larger than the shaft 2, and the washer at diametrically opposite portions thereof where it rests upon the pin 3 is provided with pairs of downwardly projecting lugs 5—5 on opposite sides of the pin 3. Thus the lugs provide two notches, which embrace opposite end portions of the pin 3. The lugs 5 are preferably pressed out of the metal of the main body portion of the washer 4, as plainly illustrated in the drawing.

Secured to the upper side of the washer 4, in any preferred manner, as for example, by the use of an adhesive, is a cushioning washer 6 of rubber or like material. The washer 6 is preferably of the same diameter as the washer 4 and the perforation 7 at the center thereof preferably snugly fits the shaft 2.

The turntable comprises a horizontal body portion 8 at the center of which is a downwardly extending hub 9 provided with a bore 10. The lower face 11 of the hub 9 rests upon the upper surface of the washer 6, and the bore 10 surrounds the upper end of the shaft 2. The turntable may be covered with a covering 12 of felt or the like and the upper end of the shaft 2 may project upwardly through a perforation 13 in the felt as at 14, and upon the end 14 the phonograph record may be centered in the usual way.

In the operation of the form of my invention shown in Figs. 1 to 4, the pin rotating with the shaft 2 drives the washer 4 by means of the lugs 5, which in turn drive the washer 6. The frictional engagement of the face 11 of the hub 9 with the upper surface of the washer 6 drives the turntable. All vibration transmitted longitudinally of the shaft 2 is absorbed by the cushioning washer 6 and not transmitted to the turntable. Preferably, the bore 10 is larger than the shaft 2 and therefore lateral vibrations of the shaft 2 are transmitted only to the washer 6, through the closely fitting aperture 7 and therefore not transmitted to the hub 9.

In the form of my invention shown in Fig. 5, a different form of cushioning or vibration absorbing washer is employed. This washer is illustrated at 16 in Fig. 5 and comprises a planular or flat horizontal portion 17 and a sleeve 18 extending upwardly from the upper surface thereof and coaxial therewith. In this form also, the bore in the hub 9, as shown at 19, is con-

siderably larger than the diameter of the shaft 2 and the sleeve 18 projects axially into this bore 19. The bore at its lower end, as shown at 20, is slightly enlarged to facilitate assembling of the turntable hub 9 on the sleeve 18 by a downward movement of the hub over the sleeve.

In the operation of this form of my invention, longitudinal vibrations of the shaft 2 are absorbed in the horizontal portion 17 of the washer 16 and are not transmitted into the hub 9. Also, radial or lateral vibrations in the shaft 2 are absorbed in the sleeve 18 and prevented from being transmitted to the hub 9. Thus all vibration from the shaft 2 is absorbed in the portions of the washer 16 and not transmitted therebeyond.

My invention is not limited to the exact details of construction shown and described hereinbefore. Many changes and modifications may be made therein without departing from the spirit of my invention or sacrificing its advantages.

I claim:

1. In combination with the vertically disposed driving shaft of a phonograph turntable motor and a turntable having a downwardly projecting hub, a support on the shaft for the turntable comprising a transverse pin extending through the shaft, a metal washer resting on the pin and provided with pin-engageable driving lugs, a cushioning washer on the pin-driven washer upon which the hub of the phonograph turntable is adapted to rest in driving friction engagement therewith.

2. In combination with the vertically disposed driving shaft of a phonograph turntable motor and a turntable having a downwardly projecting hub, a support on the shaft for the turntable comprising a transverse pin extending through the shaft, a metal washer resting on the pin and provided with pin-engageable driving lugs, a cushioning washer on the pin-driven washer upon which the hub of the phonograph turntable is adapted to rest in driving friction engagement therewith, the shaft extending through a perforation in the cushioning washer in engagement with the inner periphery thereof and extending through a perforation in the hub with clearance.

3. In combination with the vertically disposed driving shaft of a phonograph turntable motor and a turntable having a downwardly projecting hub, a support on the shaft for the turntable comprising a collar secured to the shaft transversely thereof, a horizontally disposed washer resting on the collar, an upwardly extending coaxial sleeve associated with the washer, the washer and sleeve being composed of cushioning material, the bore of the hub enclosing the sleeve and the hub resting on the upper surface of the washer, and the shaft projecting upwardly through the washer and sleeve.

4. In combination with the vertically disposed driving shaft of a phonograph turntable motor and a turntable having a downwardly projecting hub, a support on the shaft for the turntable comprising a pin extending transversely through the shaft, a metal washer resting on the pin transversely of the shaft and provided with downwardly extending lugs drivingly engaging the pin, a washer of cushioning material resting on the metal washer, an upwardly extending sleeve of cushioning material on the washer coaxial therewith, the shaft extending upwardly through a perforation in the metal washer and through the cushioning sleeve, the hub being provided with a bore large enough to embrace the sleeve and the lower end of the hub resting on the cushioning washer.

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