

May 1, 1923.

1,453,613

L. R. WOLFF

TONE ARM SUPPORT

Filed Sept. 29, 1921

Fig. 1.

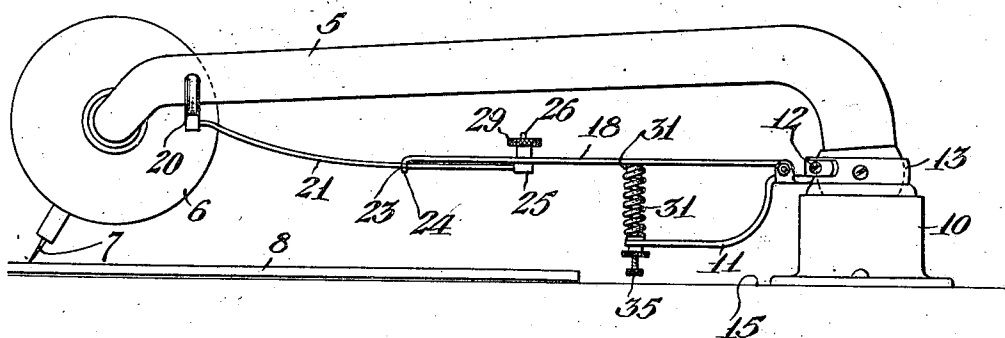


Fig. 7.

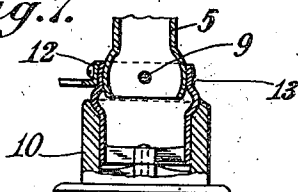


Fig. 2.

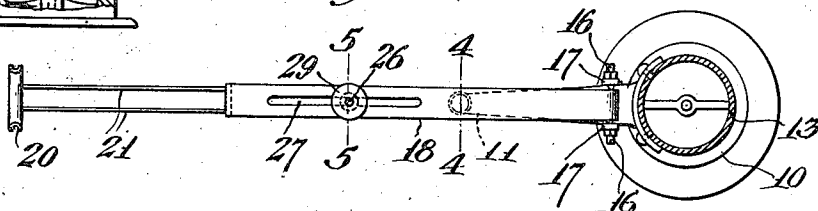


Fig. 5.

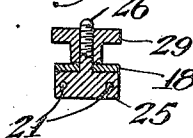


Fig. 6.

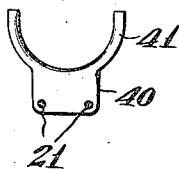


Fig. 3.

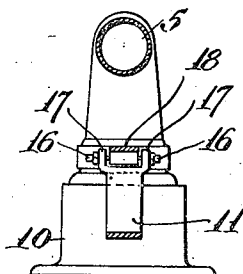
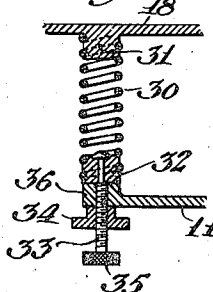


Fig. 4.



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UNITED STATES PATENT OFFICE.

LORENZ R. WOLFF, OF LOS ANGELES, CALIFORNIA.

TONE-ARM SUPPORT.

Application filed September 29, 1921. Serial No. 504,076.

To all whom it may concern:

Be it known that I, LORENZ R. WOLFF, a citizen of the United States, residing at Los Angeles, county of Los Angeles, and State of California, have invented a new and useful Tone-Arm Support, of which the following is a specification.

My invention relates to phonographs and more particularly to a tone arm support for the same.

Phonographs as at present manufactured are provided with a reproducer carried at the forward end of a hollow arm which is universally pivoted to a tone arm bracket mounted in the tone chamber of a phonograph.

In some instruments it is the practice to support the entire weight of the tone arm and reproducer on the playing point of the needle that rests on the record during the playing of the record. This is injurious to the record, the needle, and quality of tone produced.

Some manufacturers of phonographs recognized this injurious effect and have tried to overcome its effect by shortening the pivoted length of the tone arm. This construction was also faulty inasmuch as the combined weight of the reproducer and that part of the tone arm in front of the pivot point carrying the reproducer is too heavy.

In a tone arm support produced according to my invention, as much weight as desired can be brought to bear upon the record at the point of reproduction, which is, where the needle is in contact with the record groove.

In records of the type in which the sound impressions are recorded in the side of the groove, it is only necessary to apply enough weight at the point of reproduction to make the needle follow the groove. I have found that by the use of my tone arm support I can adjust the weight at the point of production to such a degree that all scratchy noises heretofore produced, especially by records containing grit, are greatly eliminated.

In the reproduction of records that have become warped by the action of heat and time, the rise and fall of the undulations are followed perfectly by a tone arm provided with my support and no apparent difference in reproduction from that produced by a flat record is noticed.

One of the principal objects of my inven-

tion is to produce a tone arm support which can be adjusted to carry the weight of the tone arm and reproducer and one that will have the required degree of resiliency to follow the undulating or uneven surfaces of a phonograph record.

Other objects and advantages will be made evident hereinafter.

Referring to the drawing which is for illustrative purposes only,

Fig. 1 is a side elevation of a phonograph tone arm provided with my support.

Fig. 2 is a top plan view of my tone arm support shown attached to the tone arm mounting.

Fig. 3 is a section on line 3—3 of Fig. 2.

Fig. 4 is a section on line 4—4 of Fig. 2.

Fig. 5 is a section of the adjusting nut on line 5—5 of Fig. 2.

Fig. 6 is a face view of the tone arm supporting yoke.

Fig. 7 is a vertical sectional view of the supporting post for the tone arm and related parts.

The tone arm 5 consists of a horizontally disposed cylindrical member having mounted thereon at the outer end a reproducer 6 which carries the needle 7, such needle being shown in engagement with a record 8. The inner end of the tone arm terminates in a vertically disposed portion having a rounded end which is pivotally mounted on a pin 9 supported in a collar 13 which is revolvably mounted in the tone arm post 10. A stationary bracket 11 is secured by screws 12 to the revolvable collar 13 of the arm post 10, which post 10 is secured to the top board 15 of the phonograph. Pivotaly mounted on trunnion screws 16, in ears 17, on the bracket 11 is a carrying arm 18. The carrying arm 18 is provided with resilient supporting means for the tone arm which consist of a yoke 20 mounted on the outer ends of wire springs 21. The springs slidably extend through holes 23 in a downwardly depending flange 24 formed on the carrying arm 18 and have their inner ends fixed in an adjusting block 25. A stud 26 secured to the block 25 passes upwardly through a slot 27 in the arm 18 and is held in any desired position in the slot by a clamping nut 29, the clamping nut 29 drawing the block 25 tightly against the under side of the arm 18 when the nut is screwed down on the stud 26.

Interposed between the bracket 11 and

the arm 18 is an adjustable spring 30. The upper end of the spring 30 is secured to the under side of the arm 18 by a lug 31. The lower end of the spring 30 is provided with a plug 32 in which is revolvably secured the reduced end of a threaded stud 33 provided with a lock nut 34 and a knurled head 35. The stud 33 may be screwed up or down in the threaded outer end 36 of the bracket 11 and locked in any desired position by the lock nut 34.

The yoke 20 consists of a block 40 into which the outer ends of the springs 21 are secured and a U shaped throat or supporting member 41 for the outer end of the tone arm.

The inner face of the throat 41 is preferably made half round so as to offer the least frictional resistance to that part of the tone arm resting upon the same.

The operation of my tone arm support is as follows:

When a phonograph tone arm and its component parts are assembled, it has been found in practice, that the variation of weight in these parts produce a variation of tone quality.

By adjusting the distance between the arm 18 and the outer end of the bracket 11, so that the spring 30 will almost counter-balance the weight of the tone arm and then adjusting the length of the springs 21 so that the required resiliency is given the tone arm an ideal condition is acquired.

I have found in practice that records used on a phonograph provided with my tone arm support, show no perceptible wear after such use and that the steel needle which ordinarily can only be used with success for one or two reproductions may be used in connection with my device many times.

While I have shown and described my invention as applied to a single piece tone arm it is to be understood that my tone arm support may be used on various types of tone arms whether made in one piece or of jointed types without departing from the spirit of my invention.

I claim as my invention:

1. In combination, a tone arm post, a revolvable collar on said post, a tone arm pivotally mounted in said collar, a bracket fixed to said collar, an arm pivotally mounted on said bracket, a pair of wire springs slidably extending through a portion of said arm, means for fixing said springs to said arm, a yoke fixed to the outer end of said springs arranged to receive and sup-

port the outer end of said tone arm, a coiled spring interposed between said arm and said bracket and means for varying the tension on said coiled spring.

2. In combination, a tone arm post, a revolvable collar on said post, a tone arm pivotally mounted in said collar, a bracket fixed to said collar, an arm pivotally mounted on said bracket, a yielding member slidably mounted on said arm, means on said member for supporting said tone arm, a coiled spring interposed between said arm and said bracket and means for varying the tension of said coiled spring.

3. In combination, a tone arm post, a revolvable collar on said post, a tone arm pivotally mounted in said collar, a bracket fixed to said collar, an arm pivotally mounted on said bracket, a pair of wire springs slidably extending through a portion of said arm, means for fixing said springs to said arm, a yoke fixed to the outer end of said springs arranged to receive and support the outer end of said tone arm, and a yielding member interposed between said arm and said bracket.

4. In combination, a tone arm post, a revolvable collar on said post, a tone arm pivotally mounted in said collar, a bracket fixed to said collar, an arm pivotally mounted on said bracket, a yielding member mounted on said arm, means on said member for supporting said tone arm, and a yielding member interposed between said arm and said bracket.

5. In combination, a tone arm post, a revolvable collar on said post, a tone arm pivotally mounted in said collar, a bracket mounted on said collar, a yielding member pivotally mounted on said bracket to swing vertically thereon, means on said yielding member arranged to engage and support the outer end of said tone arm, and means for varying the tension on said yielding member.

6. In combination, a tone arm support, a tone arm pivotally and revolvably mounted in said support, a bracket movable with said tone arm, an arm pivotally mounted on said bracket to swing vertically thereon, and a yielding member mounted on said arm arranged to yieldingly support the outer end of said tone arm.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 21st day of September 1921.

LORENZ R. WOLFF.