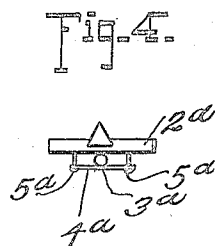
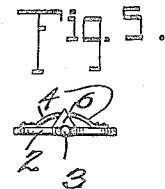
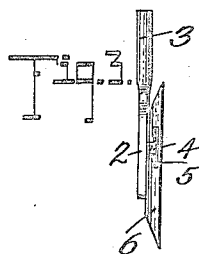
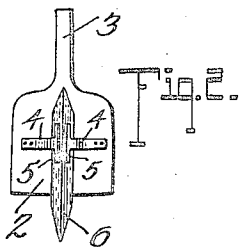
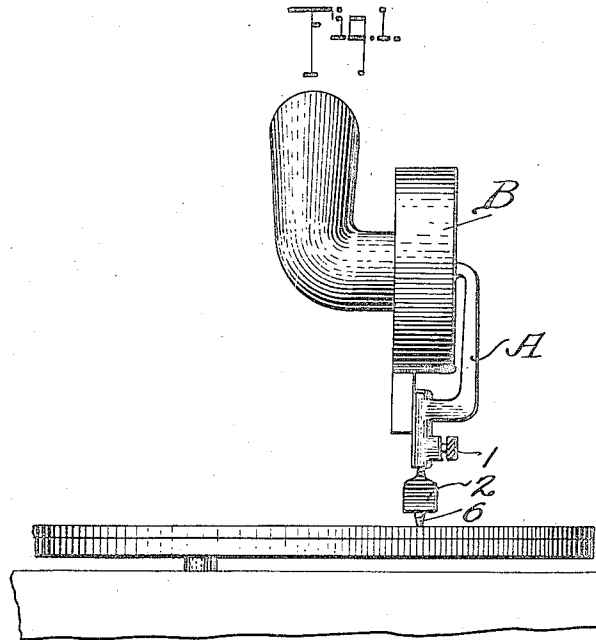


H. W. QUADE.
ATTACHMENT FOR SOUND REPRODUCING MACHINES.
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1,060,209.

Patented Apr. 29, 1913.



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ATTACHMENT FOR SOUND-REPRODUCING MACHINES.

1,060,209.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HENRY W. QUADE, a citizen of the United States, residing at Hancock, in the county of Pulaski and State of Missouri, have invented certain new and useful Improvements in Attachments for Sound-Reproducing Machines, of which the following is a specification.

This invention relates essentially to improvements in sound reproducing instruments, its primary object being to provide an attachment which may be easily applied to the ordinary constructions of phonographs, or the like, for the purpose of intensifying the sound vibrations and thereby permitting the use of a non-metallic needle so as to prevent wear, or injury to the records to be reproduced.

I am aware that it has heretofore been proposed to use a wooden or nonmetallic needle in this connection and such has been done at the sacrifice of the necessary volume or amplitude of sound which has been produced by steel needles now in common use. I have found from actual practice that my invention will not only play the records with as good or even better definition than the steel needle which in time practically destroys or injures the quality of the reproduction but there is no tendency to blur the sound as results in the use of a non-metallic needle in the usual manner.

It has therefore been my object, and I believe I am the first to employ the combination of a sound intensifying member interposed between the usual sound box, and a non-metallic needle to accomplish the result which is now obtained by using metallic or "hard" styli, whereby wear and tear on the records are eliminated advantageously.

Still a further object of my invention lies in the peculiar resilient mounting of the needle on the attachment, whereby it may be easily and quickly removed for repointing or reversing, as well as permitting flexibility of said needle in any direction, thereby preventing the point of a needle from being knocked off, as it travels through the irregularities of the groove of the record, it being understood that the vibrations of the record are transmitted through the needle thus mounted to the vibratory member and thence to the sound box through the needle arm in the customary manner.

For a full understanding of the present

invention, reference is to be had to the following detail description and to the accompanying drawings, in which—

Figure 1 is a view in elevation of the lower portion of the reproducing mechanism of a phonograph, showing my attachment in position for use in reproducing particularly disk records. Fig. 2 is a front elevation of my attachment alone, showing more clearly the resilient mounting of the needle thereon. Fig. 3 is an end elevation of said attachment. Fig. 4 is a bottom plan of the attachment plate showing a modified form of mounting the needle therein. Fig. 5 is a top plan view of the attachment as shown in Fig. 2.

Throughout the following detail description and on the several figures of the drawings, similar parts are referred to by like reference characters.

Referring to the drawings and specifically describing my invention, A designates a needle arm of a phonograph, such as is in ordinary use, connecting at its upper extremity with the diaphragm carried by the sound box B. The arm A is provided with the usual recess in its lower portion into which the needle may be inserted and held in position by means of a set screw 1. I take advantage of this construction so that it is absolutely unnecessary to change the structure or add any other detail to the machine to permit of the employment of my device, which consists of a vibratory member preferably in the form of a flat or thin plate 2, provided at its upper central portion with the integral shank 3 which is adapted to be inserted in the needle arm where the needle is ordinarily held. The particular function of the member 2 is to intensify the sound transmitted thereto from the record by the stylus or needle and it is therefore made of any hard substance, such for instance as steel, hard wood, cane, bamboo, metal, bone, glass, oyster shell, ivory, amber, or other compositions or combinations of material, and the shape of the plate depending somewhat upon the material used. However, it has been found from practice that the material used in the manufacture of pearl buttons, produces the best results. As this plate may be constructed in many ways and various means for holding the stylus may be used, only a preferred construction is described which involves the use of a pair of spring members of similar construc-

tion secured at one end, in spaced relation, to the face of the plate 2 in any desired manner, as by means of rivets, screws, or the like. Such springs are designated in the drawings by 4, being arranged horizontally and are formed at their free ends with the vertical or elongated gripping members 5, the springs aforesaid being raised or bent from the surface of the plate 2, as most clearly seen in Fig. 5.

At 6 is designated the stylus or needle which is preferably made in my construction of hard wood, as distinguished from the flexible wooden or fiber needles at present in use and directly connected with the needle arm. The needle 6 being heavy or non-flexible intensifies and transmits the vibrations to the plate 2 interposed between said needle and the arm without loss of power and the springs 4 between which it is inserted hold it flexibly to preserve its point. The hard substance from which the plate 2 is made vibrates so easily that practically the full power of the vibrations is transmitted to the diaphragm of the sound box.

I have illustrated the particular form of needle in the drawings as triangular in shape and one side of which rests against the plate while the springs 4 rest against the needle on its other sides, as shown in Fig. 2, the needle being frictionally held by means of tension of the springs which permit it to yield in any direction.

In Fig. 4, I have shown the body or plate 2 as provided with a wedge-shaped slot and into this slot the needle may be advantageously held for the purposes of this invention. When the needle is thus held, it is

preferable that the shank 3^a be secured to a flexible spring member 4^a intermediate the ends of the latter, screws 5^a passing through the opposite ends of said spring and into the vibratory member 2^a. This allows the needle point some freedom of movement.

Having thus described the invention, what is claimed as new is:

1. In combination, an attachment for sound reproducing machines consisting of a flat body and a shank, a sound box to which the attachment is detachably connected, a needle adapted to rest against the body, and spring means secured to the body adapted to frictionally hold the needle thereagainst.

2. An attachment for sound reproducing machines consisting of a flat body and a shank, a needle adapted to rest against the body, and spaced spring members secured at one end to the body and adapted to receive therebetween the needle aforesaid, whereby the latter may yield in any direction.

3. An attachment for sound reproducing machines consisting of a flat body and a shank, a needle adapted to rest against the body, and spaced horizontal spring members secured at one end to the body and formed with elongated vertically disposed gripping members between which the needle aforesaid is adapted to be yieldably held.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY W. QUADE.

Witnesses:

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