

Sept. 1, 1942.

E. V. SCHNEIDER
RECORDING PHONOGRAPH
Filed Aug. 13, 1941

2,294,576

3 Sheets-Sheet 1

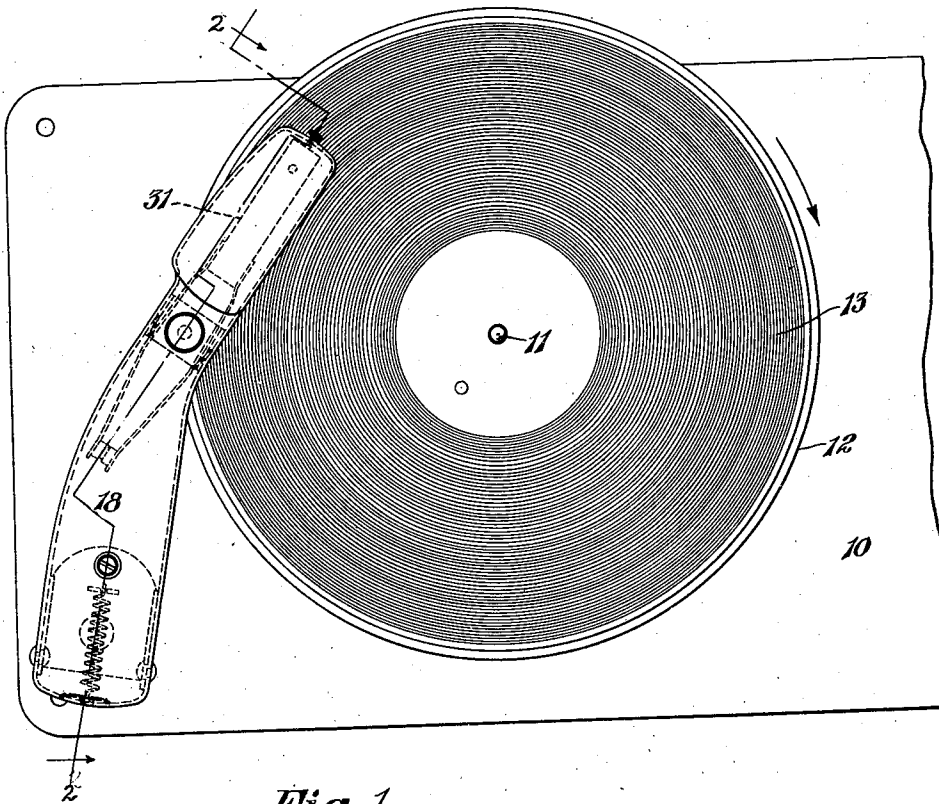


Fig. 1

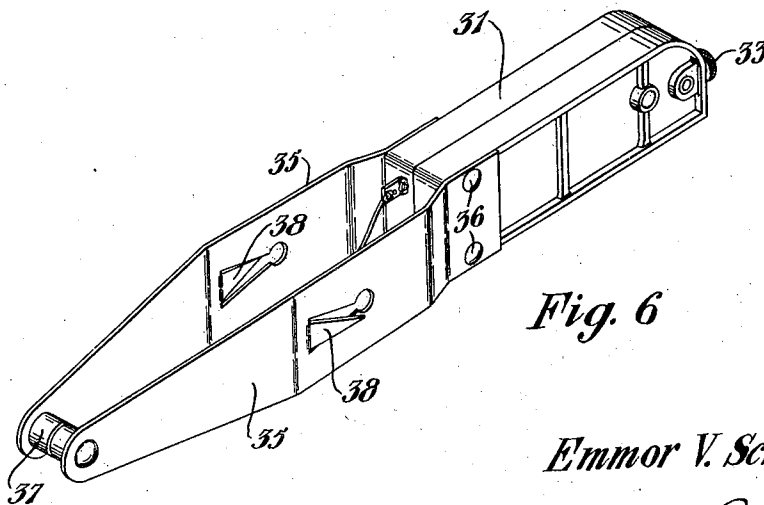


Fig. 6

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3 Sheets-Sheet 2

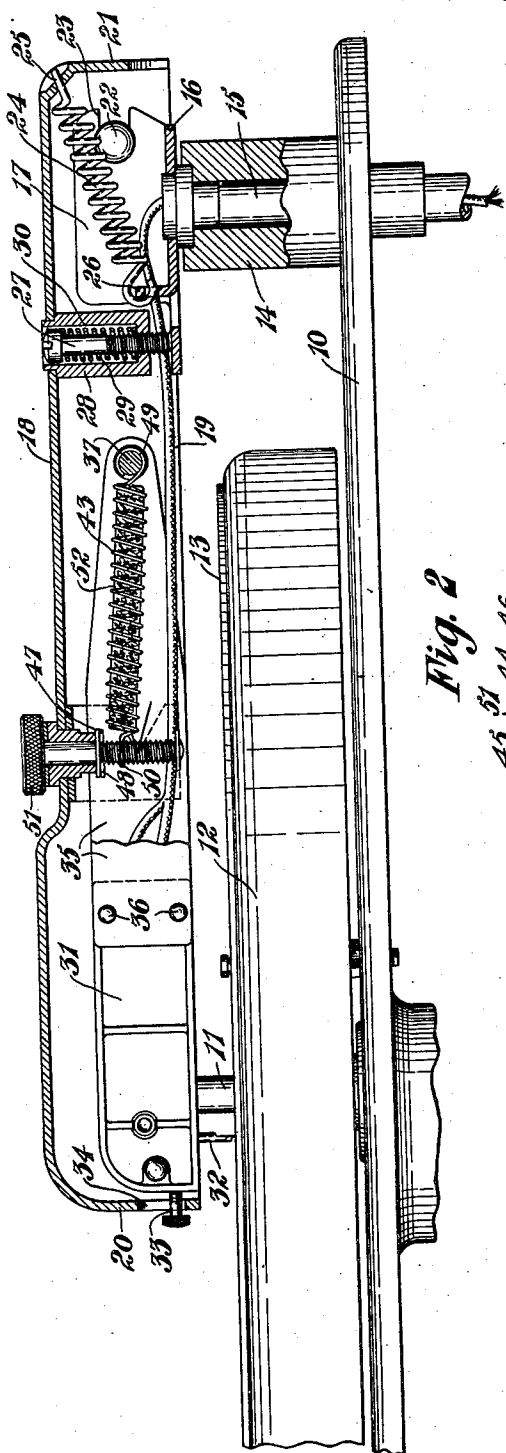


Fig. 2

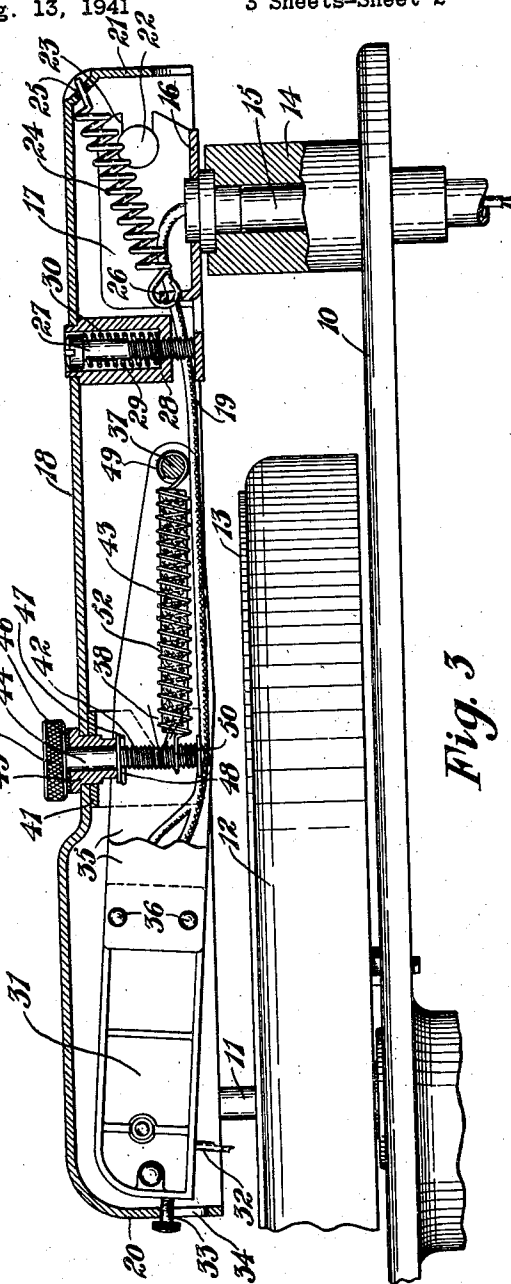


Fig. 3

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3 Sheets-Sheet 3

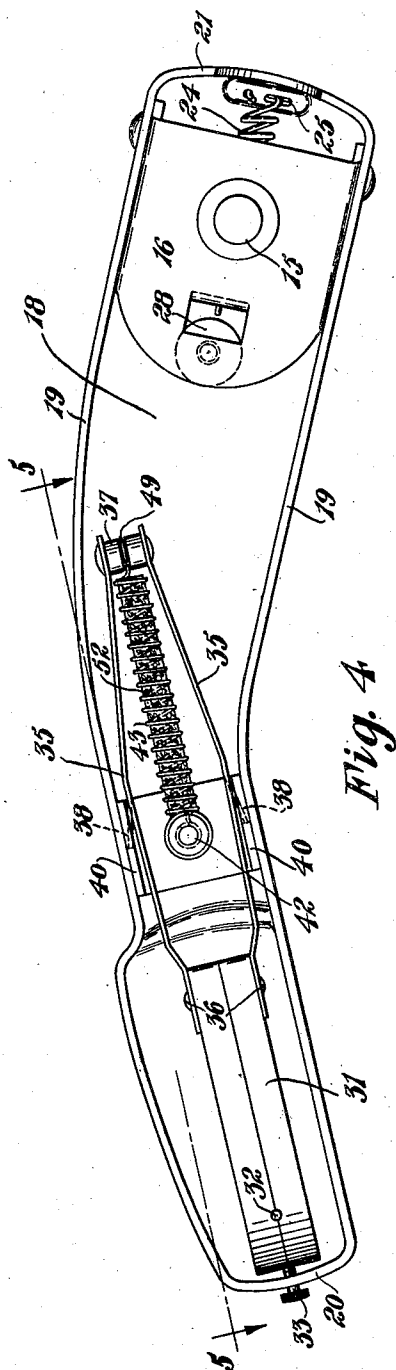


Fig. 4

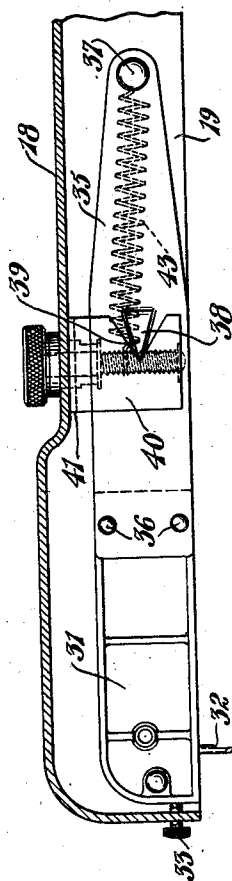


Fig. 5

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UNITED STATES PATENT OFFICE

2,294,576

RECORDING PHONOGRAPH

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Application August 13, 1941, Serial No. 406,622

11 Claims. (Cl. 274-1)

The invention relates to phonographs, and more particularly to mechanism for mounting the reproducer in the pick up arm of a phonograph adapted for recording or cutting records.

The recent revival of interest in radio phonograph combination units has created a considerable demand for a low priced electric operated phonograph for home use, adapted for making records as well as playing the records so made at home and the usual commercial records.

The object of the present improvement is to provide a phonograph of this general character having a hollow pick up arm in which the reproducer is pivotally mounted and provided with spring means for adjusting the tension upon the reproducer.

Another object is to provide a phonograph having a pick up arm of the character mentioned in which the spring tension adjusting means holds the reproducer assembled within the pick up arm.

Still another object is to provide a device of this character in which the reproducer has a pair of arms fixed thereto and provided with V-shaped tangs stamped therefrom and adapted to pivot within V-shaped openings in a supporting bracket carried by the pick up arm.

A still further object of the invention is to provide such a device in which a tension spring is connected to the outer ends of the arms and to a stationary member carried by the pick up arm for holding the V-shaped tangs in pivotal contact with the V-shaped openings of the supporting bracket.

A still further object is to provide such a device in which an adjusting screw carried by the pick up arm adjustably supports the tension spring for adjusting the tension upon the needle carried by the reproducer.

Another object is the provision of a device of this character in which spring arms are connected to the reproducer and provided with the V-shaped tangs for pivoting the same within the pick up arm.

The above objects together with others which will be apparent from the drawings and following description, or which may be later referred to, may be attained by constructing the improved pick up arm in the manner illustrated in the accompanying drawings in which

Figure 1 is a top plan view of a phonograph provided with the improved pick up arm;

Fig. 2, a vertical longitudinal section through the improved pick up arm taken on the line 2-2,

Fig. 1 showing the tension adjustment set to give the greatest tension upon the needle;

Fig. 3, a similar view showing the adjustment set to give the least tension.

Fig. 4, a bottom plan view of the improved pick up arm;

Fig. 5, a section taken as on the line 5-5, Fig. 4; and

Fig. 6, a detached perspective view of the reproducer and the arms by means of which the reproducer is pivoted within the pick up arm.

Similar numerals refer to similar parts throughout the several views.

The platform of a phonograph cabinet is indicated generally at 10 and provided with the spindle 11 upon which the turntable 12 is rotatably mounted in usual and well-known manner and adapted to support the record 13 to be cut or played back as the case may be.

As in usual practice the turntable 12 may be rotated in the proper direction as indicated by the arrow in Fig. 1, and at the desired speed by any suitable and well-known drive mechanism which it is not thought necessary to illustrate, since the drive mechanism itself forms no part of the present invention.

A bearing boss 14 is mounted upon the platform 10 and the post 15 is journaled therein and has fixed to its upper end the channel bracket 16 provided with the upright flanges 17 at its side for pivotally connecting the pick up arm indicated generally at 18.

This pick up arm may be formed of sheet metal of hollow construction as shown provided with the depending side walls 19 and forward and rear end walls 20 and 21 respectively, and has a pair of headed studs 22 fixed to the inner side of the side walls 19 and received in the notches 23 in the rear ends of the upright flanges 17 of the channel bracket 16 so that the pick up arm may be pivoted thereon and adapted to be raised or lowered to the inoperative or operative positions respectively, as desired.

The pick up arm is held in pivotal relation upon the bracket by means of the coil spring 24 having one end connected to the upper rear corner of the pick up arm as indicated at 25 and the other end connected to the ear 26 at the forward end portion of the bracket 16.

For the purpose of limiting the downward movement of the pick up arm an adjustable stop screw 27 is threaded within the hollow boss 28 fixed within the pick up arm, the lower end of the screw being arranged to contact the rear end portion of the bracket 16.

An expansion spring 29 may be located within the bore 30 of the boss 28 interposed between the bottom wall of said bore and the head of the stop screw 27, placing sufficient tension upon the stop screw to hold the same in adjusted position.

The invention relates more particularly to the means for adjustably mounting the reproducer 31 within the hollow pick up arm.

This reproducer may be of any usual or desirable construction and design and is adapted to receive the usual needle 32, a cutting needle being shown in the drawings, the needle being held in position as by the usual stop screw 33 adapted to be received through the vertical slot 34 in the forward end wall of the pick up arm.

For the purpose of mounting the reproducer within the pick up arm a pair of sheet metal arms 35, preferably of spring material, are attached at their forward ends to the rear end portion of the reproducer as by the rivets 36 or their equivalents.

The rear ends of these arms may be connected together as by the pin 37 and each arm is provided intermediate of its ends with an outwardly stamped triangular or V-shaped tang 38, the apex thereof being received in the apex of a V-shaped opening 39 of a wider angle formed in the corresponding leg 40 of an inverted U-shaped bracket 41 fixed within the hollow pick up arm.

In order to hold the reproducer and arms 35 assembled within the pick up arm and to provide for adjusting the position of the reproducer so as to regulate tension of the needle 32 upon the record 13 an adjusting screw 42 and tension spring 43 are provided.

The screw 42 has an unthreaded portion 44 swiveled within the bearing 45 fixedly mounted through the top of the pick up arm, washers or gaskets 46 and 47 being located around the unthreaded shank of the screw in the upper and lower ends of said bearing, the lower washer being held against end movement on the screw as by the cotter pin 48.

The adjusting screw is thus rotatably mounted within the bearing 45 and held against end movement relative thereto.

One end of the spring 43 is hooked around the pin 37 as indicated at 49 and the other end thereof is provided with a hook 50 engaged in the threads of the screw 44 whereby rotation of the screw by means of the knurled head 51 thereon will cause the hook 50 of the spring to ride in the threads of the screw to a point above or below the pivotal center of the tangs 38 in the V-grooves 39, as indicated in Figs. 2 and 3, respectively, causing the forward end of the reproducer to move downward or upward, respectively, thus, increasing or decreasing the tension thereon.

In order to prevent any vibrations of the screw 43 from being picked up by the reproducer when the phonograph is being operated, particularly in the cutting or recording of a record, the spring may be damped as by the core of felt 52 located therethrough.

It should be understood that the adjustable stop screw 27 may be operated to limit the downward movement of the pick up arm 18 upon its pivots 22 in order to conform to the adjustment of the tension by means of the adjusting screw 42 so that the desired tension may be placed upon the cutting needle 32 in order that the record may be cut to the desired depth.

Although Figures 2 and 3 show extremes of 75

adjustment in both directions it should be understood that the reproducer may be moved from a point above to a point below center or vice versa by only a fractional turn of the adjusting screw 42.

It should also be understood that although the pick up arm and reproducer illustrated are provided with a cutting or recording needle 32 the invention is equally applicable to a pick up arm and reproducer designed for playing back or reproducing of records or to a combination arm and reproducer designed for both recording and reproducing of records without in any way changing the construction or operation of the mechanism illustrated and described for producing the adjustment above set forth.

I claim:

1. In a phonograph including a turntable, a hollow pick up arm, means pivotally mounting one end of the pick up arm adjacent to the turntable, and a reproducer located within the other end of the hollow pick up arm, a pivot mounting for adjustably mounting the reproducer within the pick up arm, said pivot mounting including a pair of arms rigidly attached to the reproducer, V-shape tangs upon said arms, and the pick up arm having V-shape notches of greater width than said tangs, the apices of the V-shape tangs being pivotally mounted in the apices of said V-shape notches.

2. In a phonograph including a turntable, a hollow pick up arm, means pivotally mounting one end of the pick up arm adjacent to the turntable, and a reproducer located within the other end of the hollow pick up arm, a pivot mounting for adjustably mounting the reproducer within the pick up arm, said pivot mounting including a pair of spring arms rigidly attached to the reproducer, V-shape tangs upon said arms, and the pick up arm having V-shape notches of greater width than said tangs, the apices of the V-shape tangs being pivotally mounted in the apices of said V-shape notches.

3. In a phonograph including a turntable, a hollow pick up arm, means pivotally mounting one end of the pick up arm adjacent to the turntable, and a reproducer located within the other end of the hollow pick up arm, a pivot mounting for adjustably mounting the reproducer within the pick up arm, said pivot mounting including a pair of arms rigidly attached to the reproducer, V-shape tangs upon said arms, and the pick up arm having V-shape notches of greater width than said tangs, the apices of the V-shape tangs being pivotally mounted in the apices of said V-shape notches, and spring means for holding the tangs in the notches.

4. In a phonograph including a turntable, a hollow pick up arm, means pivotally mounting one end of the pick up arm adjacent to the turntable, and a reproducer located within the other end of the hollow pick up arm, a pivot mounting for adjustably mounting the reproducer within the pick up arm, said pivot mounting including a pair of spring arms rigidly attached to the reproducer, V-shaped tangs upon said arms, and the pick up arm having V-shape notches of greater width than said tangs, the apices of the V-shape tangs being pivotally mounted in the apices of said V-shaped notches, and spring means for holding the tangs in the notches.

5. In a phonograph including a turntable, a hollow pick up arm, means pivotally mounting one end of the pick up arm adjacent to the

turntable, and a reproducer located within the other end of the hollow pick up arm, a pivot mounting for adjustably mounting the reproducer within the pick up arm, said pivot mounting including a pair of arms rigidly attached to the reproducer, V-shape tangs upon said arms, and the pick up arm having V-shape notches of greater width than said tangs, the apices of the V-shape tangs being pivotally mounted in the apices of said V-shaped notches, an adjusting screw in the pick up arm, and a spring connected at one end to the outer ends of said arms and having a hook at its other end engaged in the threads of the adjusting screw.

6. In a phonograph including a turntable, a hollow pick up arm, means pivotally mounting one end of the pick up arm adjacent to the turntable, and a reproducer located within the other end of the hollow pick up arm, a pivot mounting for adjustably mounting the reproducer within the pick up arm, said pivot mounting including a pair of arms rigidly attached to the reproducer, V-shape tangs upon said arms, and the pick up arm having V-shape notches of greater width than said tangs, the apices of the V-shape tangs being pivotally mounted in the apices of said V-shape notches, an adjusting screw in the pick up arm, and a spring connected at one end to the outer ends of said arms and having a hook at its other end engaged in the threads of the adjusting screw, and means limiting the downward movement of the pick up arm.

7. In a phonograph including a turntable, a hollow pick up arm, means pivotally mounting one end of the pick up arm adjacent to the turntable, and a reproducer located within the other end of the hollow pick up arm, a pivot mounting for adjustably mounting the reproducer within the pick up arm, said pivot mounting including a pair of arms rigidly attached to the reproducer, V-shape tangs upon said arms, an inverted, U-shape bracket mounted within the hollow pick up arm and having V-shape notches of greater width than the tangs, the apices of the V-shape tangs being pivotally mounted in the apices of said V-shape notches, an adjusting screw located through the bracket, and a spring connected at one end to the outer ends of said arms and having a hook at its other end engaged in the threads of the adjusting screw.

8. In a phonograph including a turntable, a hollow pick up arm, means pivotally mounting one end of the pick up arm adjacent to the turntable, and a reproducer located within the other end of the hollow pick up arm, a pivot mounting for adjustably mounting the reproducer within the pick up arm, said pivot mounting including a pair of arms rigidly attached to the reproducer, V-shape tangs upon said arms, an inverted, U-shape bracket mounted within the hollow pick up arm and having V-shape notches of greater width than the tangs, the apices of the V-shape tangs being pivotally mounted in the apices of said V-shape notches, an adjusting screw located through the bracket, and a spring connected at one end to the outer ends of said arms and having a hook at its other end engaged in the threads of the adjust-

ing screw, and means limiting the downward movement of the pick up arm.

9. In a phonograph including a turntable, a hollow pick up arm, means pivotally mounting one end of the pick up arm adjacent to the turntable and a reproducer located within the other end of the hollow pick up arm, a pivot mounting for adjustably mounting the reproducer within the pick up arm, said pivot mounting including a pair of arms rigidly attached to the reproducer and extending rearwardly therefrom, forwardly disposed V-shape tangs extending outwardly from an intermediate portion of the arms, the pick up arm having V-shape notches of greater width than said tangs, the apices of the V-shape tangs being pivotally mounted in the apices of said V-shape notches, a pin connecting the rear ends of the arms, an adjusting screw in the pick up arm extending between said arms at a point adjacent to the V-shape tangs, and a spring connected at one end to the pin and having a hook at its other end engaged in the threads of the adjusting screw.

10. In a phonograph including a turntable, a hollow pick up arm, means pivotally mounting one end of the pick up arm adjacent to the turntable and a reproducer located within the other end of the hollow pick up arm, a pivot mounting for adjustably mounting the reproducer within the pick up arm, said pivot mounting including a pair of spring arms rigidly attached to the reproducer and extending rearwardly therefrom, forwardly disposed V-shape tangs extending outwardly from an intermediate portion of the arms, the pick up arm having V-shape notches of greater width than said tangs, the apices of the V-shape tangs being pivotally mounted in the apices of said V-shape notches, a pin connecting the rear ends of the arms, an adjusting screw in the pick up arm extending between said arms at a point adjacent to the V-shape tangs, and a spring connected at one end to the pin and having a hook at its other end engaged in the threads of the adjusting screw.

11. In a phonograph including a turntable, a hollow pick up arm, means pivotally mounting one end of the pick up arm adjacent to the turntable and a reproducer located within the other end of the hollow pick up arm, a pivot mounting for adjustably mounting the reproducer within the pick up arm, said pivot mounting including a pair of arms rigidly attached to the reproducer and extending rearwardly therefrom, forwardly disposed V-shape tangs extending outwardly from an intermediate portion of the arms, an inverted U-shape bracket mounted within the pick up arm having V-shape notches of greater width than said tangs, the apices of the V-shape tangs being pivotally mounted in the apices of said V-shape notches, a pin connecting the rear ends of the arms, an adjusting screw in the bracket extending between said arms at a point adjacent to the V-shape tangs, and a spring connected at one end to the pin and having a hook at its other end engaged in the threads of the adjusting screw.

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