March 31, 1959 E. W. MORTIMER 2,879,960

MOUNTINGS FOR RECORD CHANGER UNITS

Filed Aug. 3, 1954

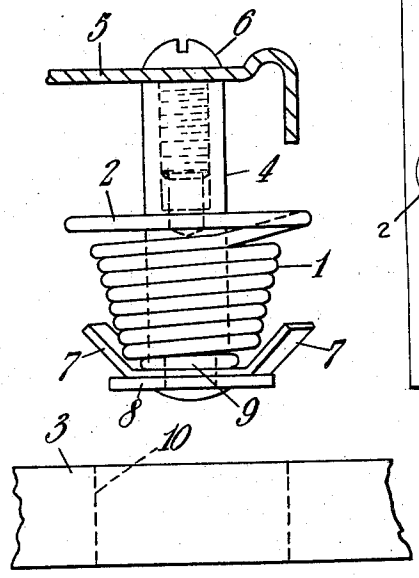


Fig. 1.

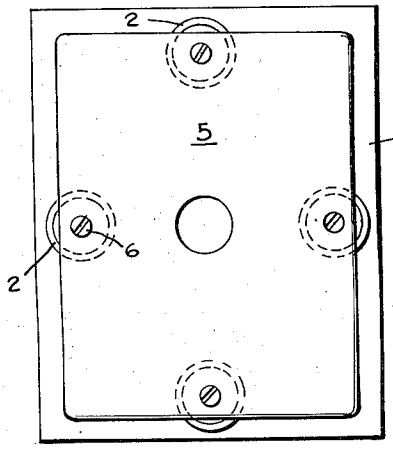


Fig. 4

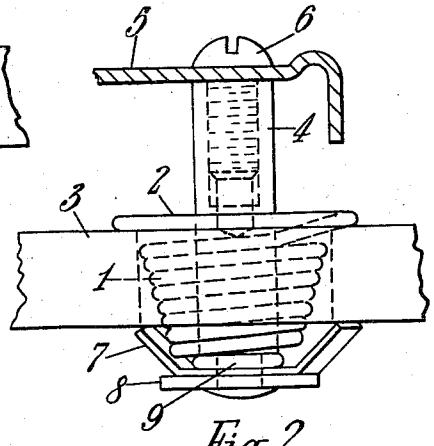


Fig. 2

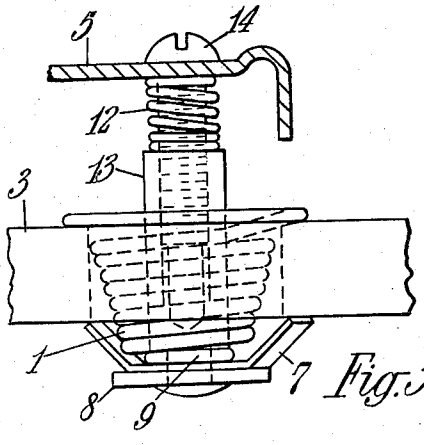


Fig. 3.

INVENTOR
Edward Walter Mortimer
By Dace J. Murray
Attorney.

United States Patent Office 2,879,960 Patented Mar. 31, 1959

2,879,960

MOUNTINGS FOR RECORD CHANGER UNITS

Edmund Walter Mortimer, Swindon, England, assignor to The Garrard Engineering and Manufacturing Company Limited, Swindon, England

Application August 3, 1954, Serial No. 447,546

5 Claims. (Cl. 248—20)

This invention relates to mounting means for phonograph record changer units whereby the unit is substantially free from exterior vibration.

The invention is more particularly concerned with an anti-vibration mounting unit of the type disclosed in British patent specification No. 607,267 which comprises a coil spring element secured at one end to a mounting board and depending therefrom, the lower end of the spring being adjustably secured to a coaxial bolt extending upwardly through the spring and secured at its upper end to the record changer unit.

The object of the invention is to provide an improved form of anti-vibration mounting unit of the type set forth whereby a record changer unit may be readily assembled and retained in the cabinet, by a simple manual operation.

According to the invention the anti-vibration unit is provided with spring controlled means adapted to move to a position permitting the unit to be passed through a hole in the cabinet mounting board and move outwardly to retain the unit on the board.

According to one form the spring means comprise an element formed of spring steel and having laterally extending arms which give during the mounting operation and spring outwardly to engage the under surface of the board.

In the accompanying drawings:

Figure 1 is an elevation showing the improved anti-vibration unit separated from the mounting board;

Figure 2 is an elevation showing the unit secured to the mounting board;

Figure 3 is an elevation of a modified form of the improved mounting; and

Fig. 4 is a plan view of a mounting plate supported on a mounting board by a plurality of antivibration units embodying the invention.

In carrying the invention into effect according to one convenient mode by way of example, the mounting unit comprises a coiled spring element **1** of generally coned form with the apex directed downwardly.

At the upper end the spring element is formed with a volute or spiral coiled portion **2** lying in a plane at a right angle to the spring axis, such portion providing a supporting part or flange adapted to engage the cabinet mounting board **3**.

The spring **1** is provided with an axial post **4** which is secured to the lower end of the spring and extends upwardly therethrough. The upper end of the post is adapted to be secured to the record changer unit mounting plate **5** by means of a screw **6** engaging a tapped hole in the post.

At the lower end of the coiled spring a spring member **7** is provided which is backed by a washer **8** and rigidly secured to the coiled spring **1**. For this purpose the post **4** at its lower end is reduced in diameter and extends through the lower turn **9** of the coiled spring and through holes in the spring member **7** and washer **8** and is riveted over to form a unitary structure. The spring member **7** is formed from spring steel and has laterally

extending arms which are bent upwardly to about 45° or other suitable angle. The length of these arms is such that in their normal unstressed condition they will extend beyond the edges of the hole **10** in the cabinet mounting board **3**.

The washer **8** may be hexagonal shape so that the assembly may be held against rotation when the screw **6** is being tightened or removed.

When the mounting unit is applied to the cabinet mounting board **3**, the latter having the hole **10** of predetermined size, it is pressed through the hole the arms of spring member **7** giving way and then springing outwardly to positions which will prevent withdrawal of the mounting unit.

The hole **10** in the mounting board **3** will conform to the diameter of the upper coil of the spring **1** so that lateral displacement of the unit relatively to the mounting board will not occur.

In using the device a number of mounting units (usually four) will be mounted on the record changer unit motor board **5** to depend therefrom. It is then only necessary to place the motor board in position and press the mounting units through the holes **10** in the cabinet mounting board **3**.

The invention thus provides a means by which the record changer unit may be readily assembled in the cabinet.

Removal of the mounting unit from the cabinet board may be effected by first removing the changer unit, whereupon the mounting unit may be pushed back through the hole **10** by pressing the arm or arms of member **7** inwardly.

It will be appreciated that in practice it may not be possible to obtain spring elements **1** of uniform strength with the result that the mounting plate **5** where a number, say four (of the mounting units are employed), will not lie dead level. In order to overcome this difficulty means may be provided for individually adjusting the tension of the spring elements.

According to the modification illustrated in Figure 3, this adjustment is accomplished by the provision of a coiled spring **12** seated between the upper end of the post **13** (which is now reduced in length) and the mounting plate **5**. This spring **12** is of greater strength than the spring element **1** and thus by an adjustment of the screw or bolt **14**, inserted through plate **5** and threaded into the upper end of post **13**, the spring element **12** may be axially compressed or extended the desired amount, spring **12** holding plate **5** firmly against the head of screw **14**. This adjustment is effected after the unit plate is assembled on the mounting board **3** of the cabinet, to set the spacing of plate **5** from the upper ends of posts **13** so that the plate **5** may be levelled up as desired, it being appreciated that if, say, three of the mounting units are correct, the fourth may be adjusted to increase or decrease the distance between its post **13** and the plate **5**.

I claim:

1. In combination, a phonograph record changer including a mounting plate; a mounting board having at least one aperture therethrough; a coiled spring having an inverted conical portion and a flat spiral portion at its upper end, the uppermost coil of the conical portion having a diameter substantially equal to that of said aperture and the diameter of said spiral portion being greater than that of said aperture, said conical portion extending through said aperture with said spiral portion engaging the upper surface of said mounting board; a post extending through said coiled spring and having its lower end secured to the lowermost coil of the spring, the upper end of said post extending beyond the upper end of said spring in the contracted condition of the

latter; means securing the upper end of said post to said mounting plate; and laterally contractible and expansible locking means secured to and extending laterally of the lower end of said post and normally having a lateral dimension greater than the diameter of said aperture; said locking means being contractible under stress to a lateral extent not greater than the diameter of said aperture for insertion of said coiled spring downwardly through said aperture, and then expanding to engage the undersurface of said mounting board.

2. The combination claimed in claim 1 wherein said locking means comprises a spring steel element having upwardly sloping ends which are bent upwardly and inwardly when said coiled spring is inserted downwardly through said aperture and then spring out to engage the undersurface of said mounting board.

3. The combination claimed in claim 1 wherein said locking means comprises a spring steel element having upwardly sloping ends which are bent upwardly and inwardly when said coiled spring is inserted downwardly through said aperture and then spring out to engage the undersurface of said mounting board said element being secured to a reduced lower end of said post; and an outer washer of polygonal form backing said element.

4. The combination claimed in claim 1 wherein said securing means comprises a bolt extending through the mounting plate and threaded into the upper end of said

post; a second coiled spring embracing said bolt between said mounting plate and the upper end of said post, the strength of said second coiled spring being greater than that of said first-mentioned coiled spring; said second coiled spring and said bolt forming means for adjusting the distance between said mounting plate and the upper end of said post for leveling said mounting plate.

5. The combination claimed in claim 1 including a plurality of units, each including one of said coiled springs, post, securing means, and locking means, engaged through spaced apertures in said mounting board and secured to said mounting plate; and means operatively associated with each post and securing means for independently adjusting the distance between the mounting plate and the upper end of each post for leveling of the mounting plate.

References Cited in the file of this patent

UNITED STATES PATENTS

865,610	Pullets	Sept. 10, 1907
924,341	Gerisch	June 8, 1909
2,021,506	Hamilton	Nov. 19, 1935
2,048,744	Janes	July 28, 1936
2,059,153	Snyder	Oct. 27, 1936
2,144,566	Dreisbach	Jan. 17, 1939
2,507,806	Mortimer	May 16, 1950
2,524,462	Miller et al.	Oct. 3, 1950