Feb. 17, 1925. 1,526,882

E. C. TRIMMER

HANGER FOR MOTORS

Filed Nov. 3, 1922

Fig. 1.

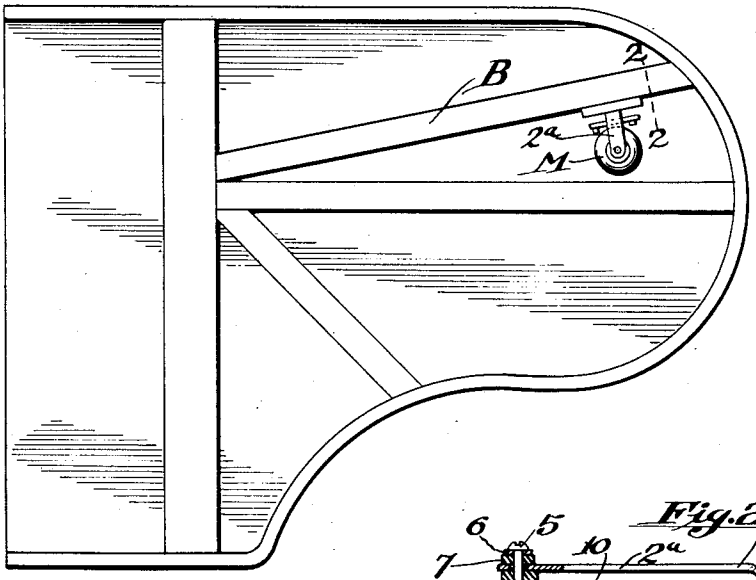


Fig. 2.

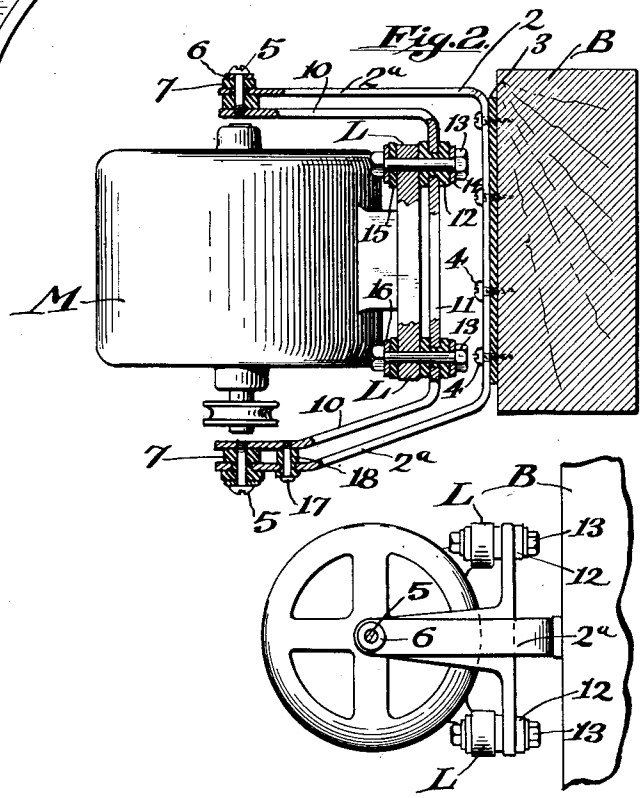


Fig. 3.

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UNITED STATES PATENT OFFICE.

EARL C. TRIMMER, OF GLENDALE, CALIFORNIA, ASSIGNOR OF ONE-HALF TO BENJAMIN PLATT, OF LOS ANGELES, CALIFORNIA.

HANGER FOR MOTORS.

Application filed November 3, 1922. Serial No. 598,881.

To all whom it may concern:

Be it known that I, EARL C. TRIMMER, a citizen of the United States, residing at Glendale, in the county of Los Angeles and State of California, have invented new and useful Improvements in Hangers for Motors, of which the following is a specification.

This invention relates to machine elements and more particularly to an improved method and means for mounting prime motors in such manner as to eliminate vibration and thereby the resultant noise of operation.

An object is to provide a simple, practicable and effective mounting upon which may be secured a prime motor, electric or other kind, and which mounting incorporates means for substantially killing or absorbing vibration due to the movement of elements of the motor.

Other objects will be made manifest in the following specification of an embodiment of the invention illustrated in the accompanying drawings, in which:

Fig. 1 is a diagrammatic plan of the frame work of a grand piano illustrating the mounting of a motor therein by use of the present invention.

Fig. 2 is a cross section on line 2—2 of Fig. 1 illustrating the mounting more in detail.

Fig. 3 is a top plan or end view of the motor and the improved mounting of Fig. 2.

By actual use and demonstration I have found that it is possible to substantially eliminate the noise generated by the vibration produced through the operation of moving elements in a prime motor. I have successfully dampened the vibrations and eliminated noise of electric motors used in the operation of musical instruments and more particularly motors utilized in pianos.

In a preferred form of the invention a mounting consists of a substantial bracket or hanger having a base 2 of suitable dimensions and construction according to the type of motor to be mounted, and in Figs. 2 and 3 the base is shown as fastened to a primary support which consists in the illustration of one of the brace beams B as of a piano.

There is, preferably, introduced between the base 2 and the beam B a cushion medium, as a sheet of rubber, 3 upon which is clamped the base 2 as by means of bolts or screws 4. At the ends of the base 2 are provided arms 2^a projecting laterally from the base to a suitable degree and being perforated at the outer ends to receive bolts or fastening members 5 which, preferably, have washers 6 to bear against a respective cushion in the form of a spool or bushing 7 of rubber, the neck part of which passes through the perforated end of its arm 2^a. The inner end of the fastening screw 5 engages an arm 10 against which the inner end of the cushion 7 is clamped. Thus the cushioning device is so arranged that the adjacent arms 2^a and 10 are securely attached to each other but without the metal elements contacting with each other and, therefore, preventing the transmission of vibration through contacting rigid elements.

Contiguous to each of the arms 2^a is provided an arm 10 which extends laterally from a chair 11 with which the arms may be formed integrally, as shown in Fig. 2, and which chair is spaced sufficiently from the base 2 to provide for the attachment of the motor end to the chair and without having any rigid or metal contact or association with the base. The chair 11 is perforated to receive cushioning spools or bushings 12 through which pass clamping bolts or screws 13 having washers 14 to bear against contiguous ends of the spools, the opposite ends of which support the base lugs L of the motor. The outer faces of the lugs L are, preferably, provided with cushioning washers 15 engaged by metallic washers 16 against which the heads of the bolts 13 contract.

By this it will be seen that the motor is securely clamped at its several lugs upon cushioning bushings or spools as 12 provided in the chair 11 so that the vibrations generated within the motor are primarily absorbed by the cushions 12.

A preferred construction consists of arranging the chair hanging screws 5 coaxial with the motor shaft, as shown in Fig. 2, and, therefore, any slight vibration which is transmitted to the suspended chair 11 is reduced to a negligible factor by the axial arrangement of the fastening screws 5 in the outer ends of the base arms 2^a. Therefore, not only is the vibration absorbed by the cushions 12 but they are also checked by the cushions 7 through which the fastening bolts 5 pass, and the reduction of the

amplitude of vibrations of the chair 11 by the coaxial disposition of their hangers substantially neutralizes all vibration.

A check against swinging of the chair 11 as to the base 2 is shown as including a pin or screw 17 which may be fastened in an arm 10 of the chair and extended through a cushion spool 18 mounted in the outer portion of an arm 2^a. It will be seen that any swinging tendency of the chair will thus be reduced or eliminated by this check.

The base 2 and the arms 2^a constitute a U-shaped primary hanger, the base 2 being flat and straight and adapted to fit against and be supported to a non-metallic element. The chair 11 and arms 10 constitute a secondary U-shaped hanger mounted within and spaced from the primary U-shaped hanger. The free ends of the primary hanger and the secondary hanger are connected by rubber cushioned screws and the base of the motor is connected to the central portion of the secondary hanger by cushioned bolts, the parts being of proper sizes to bring the cushioned connecting screws substantially in a line with the axis of the motor.

Various modifications and changes may be resorted to within the spirit of the invention as claimed.

What is claimed is:

A hanger for motors comprising a U-shaped primary hanger having a straight flat central portion adapted to be secured to and against a non-metallic body, a U-shaped secondary hanger fitting within the primary hanger and spaced therefrom, rubber cushioned bolts connecting the ends of the primary and secondary hangers, a motor and rubber cushioned bolts adapted for connecting the base of the motor to the straight central portion of the secondary hanger, the parts being of proper sizes to bring the axis of the motor substantially into line with the cushioned screws connecting the secondary hanger to the primary hanger.

In testimony whereof I have signed my name to this specification.

EARL C. TRIMMER.