Oct. 16, 1934. R. SIEVERT ET AL 1,976,897

AIR CIRCULATING FAN MOUNTING

Filed Feb. 6, 1933

Fig. 1.

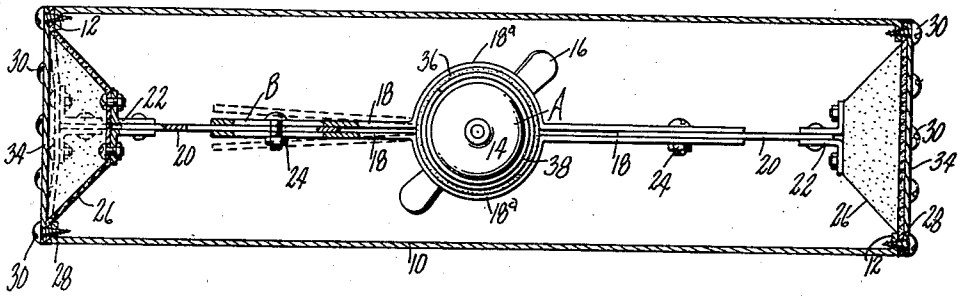


Fig. 2.

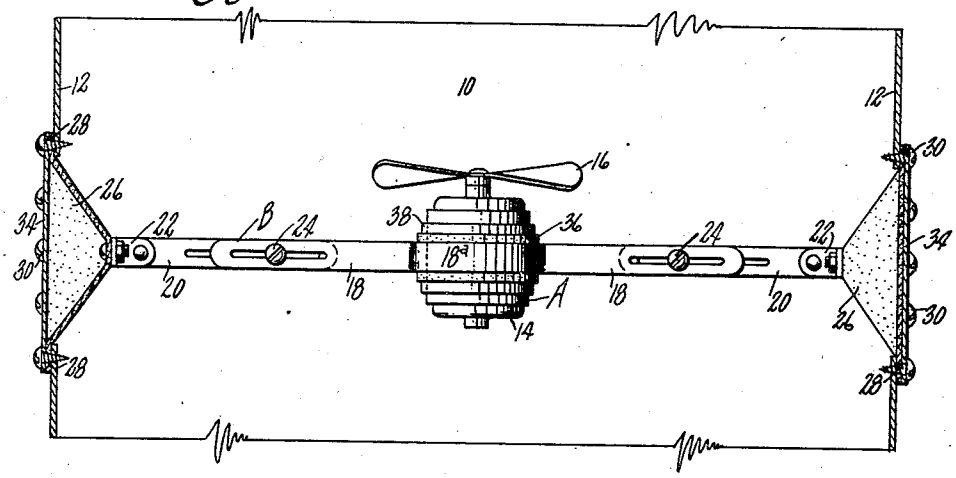


Fig. 3.

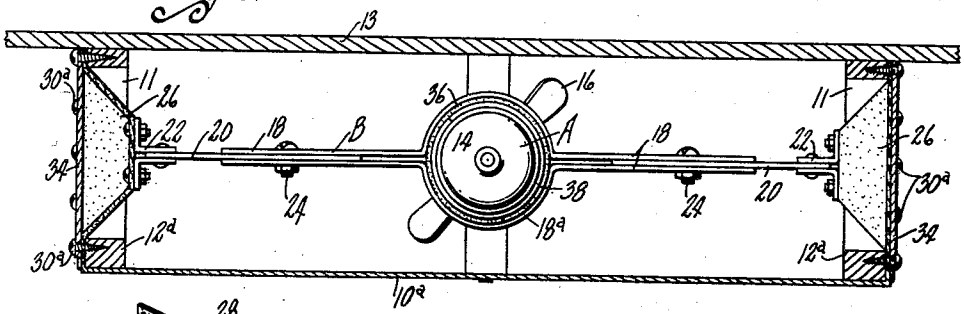
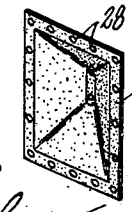


Fig. 4.



Witness:
Edw. Ueles

Inventors
Ralph Sievert & Melchoir J. Cordes
by Bair, Freeman & Sinclair
Attorneys

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AIR CIRCULATING FAN MOUNTING

Ralph Sievert and Melchior J. Cordes, Carroll, Iowa

Application February 6, 1933, Serial No. 655,398

5 Claims. (Cl. 248—16)

The object of our invention is to provide an air circulating fan mounting which is simple, durable and comparatively inexpensive to manufacture.

A further object is to provide mounting means for a fan, such as one driven by an electric motor, or for a motor whether used for a fan or for other purposes, the mounting means being such as to effectively prevent the transmission of vibration from the fan or motor to the member on which the fan or motor is mounted.

More particularly, it is our object to provide a motor support and sheets of resilient material, such as rubber, having their centers secured to the ends of the motor support and their edges anchored to supporting members, the sheets being originally flat, but when mounted, being distorted to a substantially conical shape whereby they are placed under tension to support the motor and effectively support it in a resilient manner as well as prevent the transmission of vibration from the motor to the members to which the sheets are anchored.

Still a further object is to provide a mounting especially adapted for mounting an air circulating fan in a cold air duct of a hot air furnace system, the manner of mounting being such as to provide for easy installation.

Still a further object is to provide a motor mounting in the form of resilient sheets on the ends of an adjustable mounting bar, the edges of the sheets being secured to the edges of openings in a cold air duct and the bar being adjusted to such a position as to place the rubber sheets under tension.

With these and other objects in view our invention consists in the construction, arrangement and combination of the various parts of our device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in our claims, and illustrated in the accompanying drawing, in which:

Figure 1 is a vertical sectional view through a cold air duct showing our air circulating fan mounting means associated therewith, the left end of the figure showing parts in section.

Figure 2 is a plan view of the same.

Figure 3 is a view similar to Figure 1 showing the mounting installed in a slightly different type of cold air duct; and

Figure 4 is a perspective view of a rubber sheet used in our mounting means distorted to conical formation as when installed.

On the accompanying drawing, we have used the reference numeral 10 to indicate a conduit defining a cold air duct, such as used in the return system of a hot air furnace. In Figure 1, an all metal duct is shown. It will be obvious that it has a top, a bottom and two sides.

When our air circulating fan mounting is used, openings 12 are cut in the sides of the conduit 10 so that the fan A and the mounting means B can be inserted through either of the openings.

The fan A preferably comprises a fractional horse-power motor 14 with a fan blade 16 mounted on the shaft thereof. Other types of motors, of course, can be used and our mounting is also applicable for mounting motors which are used for purposes other than driving fans.

The mounting B comprises a pair of clamp bars 18 having semi-circular portions 18a, bars 20 and angle clips 22. The bars 18 and 20 are slotted as clearly shown on the drawing and a clamp bolt 24 is associated with them. The clips 22 are riveted to the ends of the bars 20.

Substantially rectangular sheets 26 are secured at their centers to the clips 22. These sheets are originally flat. Their edges are adapted to be secured to the conduit 10 adjacent the edges of the openings 12 therein.

For this purpose, openings 28 may be punched in the duct surrounding the openings 12 and hardened screws 30 may be screwed into the punched openings and will form their own threads. Metal cover plates 34 are adapted to be interposed between the heads of the screws 30 and the edges of the sheets 26.

The motor 14 heats somewhat when energized. It is desirable to have a band of rubber 36 or other resilient material interposed between the motor and the clamp bars 18. To prevent the transmission of heat from the motor 14 to the rubber 36, we provide a layer of insulation 38, such as asbestos.

Originally the bars 18 can be formed in the dotted line shape shown in Figure 1. Then when they are brought to their installed position on opposite sides of the bar 20 and the bolt 24 is tightened, they will effectively clamp the motor 14 into position, the rubber band 36 permitting some slight variation in dimensions.

With the clamp bolts 24 first installed loosely, the rubber sheets 26 would assume the dotted line position shown in Figure 1. Proper installation includes shortening the length of the mounting bar B so that the rubber sheets 26 assume a substantially conical shape, as clearly shown and they are thus placed under tension to support the fan A. When under tension, they provide an effective support and also an effective means to

prevent the transmission of vibration from the mounting bar B to the conduit 10.

In Figure 3, we have shown how the invention can be applied to a cold air duct defined by joists 11, a floor 13 and sheet metal 10*a*. Openings 12*a* are cut in the joists 11, the same as the openings 12 in the sides of the conduit 10 in Figure 1.

The sheets 26 and cover plates 34 are then used, wood screws 30*a* being used instead of the metal screws 30.

The use of a rubber sheet distorted to substantially conical shape, as shown in Figure 4 and thus placed under tension, either by the weight of the motor or by the shortening of the distance between the ends of a mounting which is secured to the sheets, provides an effective noiseless mounting especially adapted for cold air ducts.

Some changes may be made in the construction and arrangement of the parts of our device without departing from the real spirit and purpose of our invention, and it is our intention to cover by our claims, any modified forms of structure or use of mechanical equivalents, which may be reasonably included within their scope.

We claim as our invention:

1. For use with an air circulating fan, a fan mounting comprising a mounting bar adapted to span the air duct of a conduit having openings in opposite sides thereof, resilient sheets having their centers secured to the ends of said mounting bar and their edges secured to said conduit adjacent the edges of said openings and outside cover plates for covering both said sheets and said openings.

2. For use with an air circulating fan, a fan mounting comprising a mounting bar adapted to span the air duct of a conduit having openings in opposite sides thereof, resilient sheets having their centers secured to the ends of said mounting bar and their edges overlapping the edges of said openings, outside cover plates for said sheets and said openings and means for securing said cover plates and said sheets to said conduit adjacent the edges of said openings with said cover plates concealing and protecting said sheets.

3. For use with a fan, a fan mounting comprising a mounting bar adapted to span the air duct of a conduit having openings in opposite sides thereof, resilient sheets having their centers secured to the ends of said mounting bar and their edges secured to said conduit adjacent the edges of said openings, said mounting bar being adjustable as to length to vary the distance between its ends and thereby the tension on the sheets and cover plates for said sheets and said openings.

4. For use with an air circulating fan, a fan mounting comprising a mounting bar adapted to span the air duct of a conduit having openings in opposite sides thereof, resilient sheets having their centers secured to the ends of said mounting bar and their edges secured to said conduit adjacent the edges of said openings, cover plates for both said sheets and said openings, said mounting bar being of compound construction and the elements thereof having slots and clamping bolts extending through said slots whereby the distance between the ends of said mounting bar may be varied to vary the tension on the sheets.

5. Motor mounting means comprising a support for a motor and two initially flat sheets of resilient material each having their centers secured to the ends thereof and their edges anchored, the length of said support relative to the distance between the anchored edges of said sheets being different so as to distort said sheets to a substantially conical shape.

RALPH SIEVERT.
MELCHIOR J. CORDES.