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(54) **A MOTOR DENOISING STRUCTURE APPLIED TO VACUUM CLEANERS**

AUF STAUBSAUGER ANGEWANDTE MOTORGERÄUSCHREDUZIERUNGSSTRUKTUR

STRUCTURE DE DÉBRUITAGE DE MOTEUR APPLIQUÉE À DES ASPIRATEURS

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Description

FIELD OF THE INVENTION

[0001] The present invention relates to a motor denoising structure applied to vacuum cleaners.

BACKGROUND OF THE INVENTION

[0002] With the motor power of a vacuum cleaner gradually increased, the noise of the vacuum cleaner is also increased. In the prior art, in order to resolve the problem of motor noise of the vacuum cleaner, the manufacturers usually take the following approaches:

1. Making effort on the motor itself, and achieving low noise output by reducing the power consumption while ensuring its work efficiency; however, this approach suffers high cost, with the actual denoising effect not very ideal.

2. Making improvement in the wind channel in the motor housing, such as making improvement in the shape of the dynamic and static wind wheels, or reducing noise by the addition of an anechoic room, a wind pipe and other structures; however, this approach has the disadvantages that the motor housing has complicated structure design, the model is more difficult to be manufactured, and the cost is increased.

3. Since the low-frequency noise of the vacuum cleaner mainly comes from vibration of the motor, in order to reduce vibration of the motor, in the industry the motor is fixed inside the motor cover front and rear with a motor seal ring and a motor pressure seat; however, the prior art motor and motor cover are fixed mostly by rigid connection, which still has a limited silencing effect and may also produce resonance, not able to achieve low noise of the motor.

[0003] WO 2009/101775 discloses an electric vacuum cleaner comprising a plurality of coil springs disposed between motor support and motor cover to support the motor support.

[0004] WO 2010/106471 discloses a vacuum cleaner, wherein the motor is suspended in the motor compartment by a suspension system comprising at least one leaf spring.

CONTENTS OF THE INVENTION

[0005] A purpose of the present invention is as follows: A motor denoising structure applied to vacuum cleaners is provided, whose motor cover supports the motor support through an elastomer, such a flexible connection reducing noise while reducing vibration.

[0006] A technical solution of the present invention is as follows: A motor denoising structure applied to vacuum cleaners, with an elastomer disposed between a motor support and a motor cover to support the motor support.

[0007] Furthermore, the elastomer comprises a flexible cushion disposed on the motor cover, with a flexible support sheet being connected between the flexible cushion and the motor support. The flexible support sheet is a flexible sheet having a supporting function.

[0008] In order to better damp vibration and reduce noise, the lower portion of the motor fixed inside the motor support in the present invention is suspended inside the motor cover, i.e., the tail portion of the motor is suspended inside the motor cover and gets in no contact with the motor cover; certainly, other cushioning parts (e.g. a damping pad and a spring) can also be disposed between the tail portion of the motor and the motor cover, so as to achieve the corresponding damping effect. The solution that the lower portion of the motor is suspended inside the motor cover is preferred in the present invention, thereby preventing the lower portion of the motor from contacting the motor cover to make the motor vibration transferred to the motor cover, which can better reduce noise and the production cost as well.

[0009] The present invention has the following advantages:

1. The motor cover of the present invention supports the motor support through an elastomer, such a flexible connection reducing noise while reducing vibration.

2. The lower portion of the motor in the present invention is preferred to be suspended inside the motor cover, thereby preventing the lower portion of the motor from contacting the motor cover to make the motor vibration transferred to the motor cover, which can better reduce noise and the production cost as well.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] The present invention will be further described below with reference to drawings and examples.

[0011] Fig. 1 is a structural schematic view of the present invention.

[0012] Wherein:

1. motor;

2. motor cover;

3. motor support;

4. elastomer; 41. spring; and 42. flexible support sheet.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0013] Example: As shown in Fig. 1, a motor denoising structure applied to vacuum cleaners, comprising a motor 1 and a motor cover 2, the motor 1 being provided at its periphery with a motor support 3 used for fixing the motor 1; the motor cover 2 supports the motor support 3 through an elastomer 4, which comprises a flexible cushion 41 disposed on the motor cover 2, with a flexible support sheet 42 being connected between the flexible cushion 41 and the motor support 3. The flexible support sheet 42 is a flexible sheet having a supporting function.

[0014] In order to better damp vibration and reduce noise, the lower portion of the motor 1 in the present invention is suspended inside the motor cover, i.e., the tail portion of the motor 1 is suspended inside the motor cover 2 and gets in no contact with the motor cover 2; certainly, other cushioning parts (e.g. a damping pad and a spring) can also be disposed between the tail portion of the motor 1 and the motor cover 2, so as to achieve the corresponding damping effect. The solution that the lower portion of the motor 1 is suspended inside the motor cover 2 is preferred in this example.

[0015] The motor cover 2 of the present invention supports the motor support 3 through the elastomer 4, such a flexible connection reducing noise while reducing vibration. Besides, ensuring that the tail portion of the motor 1 is suspended can prevent the lower portion of the motor 1 from contacting the motor cover 2 to make vibration of the motor 1 transferred to the motor cover 2, which can better reduce noise and the production cost as well.

[0016] What is described above is only a specific application example of the present invention, and cannot limit the scope of protection of the present invention. In addition to the above example, the present invention can also have other embodiments. Any technical solution based on equal substitution or equivalent alteration all falls within the scope seeking protection in the present invention.

Claims

1. A motor denoising structure applied to vacuum cleaners, **characterized in that** an elastomer (4) is disposed between a motor support (3) and a motor cover (2) to support the motor support (3), wherein the elastomer (4) comprises a flexible cushion (41) disposed on the motor cover (2), with a flexible support sheet (42) being connected between the flexible cushion (41) and the motor support (3).

2. The motor denoising structure applied to vacuum cleaners according to claim 1, wherein the flexible support sheet (42) is a flexible sheet having a supporting function.

3. The motor denoising structure applied to vacuum cleaners according to claim 1 or 2, wherein a lower portion of the motor (1) fixed inside the motor support (3) is suspended inside the motor cover (2).

Patentansprüche

1. Motorentrauschungsstruktur, die bei Staubsaugern eingesetzt wird, **dadurch gekennzeichnet, dass** ein Elastomer (4) zwischen einer Motorhalterung (3) und einer Motorabdeckung (2) angeordnet ist, um die Motorhalterung (3) zu stützen, wobei das Elastomer (4) ein biegsames Polster (41), das an der Motorabdeckung (2) angeordnet ist, mit einem biegsamen Trägerblech (42) umfasst, das zwischen dem biegsamen Polster (41) und der Motorhalterung (3) verbunden ist.

2. Motorentrauschungsstruktur, die bei Staubsaugern eingesetzt wird, nach Anspruch 1, wobei das biegsame Trägerblech (42) ein biegsames Blech mit einer stützenden Funktion ist.

3. Motorentrauschungsstruktur, die bei Staubsaugern eingesetzt wird, nach Anspruch 1 oder 2, wobei ein unterer Teil des Motors (1), der in der Motorhalterung (3) befestigt ist, in der Motorabdeckung (2) aufgehängt ist.

Revendications

1. Structure de débruitage de moteur appliquée aux aspirateurs, **caractérisée en ce qu**'un élastomère (4) est disposé entre un support de moteur (3) et un couvercle de moteur (2) pour supporter le support de moteur (3), dans laquelle l'élastomère (4) comprend un coussinet flexible (41) disposé sur le couvercle de moteur (2), avec une feuille de support flexible (42) qui est raccordée entre le coussinet flexible (41) et le support de moteur (3).

2. Structure de débruitage de moteur appliquée aux aspirateurs selon la revendication 1, dans laquelle la feuille de support flexible (42) est une feuille flexible ayant une fonction de support.

3. Structure de débruitage de moteur appliquée aux aspirateurs selon la revendication 1 ou 2, dans laquelle une partie inférieure du moteur (1) fixée à l'intérieur du support de moteur (3) est suspendue à l'intérieur du couvercle de moteur (2).

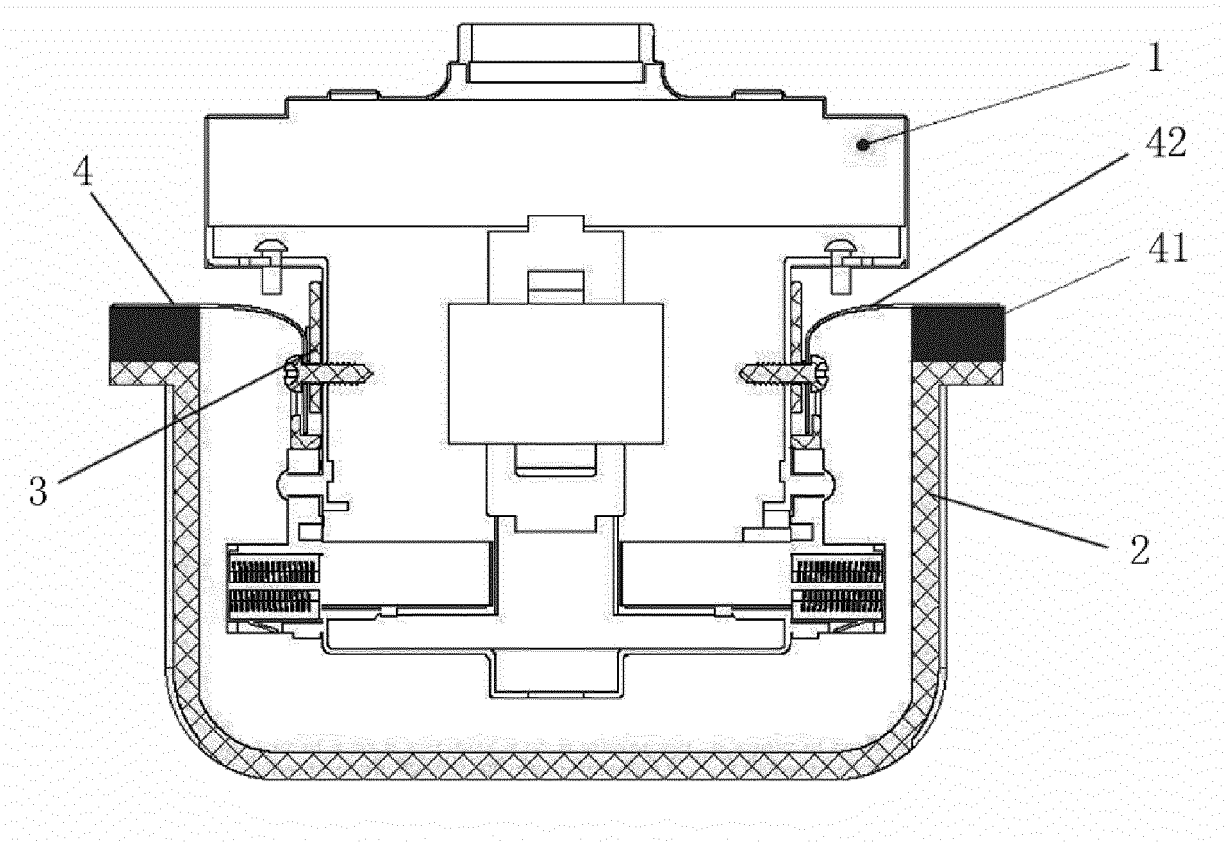


Fig. 1

REFERENCES CITED IN THE DESCRIPTION

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