(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 3 369 342 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
05.09.2018 Bulletin 2018/36

(51) Int Cl.:
A47B 91/04 *(2006.01)*

(21) Application number: **18151015.7**

(22) Date of filing: **10.01.2018**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
MA MD TN

(30) Priority: **01.03.2017 SE 1700042**

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(54) **SOUND BLOCKER**

(57) Sound blocker (1) of a viscoelastic material with good, and vibration dampening, as well as sound dampening properties, with a round frame (2) with a convex upper surface (9). The frame (2) is attached under a leg of a chair/furniture (14, 16) whereafter a furniture pad (3) is applied under the frame (2), which is provided with air dampening cavities (6) and air channels (7) arranged for air which may pass in and out while the chair or the furniture is loaded or unloaded. The sound blocker (1) preventing the generation of noise, partly by that the furniture pad (3) acts sound dampening, as the friction against the floor is decreased, and partly by that the frame (2) is dampening vibrations occurring when moving the chair/furniture, and the sound blocker (1) also preventing the generation of "thud-sound" while sitting down on the chair, or lifting and putting down the chair/furniture. By the sound blockers (1) combination of the frame (2) and the furniture pad (3), especially good sound and vibration dampening characteristics is achieved, and at the same time it has other characteristics making it suitable for example in nursery schools and schools.

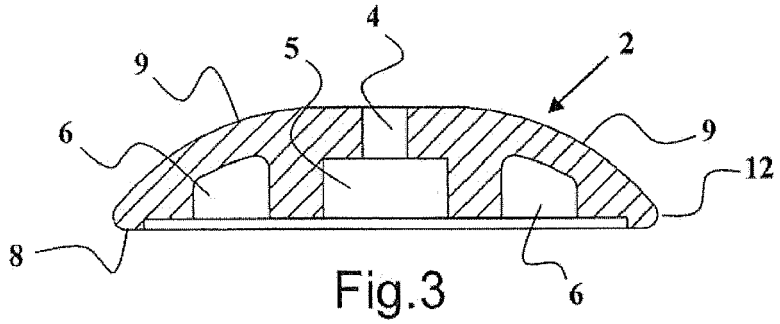

Fig.3

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Description

Technical field

[0001] The present invention relates to a sound blocker which prevents resonance and noise from occurring, thus avoiding noise and scratch noise when moving or displacing chairs and other furniture.

Technical background

[0002] All unwanted sound is called noise. It may be sound which "only" is disturbing or sound that is harmful for the hearing. Noise is a big problem in many offices, restaurants, bars and concert halls, exercise premises, at nursery schools and schools. Scratchy chair feet in the school environment can have a negative impact on everything from concentration to the effectiveness of both students and staff. Noise can cause deteriorated sleep, memory, speech comprehension, learning, reading comprehension, as well as fatigue and headache. One tries to avoid unnecessary noise from chairs and tables which are handled on daily basis and which one wants as silent as possible, first of all in schools or nursery schools, but also in other places where unnecessary noise disturbs and causes damage, and where one uses furniture and chairs which causes a lot of noise. A common solution is felt covered soles, so-called furniture pads, which are glued and/or nailed under the legs of a chair or a table. Furniture pads are not well-suited for chairs with metal tubes, which are often fitted with foot plugs that are applied in the tube or foot caps that are threaded over the tube, as they are difficult to attach to these. Furniture pads are used to protect the floor from damage caused by the furniture that is moved along the floor. There are different sizes and variants of furniture pads. In some cases, they are nailed under the legs of the chair or furniture and in other cases they are attached with self-adhering tape. To some extent they prevent noise, which occurs while moving the piece of furniture along the floor. There are a number of additional solutions present at the market. There are different tricks to keep the sound level low, as for example use of tennis balls attached to a chair leg. One solution is for example an acoustic sock, which reminds of a ball, threaded like a sock on the chair leg, to dampen scratch noise from chairs pulled along the floor. They become quite bulky and can cause problems, for example, when chairs are to be piled on top of each other.

Summary of the invention

[0003] It is therefore an object of the present invention to provide a sound blocker with vibration dampening as well as sound absorber, which prevents that resonance and sound occurs, and by that avoids noise and scratching noise, while moving or displacing chairs and other furniture. The sound blocker is designed in a viscoelastic material with good, as well as vibration dampening properties, and consists of a round frame with a convex upper surface. The frame is provided with air-dampening cavities/recesses and channels for air, which can pass in and out when the chair or furniture is loaded or unloaded. This means that when for example a person sits down on a chair provided with the sound blocker, the load from the weight of the person presses the frame towards the floor and by that, air passes out from the recesses via the air channels and out to the free. And opposite, when the person leaves the chair, it gets unloaded and air passes in from the free, via the air channels and into the recesses. The air channels extending from the recesses and to the outer edge of the frame such as the air channels have contact to the free. The frame is attached under respective leg of the chair/furniture, whereafter a furniture pad is applied under the respective frame. The sound blocker preventing the generation of noise, partly by that the furniture pad acts sound dampening, as the friction against the floor is decreased, and partly by that the frame is dampening vibrations, occurring when moving the chair/furniture, and the sound blocker further preventing "thud-sound" generated while sitting down on the chair, or lifting and putting down the chair/furniture. By the combination of the frame and the furniture pad of the sound blocker, especially good sound and vibration dampening characteristics is achieved, and at the same time it has other characteristics making it suitable for example in nursery schools and schools.

Description

[0004] The sound blocker is designed in a viscoelastic material with good, as well as vibration dampening characteristics, and consists of a round frame with an upperside having a convex form. In the centre, the frame is provided with a through hole for a nail or a screw. In the centre of the underside, the frame is provided with an open, round recess around the hole, with room for a nail head or a screw head. Between this recess and inside the rounded outer edge of the frame, the frame is all around provided with arcuate, open, hollowed recesses, which constitutes air dampeners. From the outer edge of the frame and inwards to the centre of the frame there are air channels, arranged for air which may pass in and out while the chair or the furniture is loaded or unloaded as described above. The air channels are connected to all hollowed recesses all around. Around the periphery of the frame there is a thin rim. Inside the rim is a furniture pad fitted when it shall be attached to the frame. The sound blocker is applied under wooden chair legs/furniture legs, preferably with anchor nails, or is screwed by means of a wood screw. Thereafter, a self-adhering furniture pad is fitted and attached inside the rim, provided around and at the lower edge of the frame. For chairs with steel tubes, a wooden plug is inserted into the end of the tube, whereafter the frame is nailed to the plug, preferably with an anchor nail, or is attached with a wood

screw. Thereafter, a self-adhering furniture pad is fitted and attached inside the rim, provided around and at the lower edge of the frame.

[0005] An embodiment of the invention is described hereinafter and is illustrated in the accompanying drawing, which according to

Fig. 1 is showing a side view of the sound blocker frame.

Fig. 2 is showing a sketch of the underside of the sound blocker frame and its construction.

Fig. 3 is showing a simplified section through the sound blocker frame and its cavities.

Fig. 4 is showing a simplified section through the sound blocker mounted under a wooden leg of a chair.

Fig. 5 is showing a simplified section through the sound blocker mounted under a leg of a chair made of a steel tube.

[0006] The sound blocker according to figure 1, 2, 3, 4 and 5 represents the design used in this particular example.

[0007] The sound blocker according to **figure 1** shows a round frame 2 of a sound blocker 1 and its convex upper surface 9. In a rounded outer edge 12 of an underside 11 of the frame 2, is shown how air channels 10 is distributed and opens out around the circumference of the frame 2.

[0008] The sound blocker according to **figure 2** shows the underside 11 of the round frame 2 of the sound blocker 1, with a centrally positioned through hole 4, for a nail or a screw. The frame 2 has an open, round recess 5 in the middle, around the hole 4, with room for a nail head or a screw head. Between this recess 5 and inside the rounded outer edge 12 of the frame 2, the frame 2 is all around provided with arcuate, open, hollowed recesses 6, which constitutes air dampeners. From the outer edge 12 of the frame 2 and inwards to the centre of the frame 2 there are air channels 7 for air, which may pass in and out, while the sound blocker is loaded or unloaded. The air channels 7 are connected to all hollowed recesses 6 all around. Around the periphery of the frame 2 there is a thin rim 8. Inside the rim 8 is a furniture pad fitted, to be attached to the frame 2.

[0009] The sound blocker according to **figure 3** shows a simplified section through the round frame 2 of the sound blocker 1 and its convex upper surface 9 and with the centrally positioned through hole 4, for a nail or a screw. The frame 2 has the open, round recess 5 in the middle, around the hole 4, with room for a nail head or a screw head. Between this recess 5 and inside the rounded outer edge 12 of the frame 2, the frame 2 is all around provided with arcuate, open, hollowed recesses 6, which constitutes air dampeners. Around the periphery of the frame 2 there is a rim 8.

[0010] The sound blocker according to **figure 4** shows a simplified section through the sound blocker 1, mounted under a wooden leg of a chair 14. The round frame 2 of the sound blocker 1 is attached under the leg of the chair 14 by means of a nail 13, whereafter a furniture pad 3 is fitted and attached inside the rim 8, under the frame 2.

[0011] The sound blocker according to **figure 5** shows a simplified section through the sound blocker 1, mounted under a leg of a chair 14 made of a steel tube 16. A wooden plug 15 is applied in the end of the steel tube 16. The frame 2 is nailed to the plug 15 with a nail 13, whereafter a furniture pad 3 is fitted and attached inside the rim 8, under the frame 2.

[0012] The invention has been described in conjunction with preferred summary and design and it is understood that certain substitutions and changes may be made without departing from the spirit of the invention. The present embodiment shows, how the open hollowed recesses of the frame, which constitutes air dampeners, are arcuate. Of course, the open hollowed recesses may have the form of circles, squares, or other geometric forms. Also, the attachment of the sound blocker frame may be accomplished by other arrangements in form of for example sleeves, expanders or the like. The invention is not limited to what is shown and described in the previous, but other similar variants are included in the inventive concept and is considered to be included in the following claims.

Claims

1. Sound blocker of a viscoelastic material, **characterized in that** the sound blocker (1) comprises a round frame (2) with an upperside (9) having a convex form, and with an underside (11) arranged for receiving a furniture pad (3), and the frame (2) is in its centre provided with a through hole (4), for receiving a nail (13) or a screw, and the frame (2) is in the underside (11) provided with an open, round recess (5) in the centre around the hole (4), with room for a nail head or a screw head, and between this recess (5) and inside a rounded outer edge (12) of the frame (2), the frame (2) is provided with arcuate, open, hollowed recesses (6), which constitutes air dampeners, and from the outer edge (12) of the frame (2) and inwards to the centre of the frame (2) there are air channels (7), arranged for air which may pass in and out while the sound blocker (1) is loaded or unloaded, and the air channels (7) are connected to the hollowed recesses (6), and around a periphery of the frame (2) there is a rim (8), and the frame (2) is arranged to receive a furniture pad (3) inside the rim (8).

2. Sound blocker according to claim 1, **characterized**

in that the air channels (7) which extends from the outer edge (12) of the frame (2) and inwards to the centre of the frame (2) are distributed all around, such as they pass over the hollowed recesses (6), and the air channels (7) are arranged such as to run in between the frame (2) and the furniture pad (3), when a furniture pad (3) is arranged under the frame (2).

3. Sound blocker according to claim 1, **characterized in that** when the sound blocker (1) is mounted under a wooden leg of a chair/furniture (14), the frame (2) is nailed under the leg of the chair/furniture (14) by means of a nail (13), whereafter a furniture pad (3) is fitted and attached inside the rim (8) under the frame (2).

4. Sound blocker according to claim 1, **characterized in that** when the sound blocker (1) is mounted under a leg of a chair/furniture (16) made of steel tubes, a wooden plug (15) is applied in an end of the steel tube (16), and the frame (2) is nailed in the plug (15) by means of a nail (13), whereafter a furniture pad (3) is fitted and attached inside the rim (8) under the frame (2).

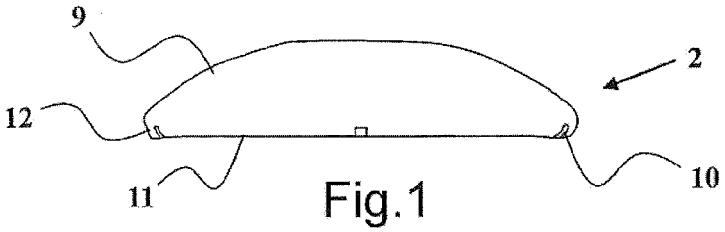

Fig.1

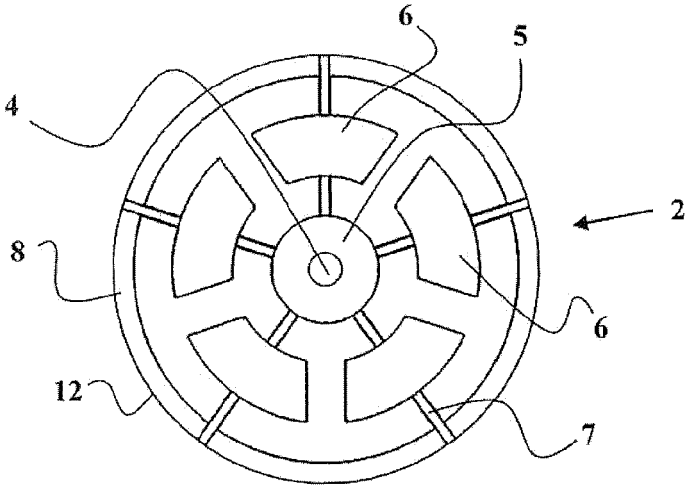

Fig.2

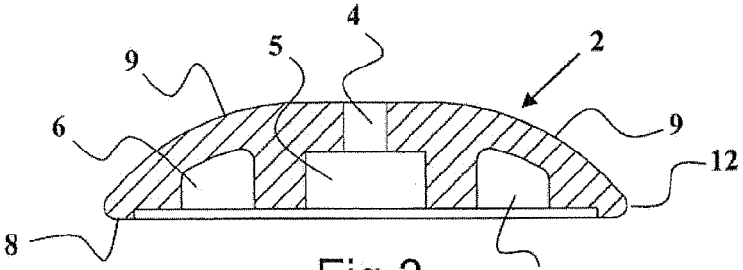

Fig.3

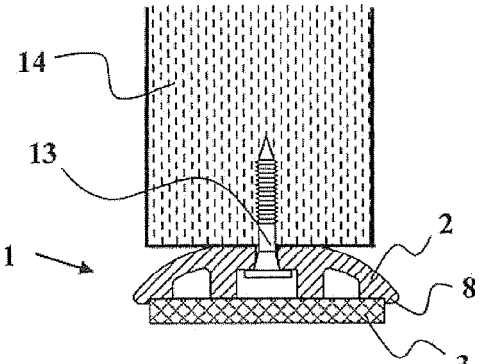

Fig.4

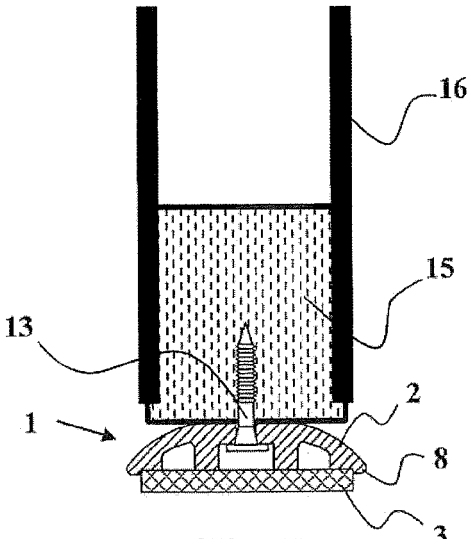

Fig.5

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EUROPEAN SEARCH REPORT

Application Number
EP 18 15 1015

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	JP 2006 136648 A (ISHIGURO MFG) 1 June 2006 (2006-06-01) * the whole document *	1-4	INV. A47B91/04
A	JP S58 8358 U (NOT TRANSLATED) 19 January 1983 (1983-01-19) * the whole document *	1	
A	US 2009/056071 A1 (VORPAHL STEVEN A [US]) 5 March 2009 (2009-03-05) * paragraph [0048] - paragraph [0064]; figures 1-9 *	1	

TECHNICAL FIELDS SEARCHED (IPC)

A47B
A47C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	12 June 2018	Lehe, Jörn

CATEGORY OF CITED DOCUMENTS

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 18 15 1015

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12-06-2018

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82