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(54) Plastic grills for loudspeakers

(57) Of the type that incorporate a plurality of orifices (2 and 2'), and that furthermore include in their rear side a series of reinforcing ribs. It is characterized in that the reinforcing ribs are determined by a plurality of straight ribs (3) parallel and equidistant among them which are located at the space comprised between two lines of orifices,

which are complemented and interlaced with some curved ribs (4) forming an "S" shape which run along a line of orifices, surrounding them alternatively.

The arrangement of the ribs prevents them to be seen from outside, while simultaneously improve the mechanical resistance to breakage and the fidelity of sound.

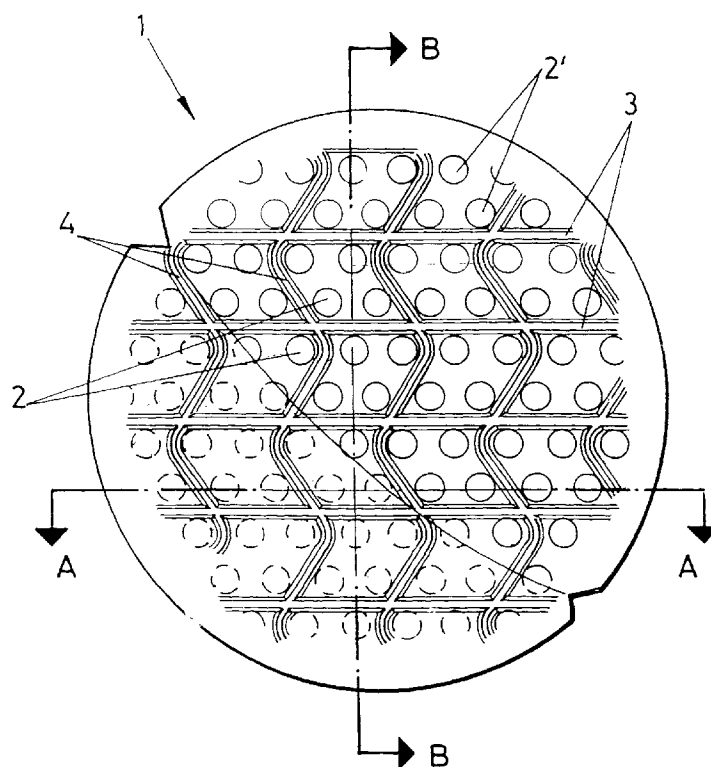


FIG. 1

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Description

OBJECT OF THE INVENTION

The invention in question, as it has been expressed in the title of this specification, refers to improvements introduced in the manufacturing of plastic grills for loud speakers, the object of which is to considerably improve the mechanical resistance to breakage while maintaining the aesthetics.

Another object of the invention is to improve the quality of the sound.

The invention is preferably applied to the protection of loud speakers of vehicles of the type which are normally integrated within the dashboards or side walls of the doors in particular, and in general its application extends to all the grills of the loud speakers used in audio equipments and made of thermo-plastic material.

PRIOR ART

Currently plastic moulded grills are used to protect the loud speakers included in motor vehicles, which incorporate a series of orifices that weaken the surface in such a way, that by means of small pressures on the central area, they can be easily broken, which constitutes an inconvenience.

To solve these problems, another type of grills has been developed formed by a mesh of metallic wires, that while they present a more resistant structure than those moulded in plastic, they are much more expensive and their mesh impairs the quality of the sound.

Therefore, plastic grills have been developed that incorporate ribs determined by a honeycomb-shaped mesh, that is located in such a way that they can be seen from outside, which produces a deterioration of their aesthetic aspect, at the same time that represents a loss in the quality of sound.

Other grills intercalate between two plastic sheets, a sandwich-like fabric with the purpose of avoiding the accumulation of dust in the loud speaker offering a greater resistance to breakage by pressure, however it is a type of grill very complicated to manufacture and that also considerably reduces the quality of sound.

DESCRIPTION OF THE INVENTION

To solve the above-mentioned inconveniences, the invention refers to a plastic grill of the type of those that include in their hidden side a series of reinforcing ribs, which are characterized in that they adopt a configuration that cannot be seen from outside the grill and that offers a maximum resistance to deformation by breakage, apart from establishing an excellent surface for rebound or refraction of the sound waves that improve the quality of the sound.

This structure is defined by a series of straight ribs parallel and equidistant which are located between two

lines of orifices, which are complemented by ribs arranged perpendicularly to the previous ones, also equidistant and parallel among them, but whose configuration is determined by a series of curved lines with an "S" shape, which are interlaced with the straight ribs, and that surround the orifices of a same line in an alternate way.

Both the straight ribs and the curved ones present a trapezial section profile.

Hereinafter to facilitate a better comprehension of this specification and forming an integral part of it, a series of figures are attached where in an illustrative way but without limitations the object of the invention has been represented.

BRIEF DESCRIPTION OF THE FIGURES

Figure 1. It shows a rear view of a portion of plastic grill according to the improvements of the invention.

Figure 2.- It shows a partial view according to an A-A section of the previous figure.

Figure 3.- It shows a partial view according to a B-B section of figure 1.

DESCRIPTION OF AN EMBODIMENT OF THE INVENTION

Hereinafter there is a description of the invention based on the above-mentioned figures.

As already mentioned, the invention consists of a grill 1 which incorporates a plurality of passing orifices 2 and a series of blind orifices 2'. All these orifices 2 and 2' are homogeneously distributed throughout the whole surface of the grill, and are aligned both longitudinally and transversally. According to the example of embodiment, this alignment adopts a quincunx configuration.

It must be taken into consideration that in figure 1 it has been represented a portion of grill where a section has been chosen where there are blind and passing orifices, these latter ones being in correspondence with the membrane of the loud speaker to facilitate the exit of the acoustic waves originated by the vibration of the membrane towards outside.

On their part, the blind orifices 2' are arranged in the area where there is no membrane of the loud speaker.

Evidently, there are some embodiments in which the membrane occupies the whole grill, a circumstance in which all the orifices are passing orifices.

The passing orifices are determined by two inverted conical sections communicated between them. On their part the blind orifices 2' are determined by a single truncated conical section.

In the rear side or hidden side of the grill, it has been foreseen a series of straight ribs 3 parallel and equidistant, which are located in the space between two consecutive lines of orifices 2 and 2'.

Such straight ribs 3, are complemented by a series

of curved ribs 4 forming an "S" shape arranged in a perpendicular direction and interlaced with the straight ribs 3.

The curved ribs 2, run surrounding the orifices 2 and 2' of a same line, so that if they surround an orifice by the left side the next one is surrounded by the right side, and so on. 5

According to the example of embodiment, both the straight ribs 3 and the curved ribs 4, are determined by a partition the profile of which is trapezial. 10

The ribs are moulded in the same material as the grill and their structure considerably improves the mechanical resistance to breakage by impact or pressure.

This structure also notably improves the fidelity of the sound, by preventing the rebound of waves. 15

Similarly, the described configuration prevents that the ribs can be seen from outside, thus offering a better aesthetics to the grill.

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Claims

1. IMPROVEMENTS INTRODUCED IN THE MANUFACTURING OF PLASTIC GRILLS FOR LOUD

SPEAKERS, of the type of those which have a plurality of orifices, aligned longitudinally and transversally, and which furthermore include in their rear side a series of reinforcing ribs; it is essentially characterized in that the reinforcing ribs are determined by a plurality of partitions (3) parallel and equidistant among them which are interlaced with a plurality of curved ribs (4) to improve the mechanical resistance to breakage by impact or pressure 25 30

2. IMPROVEMENTS INTRODUCED IN THE MANUFACTURING OF PLASTIC GRILLS FOR LOUD

SPEAKERS, according to claim 1, characterized in that the straight ribs(3)are located in the space comprised between two lines of orifices so that they cannot be seen from outside. 35 40

3. IMPROVEMENTS INTRODUCED IN THE MANUFACTURING OF PLASTIC GRILLS FOR LOUD

SPEAKERS, according to claim 1, characterized in that the curved ribs (4) forming an "S" shape, run along a line of orifices, so that they surround them in an alternate way, and cannot be seen from outside. 45

4. IMPROVEMENTS INTRODUCED IN THE MANUFACTURING OF PLASTIC GRILLS FOR LOUD

SPEAKERS, according to any of the previous claims, characterized in that both the straight partitions (3) and the curved ones (4) present a trapezial profile. 50 55

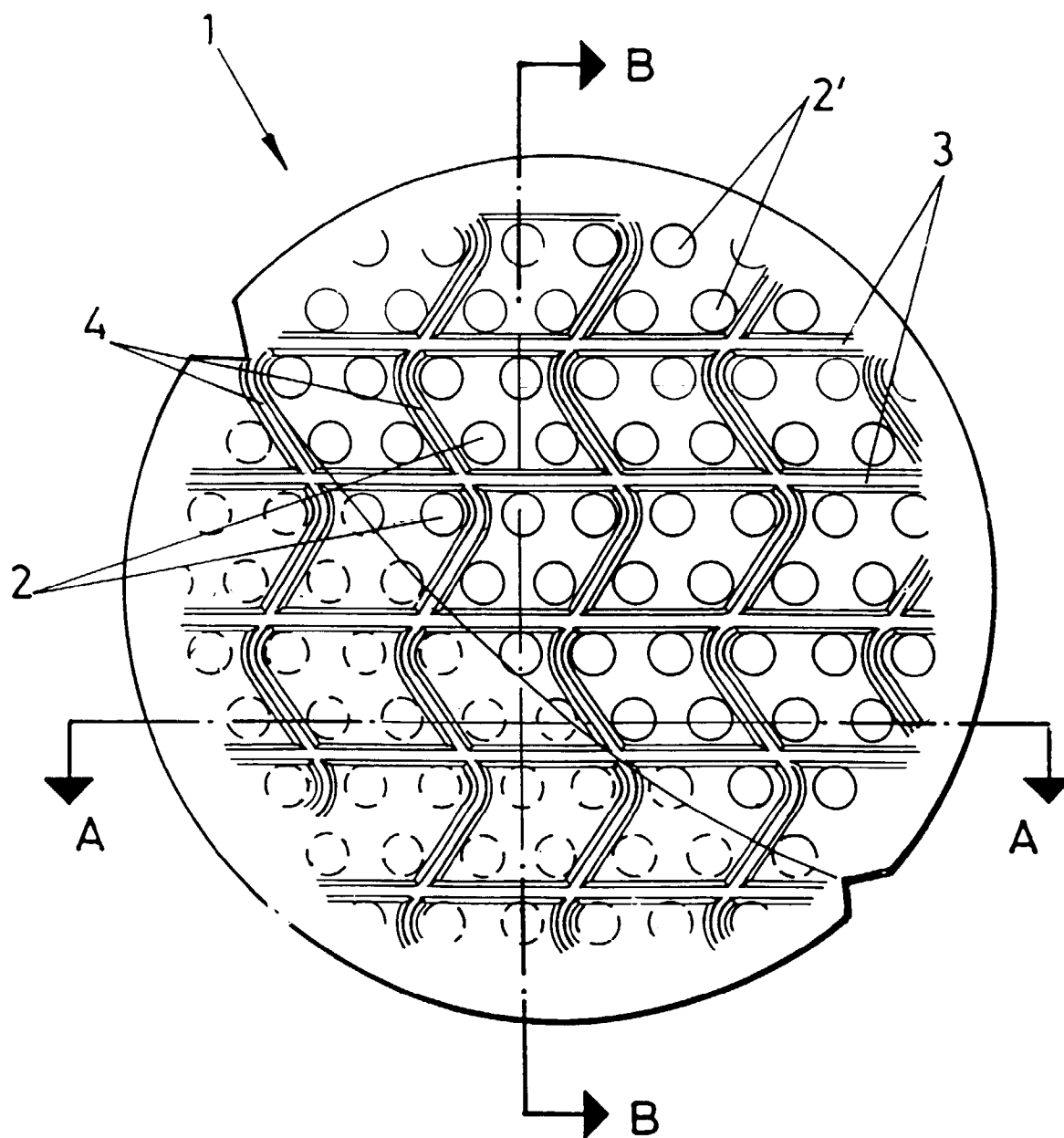


FIG. 1

