Oct. 29, 1963 J. J. HAMMES 3,108,654

INTEGRAL LOUD SPEAKER BAFFLE

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Fig. 1.

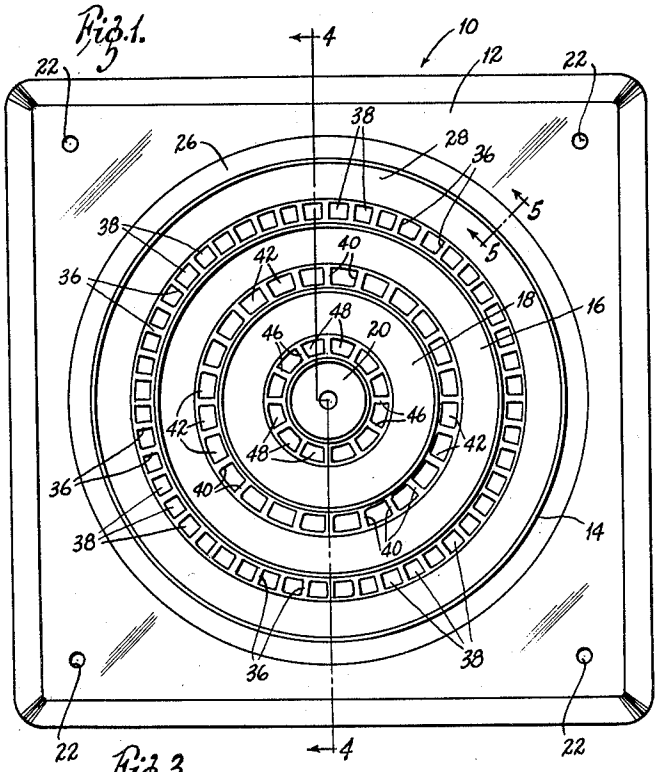


Fig. 2.

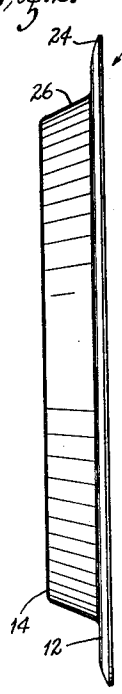


Fig. 4.

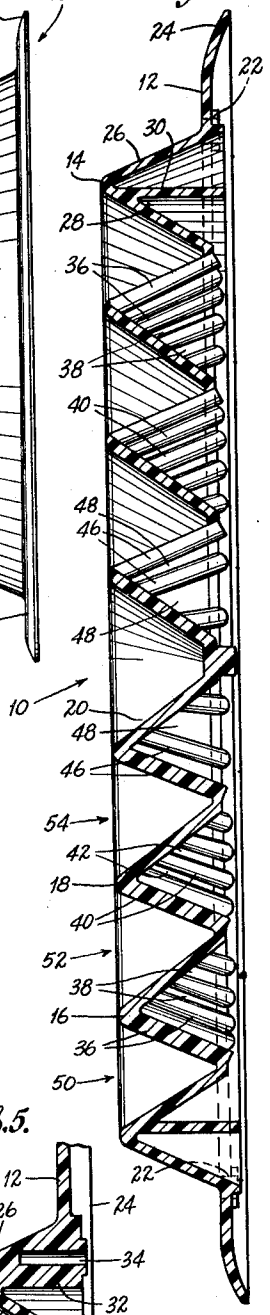


Fig. 3.

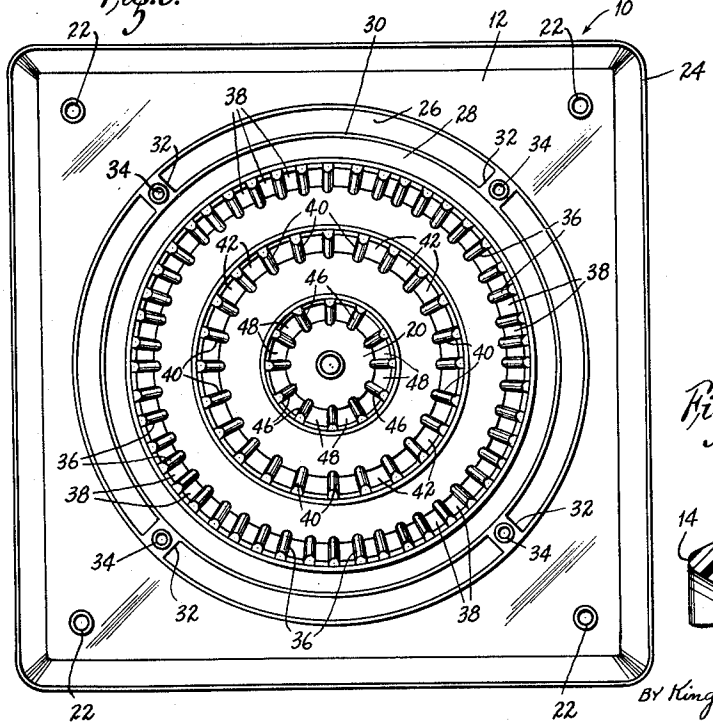


Fig. 5.

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INTEGRAL LOUD SPEAKER BAFFLE

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This invention relates to improvements in speaker baffles and in particular is concerned with an integral loud speaker baffle that may be simply made from organic plastics.

The loud speaker baffle of this invention is adapted to be used with conventional loud speakers which may be simply connected to it for emplacement in a wall or ceiling or the like. The loud speaker baffle is especially designed of a construction such that it may be simply made from organic plastics by molding or the like. It is of unitary and integral construction and has no re-entrant parts which facilitates the molding from conventional organic plastic materials.

The loud speaker baffle of this invention is provided with a central diffuser cone and a plurality of frusto-conical rings concentric with and surrounding the speaker cone. These rings and the cone are all connected to one another by ribs which are spaced from adjacent ribs in such a fashion that passages for sound waves are provided between the adjacent rings and between innermost ring and the diffuser cone. By this construction sound waves emanating from a loud speaker cone, which may be connected to the rear of the loud speaker baffle, can pass through the rings and by virtue of their outward flaring relationship are directed over a wide area to a listening audience.

The loud speaker baffle of this invention has a flat base upon which the diffusing rings and the diffuser cone are situated and from which they extend to a uniform horizontal level in the front of the speaker. The baffle is provided with fittings in order that it may be very simply attached by relatively unskilled workmen to a wall or a ceiling opening, and it is also fitted so that it may readily receive a loud speaker cone on the rear surface. The speaker baffle is efficient in operation and rugged by virtue of its design and construction and provides an advantageous use for its designed purpose.

The above features are objects of this invention and further objects will appear in the detailed description which follows and will be otherwise apparent to those skilled in the art.

For the purpose of illustration of this invention, there is shown in the accompanying drawings a preferred embodiment thereof. It is to be understood that these drawings are for the purpose of example only, however, and that the invention is not limited thereto.

In the drawings:

FIGURE 1 is a front elevational view of the loud speaker baffle;

FIGURE 2 is a view in side elevation taken from the right hand side of FIGURE 1;

FIGURE 3 is a rear elevational view of the speaker baffle;

FIGURE 4 is an enlarged view in section taken on the line 4—4 of FIGURE 1 showing the structure of the connecting ribs between the loud speaker rings and also showing the passageways between adjacent ribs; and

FIGURE 5 is an enlarged view in section taken on the line 5—5 of FIGURE 1 showing a mounting support at the base of the outermost speaker ring for connecting a loud speaker cone at the rear of the baffle.

The loud speaker baffle of this invention is generally designated by the reference numeral **10** and is comprised

of a flat base **12**, outer support ring **14**, inner frusto-conical rings **16** and **18**, and a central diffuser cone **20**.

The base **12** has a plurality of holes **22** at its corners for mounting the baffle to a wall opening behind which the loud speaker cone (not shown) may be mounted. Beveled edges **24** are provided which merge gently with a wall surface upon which the baffle is adapted to be mounted. The outer support ring **14** is formed of two merging surfaces **26** and **28**, as best shown in FIGURE 4. The inner surface **28** forms a part of a guide path for loud speaker sound waves emanating from the load speaker cone as will more fully appear. A rim **30** is provided between the ring surfaces **26** and **28** and is connected to a brace member **32**, as shown in FIGURES 4 and 5. The brace member **32** has an opening **34** adapted to receive mounting screws holding a loud speaker cone in place as will be readily understood.

The ring **16**, as best shown in FIGURES 1 and 4, is of a generally frusto-conical configuration and flares outwardly to the front of the baffle. It is connected to the bottom of surface **28** of the ring **14** by a plurality of ribs **36**, which are spaced apart from one another to define passageways **38**. These passageways permit the passage of sound waves therethrough and, due to the outwardly flaring configuration of ring **16** and the surface **28** of ring **14**, the sound waves are guided at an angle away from the center of the baffle to be diffused away from the front thereof.

The ring **18**, as shown in FIGURES 1 and 4, likewise is provided with a plurality of ribs **40**, which are spaced apart from one another to define passages **42**. These ribs connect the top of ring **18** with the bottom of ring **16**. By virtue of the passages provided, sound waves may emanate between the ring **18** and the ring **16** and be diffused away from the center or the axis of the baffle and distributed over a listening area.

The diffuser cone **20**, as best shown in FIGURES 1 and 4 likewise is connected to the adjacent ring, in this case ring **18**, by a plurality of spaced ribs **46**. These ribs are spaced apart from one another to define passages **48** through which sound waves emanate in guided relationship between the diffuser cone **20** and the adjacent ring **18**.

Use

The loud speaker baffle **10** is very simply adapted to be used upon a wall structure or the like by connecting it to cover an opening in the wall and providing fastening screws to pass through the openings **22** to connect the baffle to the wall surface. A conventional loud speaker baffle may then be connected by passing bolts through a rim of the loud speaker as they are so conventionally provided to bolt the same against the rear of the baffle by the use of bolt holes **34** shown in FIGURES 3 and 5.

The loud speaker baffle is then ready for use. In the operation, sound waves will emanate in three separate diffusing zones. The first zone may be termed the outer zone shown by the arrow **50** in FIGURE 4 and defined by the ring **16** and the surface **28** of outer ring **14**. In the outer zone **50** the sound waves will pass through the passage-ways **38**. An intermediate zone **52** is likewise provided between rings **16** and **18**, as shown in FIGURE 4, and an inner zone **54** is provided between ring **18** and the diffuser cone **20**. The rings defining the passage-ways in zones **50**, **52** and **54**, together with the diffuser cone **20**, thus makes possible a distribution and diffusion of loud speaker sound waves for even distribution over a room area.

By virtue of the particular construction of the loud speaker baffle, it may be very simply molded. It will be noted by reference to FIGURE 4 that there are no re-entrant portions and, accordingly, through simple mold employment, the loud speaker baffle of this invention can

be very simply manufactured. It is of a high degree of utility and provides very effectively for sound distribution.

Various changes and modifications may be made within this invention as will be readily apparent to those skilled in the art. Such changes and modifications are within the scope and teaching of the invention as defined by the claims appended hereto.

What is claimed is:

1. An integral organic plastic loud speaker baffle comprising a flat base, a plurality of concentric frusto-conical rings radially spaced from one another in their entirety supported by said base, said rings being connected to one another by a plurality of ribs spaced from one another about the periphery of said rings to provide sound wave passages between said ribs, said ribs connecting adjacent rings through a connection at the front edge of an innermost of said adjacent rings and a connection at the rear edge of an outermost of said adjacent rings, and sound wave passages between said rings.

2. An integral organic plastic loud speaker baffle comprising a flat base, a plurality of concentric frusto-conical rings radially spaced from one another in their entirety supported by said base, an imperforate diffuser cone connected to an innermost of said rings, said rings being connected to one another by a plurality of ribs spaced from one another about the periphery of said rings to provide sound wave passages between said ribs, said ribs connecting adjacent rings through a connection at the front edge of an innermost of said adjacent rings and a connection at the rear edge of an outermost of said adjacent rings.

3. An integral organic plastic loud speaker baffle comprising a flat base, a plurality of concentric frusto-conical rings radially spaced from one another in their entirety supported by said base at a horizontal level with one another, an imperforate diffuser cone connected to an innermost of said rings, said rings being connected to one another by a plurality of ribs spaced from one another about the periphery of said rings to provide sound wave passages between said ribs, said ribs connecting adjacent

rings through a connection at the front edge of an innermost of said adjacent rings and a connection at the rear edge of an outermost of said adjacent rings.

4. An integral organic plastic loud speaker baffle comprising a flat base having a front and a rear face, a plurality of concentric frusto-conical rings radially spaced from one another in their entirety flaring outwardly at the front face of the base and supported therefrom at a horizontal level with one another, an imperforate diffuser cone connected to an innermost of said rings, said rings being connected to one another by a plurality of ribs spaced from one another about the periphery of said rings to provide sound wave passages between said ribs, said ribs connecting adjacent rings through a connection at the front edge of an innermost of said adjacent rings and a connection at the rear edge of an outermost of said adjacent rings.

5. An integral organic plastic loud speaker baffle comprising a flat base having a front and a rear face, a plurality of concentric frusto-conical rings radially spaced from one another in their entirety flaring outwardly at the front face of the base and supported therefrom at a horizontal level with one another, an imperforate diffuser cone connected to an innermost of said rings, said rings being connected to adjacent rings by a plurality of ribs connecting a front edge of an innermost of said adjacent rings to the rear edge of an outermost of said adjacent rings and said diffuser cone being connected to the innermost ring by a plurality of ribs connecting a front edge of the cone to a rear edge of said ring, said ribs between the adjacent rings and between the cone and the innermost ring being spaced from adjacent ribs to provide sound wave passages.

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