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Everitt et al.

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[54] **SOUND REPRODUCTION SYSTEM**

[75] Inventors: **Scott F. Everitt; Robert E. Croup; Alvin A. Strawn,** all of Indianapolis, Ind.

[73] Assignee: **Acoustic Fiber Sound Systems, Inc,** Indianapolis, Ind.

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[51] **Int. Cl.** **G10k 13/00, H04r 1/28**

[58] **Field of Search** ..... 181/31 B, 31 R

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Primary Examiner—Stephen J. Tomsky

Attorney—Curtis F. Prangley, David A. Vogel and J. Terry Stratman et al.

[57] **ABSTRACT**

A sound reproduction system includes a loudspeaker enclosure having a plurality of walls of corrugated material interconnected to form a closed housing, each wall having two layers of corrugations with corrugations of each layer extending perpendicular to the corrugations of adjacent layers, one wall having aligned openings respectively in the two layers of corrugations thereof, the opening in the outer layer being larger than the opening in the inner layer and cooperating therewith to form a recess. A loudspeaker is received through the openings and has a mounting flange accommodated in the recess and glued to the front wall thereat, the front surface of the loudspeaker having glued to it an angular sealing and cushioning strip surrounding the aperture. A front cover panel has an aperture therein disposed in use congruent with the opening in the inner layer of the front wall, the front surface of the panel being covered by a grille cloth; a spacer member surrounds the felt strip and is in turn glued to the front wall for mounting the front cover panel in place.

14 Claims, 3 Drawing Figures

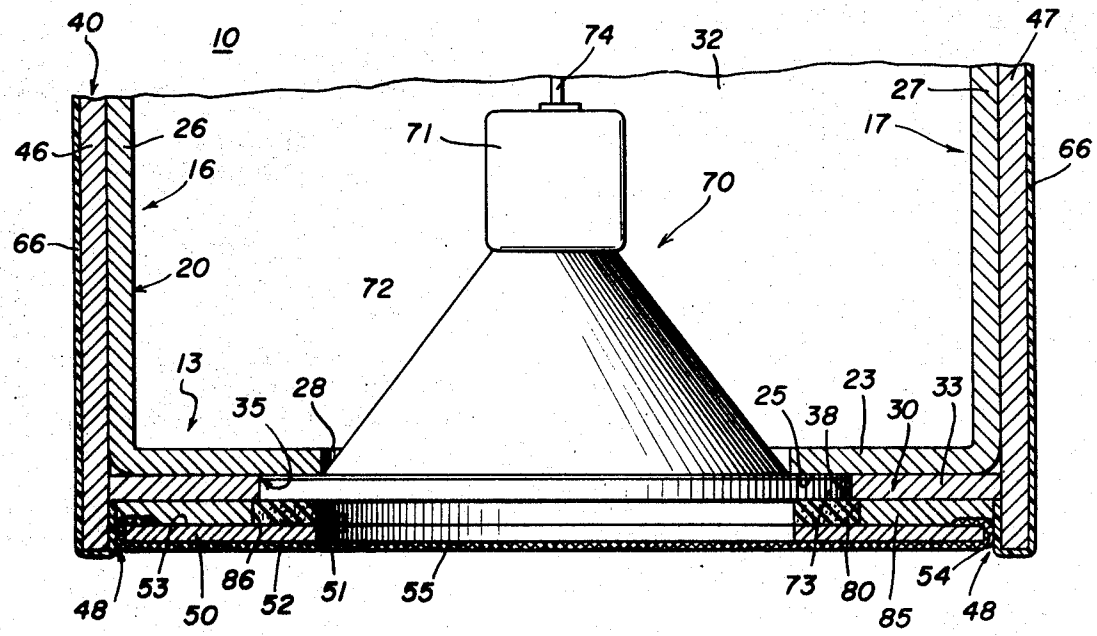


FIG. 1

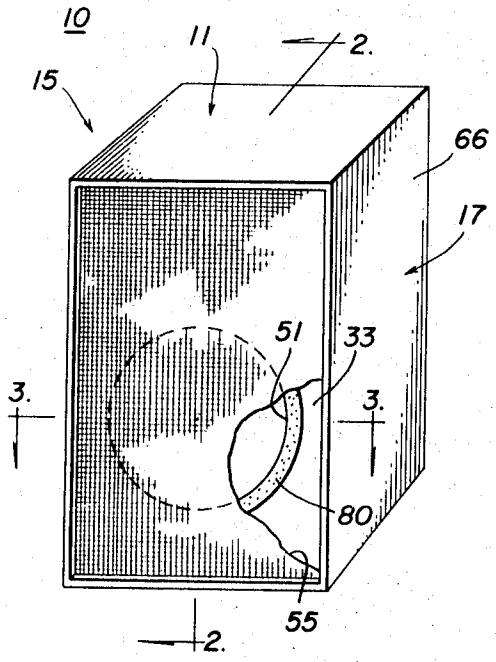


FIG. 2

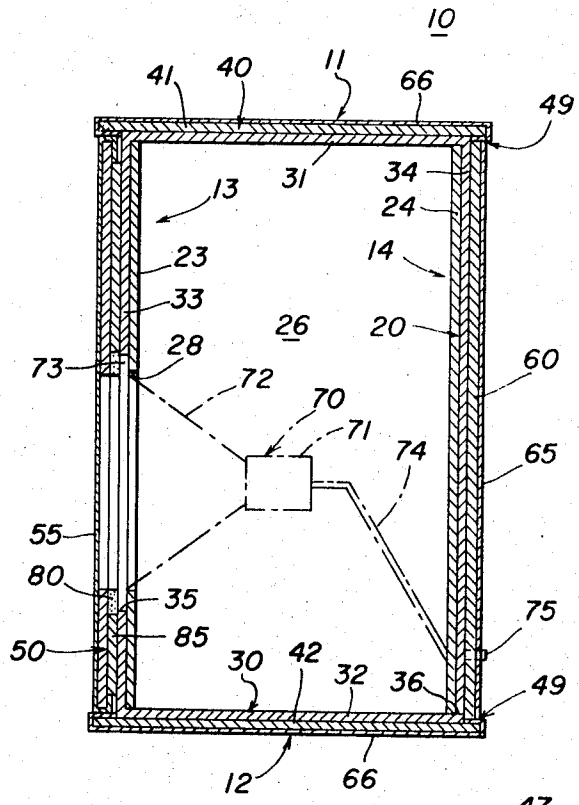
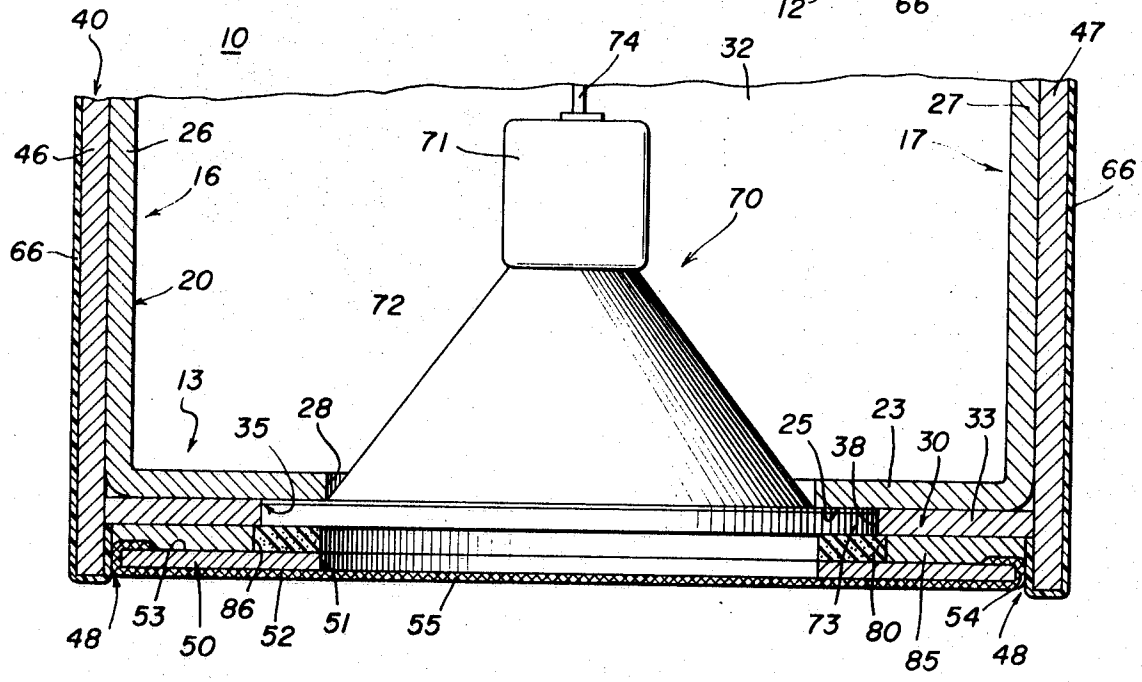


FIG. 3



SOUND REPRODUCTION SYSTEM

This invention relates to a sound reproduction system comprising a loudspeaker enclosure and one or more loudspeakers mounted therein. More particularly, the present invention relates to loudspeaker enclosures formed of corrugated board, and is an improvement of the loudspeaker enclosure and sound reproduction system disclosed in the copending U.S. Patent Application Ser. No. 222,263 of Scott F. Everitt, filed Jan. 31, 1972, and entitled "SOUND REPRODUCTION SYSTEM," which application is assigned to the assignee of the present invention.

It is a general object of the present invention to provide an improved means for mounting the loudspeaker in the loudspeaker enclosure of the sound reproduction system.

It is an important object of the present invention to provide a loudspeaker enclosure for accommodating therein an associated loudspeaker having a mounting flange, the loudspeaker enclosure comprising a plurality of walls interconnected to form a closed housing, each of the walls being formed of corrugated material including at least two layers of corrugations, the corrugations of each of the layers of each of the walls extending in a direction substantially perpendicular to the direction of the corrugations of adjacent layers of the wall, the perpendicular corrugations of adjacent layers of corrugations cooperating to facilitate the suppression by the walls of undesirable sound waves emitted from the housing, one of the walls having an opening therein to facilitate the emission of desirable sound waves therefrom, the one wall having a loudspeaker recess formed in the outer surface thereof in surrounding relationship with the opening for accommodating the mounting flange of the associated loudspeaker therein.

In connection with the foregoing object, it is another object of this invention to provide a loudspeaker enclosure of the type set forth, wherein the associated loudspeaker mounting flange has an annular sealing member secured to the outer surface therof, and wherein the housing includes a top wall and a bottom wall and a front wall and a rear wall and a pair of opposed side walls, the opening being formed in the front wall, the top and bottom and side walls extending forwardly beyond the front wall and cooperating therewith to form a front recess, and further including a front cover panel disposed in the front recess and attached to the front wall and having an aperture therein aligned in use with the opening in the front wall, and a spacer member secured to the inner surface of the front cover panel in surrounding relationship with the associated loudspeaker mounting flange and sealing member and having a thickness substantially equal to the thickness of the sealing member, the front cover panel and the spacer member cooperating in use with the front wall and the loudspeaker mounting flange and sealing member for facilitating the attachment of the front cover panel to the front wall and snugly retaining the associated loudspeaker in place in the housing.

Still another object of the present invention is to provide a sound reproduction system, which includes a loudspeaker enclosure of the type set forth having mounted therein a loudspeaker, the loudspeaker having a cone-shaped diaphragm and a mounting flange extending radially outwardly from the diaphragm adjacent to the open ends thereof, thd diapgragm being disposed in use within the housing in axial alignment with the opening and with the mounting flange being received in the recess and secured to the front wall for mounting the loudspeaker in the housing.

Further features of the invention pertain to the particular arrangement of the parts of the sound reproduction system whereby the above-outlined and additional operating features thereof are attained.

The invention, both as to its organization and method of operation, together with further objects and advantages thereof, will best be understood by reference to the following specification taken in connection with the accompanying drawings, in which:

FIG. 1 is a front perspective view of a sound reproduction system constructed in accordance with and embodying the features of the present invention, a portion of the grille cloth and front cover panel being broken away more clearly to show the cushioning of the loudspeaker,

FIG. 2 is an enlarged view in vertical section taken along the line 2—2 in FIG. 1; and

FIG. 3 is a further enlarged fragmentary view in horizontal section taken along the line 3—3 in FIG. 1.

Referring now to FIGS. 1 through 3 of the drawings, there is illustrated a sound reproduction system including a loudspeaker enclosure, generally designated by the numeral **10**, having a loudspeaker **70** mounted therein. The loudspeaker enclosure **10** is preferably in the shape of a rectangular parallelopiped and includes a top wall **11**, a bottom wall **12**, a front wall **13**, a rear wall **14**, and a pair of opposed side walls **16** and **17**, all of which cooperate to form a closed housing **15**. The housing **15** is formed of three generally tubular members, including an inner tubular member **20**, an intermediate tubular member **30** and an outer tubular member **40**, all nested together in an assembled configuration to form the closed housing **17**. Each of the tubular members **20, 30** and **40** is formed of corrugated material, preferably corrugated fiberboard, each of the tubular members **20, 30** and **40** being formed of a single continuous sheet of the corrugated fiberboard, folded to the desired tubular configuration.

More particularly, the inner tubular member **20** is constructed of a single sheet of corrugated fiberboard, folded into a tubular configuration substantially rectangular in transverse cross section, thereby to form a front panel **23** with a front surface **27**, a rear panel **24**, and a pair of opposed side panels **26** and **27**, opposed side edges of the corrugated sheet joined together at one corner of the rectangular configuration as by suitable means such as tape or glue, to form a seam (not shown) extending longitudinally of the inner tubular member **20**. Thus, it will be seen that the inner tubular member **20** comprises an open-ended rectangular tube with the longitudinal axis thereof disposed substantially vertically, thd corrugations of the inner tubular member **20** extending in directions substantially perpendicular to the longitudinal axis of the inner tubular member **20**, as shown in greater detail in the aforementioned copending application Ser. No. 222,263. Formed in the front panel **23** of the inner tubular member **20** is a relatively large circular speaker opening **28** for a purpose to be exlained more fully below.

The intermediate tubular member **30** is formed of a single continuous sheet of corrugated fiberboard folded to form a tube substantially rectangular in transverse cross section and arranged with the longitudinal axis thereof disposed substantially horizontally. More par-

ticularly, the intermediate tubular member 30 includes a top panel 31, a bottom panel 32, a front panel 33 and a rear panel 34, with opposed side edges of the corrugated sheets being joined together, as by a suitable means such as tape or glue, to form a seam 36 at the bottom rear corner of the intermediate tubular member 30 extending longitudinally thereof. The corrugations of the intermediate tubular member 30 are arranged to extend in directions substantially perpendicular to the longitudinal axis thereof, as shown in greater detail in the aforementioned copending application, Ser. No. 222,263. The front panel 33 of the intermediate tubular member 30 has formed therein a relatively large circular speaker opening 38 having a diameter greater than the diameter of the opening 28 in the inner tubular member 20.

The outer tubular member 40 is also formed of a single sheet of corrugated fiberboard folded to form an open-ended tube substantially rectangular in transverse cross section. More particularly, the outer tubular member 40 includes a top panel 41, a bottom panel 42, and a pair of opposed panels 46 and 47, with opposite side edges of the corrugated sheet being joined together, as by suitable means such as tape or glue, to form a seam (not shown) extending longitudinally of the outer tubular member 40 approximately centrally of the bottom panel 42. The corrugations of the outer tubular member 40 are arranged to extend in directions substantially perpendicular to the longitudinal axis thereof, as shown in greater detail in the aforementioned copending application Ser. No. 222,263.

In assembling the closed housing 15 of the speaker enclosure 10, the inner tubular member 20 may be inserted within the intermediate tubular member 30, the intermediate tubular member 30 being dimensioned to receive the inner tubular member 20 therein in a snug sliding fit. When tubular member 20 and 30 are thus nested together, the top and bottom panels 31 and 32 of the intermediate tubular member 30 respectively close the open top and bottom of the inner tubular member 20, while the opposed side panels 26 and 27 of the inner tubular member 20 respectively close the open sides of the intermediate tubular member 30. Furthermore, when the tubular members 20 and 30 are nested together in the manner described, the front panels 23 and 33 thereof will be disposed in back-to-back engagement with each other to form the front wall 13 of the closed housing 15, and the rear panels 24 and 34 will likewise be disposed in back-to-back engagement with each other to form the rear will 14 of the closed housing 15.

The speaker opening 28 of the inner tubular member 20 will be concentric with the speaker opening 38 of the intermediate tubular member 30. Since the diameter of the speaker opening 38 is greater than the diameter of the speaker opening 28, the speaker opening 38 cooperates with the included portion of the front surface 25 of the front panel 23 of the inner tubular member 20 to define an annular recess 35 surrounding thd speaker opening 28. The front panels 23 and 33 are secured together by any suitable means, preferably by face gluing, the rear panels 24 and 34 being secured together in like manner.

As is explained in the aforementioned copending application Ser. No. 222,263, when the inner tubular member 20 is nested within the intermediate tubular member 30 in the manner described, the corrugations of the back-to-back front panels 23 and 33 will be disposed perpendicular to each other and, likewise, the corrugations of the back-to-back rear panels 24 and 34 will be disposed perpendicular to each other, whereby each of the front and rear walls 13 and 14 of the closed housing 15 comprises a criss-cross patern of corrugations.

The intermediate tubular member 30, with the inner tubular member 20 nested therewithin, may then be inserted into the outer tubular member 40, the outer tubular member 40 being dimensioned to receive the intermediate tubular member 30 therein in a snug sliding fit. The top and bottom panels 41 and 42 and the side panels 46 and 47 of the outer tubular member 40 are also dimensioned to extend a predetermined distance outwardly beyond the front and rear panels 33 and 34 of the intermediate tubular member 30, when the intermediate tubular member 30 is nested within the outer tubular member 40 in the assembled configuration, thereby to form a front recess 48 and a rear recess 49, as indicated in FIGS. 2 and 3 of the drawings.

When the tubular members 20, 30 and 40 are thus assembled, the top and bottom panels 31 and 32 of the intermediate tubular member 30 will respectively be disposed in back-to-back engagement with the top and bottom panels 41 and 42 of the outer tubular member 40, thereby to form the top and bottom walls 11 and 12 of the closed housing 17, with the corrugations of the top and bottom panels 31 and 32 being respectively disposed substantially perpendicular to the corrugations of the top and bottom panels 41 and 42. Similarly, the opposed side panels 26 and 27 of the inner tubular member 20 are respectively disposed in back-to-back engagement with the opposed side panels 46 and 47 of the outer tubular member 40, thereby to form the side walls 16 and 17 of the closed housing 15, with the corrugations of the side panels 26 and 27 being respectively disposed perpendicular to the corrugations of the side panels 46 and 47. Thus, as is clearly shown in the aforementioned copending application Ser. No. 222,263, each of the top and bottom walls 11 and 12 and the opposed side walls 16 and 17 of the closed housing 15 comprises criss-cross layers of corrugations, the back-to-back panels of each of these walls being secured together by any suitable means, such as face gluing, to form a rigid unitary structure.

There is also provided a rectangular front cover panel, generally designated by the numeral 50, having a front surface 52, a rear surface 53 and a peripheral side surface 54 and adapted to be received in the front recess 48 of the closed housing 17 substantially congruent with the front wall 13. The front cover panel 50 is provided with a circular loudspeaker opening 51 therein, the opening 51 being disposed in use in axial alignment with the openings 28 and 38 in the front wall 13 of the closed housing 15, the opening 51 having a diameter less than the diameter of the openings 38. A grille cloth 55 of sound-transmitting fabric material covers thd front surface 52 of the front cover panel 50, the grille cloth 55 preferably being streched over the peripheral side surface 54 of the front cover panel 50 and secured thereto by suitable means, whereby the grille cloth 55 conceals the speaker opening 51. While the front cover panel 50 is preferably constructed of pressed fiberboard of the type sold under the trade name "MASONITE," it will be appreciated that any other suitable material such as solid wood, particle-

board, flakeboard, corrugated fiberboard, pressed fiberboard, composition board, or plastic, either foamed or solid, may also be used.

There is also provided a rectangular rear cover panel **60** formed of a corrugated material such as corrugated fiberboard and adapted to be received in the rear recess **49** of the closed housing **15** for covering the rear wall **14** thereof, the rear cover panel **60** being secured to the rear wall **14** by any suitable means, such as face gluing. The rear cover panel **60** is provided with a small circular connector opening therein, disposed in use in axial alignment with corresponding connector openings (not shown) in the rear wall **14.**

Preferably, the top and bottom walls **11** and **12,** the side walls **16** and **17** and the rear cover panel **60** of the speaker enclosure **10** are covered by a decorative facing of any desired material. More particularly, thd rear surface of the rear cover panel **60** is covered by a decorative facing sheet **65** secured thereto by suitable adhesive, while the outer surfaces of the top and bottom walls **11** and **12** and the side walls **16** and **17** are all covdred by a single continuous decorative facing sheet **66** with opposed side edges thereof joined together to form a seam substantially along the seam in the bottom panel **42** of the outer tubular member **40.** The front and rear edges of the decorative facing sheet **66** are respectively wrapped around the overhanging front and rear margins of the panels **41, 42, 46** and **47** of the outer tubular member **40** which define the front and rear recesses **48** and **49,** for completely covering these overhanging portions as is best shown in FIGS. **2** and **3.** The decorative facing sheet **66** is secured to the outer tubular member **40** by suitable means such as face gluing, and may be formed of any suitable material, as set forth in the aforementioned copending application Ser. No. 222,263.

A loudspeaker, generally designated by the numeral **70,** is mounted within the loudspeaker enclosure **10.** While the loudspeaker **70** may be of any desired type, a standard cone-type loudspeaker is shown for purposes of illustration, the loudspeaker **70** including an electromagnet structure **71,** and a cone-shaped diaphragm **72** provided at the open end thereof with one or more mounting flanges **73** extending radially outwardly therefrom In use, the speaker cone or diaphragm **72** will extend inwardly through the speaker openings **28** and **38** in the front wall **13** in axial alignment therewith, with the flanges **73** being disposed forwardly of the front wall **13** of the housing **17** in the recess **37** and is preferably adhesively secured to the front surface **25** of the front panel **23** which forms the bottom of the recess **35.** Thus, when the front cover panel is mounted in the front recess **48,** as described above, sound waves generated at the front surface of the diaphragm **72** will be radiated outwardly through the aligned speaker openings **28, 38** and **51** to the exterior of the enclosure **10,** while sound waves generated at the rear surface of the diaphragm **72** will be transmitted into the closed housing **15.**

Secured to the outer surface of the mounting flange **73** as by gluing is an annular sealing and cushioning strip **80,** preferably formed of felt or other suitable cushioning material. The sealing strip **80** is dimensioned to completely cover the outer surface of the mounting flange **73.** Secured to the inner or rear surface **53** of the front cover panel **50,** as by face gluing, is a flat rectangular spacer member **85** having the same general shape as the front cover panel **50.** The spacer member **85** has a circular opening **86** formed therein and disposed in use coaxially with the speaker opening **51** in the front cover panel **50,** the opening **86** having a diameter substantially the same as the outer diameter of the sealing strip **80.** Also, the spacer member **85** has a thickness substantially equal to the thickness of the sealing strip **80.** In use, the spacer member **85** is disposed in surrounding relationship with the sealing member **80** and substantially fills the space that would otherwise exist between the front cover panel **50** and the front wall **13** of the housing **15** by reason of the thickness of the sealing member **80.** Thus, when the front cover panel **50** is secured to the front wall **13,** preferably by face gluing of the spacer member **87** to the front panel **33,** the spacer member **85** will insure a solid glued bond firmly to entrap the loudspeaker mounting flange **73** and hold the loudspeaker in place. It will, of course, be appreciated that if the sealing member **80** is omitted by the loudspeaker manufacture, the spacer member **87** would not be necessary and could also be omitted.

In use, when the front cover panel is positioned in the front recess **48,** as illustrated in FIG. **3** of the drawings, the cushioning strip **80** which is affixed to the outer surface of the loudspeaker mounting flange **73,** is received within the opening **86** of the spacer member **85.** Preferably, the front cover panel **50** is secured to the front wall **13** of the housing **15** by face gluing the spacer member **85** to the front panel **33,** the thickness of the spacer member **85** being such as to readily permit easy mounting of the front cover panel **50** in place.

Referring to FIG. **2,** the electromagnet structure **71** of the loudspeaker **70** is connected by a conductor **74** to a connector, generally designated by the numeral **75,** mounted in the rear wall **14** of the speaker enclosure **10,** a preferred construction of the connector **77** being disclosed in the aforementioned copending application Ser. No. 222,263.

In the preferred embodiment of the invention, as was described above, each of the walls of the closed housing **15** comprises two layers of corrugated paperboard or fiberboard, the corrugations of which layers are disposed in directions perpendicular to each other. Each of these layers of corrugated paperboard thereby serves to align incident sound waves in the direction of the corrugations, whereby the sound waves are aligned in mutually perpendicular direction in the two layers of corrugations in each wall of the closed housing **15,** the net effect being substantially to reduce the transmission of audible sound waves through the combined layers of corrugated material.

Thus, the criss-cross pattern of corrugations serves to effect cancellation of those undesirable sound waves generated within the speaker enclosure **10,** which are not radiated outwardly through the reflex port (if one is used) thereby having a sound deadening or suppressing effect on the undesirable sound waves generated by the rear surface of the speaker diaphragm **72.** Even more significantly, this criss-cross pattern of corrugations serves to prevent the generation of undesirable audible sound waves by the walls of the enclosure itself.

While in the preferred embodiment of this invention, the tubular members **20, 30** and **40** are constructed of paperboard or fiberboard for simplicity and economy of fabrication, it will be appreciated that other corrugated materials may be used to produce the same

sound-deadening effect, as long as the adjacent layers of corrugated malerial have the corrugations thereof disposed substantially at right angles to each other. Also, while only one loudspeaker and one loudspeaker opening have been shown in the illustrated embodiment, it will be appreciated that any desired number of loudspeakers and corresponding openings may be provided in the sound reproduction system of the present invention. Furthermore, it will be understood that reflex ports may or may not be used, depending on the acoustical requirements of a given system.

From the foregoing, it can be seen that there has been provided a novel loudspeaker enclosure and sound reproduction system, characterized by a simple and economical means for mounting the loudspeaker in the loudspeaker enclosure.

More particularly, there has been provided a loudspeaker enclosure having a loudspeaker recess formed in the front wall thereof in surrounding relationship with the loudspeaker opening for accommodating therein the mounting flange of the cone-type loudspeaker, which mounting flange is adapted to be adhesively secured to the front wall of the enclosure at the bottom of the recess.

In addition, there has been provided a novel front cover panel for use with a loudspeaker having a sealing member on the mounting flange, and a spacer member secured to the rear surface thereof for covering the front wall of the enclosure in surrounding relationship with the sealing member, the spacer member being adhesively secured to the front wall with the front cover panel bearing against the sealing member and entrapping the mounting flange of the loudspeaker.

While there has been described what is at present considered to be the preferred embodiment of the invention, it will be understood that various modifications may be made therein, and it is intended to cover in the appended claims all such modifications as fall within the true spirit and scope of the invention.

What is claimed is:

1. A loudspeaker enclosure for accommodating therein an associatdd loudspeaker having a mounting flange, said loudspeaker enclosure comprising a plurality of walls interconnected to form a closed housing, each of said walls being formed of corrugated material including at least two layers of corrugations, the corrugations of each of said layers of each said wall extending in a direction substantially perpendicular to the direction of the corrugations of adjacent layers of said wall, the perpendicuar corrugations of adjacent layers of corrugations cooperating to facilitate the suppression by said walls of undesirable sound waves emitted from said housing, one of said walls having an opening therein to facilitate the emission of desirable sound waves therefrom, said one wall having a loudspeaker recess formed in the outer surface thereof in surrounding relationship with said opening for accommodating the mounting flange of the associated loudspeaker therein.

2. The loudspeaker enclosure set forth in claim 1, wherein said loudspeaker recess extends only through the outer layer of corrugations of said one wall.

3. A loudspeaker enclosure set forth in claim 1, wherein said opening and said loudspeaker recess are circular in shape, said loudspeaker recess being disposed in use concentric with said opening and having a diameter greater than the diameter of said opening.

4. A loudspeaker enclosure for accommodating therein an associated loudspeaker having a mounting flange with a sealing member on the outer surface thereof, said loudspeaker enclosure comprising a closed housing including a top wall and a bottom wall and a front wall and a rear wall and a pair of opposed side walls, each of said walls being formed of corrugated material including at least two layers of corrugations, the corrugations of each of said layers extending in a direction substantially perpendicular to the direction of the corrugations of adjacent layers of said wall, the perpendicular corrugations in each of said walls cooperating to facilitate the suppression by said walls of undesirable sound waves emitted from said housing, said front wall having an opening therein to facilitate the emission of desirable sound waves therefrom, said front wall having a loudspeaker recess formed in the outer layer of corrugations thereof in surrounding relationship with said opening for accommodating the mounting flange of the associated loudspeaker, therein, said top and bottom and side walls of said housing extending forwardly beyond the front wall thereof and cooperating therewith to form a front recess, a front cover panel disposed in said front recess and attached to said front wall and having an aperture therein aligned in use with the opening in said front wall, and a spacer member secured to the inner surface of said front cover panel in surrounding relationship with the associated loudspeaker mounting flange and sealing member and having a thickness substantially equal to the thickness of the sealing member, said front cover panel and said spacer member cooperating in use with said front wall and the loudspeaker mounting flange and sealing member for facilitating the attachment of said front cover panel to said front wall and snugly retaining the associated loudspeaker in place in said housing.

5. The loudspeaker enclosure set forth in claim 4, wherein said front wall and said spacer member and said front cover panel are all adhesively secured together.

6. A sound reproduction system comprising a plurality of walls interconnected to form a closed housing, each of said walls being formed of corrugated material including at least two layers of corrugations, the corrugations of each of said layers of each said wall extending in a direction substantially perpendicular to the direction of the corrugations of adjacent layers of said wall, the perpendicular corrugations of adjacent layers of corrugations cooperating to facilitate the suppression by said walls of undesirable sound waves emitted from said housing, ond of said walls having an opening therein to facilitate the emission of desirable sound waves therefrom, said one wall having a loudspeaker recess formed in the outer surface thereof in surrounding relationship with said opening, and a loudspeaker having a cone-shaped diaphragm and a mounting flange extending radially outwardly from said diaphragm adjacent to the open end thereof, said diaphragm being disposed in use within said housing in axial alignment with said opening with said mounting flange being received in said recess and secured to said one wall for mounting said loudspeaker in said housing, whereby sound waves generated at the front surface of said diaphragm are transmitted through said opening to the exterior of said housing and sound waves generated

at the rear surface of said diaphragm and transmitted into said housing.

7. The sound reproduction system set forth in claim 6, wherein said loudspeaker mounting flange is adhesively secured to said one wall of said housing at the bottom of said loudspeaker recess.

8. The sound reproduction system set forth in claim 6, wherein said opening and said loudspeaker recess are circular in shape, said loudspdaker recess being disposed in use concentric with said opening and having a diameter greater than the diameter of said opening.

9. A sound reproduction system comprising a closed housing including a top wall and a bottom wall and a front wall and a rear wall and a pair of opposed side walls, each of said walls being formed of corrugated material including at least two layers of corrugations, the corrugations of each of said layers extending in a direction substantially perpendicular to the direction of the corrugations of adjacent layers of said wall, the perpendicular corrugations in each of said walls cooperating to facilitate the suppression by said walls of undesirable sound waves emitted from said housing, said front wall having an opening therein to facilitate the emission of desirable sound waves therefrom, said front wall having a loudspeaker recess formed in the outer layer of corrugations thereof in surrounding relationship with said opening, a loudspeaker including a cone-shaped diaphragm having a mounting flange extending radially outwardly therefrom adjacent to the open end thereof and a sealing member secured to the outer surface of said mounting flange, said diaphragm being disposed in use within said housing in axial alignment with said opening and with said mounting flange being accommodated in said loudspeaker recess and secured to said front wall for mounting said loudspeaker in said housing, said top and bottom and side walls of said housing extending forwardly beyond the front wall thereof and cooperating therewith to form a front recess, a front cover panel disposed in said front recess and secured to said front wall and having an aperture therein aligned in use with the opening in said front wall, and a spacer member secured to the inner surface of said front cover panel in surrounding relationship with said loudspeaker mounting flange and said sealing member and having a thickness substantially equal to the thickness of said sealing member, said front cover panel and said spacer member cooperating in use with said front wall and said loudspeaker mounting flange and said sealing member for facilitating the attachment of said front cover panel to said front wall and for snugly retaining said loudspeaker in place in said housing, whereby sound waves generated at the front surface of said diaphragm are transmitted through said opening to the exterior of said housing and sound waves generated at the rear surface of said diaphragm and transmittdd into said housing.

10. The sound reproduction system set forth in claim 9, wherein said loudspeaker mounting flange is adhesively secured to said one wall of said housing at the bottom of said loudspeaker recess.

11. the sound reproduction system set forth in claim 9, wherein said sealing member comprises a felt strip adhesively secured to said mounting flange.

12. The sound reproduction system set forth in claim 9, wherein said front wall and said spacer member and said front cover panel are all adhesively secured together.

13. A loudspeaker enclosure for accommodating therein an associated loudspeaker having a mounting flange, said loudspeaker enclosure comprising a plurality of walls interconnected to form a closed housing, each of said walls being formed of corrugated material including at least two layers of corrugations, the corrugations of each of said layers of each said wall extending in a direction substantially perpendicular to the direction of the corrugations of adjacent layers of said wall, the perpendicular corrugations of adjacent layers of corrugations in each of said walls cooperating to facilitate the suppression by said walls of undesirable sound waves emitted from said housing, one of said walls having an opening therein to facilitate the emission of desirable sound waves therefrom, said one wall having a loudspeaker recess formed in the outer surface thereof in surrounding relationship with said opening for accommodating the mounting flange of the associated loudspeaker therein, one of the layers of the walls of said housing surrounding said one wall extending forwardly beyond said one wall and cooperating therewith to form a front recess, and a front cover panel disposed in said front recess and attached to said one wall and having an aperture therein aligned in use with the opening in said one wall, said front cover panel cooperating in use with said one wall and the loudspeaker mounting flange for retaining the associated loudspeaker in place in said housing.

14. A sound reproduction system comprising a plurality of walls interconnected to form a closed housing, each of said walls being formed of corrugated material including at least two layers of corrugations, the corrugations of each of said layers of each said wall extending in a direction substantially perpendicular to the direction of the corrugations of adjacent layers of said wall, the perpendicular corrugations of adjacent layers of corrugations in each of said walls cooperating to facilitate the suppression by said walls of undesirable sound waves emitted from said housing, one of said walls having an opening therein to facilitate the emission of desirable sound waves therefrom, said one wall having a loudspeaker recess formed in the outer surface thereof in surrounding relationship with said opening, a loudspeaker having a cone-shaped diaphragm and a mounting flange extending radially outwardly from said diaphragm adjacent to the open end thereof, said diaphragm being disposed in use within said housing in axial alignment with said opening with said mounting flange being received in said recess and secured to said one wall for mounting said loudspeaker in said housing, one of the layers of the walls of said housing surrounding said one wall extending forwardly beyond said one wall and cooperating therewith to form a front recess, and a front cover panel disposed in said front recess and attached to said one wall and having an aperture therein aligned in use with the opening in said one wall, said front cover panel cooperating in use with said one wall and the loudspeaker mounting flange for retaining the associated loudspeaker in place in said housing, whereby sound waves generated at the front surface of said diaphragm are transmitted through said opening to the exterior of said housing and sound waves generated at the rear surface of said diaphragm are transmitted into said housing.

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