

[54] **LOUD SPEAKER HOUSING SYSTEMS**

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

[58] Field of Search **181/31 B; 229/14 C, 16 R**

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[57] **ABSTRACT**

A method of making a loud speaker housing and the article produced thereby, the method including the steps of providing a bendable carrying sheet, applying to the carrier sheet at least two sheets of corrugated material wherein the corrugations of one sheet extend in a direction substantially perpendicular to the corrugations of the other sheet, providing a V-shaped groove in the corrugated material at at least two of the points at which junctures are to be formed between the walls, assembling the housing by folding the carrier sheet at the V-shaped grooves and fastening together the ends of the carrier sheet and the ends of the corrugated material. A loud speaker enclosure is provided by adding a front wall and a rear wall to the housing.

28 Claims, 10 Drawing Figures

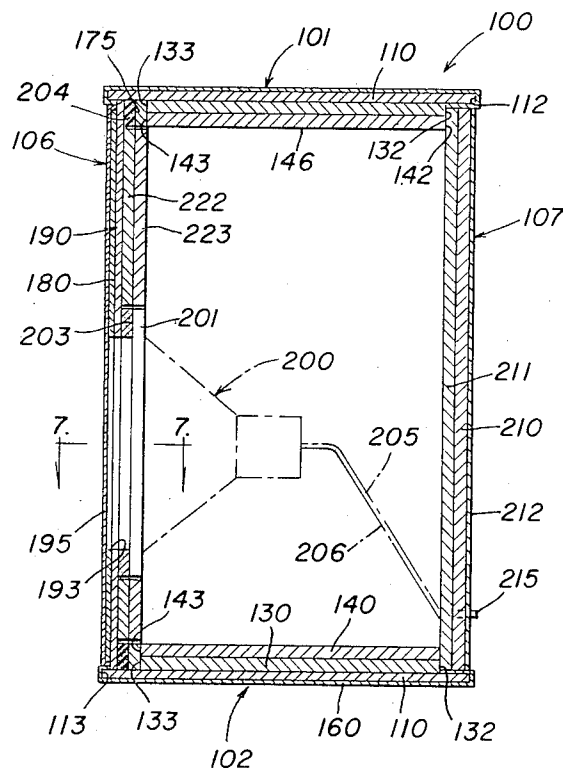


FIG. 1

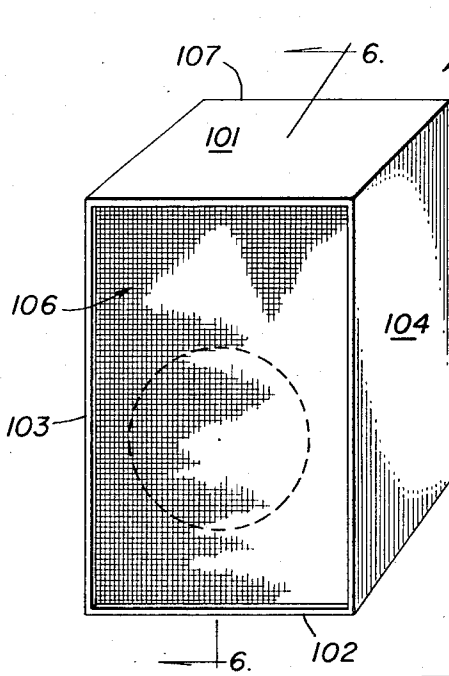


FIG. 2

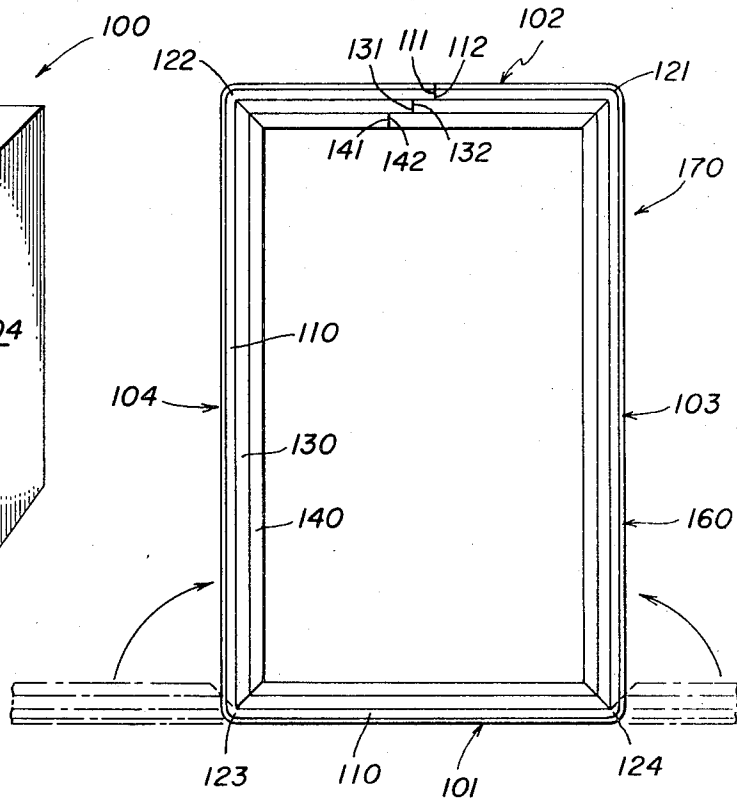


FIG. 3

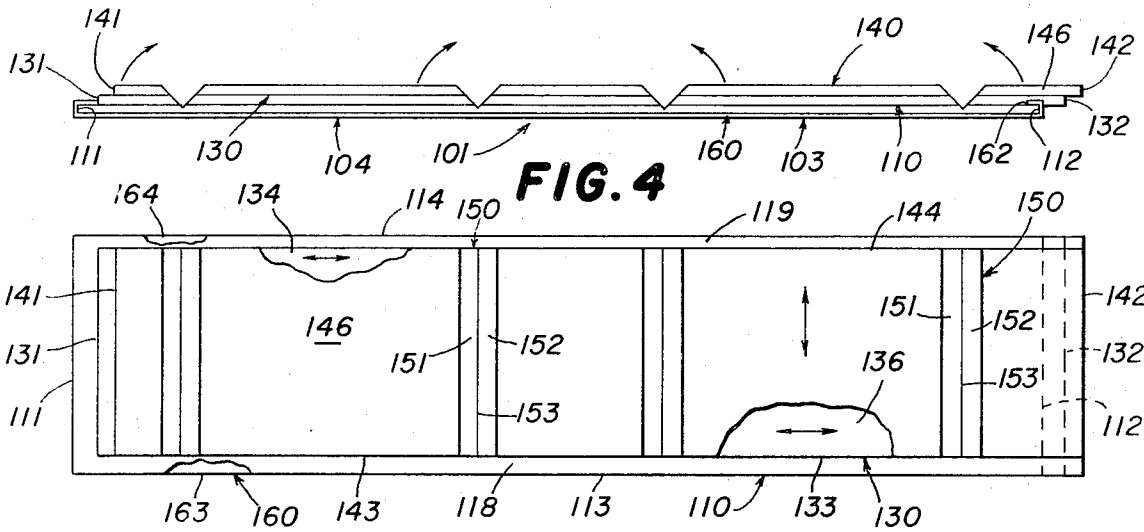


FIG. 4

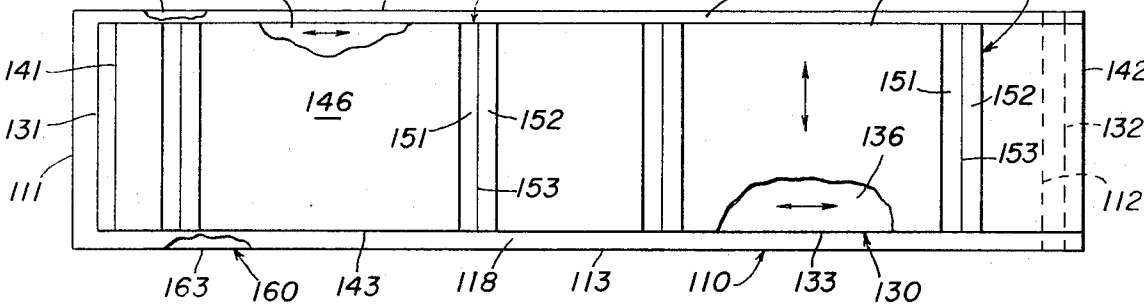


FIG. 5

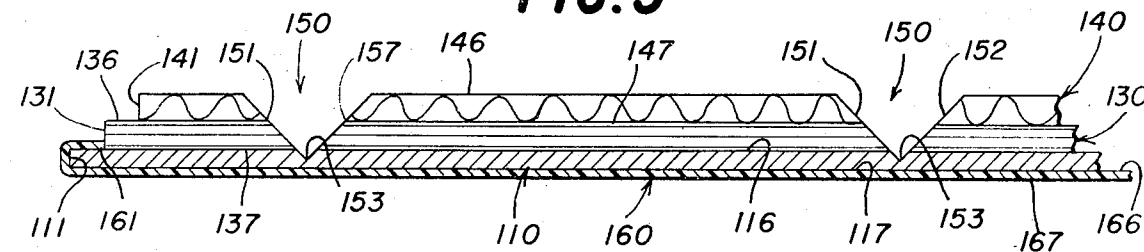


FIG. 6

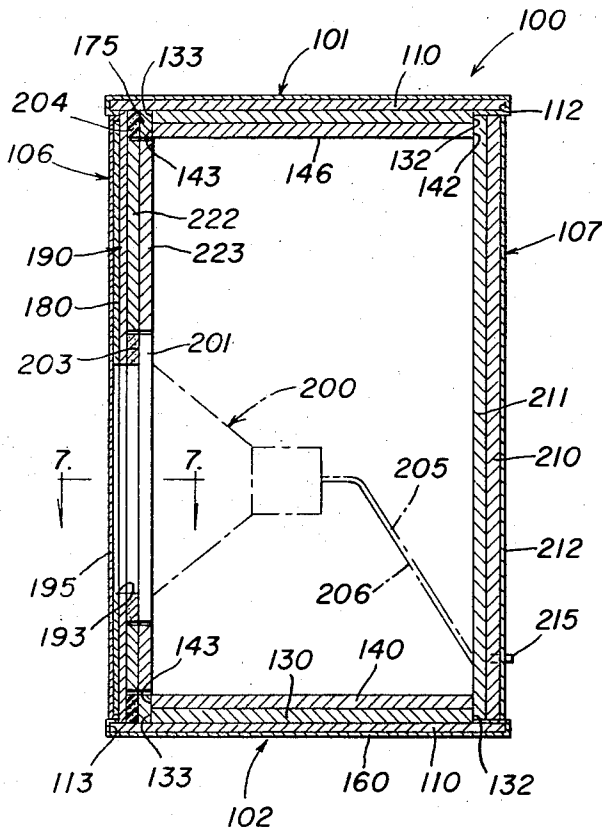


FIG. 7

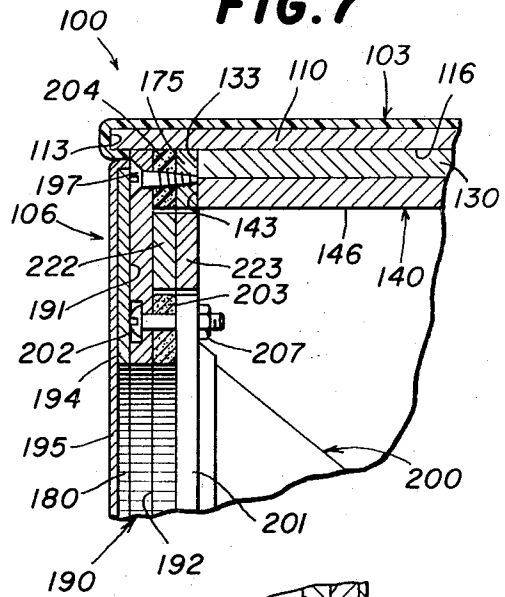


FIG. 8

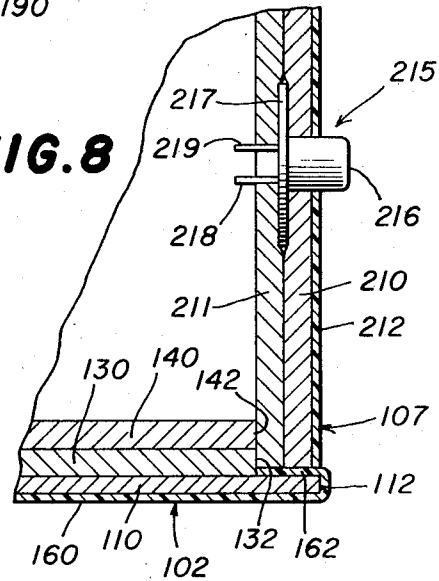


FIG. 9

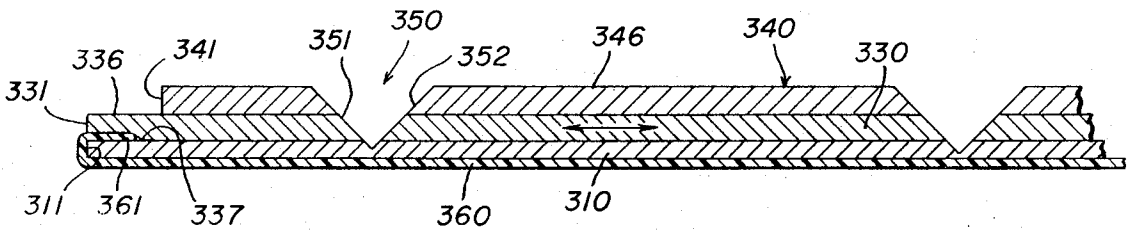
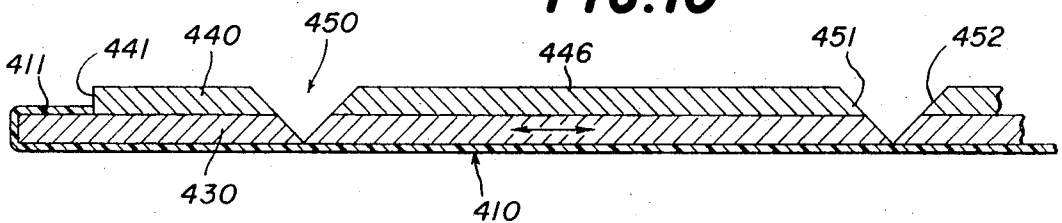


FIG. 10



LOUD SPEAKER HOUSING SYSTEMS

This invention relates to a method of making a loud speaker housing and the article produced thereby and more particularly to a method and article wherein a bendable carrier sheet has a stack of laminated cor-
 5 rugated material applied thereto and V-shaped grooves are provided in the corrugated material at the points where junctures are to be formed between the walls of the housing.

It is an important object of the present invention to provide a method of making a loud speaker housing and the article produced thereby, the method comprising the steps of providing a bendable carrier sheet of sufficient length to form a top wall, a first side wall, a second side wall and a bottom wall, applying to the carrier sheet at least two sheets of corrugated material arranged in a laminated stack with the corrugations of one of said sheets extending in a direction substantially perpendicular to the direction of the corrugations of the other of said sheets, providing a V-shaped groove in the laminated stack of corrugated material at at least three of the points at which junctures are to be formed between said walls, each of the V-shaped grooves extending transversely of the corrugated material along the entire width thereof and through the corrugated material, assembling the loud speaker housing by fold-
 10 ing the carrier sheet at the V-shaped grooves to provide parallel spaced apart top and bottom walls interconnected by parallel and spaced apart first and second side walls, and fastening together the ends of the carrier sheet and the ends of the corrugated material and the junctures at the V-shaped grooves to maintain the loud speaker housing in the assembled configuration thereof, each of the walls in the loud speaker housing including a portion of said carrier sheet and two super-
 15 imposed sheets of corrugated material in which the corrugations in one sheet extend in a direction substantially perpendicular to the corrugations in the other sheet.

Another object of the present invention is to provide a method and an article of the type set forth wherein the sheets of corrugated material have a width less than the width of the carrier sheet and are mounted on the carrier sheet to provide a peripheral border along each longitudinal edge of the carrier sheet.

Still another object of the present invention is to provide a method and an article produced thereby of the type set forth wherein the sheets of corrugated material have a longitudinal extent substantially the same as the carrier sheet and are mounted on the carrier sheet to provide a border at one end of the carrier sheet between the one end and the corresponding end of the adjacent corrugated sheet and a border between the corresponding end of the adjacent corrugated sheet and the end of the other sheet of corrugated material.

A further object of the present invention is to provide a method of making a loud speaker enclosure and the article produced thereby, the method comprising the steps of providing a bendable carrier sheet of sufficient length to form a top wall, a first side wall, a second side wall and a bottom wall, applying to the carrier sheet at least two sheets of corrugated material arranged in a laminated stack with the corrugations of one of said sheets extending in a direction substantially perpendicular to the direction of the corrugations of the other of said sheets, the sheets of corrugated material having a width less than the width of the carrier sheet and

mounted on the carrier sheet to provide a peripheral border along each longitudinal edge of each carrier sheet, providing a V-shaped groove in the laminated stack of corrugated material at at least three of the points at which junctures are to be formed between said walls, each of the V-shaped grooves extending transversely of the corrugated material along the entire width thereof and through the corrugated material, assembling the loud speaker housing by folding the carrier sheet at the V-shaped grooves to provide parallel spaced apart top and bottom walls interconnected by parallel and spaced apart first and second side walls, fastening together the ends of the carrier sheet and the ends of the corrugated material and the junctures at the V-shaped grooves to maintain the loud speaker housing in the assembled configuration thereof, each of the walls in the loud speaker housing including a portion of said carrier sheet and two superimposed sheets of corrugated material in which the corrugations in one sheet extend in a direction substantially perpendicular to the corrugations in the other sheet, providing a front wall and mounting the front wall to the housing and to one of the peripheral borders provided on the carrier sheet, the front wall having an aperture therein to facilitate the emission of sound waves therethrough, and providing a back wall formed of at least two layers of corrugated material and fixedly mounting the back wall to the housing and to the other of the peripheral borders of the carrier sheet, the back wall being arranged in a laminated stack with the corrugations of one of the sheets extending in a direction substantially perpendicular to the direction of the corrugations of the other of the sheets.

A still further object of the present invention is to provide a method of making a loud speaker enclosure and the article produced thereby wherein a frame is fixedly mounted to the housing and to one of the peripheral borders on the carrier sheet and the front wall is removably secured to the frame.

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 perspective view of a loud speaker enclosure embodying the principles of the present invention;

FIG. 2 is an elevational view of the loud speaker housing produced by the method of the present invention and showing the steps of assembling thereof in phantom;

FIG. 3 is a side elevational view of a carrier sheet having two sheets of corrugated material applied thereto and having a decorative sheet applied to the other side thereof;

FIG. 4 is a plan view of the construction shown in FIG. 3;

FIG. 5 is an enlarged view in section of a portion of the construction shown in FIG. 3 particularly showing the directions of the corrugations of the corrugated material;

FIG. 6 is a side view in section of a loud speaker enclosure produced by the method of the present invention particularly showing the loud speaker in phantom;

FIG. 7 is an enlarged view of the loud speaker enclosure shown in FIG. 6 taken along lines 7-7 thereof;

FIG. 8 is an enlarged fragmentary view of the lower right hand corner of FIG. 6 particularly showing the phono jack connector;

FIG. 9 is a side view in section of a second embodiment of the carrier sheet construction shown in FIG. 5; and

FIG. 10 is a side view in section of a third embodiment of the carrier sheet construction shown in FIG. 5.

Referring now to the drawings, there is shown in FIG. 1 thereof a speaker enclosure 100 having a top wall 101 and a spaced apart and parallel bottom wall 102, the top wall 101 and the bottom wall 102 being connected by a spaced apart and parallel side walls 103 and 104. There is also provided a front wall 106 and a rear wall 107, thereby to complete the speaker enclosure 100 in the form of a rectangular parallelepiped.

Referring now to the FIGS. 2 through 5, there is disclosed a bendable carrier sheet 110 generally rectangular in plan dimension and having an end edge 111 and an end edge 112, a longitudinal front edge 113 is provided as is a longitudinal rear edge 114. The carrier sheet 110 also has an inner surface 116 and an outer surface 117, the inner surface 116 having a peripheral front border 118 extending the entire longitudinal extent of the carrier sheet 110 and a peripheral rear border 119 parallel to and spaced apart from the peripheral border 118.

Adhesively secured to the inner surface 116 of the carrier sheet 110 is a corrugated board 130 having an end edge 131 thereof generally parallel to and spaced from the end edge 111 of the carrier sheet 110. The corrugated board 130 also has an end edge 132 parallel to and spaced from the end edge 112 from the carrier sheet 110. It is seen that the longitudinal extent of the corrugated board 130 is substantially the same as the longitudinal extent of the carrier sheet 110, the ends thereof being staggered to provide a border between the ends of the corrugated board 130 and the ends of the carrier sheet 110, all for a purpose hereinafter to be explained. The corrugated board 130 further includes a longitudinal edge 133 and a longitudinal edge 134, both of the edges 133 and 134 extending the entire longitudinal length of the corrugated board 130. The width of the corrugated board 130 is less than the width of the carrier sheet 110 so as to provide the peripheral border 118 along the longitudinal extent thereof between the front edge 113 of the carrier sheet 110 and the edge 133 of the corrugated board 130. Similarly, there is provided the peripheral border 119 between the rear edge 114 of the carrier sheet and the rear edge 134 of the corrugated board 130. The corrugations of the corrugated board 130 run in the direction shown by the arrow in FIG. 4, the corrugated board 130 being provided with an inner surface 136 and an outer surface 137 thereof, which outer surface is connected to the inner surface 116 of the carrier sheet 110.

There is further provided a corrugated board 140 assembled in a laminated stack with the corrugated board 130, the corrugated board 140 having an end 141 parallel to and spaced from the end 131 of the corrugated board 130 to provide an end border therebetween. The corrugated board 140 has an end 142 which is parallel to and spaced from the end 132 of the corrugated board 130 to provide another end border therebetween. The width of the corrugated board 140 is substantially the same as the width of the corrugated board

130 thereby to provide a longitudinal front edge 143 in registry with the front edge 133 and a longitudinal rear edge 144 in registry with the rear edge 134. The corrugated board 140 has an inner surface 146 and an outer surface 147 adhesively secured to the inner surface 136 of the corrugated board 130. The corrugations of the corrugated board 140 run in the direction illustrated by the arrow in FIG. 4, that is in a direction substantially perpendicular to the direction of the corrugations of the corrugated board 130.

There is further provided a plurality of V-shaped grooves 150 cut into the corrugated boards 130 and 140 at the point at which junctures are to be formed between the walls 101, 102, 103 and 104. Each of the V-shaped grooves 150 includes a side wall 151 and a side wall 152 meeting at a juncture or seam 153 in the carrier sheet 110, the side walls 151 and 152 being at right angles one to the other. The V-shaped grooves 150 must extend through the corrugated boards 130 and 140 and may extend into the carrier sheet 110 if the thickness thereof is such as to inhibit bending.

There is further provided a decorative sheet 160 on the outer surface 117 of the carrier sheet 110. The decorative sheet 160 has a surface which is coextensive with the outer surface 117 of the carrier sheet 110 and also has end edges 161 and 162 which are wrapped over the ends 111 and 112 of the carrier sheet 110 and fixedly secured to the rear surface 116 of the carrier sheet 110, as by adhesive. Additionally, the decorative sheet 160 has a longitudinal front edge 163 which may extend over and cover the peripheral border 118 of the carrier sheet 110 and a longitudinal rear edge 164 which may extend over and cover the peripheral border 119 of the carrier sheet. The decorative sheet 160 is also provided with an inner surface 166 which is adhesively secured to the outer surface 117 of the carrier sheet 110 and an outer surface 167 which is viewable when the speaker enclosure 100 is formed. The decorative sheet 160 is preferably a synthetic organic resin such as a polyvinyl chloride or the like.

Alternatively, the decorative sheet 160 may be adhesively secured to the carrier sheet 110 and more particularly only to the outer surface 117 thereof and not overlap to the inner surface 116 thereof. The principal function of the decorative sheet 160 is, of course, cosmetic whereby it is a matter of choice whether the decorative sheet 160 is coextensive with only the outer surface 117 of the carrier sheet 110 or extends therebeyond to overlap to the inner surface 116 of the carrier sheet.

The loud speaker housing 170 is formed from the carrier sheet 110 having the laminated stack of corrugated boards 130 and 140 secured thereto and mounted thereon. Once the combination of the bendable carrier sheet 110, the corrugated board 130, the corrugated board 140, and the decorative sheet 160 is formed, the V-shaped grooves 150 are cut into the corrugated boards. It is noted that the V-shaped grooves extend through the corrugated boards 130 and 140 to the carrier sheet 110. Adhesive is applied to the walls 151 and 152 of each of the V-shaped grooves 150. Adhesive is also applied on the inner surface 116 of the carrier sheet 110 between the edge 111 thereof and the edge 131 of the corrugated board 130 and applied to the inner surface 136 of the corrugated board 130 between the end 131 thereof and the end 141 of the corrugated board 140 and applied to the end 141 of the

corrugated board 140. Thereafter, the construction shown in FIG. 3 is folded as in the directions indicated by the arrows in FIG. 2 to provide a closed configuration wherein the seams formed between the ends 141 and 142 of the corrugated board 140 and formed between the ends 131 and 132 of the corrugated board 130 and formed between the ends 111 and 112 of the carrier sheet 110 are staggered as seen in FIG. 2. The presence of the V-shaped grooves 150 provide a mitered corner for the corrugated boards 130 and 140; however, the grooves 150 do not extend into the carrier sheet 110, whereby the corners 121, 122, 123 and 124 formed thereby are rounded.

The loud speaker enclosure 100 is formed from the housing 170 by the addition thereto of the front wall 106 and the rear wall 107. A frame 175 is provided and mounted in the peripheral border 118 formed between the top wall 101 and the bottom wall 102 and the side walls 103 and 104, the frame 175 abutting the edges 133 and 143 of the corrugated boards 130 and 140, respectively. Grille cloth mounting board 180 is provided having a grille cloth 195 mounted thereon, the grille cloth mounting board 180 being mounted in front of a speaker mounting board 190.

The speaker mounting board 190 is mounted to the wood frame 175 as by wood screws 197 or the like, the speaker mounting board 190 being removable from the frame 175, if desired. The speaker mounting board 190 has a front surface 191 and a rear surface 192 and is provided with a central aperture 193. A plurality of counterboards 194 are provided in the front surface 191 of the speaker mounting board 190, for a purpose hereinafter to be set out. The grille cloth 195 and grille cloth mounting board 180 are mounted in the enclosure 100 by means well known in the art. It is understood that the grille cloth mounting board 180 is provided with a central aperture in registry with the aperture 193 in the speaker mounting board 190 to facilitate the emission of sound waves therethrough.

A speaker 200 has a mounting flange 201 connected thereto, which flange 201 rests against the rear surface 192 of the speaker mounting board 190 and is fixedly mounted thereto by means of a plurality of bolts 202 extending from the mounting flange 201 through the counterbores 194 in the speaker mounting board 190 and held in place by nuts 207. Resilient material 203, such as a felt ring or the like, is provided around the bolt 202 intermediate the speaker mounting board 190 and the mounting flange 201 of the speaker 200, thereby to prevent vibration and the like. Extending from the rear of the speaker 200 are two conductors 205 and 206.

Gasketing material is provided between the frame 175 and the peripheral edges of the speaker mounting flange 201 to provide an air tight seal. As illustrated, sheets of corrugated material 222 and 223 are provided and extend between the frame 175 and the speaker mounting flange 201, the sheets of corrugated material 222 and 223 being arranged so that the corrugations thereof extend in directions substantially perpendicular, all as hereinbefore set forth with respect to corrugated sheets 130 and 140.

The rear wall 107 is formed of laminated corrugated boards 210 and 211. The corrugated boards 210 and 211 are adhesively secured one to the other and arranged so that the corrugations in the board 210 extend in a direction substantially perpendicular to the corru-

gations in the board 211. A layer of decorative material 212 is secured to the rear surface of the corrugated board 210 and is coextensive with the surface of the corrugated board 210. A connector 215, such as a phono jack is fixedly mounted between the corrugated boards 210 and 211 in the back wall 107 near the bottom wall 102. The connector 215 including an input 216 for receiving a connector therein, a flange 217 fixedly secured between the corrugated boards 210 and 211 and two terminals 218 and 219 extending into the speaker enclosure. The conductors 205 and 206 are fixedly connected to the terminals 218 and 219 such as by soldering, to provide an electrical connection between the connector 215 and the speaker 200.

It is seen therefore that there has been provided a housing 170 constructed from a unitary bendable carrier sheet 110 in combination with at least two unitary corrugated boards 130 and 140, it being understood that additional corrugated boards may be used. The ease of construction provides a significant advantage in the production of the speaker enclosure 100 which requires as separate steps adding only a front wall 106 and a back wall 107 to the housing 170 to complete the speaker enclosure.

In the preferred embodiment of the invention, each of the walls of the housing 170 comprises two layers of paper board or fiberboard, the corrugations of which layers are disposed in directions substantially perpendicular to each other. Each of these layers of corrugated paper board thereby serves to align incident sound waves in the direction of the corrugations, whereby the sound waves are aligned in mutually perpendicular directions in the two layers of corrugations in each of the housing walls, the net effect being substantially to reduce the transmission of audible sound waves through the combined layers of corrugated material. The carrier sheet 110 may be made of any bendable sheet material while the decorative sheet 160 is preferably made from a synthetic organic resin such as polyvinyl chloride or the like but may be made from a paper material or the like.

Referring now to FIG. 9, there is disclosed an alternate embodiment to the present invention wherein a carrier sheet 310 is provided with an end 311. A corrugated board 330 is adhesively secured to one side of the carrier sheet 310 and is provided with an end 331 and inner surface 336 and an outer surface 337. A corrugated board 340 is adhesively secured to the inner surface 336 of the corrugated board 330 in the same manner as hereinbefore described. The corrugations of the corrugated board 330 extend in a direction substantially perpendicular to the direction of the corrugated board 340. A plurality of V-shaped grooves 350 are provided at the points at which junctures are to be formed between the walls of the speaker housing to be formed. Each of the V-shaped grooves 350 has a wall 351 and a wall 352 which are perpendicular or at right angles one to the other.

A decorative sheet 360 is provided and adhesively secured to the outer surface of the carrier sheet 310. The decorative sheet 360 is wrapped over the end 311 of the carrier sheet 310 and is trapped between the inner surface of the carrier sheet 310 and the outer surface 337 of the corrugated board 330, thereby fixedly to maintain the decorative sheet 360 wedged between the carrier sheet 310 and the corrugated board 330. The decorative sheet 360 is thus held by the corrugated

board 330 around the entire peripheral border including the end edges of the carrier sheet 310.

Referring now to FIG. 10, there is disclosed an alternate embodiment wherein the functions of the decorative sheet and the carrier sheet are combined as at 410, the combined decorative carrier sheet has end portions 411 thereof which extend over the corrugated board 430 adhesively mounted to the decorative carrier sheet 410, thereby to secure the sheet 430 to the sheet 410. A corrugated board 440 is fixedly mounted to the corrugated board 430 as hereinbefore described, the corrugations of the board 440 extending in a direction substantially perpendicular to the corrugations of the board 430. There is also provided a plurality of V-shaped grooves 450, each having walls 451 and 452 disposed at right angles one to the other. The location of each of the grooves 450 is as hereinbefore described.

It is seen therefore that the functions of the decorative sheet and the carrier sheet may be combined into one sheet 410, it being noted that care must be taken when the grooves 150 are provided so as not to cut entirely through the decorative carrier sheet 410. When combining the functions of the decorative sheet and the carrier sheet, a relatively strong synthetic organic resin is preferred.

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

What is claimed is:

1. A loud speaker system having a housing comprising a bendable carrier sheet of sufficient length to form a top wall, a first side wall, a second side wall and a bottom wall, at least two layers of corrugated material fixedly mounted to said carrier sheet and to each other and arranged in a laminated stack with the corrugations of one of said layers extending in a direction substantially perpendicular to the direction of the corrugations of the other of said layers, a V-shaped groove in the laminated stack of corrugated material at at least three of the points at which junctures are to be formed between said walls, each of said V-shaped grooves extending transversely of the corrugated material along the entire width thereof and through the corrugated material, and means for connecting together the ends of said bendable carrier sheet and the ends of said corrugated material and the junctures at said V-shaped grooves to provide parallel spaced apart top and bottom walls interconnected by parallel and spaced apart first and second side walls, each of said walls including a portion of said carrier sheet and two superimposed layers of corrugated material in which the corrugations in one layer extend in a direction substantially perpendicular to the corrugations in the other layer, spaced apart front and rear walls interconnecting said side walls, said top wall and bottom wall, said front wall having an aperture therein and loud speaker means mounted in said housing in registry with said aperture.

2. The loud speaker system set forth in claim 1, wherein said bendable carrier sheet is fiberboard.

3. The loud speaker system set forth in claim 1, wherein said bendable carrier sheet is a synthetic organic resin.

4. The loud speaker system set forth in claim 1, wherein a synthetic organic resin is fixedly mounted to said carrier sheet on the side thereof opposite to said layers of corrugated material, said synthetic organic resin being coextensive with the surface of said bendable carrier sheet and providing a decorative covering therefor.

5. The loud speaker system set forth in claim 1, wherein said housing is in the shape of a rectangular parallelepiped.

6. The loud speaker system set forth in claim 1, wherein two layers of corrugated material are fixedly mounted to said carrier sheet.

7. The loud speaker system set forth in claim 1, wherein said V-shaped grooves are at four of the points at which junctures are to be formed between said walls.

8. The loud speaker system set forth in claim 1, wherein said means for connecting together the junctures at said V-shaped grooves is an adhesive material in the grooves.

9. The loud speaker system set forth in claim 1, wherein the V-shaped grooves extend through said corrugated material and partially into said carrier sheet.

10. The loud speaker system set forth in claim 1, wherein said means for connecting together the ends of said bendable carrier sheet is adhesive material on the ends of said bendable carrier sheet.

11. A loud speaker system having a housing comprising a bendable carrier sheet of sufficient length to form a top wall, a first side wall, a second side wall and a bottom wall, at least two layers of corrugated material fixedly mounted to said carrier sheet and to each other and arranged in a laminated stack with the corrugations of one of said layers extending in a direction substantially perpendicular to the direction of the corrugations of the other of said layers, said layers of corrugated material having a width less than the width of said carrier sheet and mounted on said carrier sheet to provide a peripheral border along each longitudinal edge of said carrier sheet, a V-shaped groove in the laminated stack of corrugated material at at least three of the points at which junctures are to be formed between said walls, each of said V-shaped grooves extending transversely of the corrugated material along the entire width thereof and through the corrugated material, and means for connecting together the ends of said bendable carrier sheet and the ends of said corrugated material and the junctures at said V-shaped grooves to provide parallel spaced apart top and bottom walls interconnected by parallel and spaced apart first and second side walls, each of said walls including a portion of said carrier sheet and two superimposed layers of corrugated material in which the corrugations in one layer extend in a direction substantially perpendicular to the corrugations in the other layer, spaced apart front and rear walls interconnecting said side walls, said top wall and bottom wall, said front wall having an aperture therein and loud speaker means mounted in said housing in registry with said aperture.

12. The loud speaker system set forth in claim 11, wherein said peripheral border along one of said longitudinal edges of said carrier sheet has a greater transverse extent than the other of said borders.

13. A loud speaker system having a housing comprising a bendable carrier sheet of sufficient length to form a top wall, a first side wall, a second side wall and a bottom wall, at least two layers of corrugated material fixedly mounted to said carrier sheet and to each other and arranged in a laminated stack with the corrugations of one of said layers extending in a direction substantially perpendicular to the direction of the corrugations of the other of said layers, said layers of corrugated material having a longitudinal extent substantially the same as said carrier sheet and mounted on said carrier sheet to provide a border at one end of said carrier sheet between said one end and the corresponding end of the adjacent corrugated layer and a border between said corresponding end of said adjacent corrugated layer and the end of the other layer of corrugated material, a V-shaped groove in the laminated stack of corrugated material at at least three of the points at which junctures are to be formed between said walls, each of said V-shaped grooves extending transversely of the corrugated material along the entire width thereof and through the corrugated material, and means for connecting together the ends of said bendable carrier sheet and the ends of said corrugated material to provide staggered seams and for connecting together the junctures at said V-shaped grooves to provide parallel spaced apart top and bottom walls interconnected by parallel and spaced apart first and second side walls, each of said walls including a portion of said carrier sheet and two superimposed layers of corrugated material in which the corrugations in one layer extend in a direction substantially perpendicular to the corrugations in the other layer, spaced apart front and rear walls interconnecting said side walls, said top wall and bottom wall, said front wall having an aperture therein and loud speaker means mounted in said housing in registry with said aperture.

14. The loud speaker system set forth in claim 13, wherein said means for connecting together the ends of said bendable carrier sheet and the ends of said corrugated material to provide staggered seams is an adhesive material applied to said border of one end of said carrier sheet and to said border between said corresponding end of said adjacent corrugated layer and the end of the other layer of corrugated material.

15. A loud speaker system comprising a bendable carrier sheet of sufficient length to form a top wall, a first side wall, a second side wall and a bottom wall, at least two layers of corrugated material fixedly mounted to said carrier sheet and to each other and arranged in a laminated stack with the corrugations of one of said layers extending in a direction substantially perpendicular to the direction of the corrugations of the other of said layers, said layers of corrugated material having a width less than the width of said carrier sheet and mounted on said carrier sheet to provide a peripheral border along each longitudinal edge of said carrier sheet, a V-shaped groove in the laminated stack of corrugated material at at least three of the points at which junctures are to be formed between said walls, each of said V-shaped grooves extending transversely of the corrugated material along the entire width thereof and through the corrugated material, means for connecting together the ends of said bendable carrier sheet and the ends of said corrugated material and the junctures at said V-shaped grooves to provide a housing including parallel spaced apart top and bottom walls intercon-

nected by parallel and spaced apart first and second side walls, each of said walls including a portion of said carrier sheet and two superimposed layers of corrugated material in which the corrugations in one layer extend in a direction substantially perpendicular to the corrugations in the other layer, a front wall mounted to said housing and to one of said peripheral borders of said carrier sheet, said front wall having an aperture therein to facilitate the emission of sound waves there-through, a back wall formed of at least two layers of corrugated material fixedly mounted to said housing and to the other of said peripheral borders of said carrier sheet, said back wall being arranged in a laminated stack with the corrugations of one of said layers extending in a direction substantially perpendicular to the direction of the corrugations of the other of said layers and loud speaker means mounted in said housing in registry with said aperture.

16. The loud speaker system set forth in claim 15, wherein said bendable carrier sheet is fiberboard.

17. The loud speaker system set forth in claim 15, wherein said bendable carrier sheet is a synthetic organic resin.

18. The loud speaker system set forth in claim 15, wherein a synthetic organic resin is fixedly mounted to the carrier sheet on the side thereof opposite to said layers of corrugated material, said synthetic organic resin being coextensive with the surface of said bendable carrier sheet and providing decorative covering therefor.

19. The loud speaker system set forth in claim 15, wherein said housing is in the shape of a rectangular parallelopiped.

20. The loud speaker system set forth in claim 15, wherein two layers of corrugated material are fixedly mounted to said carrier sheet.

21. The loud speaker system set forth in claim 15, wherein said V-shaped grooves are at four of the points at which junctures are to be formed between said walls.

22. The loud speaker system set forth in claim 15, wherein said means for connecting together the junctures at said V-shaped grooves is an adhesive material in the grooves.

23. The loud speaker system set forth in claim 15, wherein said V-shaped grooves extend through said corrugated material and partially into said carrier sheet.

24. The loud speaker system set forth in claim 15, wherein said means for connecting together the ends of said bendable carrier sheet is adhesive material on the ends of said bendable carrier sheet.

25. The loud speaker system set forth in claim 15, wherein said peripheral border having said front wall mounted thereto has a greater transverse extent than said peripheral border having the back wall mounted thereto.

26. The loud speaker system set forth in claim 15, wherein said front wall includes a speaker mounting board removably secured to said housing to facilitate the mounting of a loud speaker thereto.

27. The loud speaker system set forth in claim 15, wherein said front wall includes a speaker mounting board secured to one side thereof and a grille cloth covering the other side thereof to facilitate the mounting of a loud speaker on the one side thereof and to provide a decorative covering to the other side thereof.

28. A loud speaker system comprising a bendable carrier sheet of sufficient length to form a top wall, a first side wall, a second side wall and a bottom wall, at least two layers of corrugated material fixedly mounted to said carrier sheet and to each other and arranged in a laminated stack with the corrugations of one of said layers extending in a direction substantially perpendicular to the direction of the corrugations of the other of said layers, said layers of corrugated material having a width less than the width of said carrier sheet and mounted on said carrier sheet to provide a peripheral border along each longitudinal edge of said carrier sheet, a V-shaped groove in the laminated stack of corrugated material at at least three of the points at which junctures are to be formed between said walls, each of said V-shaped grooves extending transversely of the corrugated material along the entire width thereof and through the corrugated material, means for connecting together the ends of said bendable carrier sheet and the ends of said corrugated material and the junctures at said V-shaped grooves to provide a housing including

parallel spaced apart top and bottom walls interconnected by parallel and spaced apart first and second side walls, each of said walls including a portion of said carrier sheet and two superimposed layers of corrugated material in which the corrugations in one layer extend in a direction substantially perpendicular to the corrugations in the other layer, a frame fixedly mounted to said housing and to one of said peripheral borders of said carrier sheet, a front wall having an aperture therein to facilitate the emission of sound waves therethrough mounted on said frame, a back wall formed of at least two layers of corrugated material fixedly mounted to said housing and to the other of said peripheral borders of said carrier sheet, said back wall being arranged in a laminated stack with the corrugations of one of said layers extending in a direction substantially perpendicular to the direction of the corrugations of the other of said layers and loud speaker means mounted in said housing in registry with said aperture.

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