

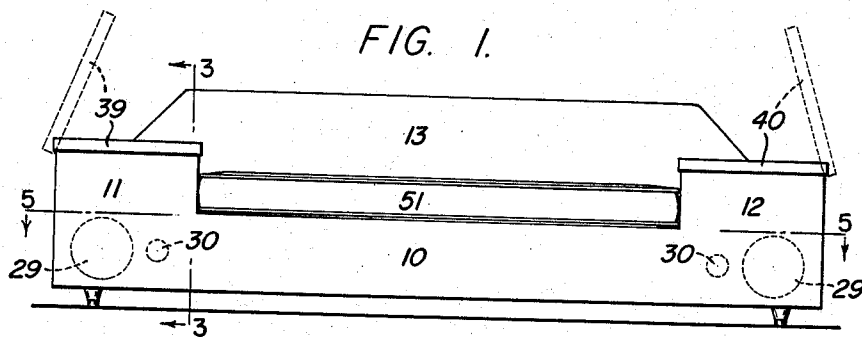
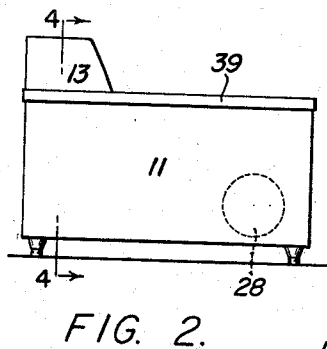
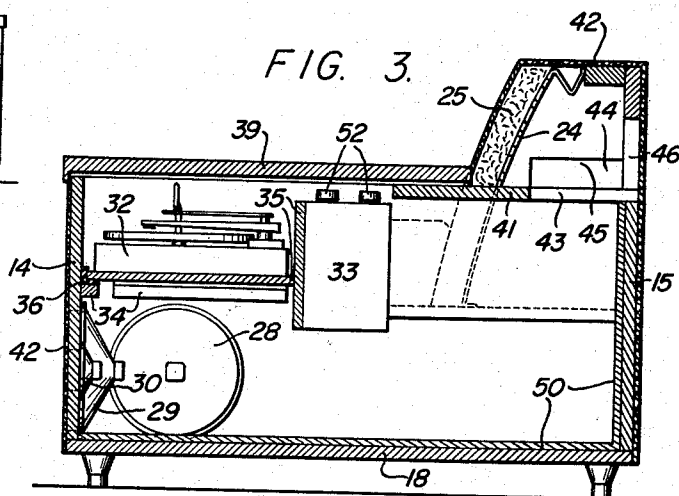
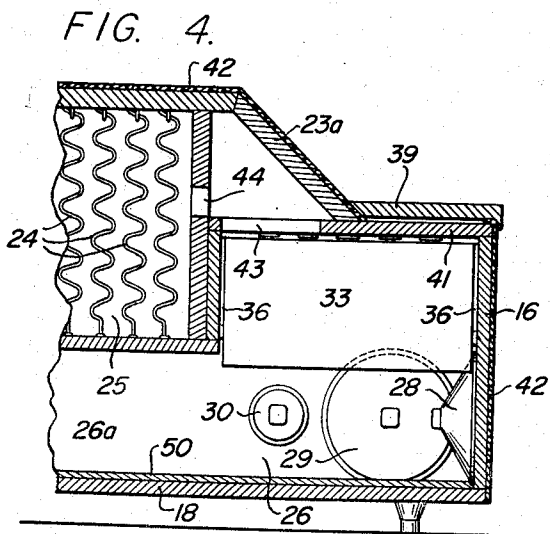
Dec. 10, 1963

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STEREOPHONIC SOUND SYSTEM

3,113,633

Filed Nov. 4, 1960

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

FIG. 5.

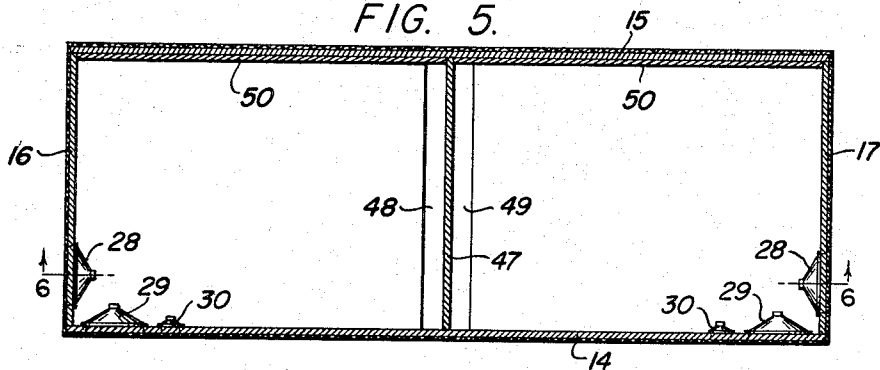


FIG. 6.

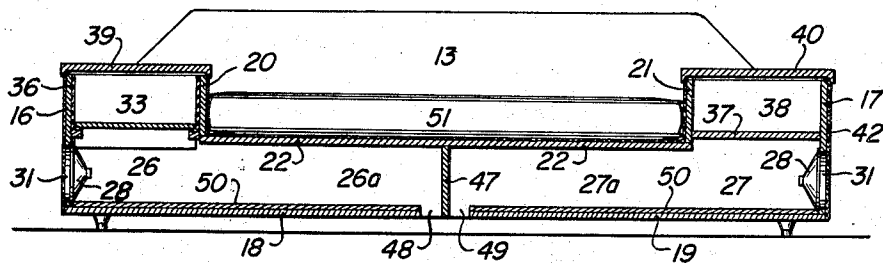


FIG. 7.

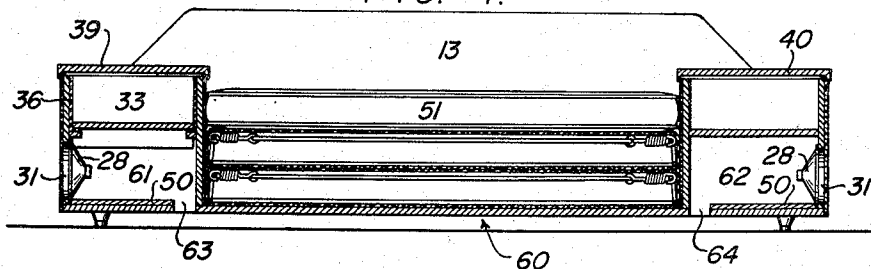
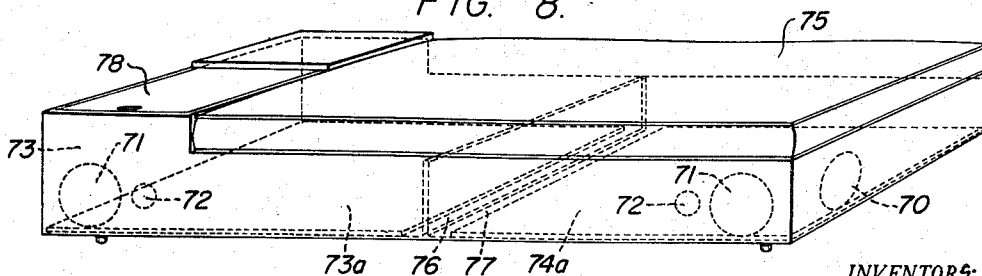


FIG. 8.



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1

3,113,633

STEREOPHONIC SOUND SYSTEM

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Filed Nov. 4, 1960, Ser. No. 67,414
3 Claims. (Cl. 181-31)

This invention relates in general to sound reproduction systems and particularly to functionally interrelated cabinetry therefor. It is primarily concerned with so-called "stereo" systems and with the problem of effectively locating the several speakers of such a system for maximum listening enjoyment with minimum encumbrance of space.

Tone quality of most stereophonic sound systems designed for homes has suffered because of space restrictions. Moreover, because of the small room size of houses and apartments being built for families of modest means, it is often extremely difficult, if not impossible, to find space for such a system.

Principal objects of this invention are to make possible and practical stereophonic sound installations in rooms of small size, and, in so doing, to provide exceptionally good tone quality.

An outstanding feature of the invention resides in utilizing the peculiar configuration and characteristics of a sofa or other elongate and cushioned seat to special advantage in connection with a stereophonic sound reproducing system. In this way, not only does the stereophonic cabinet serve a utilitarian purpose in the household, which justifies the space it occupies, but the characteristics of the cabinet as a piece of furniture enhance the performance of the sound system. Thus, location of the speakers within opposite ends of the elongate cabinet seat adequately separates the speakers for proper stereo effect and affords opportunity for the provision of sound insulated chambers to effectively muffle reflex sound coming from the backs of the speakers, without encumbering needed living space. Moreover, the seat cushioning provides sound insulation for such reflex chambers, while enabling a listener to sit or recline in comfort at an advantageous listening location. Audio characteristics of such location are enhanced by openings from the reflex chambers through the bottom of the seating section of the cabinet.

In the sofa configuration of the cabinet seat, the sofa back provides a convenient passage for venting heat from the stereo sound reproducer to the exterior of the cabinet.

A specific embodiment, representing what is presently regarded as the best mode of carrying out the invention, is illustrated in the accompanying drawings along with certain alternative arrangements.

In the drawings:

FIG. 1 represents a front elevation of a stereophonic phonograph whose cabinet forms a sofa in accordance with the invention, the speakers being shown within the arms of the sofa by dotted circles and the manner in which the tops of the sofa arms raise to afford access to the interiors being indicated by dotted lines;

FIG. 2, an end elevation looking from the left FIG. 1;

FIG. 3, a transverse vertical section taken along the line 3-3 of FIG. 1 and drawn to a considerably enlarged scale;

FIG. 4, a fragmentary vertical section along the line 4-4 of FIG. 2, and drawn to the enlarged scale of FIG. 3;

FIG. 5, a horizontal section taken on the line 5-5 of FIG. 1;

FIG. 6, a vertical section taken on the line 6-6 of FIG. 5;

FIG. 7, a view corresponding to that of FIG. 6, but

2

showing another embodiment constructed as a sofa bed; and

FIG. 8, a perspective view of another embodiment constructed along the lines of a studio couch.

Referring to the drawings:

The sofa stereophonic phonograph illustrated in FIGS. 1-6 is configured to provide an elongate seating section 10, FIG. 1, extending between arms 11 and 12. A back 13 rises upwardly from and extends along the seating section and portions of the arms. The arms are somewhat wider than those of the usual sofa in order to accommodate components of the sound system, and the entire construction is such as will serve to peculiar advantage as cabinetry for such system.

The structural frame of the sofa is box-like, having front and rear panels 14 and 15, respectively, FIGS. 3 and 5, which extend across both the seating section 10 and the arms 11 and 12; outer end panels 16 and 17, FIGS. 4, 5, and 6; bottom panels 18 and 19, FIGS. 5 and 6; inner end panels 20 and 21, FIGS. 4 and 6; seating panel 22, FIG. 6; and an inset, box-like frame 23, FIG. 4, with projections 23a at its opposite ends and upholstery springs 24 and padding 25 making up the sofa back 13.

The spacings between outer end panels 16 and 17 and inner end panels 20 and 21, respectively, establish the widths of the sofa arms 11 and 12 and provide chambers 26 and 27, within the lower portions of which sets of speakers, for example those indicated 28, 29, and 30, are mounted for stereo sound reproduction. These speakers are directed outwardly of the sofa cabinet through appropriate openings, see the openings 31, FIG. 6, provided in the otherwise solid and imperforate cabinet walls.

The chambers 26 and 27, being in direct communication with the backs of the speakers, serve to muffle reflex sound. They also provide utility space upwardly of the speakers. Thus, in chamber 26, the turn-table and pick-up mechanism 32 and amplifier 33, FIG. 3, of the stereophonic sound reproduction system are mounted on supporting strips 34 by means of a panel frame 35 to which they are secured. Cushioning materials, such as foam rubber 36, is interposed between frame 35 and supporting strips 34 to isolate the mechanism from the structural framework of the sofa. Also, in chamber 27, a horizontal partition 37, FIG. 6, provides space 38 for record storage above the speakers.

The tops of both chambers are closed in an easily openable manner to afford access thereto. Thus, doors 39 and 40 are shown here as hinged, FIG. 4, to swing upwardly and outwardly of the tops of the respective arms 11 and 12, see FIG. 1. Rearward panels 41, FIGS. 3 and 4, complete the main box frame, upon which the back frame 23 is inset.

Except for the tops of the arms, which are advantageously left as table surfaces, the sofa frame is covered exteriorly by a decorative fabric 42, which is sufficiently porous to offer little resistance to the passage of sound through the speaker openings 31.

For enabling heat generated by the amplifier 33 to be dissipated into the room, registering vent openings 43 and 44, FIG. 3, in the top panel 41 of chamber 26 and in the corresponding back frame projection 23a, respectively, open into space 45 in the back frame 23, which, in turn, opens into the room through longitudinal vent opening 46.

In the present instance, chambers 26 and 27 include elongate portions 26a and 27a, respectively, which extend from the respective arms of the sofa below and to the middle of the seat, where they are separated by a partition 47 and open into the room through elongate openings 48 and 49, respectively, at opposite sides of the partition. These openings 48 and 49 are formed between the mutually spaced and opposing ends of bottom panels

3

18 and 19, and serve to conduct reflex sound to locations below the seating section 10.

For best acoustical performance, the reflex chambers 26 and 27 and their elongate extensions 26a and 27a are lined with acoustical insulation material 50, which preferably covers only the bottom and back panels, as indicated. A sofa cushion 51, fitted into the elongate and depressed seating area between arms 11 and 12 and seating panel 22, also serves as acoustical insulation for such seating area.

A listener seated or reclining on cushion 51 can operate both sets of speakers by means of appropriate knobs 52, FIG. 3, on amplifier 33, thereby adjusting the volume of sound to suit.

The construction of FIG. 7 is similar in all respects to that of FIGS. 1-6, except for the provision of a folding bed unit 60 below the sofa cushion. This necessitates restricting the size of the reflex chambers 61 and 62 within the sofa arms by the elimination of the elongate extensions thereof which are shown as 26a and 27a in FIG. 6. Openings from such restricted reflex chambers to locations below the seating area of the sofa are provided at 63 and 64, respectively, these being located at opposite ends of the seating area rather than at the middle thereof, as in the first form of the invention.

The construction of FIG. 8 exemplifies other possible forms of elongate seats without arms. There, sets of speakers 70, 71, and 72 are positioned in respective reflex chambers 73 and 74 provided at opposite ends of a closed box-like frame and having elongate extensions 73a and 74a which meet at the middle of the seating area occupied by cushion 75. Openings 76 and 77 emit reflex sound from chambers 73 and 74, respectively, below the middle of the seating area in a manner similar to that of the first form of the invention. A sliding cover 78 affords access to phonograph components located within chamber 73.

It will be clear from the foregoing that various other forms of sofas and similar seats may be constructed within the concepts of this invention, for example a bumper end sofa.

Whereas there are here illustrated and described certain preferred constructions of apparatus which we presently regard as the best modes of carrying out our invention, it should be understood that various changes may be made without departing from the inventive concepts particularly pointed out and distinctly claimed herebelow.

We claim:

4

1. A stereophonic sound system, comprising a cabinet in the form of an elongate seat having a normally closed, box-like frame providing chambers within its opposite ends and an elongate seating area upwardly thereof; a stereo sound reproducer and a set of speakers mounted within the chamber in one end portion of said frame and another set of speakers mounted within the chamber in the other end portion of said frame, said speakers being directed outwardly of said frame sidewardly thereof; reflex sound openings in the bottom of the frame leading outwardly and downwardly from the respective chambers; cushioning material superimposed upon said frame and serving also as acoustical insulation; and a closure for the first mentioned chamber which may be opened to give access to the sound reproducer.

2. A stereophonic sound system, comprising horizontally elongate cabinetry defining walled chambers at opposite ends thereof which have horizontally elongate portions extending toward each other and terminating substantially back-to-back intermediate the overall length of the cabinetry; stereophonic speakers mounted within said chambers at said opposite ends of the cabinetry and directed outwardly of said cabinetry through side walls thereof; and means defining reflex sound openings directed outwardly of said cabinetry through the bottom thereof from said elongate portions of the chambers, respectively, adjacent said back-to-back terminations thereof.

3. The sound system of claim 2, wherein cushioning material is superimposed on the cabinetry over the horizontally elongate portions of the chambers to provide both a seating area and acoustical insulation.

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