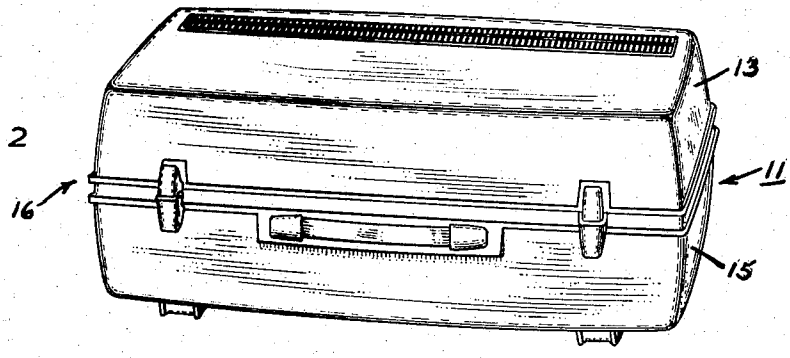
Dec. 17, 1968 C. W. CHRISTIE 3,416,804

STEREOPHONIC SPEAKER ARRANGEMENT FOR A PHONOGRAPH

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Fig. 2



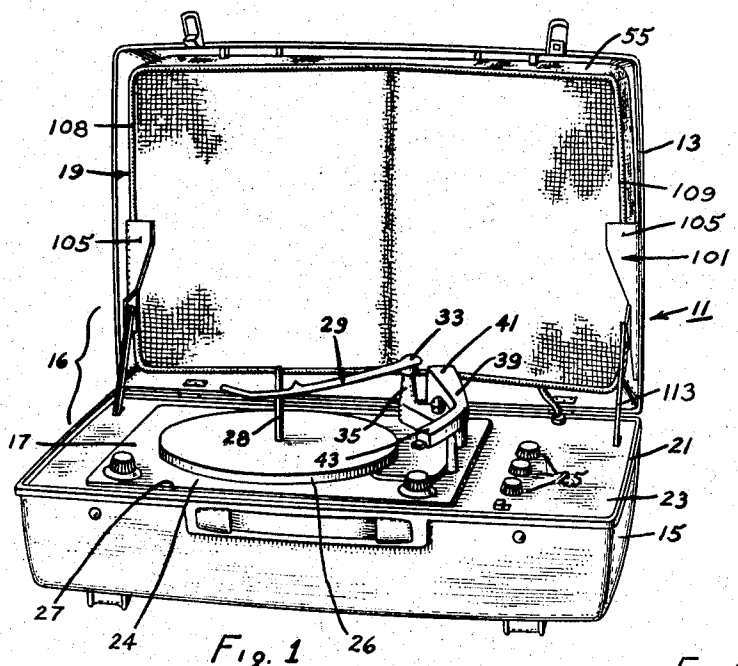


Fig. 1

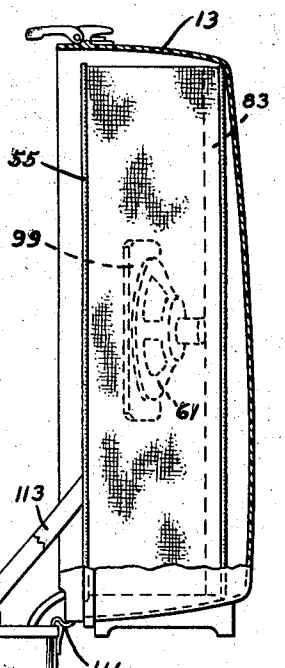
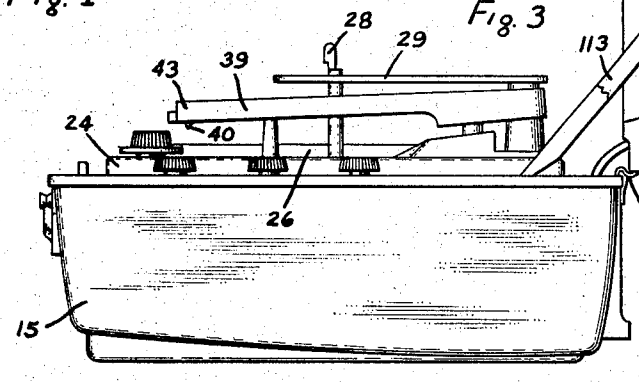


Fig. 3



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STEREOPHONIC SPEAKER ARRANGEMENT FOR A PHONOGRAPH

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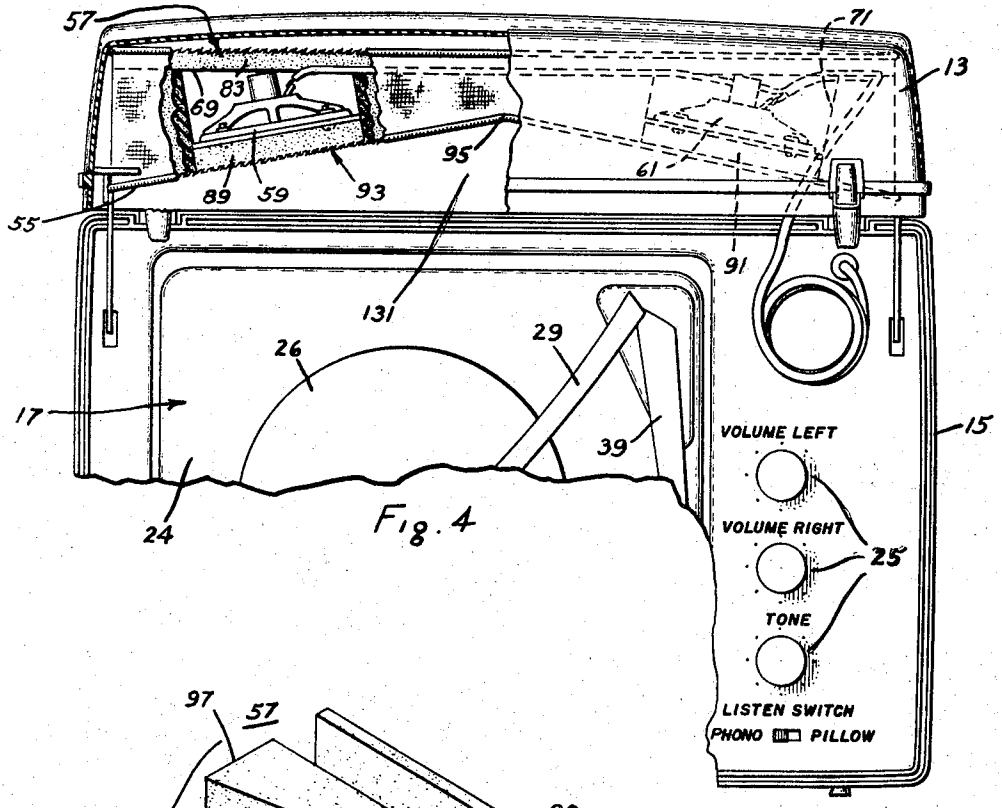


Fig. 4

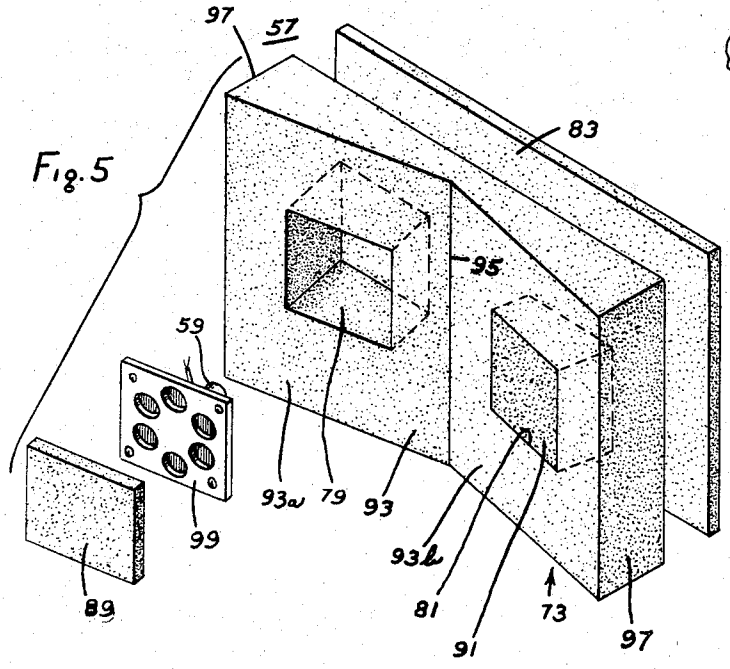


Fig. 5

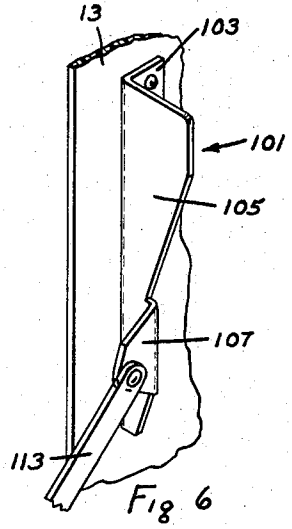


Fig 6

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STEREOPHONIC SPEAKER ARRANGEMENT FOR A PHONOGRAPH

Original Filed Oct. 30, 1963 3 Sheets-Sheet 3

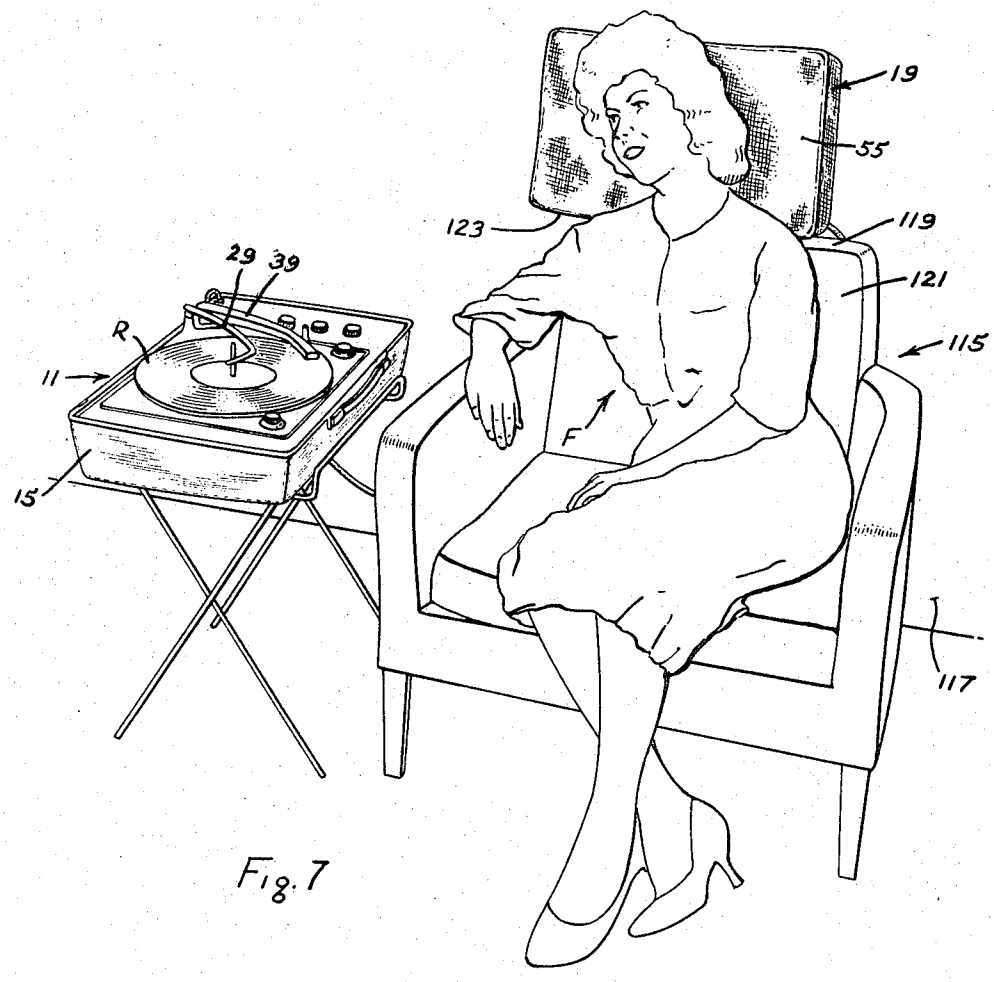


Fig. 7

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United States Patent Office 3,416,804
Patented Dec. 17, 1968

3,416,804

STEREOPHONIC SPEAKER ARRANGEMENT FOR A PHONOGRAPH

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Continuation of application Ser. No. 320,206, Oct. 30, 1963. This application June 10, 1966, Ser. No. 562,050
3 Claims. (Cl. 274—2)

ABSTRACT OF THE DISCLOSURE

In a stereophonic device, a cushion and a plurality of loudspeakers are provided, the loudspeakers being enclosed and positioned within the cushion in such a manner as to provide a stereophonic sound effect to a person whose ears are placed in proximity to the speakers.

This invention relates to an improved stereophonic speaker arrangement, and more particularly to a stereophonic speaker arrangement for a phonograph, which arrangement includes a plurality of speakers enclosed and arranged within a pillow.

The present application is a continuation of my copending application Ser. No. 320,206, filed Oct. 30, 1963, for Stereophonic Speaker Arrangement for a Phonograph, now abandoned.

One form of high fidelity sound reproduction which has met with widespread acclaim is the stereophonic type of sound reproduction. To effect this type of sound reproduction, it is important that the system should include two or more loudspeakers which are spacially arranged in such a manner as to provide the audio impression to the listener that the sound emanates from two or more directions. For obtaining the desired stereophonic audio effect, most speaker systems of the prior art have, in general required the use of relatively expensive speaker enclosures. An important object of the present invention is to provide an improved stereophonic loudspeaker arrangement which includes an economical and versatile speaker enclosure.

Another object of my invention is to obtain an improved stereophonic loudspeaker arrangement which includes a speaker enclosure of extremely light weight and of an ornamental nature.

An additional object of my invention is to provide an improved home furnishing which encloses a plurality of loudspeakers to form an integral part of a stereophonic loudspeaker system.

A further object of my invention is to provide an improved phonograph unit which includes a stereophonic loudspeaker system that comprises a speaker enclosure also usable as a cushion means.

In carrying out my invention, in one form thereof, I provide a phonograph which includes a stereophonic speaker arrangement. This speaker arrangement comprises a pillow means for comfortably accommodating the head of person who might desire to repose thereupon. A plurality of speakers are encased in the pillow and spaced apart therein to stereophonically reproduce sound to the left and right ears of a person whose head is reposing on said pillow means. By arranging the speakers in the pillow means, a versatile and low cost stereophonic speaker enclosure is thereby achieved. Such a speaker arrangement may also be of extremely light weight and readily transportable.

Further aspects of my invention will become apparent hereinafter, and the specification concludes with claims particularly pointing out and distinctly claiming the subject matter which I regard as my invention. The invention, however, as to organization and method of operation, together with further objects and advantages thereof, may

best be understood by reference to the following description when taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a perspective view of an improved portable phonograph unit embodying one form of my invention, the phonograph being shown ready for operation;

FIG. 2 is a perspective view of the phonograph unit of FIG. 1, with the turntable and speaker arrangement completely encased in the housing;

FIG. 3 is a right end view of the phonograph as shown in FIG. 1;

FIG. 4 is a fragmentary plan view of the phonograph unit shown in FIG. 1, with part of the cover and speaker enclosure broken away to show one of the speakers in full, the other speaker being represented by dotted lines;

FIG. 5 is an exploded perspective fragmentary view showing the interior construction of the loudspeaker enclosure for the phonograph unit;

FIG. 6 is a fragmentary perspective view showing the retaining arrangement in the housing cover for the pillow; and

FIG. 7 is a perspective view showing a female person reposing her head upon a loudspeaker enclosure embodying my invention, the loudspeaker system being shown connected to the phonograph unit.

Referring first to FIG. 2, as shown therein I have provided a portable phonograph unit **11** comprising a housing cover **13** and body **15** which cooperate to provide a protective enclosure **16** for a record player **17**, a dual channel amplifier (not shown), and a speaker enclosure **19**. The construction and arrangement of the speaker enclosure **19** forms an important aspect of the present invention, as shall become apparent hereinafter.

The housing body **15**, as shown in FIG. 1, has a generally rectangular, box-shaped configuration, and it is recessed to receive the aforementioned dual channel amplifier as well as the underlying part (not shown) of record player **17**. On the open side **21** of the housing body **15** there is arranged in horizontal fashion (viewing FIG. 1) a panel **23**. Above panel **23** near the right side thereof (viewing FIG. 1) are mounted suitable controlling knobs **25** for operating the dual channel amplifier. Near the center of panel **23** and located nearer to the left side than to the right side thereof (viewing FIG. 1) there is formed a rectangular slot **27**. Within slot **27** there is mounted the record player **17**.

The record player **17** comprises a record player frame **24** mounted on panel **23**, and a turntable **26** carried on frame **24**. For centering records and positioning them in the desired relationship with turntable **26**, a spindle **28** extends upwardly from turntable **26** and projects outwardly from the open side **21** of the lowermost housing body **15**.

The record player **17** shown is an automatic record changer type, and employs a record balancing arm **29**. The arm **29** is arranged in general parallel to the turntable **26**, and it is carried by attachment of its rear end **33** to a vertical post member (not shown). This vertical post member is rotatably journalled in upright **35** and may be raised and lowered, in the usual fashion. The balancing arm **29** is thus arranged on the record player **17** so that it may be raised and lowered, and is swingable sideways from its raised position for loading records upon the spindle **28**. More particularly, for loading records on the spindle **28**, the balancing arm **29** may be raised and swung angularly from a position wherein its free end generally overlies the spindle **28** (as shown in FIG. 1) to a position wherein its free end is adjacent to but spaced laterally outwardly from the periphery of a record which is to be loaded. The balancing arm **29** may then be located in a detented position to allow clearance for a record to be loaded upon spindle **28**.

A tone arm **39** is located alongside of and above turntable **26**, and is provided with a pivotal support near its rear end **41**, in a well known manner. The arm **39** is pivotally supported so that vertical and horizontal movement is permitted and a pickup stylus or needle **40** (FIG. 3) located at the free end **43** of the arm can engage and reproduce sound signals from the groove of a phonograph record placed on the turntable **26**.

From viewing FIG. 2 it will be noted that the spindle **28**, overarm **29** and tone arm **39** each are located substantially above the open end **21** of the second housing portion **15**.

To enable the phonograph unit **11** to efficiently provide a stereophonic sound effect, in accordance with an important aspect of my invention, the speaker enclosure **19** (FIG. 1) is that type of home furnishing generally known as a pillow. More particularly, as shown by viewing both of FIGS. 4 and 5, the speaker enclosure **19** includes a generally rectangular pillow covering **55** (FIG. 4), a composite body **57** (FIG. 5) of soft pliable stuffing, and a pair of loudspeakers **59** and **61** positioned within associated cavities **69** and **71** of the composite body **57**.

The pillow covering **55** may be made from a readily washable fabric which is of a somewhat durable nature, such as for example corduroy, and it may be suitably colored so that the enclosure **19** attractively complements the color scheme of the furnishings in one or more rooms of a home. In addition the covering **55** is slightly larger than and conforms in general to the external shape of the composite stuffing body **57**.

Body **57** may be made from a spongy synthetic material such as polyurethane, and it includes a main section **73** with spaced apart rectangular openings **79** and **81** formed therethrough, a flat rear slab **83** of generally uniform thickness, and a pair of inserts **89** nd **91** which fit into the front of each of the respective openings **79** and **81** to fabricate a front wall for the composite body **57**.

To enable the cover **13** of the phonograph housing enclosure **16** to effectively accommodate the spindle **28**, record balancing arm **29** and tone arm **39** (FIG. 1) while at the same time enclosing and positioning the pair of speakers **59** and **61**, the front face **93** of the main section **73** of the pillow body has a shallow V-shaped configuration, as shown in FIG. 5. Thus, as further shown by the perspective view of FIG. 5, the front face **93** includes right and left halves **93***a* and **93***b* which are angled at a seam **95** so that they face in convergent directions toward the record player **17** (see also FIG. 4). The seam **95** is parallel to rectangularly configured end walls **97** of the body **57**, so that each of the front face halves **93***a* and **93***b* has a rectangular configuration. It will also thus be seen that the main section **73** has a gradually and uniformly diminishing thickness between its end walls **97** and seam **95**.

The top, bottom and side walls of each of the openings **79** and **81** in main section **73** are of generally square box-shaped relative arrangement, and each of these walls is perpendicular to one of the front face halves **93***a* or **93***b*. In addition, the walls of each of the openings **79** and **81** are cross sectionally dimensioned to receive a square shaped slab **99** of rigid material, upon which an associated speaker is mounted. As shown in FIG. 5, each of the slabs **99** serves to support and protect its associated speaker, such as speaker **59**. Each of the slabs **99** is also appropriately apertured to allow sound to emanate therefrom.

Each of the individual speaker units **59** and **61** is mounted in its associated opening **79** or **81** of the pillow body **73** in the manner indicated for speaker **59** in FIG. 4. Preferably, slabs **89** and **91** are first inserted into conformity with and glued to front face half **93***a* and front face half **93***b* to form an uninterrupted front wall for body section **73**. The speakers **59** and **61** are then inserted into openings **79** and **81** from the rear so that the supporting slabs **99** of the speakers engage the rearwardly facing surfaces of the already assembled pillow slabs **89** and **91**. The speakers **59** and **61** are thus positioned in pillow body section **73**, as shown in FIG. 4, so that their front faces are directed in convergent relationship toward the record player **17**.

After the speakers **59** and **61** have been positioned in their associated pillow apertures **79** and **81**, with suitable conductors connected to each of the speakers to operate them stereophonically from the dual channel amplifier, the enlarged rear slab **83** of the composite pillow body **57** is then glued into conformity with the rear of body section **73**. The speakers **59** and **61** are thereupon contained and ensconced within their associated cavities **69** and **71**, as shown in FIG. 4, and positioned in slight compression between the assembled front wall of the cavity and rear slab **83**.

As previously mentioned, the pillow covering **55** is slightly larger than and conforms to the external shape of composite stuffing body **57**. After the speakers **59** and **61** are positioned in the body **57**, it is then inserted into the covering **55** by a suitable means, and retained therein, so that the pillow speaker system of my invention may be readily operable in conjunction with its associated phonograph unit **11**. For the complete speaker enclosure **19**, the convergently directed front faces thereof (FIG. 1) may beneficially have an included angle of between 125 and 165 degrees.

To enable the pillow speaker system of phonograph unit **11** to be operable in remote relationship to unit **11**, a considerable length of cord is extended from underneath panel **23** of body **15** to the pillow covering **55** for stereophonically operating the speaker units **59** and **61**.

For enabling the speaker enclosure **19** to be readily yet removably retained in the recessed cover **13** of the phonograph housing **16**, as best shown in FIG. 6, a pair of special retaining brackets **101** are secured to the inside of opposed end walls of cover **13**. Brackets **101** each include a supporting leaf **103** secured to cover **13**, an enlarged retaining flange **105** bent over therefrom (as shown in FIG. 6), and a supporting flange **107** bent forwardly from flange **105**. The purpose of flange **107** shall be set forth hereinafter. The retaining flanges **105** are of such a size that the pliable speaker enclosure **19** may be readily flexed to position the forward end seams **108** and **109** (FIG. 1) behind the flanges **105**. As shown in FIG. 1, seams **108** and **109** are thereupon disposed substantially between the flanges **105** and the inside of cover **13**. Portions of the pillow enclosure **19** are thus held in compression to securely retain the speaker enclosure **19** well within the recess of cover **13**. (See FIG. 4.)

For ready removal of the speaker enclosure **19** from brackets **101**, the end walls of the pillow casing are simply pulled toward each other to remove seams **108** and **109** from behind retaining flanges **105**.

As shown in FIG. 3, the cover **13** of the phonograph unit is pivotally supported on body **15** by means of detachable hinges **111**. Hinges **111** allow cover **13** to pivot approximately 90 degrees between an open position (FIG. 1) and a closed position (FIG. 2).

For limiting the pivotal opening movement of cover **13** of the phonograph housing with respect to body **15** thereof, rods **113** are pivotally linked, as shown in FIG. 6, to the supporting flanges **107** of brackets **101**. Rods **113** slidably cooperate with appropriate slots formed in panel **23** on the body **15** to provide the desired limiting effect for movement of cover **13**. More particularly, to limit the movement of and retain cover **13** in its open position (FIG. 1), hooked ends (not shown) of rods **113** may positively engage associated edges of the aforementioned slots in panel **23**.

Turning now to an explanation of the operation and utility of my pillow enclosed stereophonic speaker arrangement, attention is directed to FIG. 7. As shown therein, a female person F is seated comfortably on armchair **115**, which is located adjacent to a vertical wall **117**

of a room and listening to a stereo record R which is being played through the phonograph **11**. On the top **119** of the rear wall **121** of the armchair **115** there is supported a longitudinal bottom **123** of the speaker enclosure **19**, which has its rearward face leaning against vertical wall **117**.

With the pillow enclosure **19** arranged in such a manner, it will be understood that the rear of the head of the person F may repose comfortably at approximately the recessed seam line **95** (FIG. 4) of the pillow body (i.e. adjacent the front of the center part of the pillow enclosure, which part is of minimum thickness). When the head of the listener F is in this position, her right ear will be closely adjacent one of the two speakers **59** and **61** (FIG. 4) and her left ear will be closed adjacent the other of the speakers **59** and **61** (FIG. 4). As a result of the proximity of the ears of the listener L to the respective speakers, which is due in part to the spacing of the speakers **59** and **61** in the pillow body **57**, an efficient stereophonic effect is received by the listener L.

It will also be realized that by mounting the stereophonically adapted speakers **59** and **61** in a pillow-type enclosure, a lightweight, portable, and relatively inexpensive speaker enclosure is achieved, which has a wide number of ready applications.

With further regard to the shallow V-shaped configuration of the speaker enclosure **19**, it will be noted, as shown in FIG. 4, that a cavity **131** is provided in the recess of cover **13** when the enclosure **19** is positioned therein. The cavity **131** effects a gradually increasing outwardly facing recess between the sides of the cover and the center thereof. When the cover **13** of the phonograph unit **11** is closed, the cavity **131** effectively serves to accommodate the spindle **28**, balancing arm **29**, and tone arm **39**, therein.

It will now, therefore, be understood that in accordance with the present invention I have provided an improved stereophonic sound reproducing loudspeaker arrangement which effectively also functions as a pillow. It will be also realized that my improved loudspeaker enclosure arrangement readily lends itself to expeditious utilization in and complementary relationship with portable phonographs as well as a wide variety of other phonograph applications. It shall additionally be realized that the improved loudspeaker device of my invention may be very economically manufactured.

While in accordance with the patent statutes, I have described what at present is considered to be the preferred embodiment of my invention, it will be obvious to those skilled in the art that various changes and modifications may be made therein without departing from my invention, and I, therefore, aim in the following claims to cover all such equivalent variations as fall within the true spirit and scope of this invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A portable phonograph comprising a housing resembling a suitcase, said housing including a body portion for supporting a sound reproducing mechanism and a cover portion cooperable with said body portion, said cover portion being movable between open and closed positions thereby to open and close said housing for enabling selective access to said sound reproducing mechanism or protection thereof by said cover portion, said cover portion having a recess therein facing and overlying said sound reproducing mechanism when said cover portion is in its closed position, a speaker enclosure in the form of a singular portable pillow removably seated in said recess, said pillow having a body of resilient material, clamping means operatively associated with the pillow and the housing for removably securing said pillow to the housing so that it may be removed from the housing for resilient coaction with the body of a person, and at least one pair of speakers ensconced within said pillow, said speakers being spaced apart and arranged within said pillow so that they may provide an effective stereophonic sound effect.

2. A portable stereophonic phonograph comprising a housing resembling a suitcase, said housing including a body portion for supporting a sound reproducing mechaanism and a cover portion cooperable with said body portion, said cover portion being movable between open and closed positions thereby to open and close said housing for enabling selective access to said sound reproducing mechanism or protection thereof by said cover portion, said cover portion having a recess therein facing and overlying said sound reproducing mechanism when said cover portion is in its closed position, a speaker enclosure in the form of a singular portable pillow removably seated in said recess, said pillow being usable in conventional fashion for reposure, said pillow comprising a body of resilient material and having a shallow V-shaped cross-sectional recess at the front thereof thereby to provide a pair of convergent front faces, and at least one speaker ensconced in and supported by said pillow and directed toward each one of said front faces, thereby to provide at least one pair of speakers located in and supported by said pillow and facing in convergent directions, whereby said pillow serves as both a reposing means and a stereophonic speaker enclosure associated with said portable phonograph.

3. The portable stereophonic phonograph of claim **2** wherein a pair of opposed clamping brackets are secured to opposite side walls of said cover, said brackets being engageable with adjacent opposed side edges of said pillow thereby to retain said pillow in said recessed cover.

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U.S. Cl. X.R.

181—31; 179—146