

Sept. 19, 1967

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3,342,498

PORTABLE PHONOGRAPH

Filed May 13, 1965

FIG. 1.

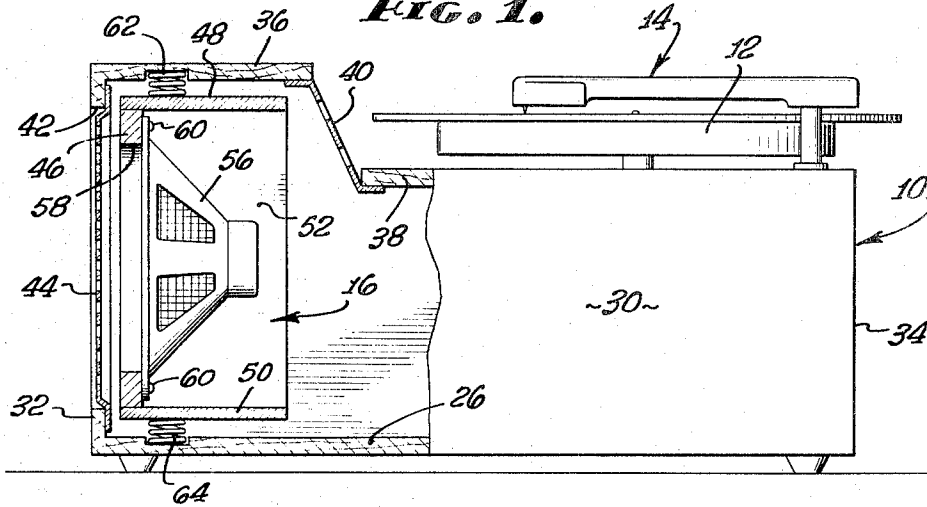


FIG. 2.

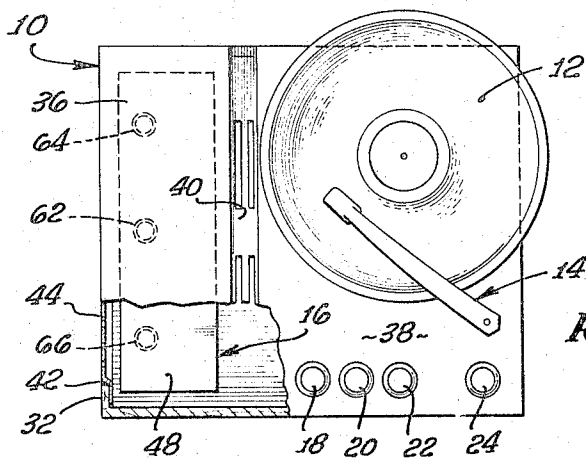
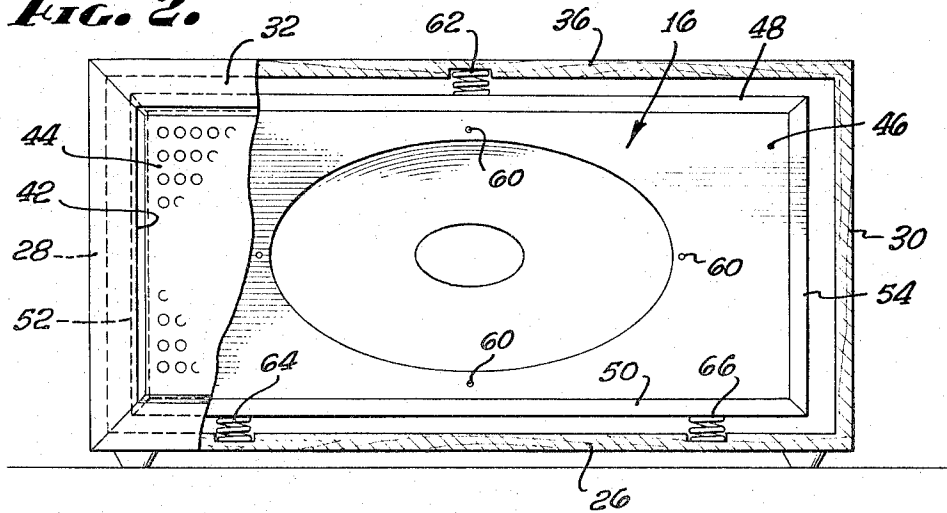


FIG. 3.

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1

3,342,498

PORTABLE PHONOGRAPH

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Filed May 13, 1965, Ser. No. 455,552

2 Claims. (Cl. 274-2)

ABSTRACT OF THE DISCLOSURE

The speaker assembly 16 is mounted in the case of a phonograph 10 by suspension springs 62, 64, 66 and in such manner that the walls 48, 50, 52, 54 form, with the case of the phonograph 10, a restricted air path between the front and back of the speaker 56, thereby achieving acoustic isolation with respect to the turntable 12 and tone arm 14 while maintaining a high level of bass response.

Brief summary of invention

This invention relates to a portable phonograph, and particularly to a mounting for a speaker forming a part of the phonograph.

In order to avoid acoustic feedback from the speaker to the tone arm and turntable through the phonograph case, it has been suggested that acoustic damping means be interposed between the speaker and the turntable. The most convenient embodiment takes the form of a resilient suspension of the front panel upon which the speaker is mounted.

While this arrangement accomplishes the result of acoustic isolation, the low frequency response of the panel-mounted speaker is quite adversely affected. Yet this has been tolerated for a substantial period of time.

Accordingly, the primary object of this invention is to provide a phonograph of this character that achieves acoustic isolation while yet achieving exceptional bass response. This is made possible by providing side walls on the speaker panel that extend rearwardly in exterior encompassing relationship to the speaker cone. The open box thus formed is resiliently suspended in the phonograph case. The side walls extend with clearance along the walls of the phonograph case, thus maintaining the acoustic isolation of the speaker while providing a baffle between the opposite sides of the speaker cone. This baffle materially enhances the bass response.

This invention possesses many other advantages, and has other objects which may be made more clearly apparent from a consideration of one embodiment of the invention. For this purpose, there is shown a form in the drawings accompanying and forming a part of the present specification, and which drawings are true scale. This form will now be described in detail, illustrating the general principles of the invention; but it is to be understood that this detailed description is not to be taken in a limiting sense, since the scope of this invention is best defined by the appended claims.

Brief description of the drawing

FIGURE 1 is a side elevational view of a phonograph incorporating the present invention, a portion of the apparatus being broken away and shown in section;

FIG. 2 is a front elevational view of the phonograph, a portion of the apparatus being broken away and shown in section; and

FIG. 3 is a top plan view of the phonograph, taken on a reduced scale, a portion of the apparatus being broken away and shown in section.

2

The phonograph 10 shown in the drawings includes a turntable 12, a pickup assembly 14, a speaker assembly 16, and an amplifier (not shown). Control knobs 18, 20, 22, and 24 (FIG. 3) control the amplifier and the turntable in a conventional manner.

These phonograph components are mounted on a common case. The case comprises a bottom wall 26, side walls 28 and 30, a front wall 32, a rear wall 34, and parts 36 and 38 of an offset top wall. A perforated bracket 40 joins the top wall parts 36 and 38 in a conventional manner.

The pickup assembly 14 and the turntable, together with its motor (not shown), are mounted in a conventional manner on the rear top wall part 38.

The speaker assembly 16 is mounted adjacent a port 42 in the front wall 32, in this instance covered by a grill 44. The assembly comprises a front rectangular panel 46; top and bottom walls 48 and 50; side walls 52 and 54; and a speaker 56. The speaker 56 has its flange secured, in a conventional manner, about the opening 58 in the front panel 46, as by the aid of machine screws 60. The speaker assembly walls 48, 50, 52 and 54 are joined, respectively, to the four edges of the panel. They are joined to each other, thus forming a box-like structure or skirt opening rearwardly of the speaker 56.

The dimensions of the speaker assembly are such that the speaker assembly 16 fits with slight clearance in the front of the phonograph case with the front panel 46 immediately behind the phonograph wall 32.

The speaker assembly is suspended by three coiled springs 62, 64 and 66 (FIG. 2). Two of the springs 64 and 66 are seated in shallow recesses 68 and 70 formed on the inside of the phonograph bottom wall 26. These recesses are located symmetrically on opposite sides of the axis of the speaker 56, and engage spaced portions of the lower wall 50 of the speaker assembly at places located generally beneath the center of gravity of the assembly 16.

The third coil spring 62 is seated in a recess 72 formed on the inside of the phonograph top wall located about the recesses 68 and 70. This spring 62 engages the top wall 48 of the speaker assembly 48.

The springs 62, 64 and 66 suspend the speaker assembly 16 with clearance within the phonograph case. By virtue of the spring suspension, the vibrations of the assembly 16 are not transmitted to the phonograph case or, thereby, to the pickup assembly 14 or the turntable 12. The walls 48, 50, 52 and 54 provide a labyrinthal or extended path between the front and rear of the speaker cone. Hence, the bass response of the speaker is exceptionally good while the acoustic coupling through the phonograph case between the speaker and other phonograph parts is minimized.

For purposes of ease of assembly, the springs 62, 64 and 66 may be affixed to the speaker assembly 16, as by screws (not shown). The recesses for the springs could of course, instead be formed on the top and bottom walls 48 and 50, in which case the springs would be secured to the phonograph walls for purposes of assembly.

The inventor claims:

1. In a phonograph having a case, a turntable and a pickup assembly mounted in the case, said case having a speaker opening, and top, bottom and side walls surrounding the speaker opening, the combination therewith of: a speaker assembly including a front panel having a port; a speaker mounted on said panel in registry with said port; wall means forming an open box-like structure surrounding the speaker; said wall means having an opening opposite said panel exposed to the interior of said case; and acoustic damping means suspending the speaker

3

assembly in the case with the front panel aligned with said speaker opening and said wall means substantially paralleling the top, bottom and side walls of said phonograph case and having small clearance with respect to said case walls to define a restricted air path between the front of said panel and the rear of said panel, the interior cross-sectional area of said case in a plane through said wall means being only slightly greater than the corresponding exterior cross-sectional area of said wall means.

2. The combination as set forth in claim 1 in which said acoustic damping means comprises a plurality of coil springs attached exteriorly of said wall means, said walls of said case having interior recesses fitting and receiving

4

said springs whereby said speaker assembly is supported within said case entirely by said springs.

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