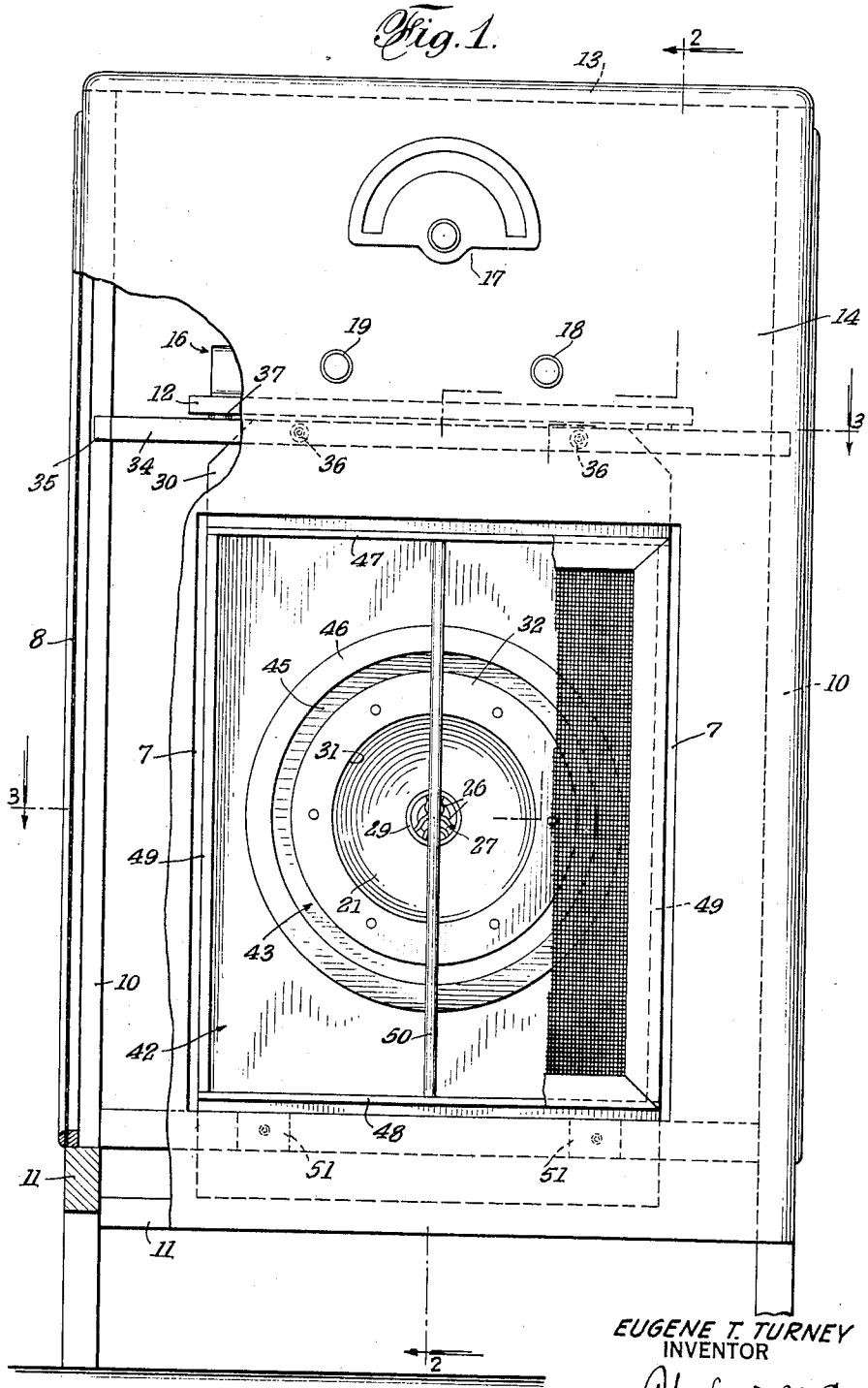
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SOUND REPRODUCER

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Fig. 1.



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Fig. 2.

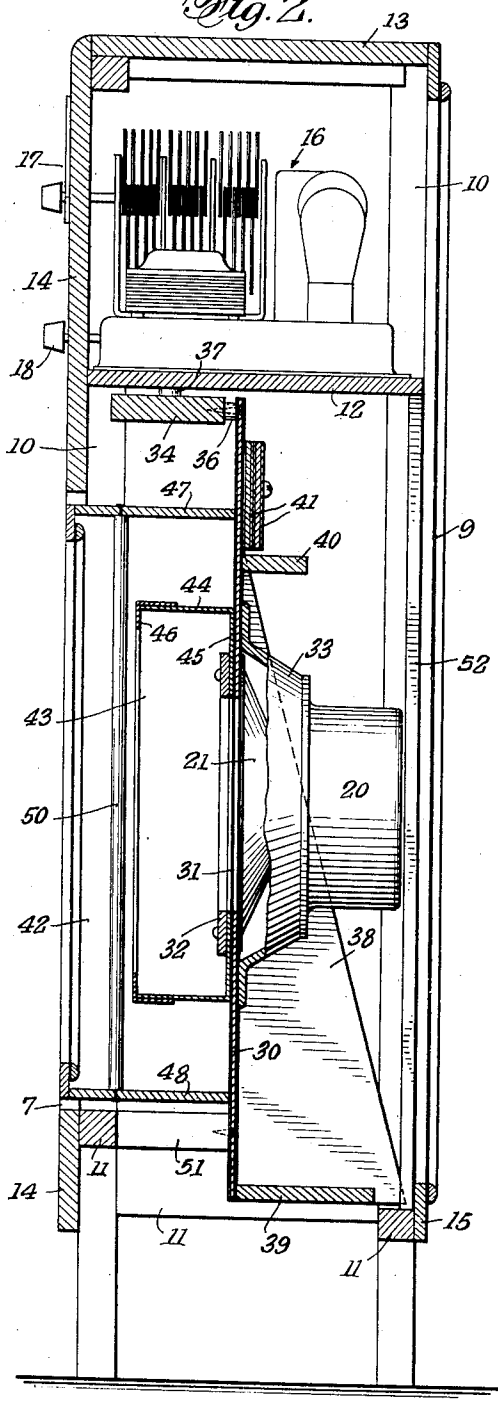
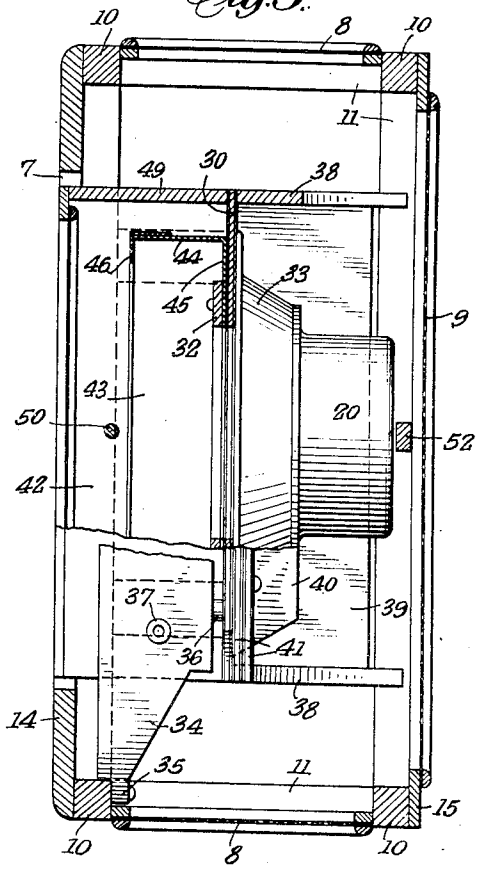


Fig. 3.



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SOUND REPRODUCER

Eugene T. Turney, Holmes, N. Y.

Application March 5, 1940, Serial No. 322,287

1 Claim. (Cl. 181—31)

The herein disclosed invention relates to the reproduction of sound.

Special objects of the invention are to accomplish the reproduction of sound with all the original values of tone quality, resonance overtones and distinctive characterizations and to gain such results in a wholly practical manner, adapting the invention for use with present day radio and television receiving sets, phonographs, sound picture projectors and sound systems generally.

Other desirable objects and the novel features of the invention by which all such objects are attained will appear or are set forth in the course of the following specification.

The drawings accompanying and forming part of the specification illustrate a present commercial development of the invention. Structure however, may be modified and changed as regards this present disclosure, all within the true intent and broad scope of the invention.

Fig. 1 is a broken and part sectional front elevation of the invention as embodied in a radio receiving and phonographic reproducing set.

Fig. 2 is a broken vertical sectional view as substantially on the line 2—2 of Fig. 1.

Fig. 3 is a broken horizontal sectional view as on substantially the line 3—3 of Fig. 1.

In the form of the invention disclosed, a cabinet structure is employed, open at all sides for the dissemination and propagation of sound waves. This cabinet has a large front opening 7, and screened side openings 8, and back opening 9. A simple way to construct this cabinet is to make it up as an open frame with four corner posts 10, connected in spaced relation by cross rails 11, and horizontal shelf or partition 12, said open frame having applied to it a top 13, and the open front and back panels 14, 15, respectively.

The shelf 12 provides the support for the electrical equipment. The latter is indicated as the chassis 16, of a radio receiver. This may be any one of a number of high grade radio receiver units now on the market adapted for radio reception and phonograph record reproduction. It is indicated as having a tuning control 17, volume control 18 and tone control 19

A special feature of the invention is that an excessive bypass capacity is in circuit in the tone control. This in conjunction with the other features of the invention, has the effect of producing a more mellow and agreeable tone.

The speaker unit indicated generally at 20, Figs. 2 and 3, may be of a standard approved design, but modified in important respects, as illustrated in Fig. 1 which shows the cone 21, as flexibly supported by a spider having curved radiating arms 26, connected with a ring 29, attached to the cone.

The outer rim of the cone is shown attached to the back of a sounding board 30, over the sound opening 31. A damping ring 32, is shown applied to the face of the board around this opening. The frame or base portion 33, of the speaker unit is attached to the back of the board about and clear of the cone.

The sounding board, with the parts attached thereto, forms a unit which is suspended from the frame of the cabinet. This particular form of mounting is accomplished in the present disclosure by means of a bar 34, across the front portion of the cabinet below the shelf 12, and rigidly secured to the front corner posts at 35, Fig. 3. The sounding board is hung from this support at two points only by means of the connections indicated at 36, Figs. 1, 2 and 3. To brace the rearwardly extending portion of the support 34, it may be connected with the shelf 12, at two or more points as indicated at 37.

The suspended sound board is braced at the back by rearwardly extending strips 38, connected in spaced relation at the bottom by a cross bar 39. These reinforcing strips 38 are indicated as tapering upwardly to avoid formation of a box which would tend to creat a so-called "barrel effect." A cross reinforcement is shown applied to the back of the upper portion of the sound board at 40 and above this a series of laminated damping bars are shown secured at 41.

The front of the board carries walls defining outer and inner sound chambers 42 and 43, the first being in the nature of a square box and the second a thin circular wall 44, of fiber or the like, having a flange 45, at the back held beneath the damping ring 32, and annular sound filter or holding flange 46, at the front.

The top and bottom walls 47, 48, of the outer rectangular sound chamber are shown as of thinner material and less rigid than the vertical side walls 49, of this chamber and these vibrating thinner top and bottom walls are shown as connected by a sound post 50, similar in function to the sound post of a violin.

The entire acoustic system is, by the construction described, suspended in a more or less insulated floating condition, free to respond and vibrate to the various frequencies. To prevent swinging, the lower end of the sound board is

shown confined to the lower front cross bar of the frame by braces 51. For practical reasons, the sound board may be made of a sheet of laminated wood, as indicated.

The construction and combination described form an instrument responding to the entire range of sound frequencies and which by a seeming process of selection, reproduces in their natural tones and values the delicate harmonics and overtones which are more or less lost in ordinary sound reproduction systems. This selective action enables the instrument to reproduce faithfully and without blurring the sound components of different instruments as they come into effect in complex orchestration, thus enabling a listener to pick out and follow such instruments under conditions where their sounds would be lost with the ordinary methods of reproduction. The selective damping provided by this construction, avoids conflict or suppression of certain frequencies or suppression and sacrifice of certain tones to others and provides a purity and continuing sense of sound not heard in other systems. The latter effects also may largely be due to the full resonant character of the instrument. These advantageous results are found to exist with both radio and phonograph record reproduction.

What is claimed is:

A sound reproducer, comprising a sound board having a speaker opening, means for supporting said board at the top at isolated points of small area, a speaker unit on the back of said board, in line with said opening, an open sound box on the front of said board about said speaker opening, an open tone chamber box on the front of said sound board about said sound box, a tuning post extending across between opposite walls of said tone chamber box and damping means on the back of said sound board, all of said parts being carried and supported by said sound board.

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