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ACOUSTIC TONE CONDITIONER SOUND ENCLOSURE

Filed July 12, 1965

Fig. 1

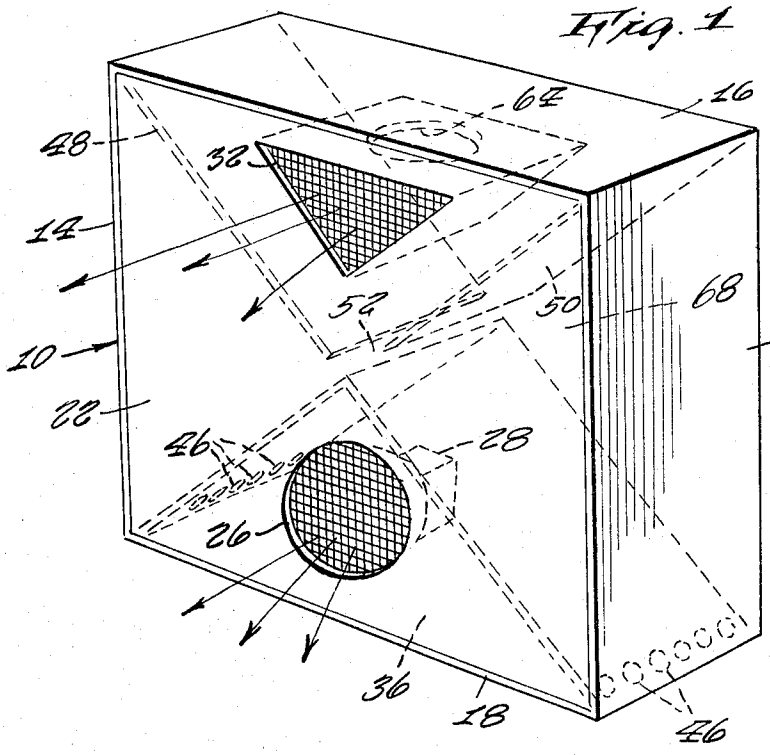


Fig. 2

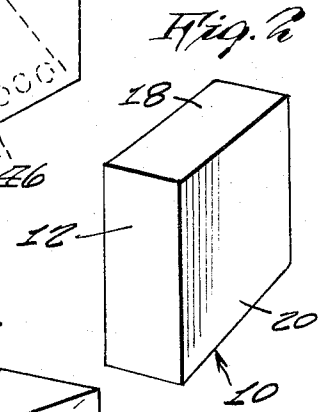
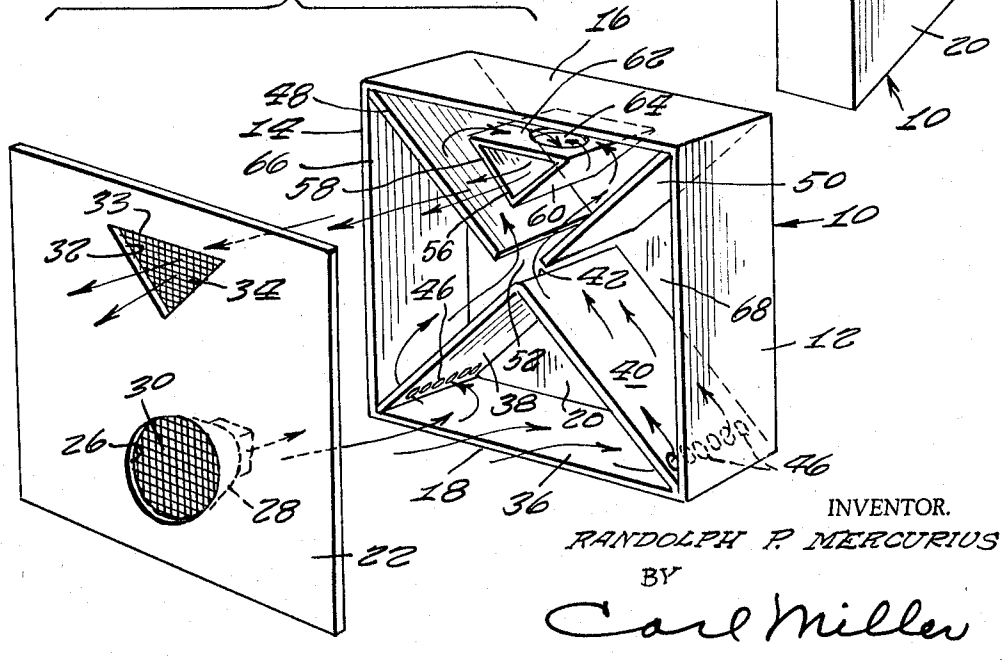


Fig. 3



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3,263,769 ACOUSTIC TONE CONDITIONER SOUND ENCLOSURE

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This invention relates to audio equipment and more particularly to a sound amplifier system.

The primary object of this invention is to provide a sound system in an acoustical "Hi-Fi" cabinet utilizing a cone type loud speaker positioned within a tone chamber from which the sound waves are passed into two balancing or equalizing chambers for discharge into opposed angularly related passages that in turn deliver the sound waves into a single conduit for final discharge outwardly of the cabinet, the sound waves emanating from the loud speaker being equalized in their passage through the cabinet.

Further objects of the invention will appear as the description proceeds.

To the accomplishment of the above and related objects, my invention may be embodied in the form illustrated in the accompanying drawings, attention being called to the fact, however, that the drawings are illustrative only, and that change may be made in the specific construction illustrated and described within the scope of the appended claims.

FIGURE 1 is a front perspective view of the "Hi-Fi" cabinet embodying the invention with interior parts shown in dotted lines.

FIGURE 2 is a rear perspective view of the cabinet.

FIGURE 3 is a front perspective view with the front panel removed to illustrate interior details of construction.

Referring more particularly to the drawings, a "Hi-Fi" cabinet **10** made in accordance with the present invention, is of rectangular formation and is defined by side walls **12, 14**; a top wall **16**; a bottom wall **18**; and a rear wall **20**, all suitably joined together to form a box-like structure open at the front. A closure panel **22** is fitted to the open front of the cabinet **10** and provides the front wall therefor, the panel **22** being detachably secured in place in any suitable manner.

The panel **22** is formed with a circular cut-out or port **26** adjacent its lower horizontal edge. Mounted on the inner side of the panel **22** in concentric relation to the port **26** is a cone type loud speaker **28**. The port **26** is covered with a grill cloth **30**. Preferably the vertical diameter of the port **26** lies in the vertical center of the panel **22**. In line with the port **26** and above the same is a triangular cut-out or port **32** having its base **33** parallel to the upper horizontal edge of the panel **22** and spaced therefrom a distance substantially equal to the distance that the lower port **26** is spaced from the lower horizontal edge of the panel **22**, for a purpose to be hereinafter described. As with the port **26**, the port **32** is covered with a grill cloth **34**.

Provided interiorly of the cabinet **10** is a triangular compartment or tone chamber **36** formed by the bottom wall **18** and partition walls **38, 40**. The partition walls **38, 40** lie in the intersecting diagonal planes of the cabinet **10** and are joined together at the apex of the triangular chamber as at **42** which is in a line coinciding with the line of intersection of the diagonal planes of the cabinet **10**, thus placing the same at the center thereof. The partition walls **38, 40** are substantially the same width as the cabinet walls and abut the inner surface of the rear wall **20** to which they are suitably secured. The lower edges of the partition walls **38, 40** are seated respectively in the lower left and right corners of the

cabinet **10** viewing FIGURE 3, and are suitably secured therein. Formed in the lower portion of each of the partition walls **38, 40** is a horizontal transverse row of openings **46**, preferably circular and of equal size.

Co-planar respectively with each of the partition walls **38, 40** are baffle walls **48, 50**, each corresponding in width to the width of the partition walls and with their upper edges seated respectively in the upper left and right corners of the cabinet **10**, viewing FIGURE 3, and suitably secured therein. The baffle walls **48, 50** abut the inside surface of the rear wall **20** and are suitably secured thereto. The baffle walls **48, 50** are each of the same length and have their lower horizontal edges equally spaced from the apex line **42**, and are also spaced from each other to provide an entrance gap **52**, see FIGURE 3.

Rigidly supported by the cabinet rear wall **20** is a hollow, triangular in cross-section, baffle **56** symmetrically positioned with respect to the baffle walls **48, 50** such that the inclined side walls **58, 60** of the baffle **56** are respectively parallel to the baffle walls **48, 50**, and the remaining base wall **62** is parallel to the cabinet top wall **16**. The baffle **56** is so positioned that when the panel **22** is in place, the outer free end of the baffle will coincide in fitted relation to the triangular port **32**. Provided centrally in the top wall **62** of the baffle **56** is an opening **64**, preferably circular in form.

With the panel **22** carrying loud speaker **28** placed in position and secured to the cabinet **10**, it will be seen that the sound waves in the tone chamber **36** pass through the openings **46** into the balancing or equalizing chambers **66, 68**. From the equalizing chambers, the sound waves flow through gap **52** into each of the passages defined by the baffle walls **48, 50** and the baffle **56** and upwardly into the passage between the baffle **56** and the cabinet wall **16**, to enter the opening **64** for passage through the hollow baffle **56** to be projected outwardly through the port **32**, all as indicated by the arrows in FIGURE 3.

While certain novel features of my invention have been shown and described and are pointed out in the annexed claims, it will be understood that various omissions, substitutions and changes in the forms and details of the device illustrated and in its operation can be made by those skilled in the art without departing from the spirit of the invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. An acoustic tone conditioner comprising:

(a) a rectangular cabinet having parallel top and bottom walls, parallel side walls and a rear wall,

(b) a removable closure panel forming the front wall of the cabinet,

(c) a pair of partition walls within the cabinet each lying in a diagonal plane thereof and defining with the bottom wall of the cabinet a closed triangular tone chamber,

(d) outlet passage means at the lower portion of each partition wall,

(e) a pair of baffle walls within the cabinet, each coplanar with a corresponding partition wall and having their lower edges spaced therefrom and from each other to provide a horizontal gap therebetween,

(f) a hollow baffle triangular in cross-section positioned centrally between said baffle walls and with each of its inclined sides parallel to an opposed baffle wall and its horizontal wall parallel to said cabinet top wall,

(g) an opening in the horizontal wall of said baffle,

(h) a circular port in said closure panel,

(i) a cone type loud speaker mounted on the inner side of said closure panel in concentric relation to said circular port, and

(j) a triangular port in said closure panel positioned to register with the outer end of said hollow baffle.

2. The acoustic tone conditioner of claim 1, wherein:

(a) the lower edges of said partition walls are each seated in a lower corner of said cabinet defined by a side wall and the bottom wall,

(b) the upper edges of said partition walls being joined on a line coinciding with the line of intersection of the diagonal planes of said rectangular cabinet,

(c) said partition walls being substantially the same width as said cabinet side and bottom walls and abutting the cabinet rear wall and secured thereto, and

(d) said loud speaker in the mounted position of said closure panel on said cabinet being located centrally within said tone chamber.

3. The acoustic tone conditioner of claim 2, wherein:

(a) said baffle walls are substantially the same width as said partition walls,

(b) the upper edges of said baffle walls each lying in an upper corner of said cabinet defined by a side wall and the top wall,

(c) said baffle walls abutting the cabinet rear wall and secured thereto,

(d) said hollow baffle being of a length equal to the width of said baffle walls and with its inner end abutting the cabinet rear wall and secured thereto,

(e) the spaced relationship of said hollow baffle to said baffle walls and cabinet top wall defining a triangular passage,

(f) said hollow baffle being centrally and symmetrically positioned between said baffle walls such that the line of juncture of the inclined sides thereof lies in a vertical transverse plane passing through the vertical diameter of said circular port, and

(g) each said baffle wall defining with its opposed partition wall and adjacent cabinet side wall an equalizing chamber.

4. The acoustic tone conditioner of claim 3, including:

(a) a grill cloth covering for said circular and triangular ports, and

(b) said outlet passage means at the lower portion of each partition wall comprising a transverse row of openings closely adjacent to said cabinet bottom wall,

whereby the sound waves within the tone chamber will pass through said partition wall openings into said equalizing chambers, then through said gap into each side of said triangular passageway to enter the opening in said hollow baffle for passage therethrough to be projected outwardly through said triangular port.

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