Feb. 22, 1938. W. O. BROWN 2,108,846

RADIO CABINET

Original Filed Aug. 29, 1934 2 Sheets-Sheet 1

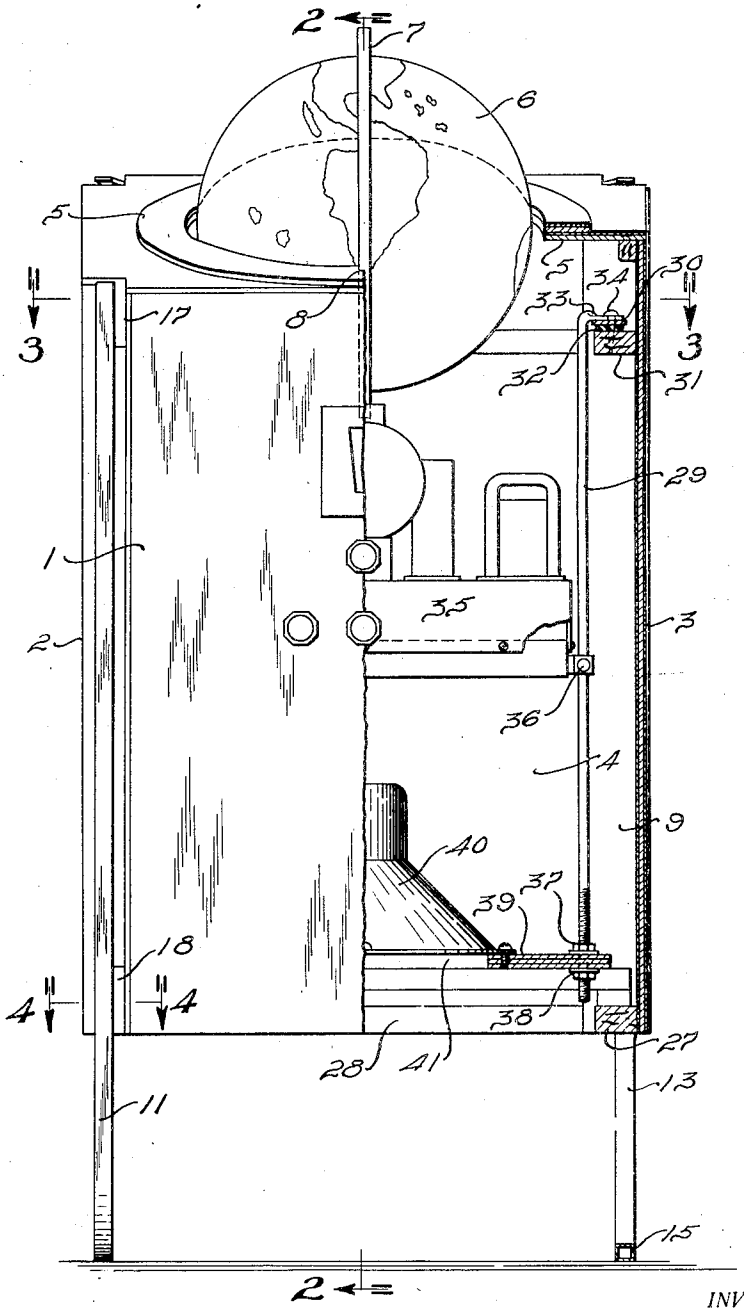


Fig. 1.

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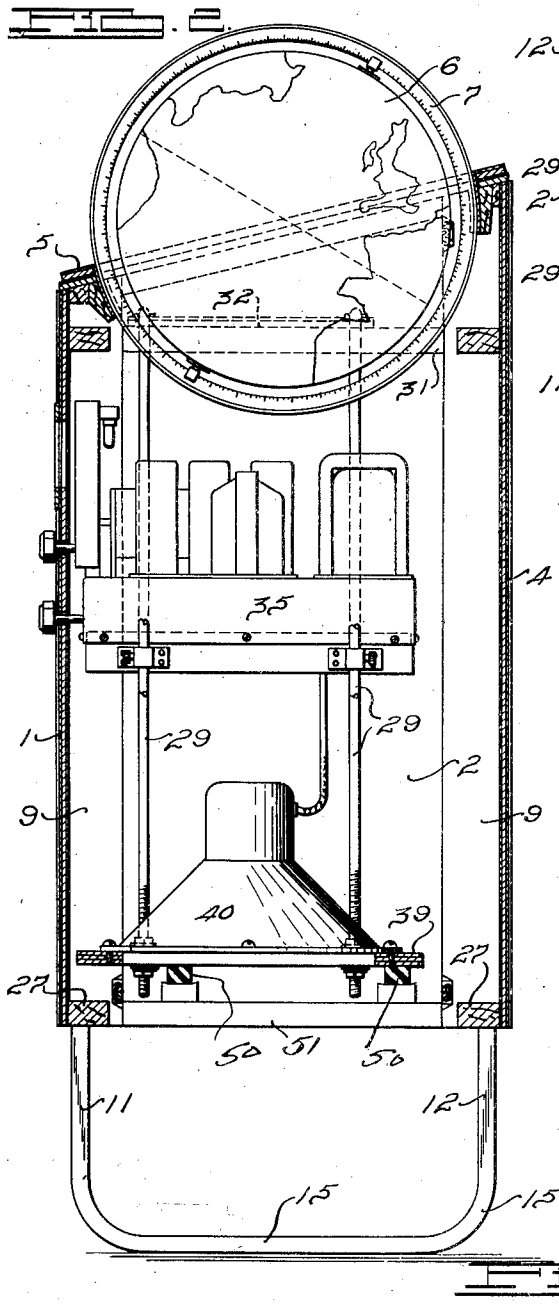


FIG. 2.

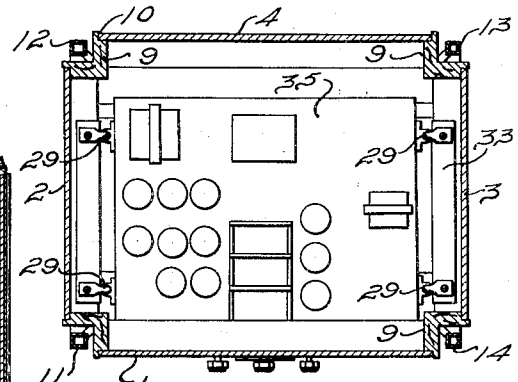


FIG. 3.

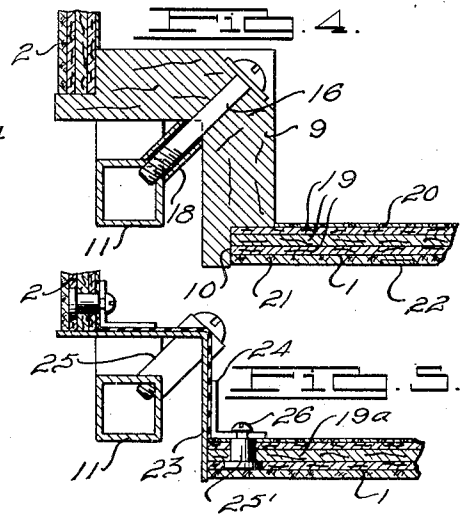


FIG. 4.

FIG. 5.

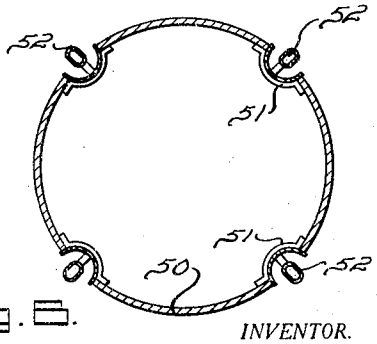


FIG. 6.

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2,108,846

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2,108,846

RADIO CABINET

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Application August 29, 1934, Serial No. 741,948
Renewed April 30, 1937

8 Claims. (Cl. 250—14)

This invention relates to radio cabinets, and an object of the invention is to provide a cabinet so constructed as to be non-resonant in character and so supported in a framework that the vibrations of the walls of the cabinet are not transmitted to the frame to any material degree.

A further object and feature of the invention is to provide a radio cabinet of non-resonant character within which the radio speaker is supported in a manner to prevent the vibrations of the speaker or instrument to be transmitted to any material degree to the cabinet.

It is further an object and feature of the invention to provide a radio cabinet having an open bottom and practically imperforate side and top walls within which a radio instrument is supported and a speaker from which the emanating sounds are directed through the open bottom, legs being provided to position said open bottom above the floor or other supporting surface.

A further object of the invention is involved in the construction of the walls of the cabinet, the same being formed of a desired base to at least one surface of which a sheet of cork, preferably granular cork, is intimately secured preferably on both the interior and exterior faces of the walls which, to a considerable degree, absorb rather than reflect the sound waves and when used on the exterior such use has a desirable decorative effect.

The usual radio cabinets of the present known construction are formed of wood or sheet metal panels and the wood and the metal both being more or less resonant, the finished cabinet walls are readily vibratable and thus to some degree distort the emanating sound waves thereby undesirably affecting the timber and oftentimes the pitch of a note. By the construction hereinafter described and also by reason of directing the emanating sound waves downward against the surface supporting the cabinet, the sound waves emanating from the speaker are clear and of proper timber and pitch being unaffected to any material degree by resonance and vibration of the walls of the cabinet.

These and other features and objects of the invention are hereinafter more fully described and claimed, and the preferred form of construction of a radio cabinet embodying my invention is shown in the accompanying drawings in which—

Fig. 1 is an elevation partly in section of a form of a radio cabinet embodying my invention and showing the preferred means of supporting the radio instrument and speaker.

Fig. 2 is a vertical section taken on line 2—2 of Fig. 1.

Fig. 3 is a horizontal section taken on line 3—3 of Fig. 1.

Fig. 4 is a section of a corner construction taken on line 4—4 of Fig. 1.

Fig. 5 is a similar section of a corner of the cabinet showing an alternative form of construction.

Fig. 6 is a cross sectional view of a cabinet of round form.

The cabinet shown in Fig. 1 and, as will be understood from Fig. 3, is rectangular in form. This cabinet consists of a front wall 1, the side walls 2 and 3, the back wall 4 and a top wall 5 which, as will be understood from Fig. 2, is inclined to the horizontal and in the construction here shown is apertured to receive a globe 6, the globe being supported within a ring 7 and the aperture in the cabinet wall having a notch as at 8 on opposite sides to receive the ring and support the globe in position. The invention is not confined to such a top wall and globe, the essential characteristic being that the top wall as well as the side wall should not provide any particular opening through which sound waves may emanate and for this purpose the globe fits quite closely in the aperture in which it is supported. In this rectangular form of the cabinet the walls are united at the corners by an L shaped wood member 9 which is rabbeted at the edge as indicated at 10 to receive the side panels 1, 2, 3 and 4. In the angular recess of the corner members 9, which face the exterior of the cabinet, are the supporting legs 11 and 12 on one side and 13 and 14 on the opposite side and these pairs of legs 11—12 and 13—14 are each respectively united by an integral cross member 15 which connects with the vertical portions 11—12 by curved portions 15' thus providing what may be termed runners on opposite sides as will be understood from Fig. 1 permitting the cabinet to be readily moved from place to place on the floor or other surface.

The legs may be of wood or metal, preferably of tubular form, each of which, as shown in cross section in Fig. 4, is united to the respective corner member 9 by a bolt 16. These bolts extend outwardly through the member 9 at the center to threaded engagement with the leg member, a tube 17 being provided extending between the leg 11 and the wood member 9 as shown in Fig. 3 providing a means for spacing the leg from the wood member and the bolt providing a support therefor. Each of these leg portions 11—12 and 13—14 have such a supporting element indicated

generally at the upper end of the cabinet and another similar element at 18 at the lower end of the cabinet and thus hold the leg from contact with the cabinet throughout the major portion of its length. This means of suspending the cabinet from the leg as specifically indicated in Fig. 4, may be varied in construction, Fig. 4 being only one form in which the supporting element may be constructed. In any case the result to be attained is the suspension of the cabinet at spaced points on each of the legs and to so securely support the same as to prevent looseness of the parts.

The walls of the cabinet as here shown are preferably formed of several plies of wood indicated at 19 in Fig. 4 and fit in the rabbet 10 of the leg members. The inner face 20 of each of the side walls 1, 2, 3 and 4 and top wall 5 is preferably covered by a sheet formed of granulated cork to provide a surface tending to absorb sound waves rather than to reflect the same and the outer face of each of the said walls is also covered preferably with a thicker sheet of cork indicated at 21.

The purpose of the outer sheet of cork is to reduce vibration and to prevent resonance of the wood members 19 which may be of one or more sheets of the desired material. The use of cork on the exterior surface wall has, due to its natural color, a very decorative and desirable effect and by using a comparatively thick sheet of cork on the exterior surface it may be decorated by inlaid elements of various forms one of which is indicated in section at 22 in Fig. 4.

The corner member is not necessarily a wood member as indicated in Fig. 4 but may be a metal member 23 which is of angular form as shown in Fig. 5. The same general means of fastening the leg 11 thereto is the same as is shown in Fig. 4 but in this case a wooden member 25 may be provided as a spacer in place of the tubular element 17 in Fig. 4. In the construction shown in Fig. 5, the plywood member 19a is secured to a bracket 24 there being a nut 25' of the desired form passing through the wall member 19a into which a screw 26 is passed through the bracket 24. The side walls at the bottom are connected to a wood frame 27. Thus by this frame at the bottom and by the top end wall 5 these side walls are securely supported internally at the top and bottom. Thus this cabinet, which has an open bottom at 28 is supported above the floor line or supporting surface, is united to each of the legs, as previously stated, at two points and thus is so suspended as to permit the walls to vibrate through influence of emanating waves of the speaker and are deadened to reduce vibration and reflection of sound waves as previously stated by means of the granular cork covering particularly the interior surfaces.

By directing the sound waves through the open bottom against a surface on which the cabinet stands, the said sound waves are not sent into a room above the floor line in any particular direction but, contrarily, are passed into the room in all directions equally providing a much desired result through loss of the localized effect of the instrument in such cabinets where the speaker directs the waves outwardly and in a single direction from one of the side walls.

It is further desirable to prevent the mechanical vibrations of the speaker from being transmitted to the cabinet and thereby further reduce the liability of vibration of the walls by the speaker. One manner of accomplishing this result and also locating the speaker relative to the open bottom is shown more particularly in Figs. 1 and 2 in which rods 29 are provided, there being four such rods as shown in Fig. 3, the upper ends of which are bent at an angle and flattened at 30 to overlie a wood ring 31. Between this bent end 30 and the wood ring is a non-resilient supporting element 32 such as sponge rubber or other cushioning device and preferably a strip 33 extends from one rod 29 to the other as indicated in Figs. 1 and 3 and the sponge rubber element 32 is placed between the member 33 and the ring member 31. Screws 34 pass through the bent end 30 of the rod 29, the member 33 and into the wood ring 31 to prevent displacement of the parts it being preferable that the screws are so tightened as to insure contact of the rubber element with the member 33 and 31; in other words to avoid looseness of the parts.

The rods 29 extend vertically downward within the cabinet and intermediate their lengths the radio receiver 35 is secured by the brackets and nut 36 and the apertured frame 39 for the loud speaker 40 is secured by the nuts 37 and 38 in position to direct sound waves downwardly through the aperture of the frame 39 and through the open bottom end of the cabinet. Preferably the frame 39 is supported by several blocks of sponge rubber or other suitable cushioning element indicated at 50 in Fig. 2. These cushioning elements 50 rest directly upon cross bars 51 in the construction shown in Fig. 2. Other structural means for supporting the cushioning elements may be employed. In any event, whether cushioning elements are utilized or not, the speaker is adjustable longitudinally of the rods toward or from a sound reflecting surface. While the frame can be unsupported at the lower end, it is preferably to prevent vibration of the rods 29 that the cushioning device be used. By such described construction or the equivalent, the radio instrument 35 and speaker 40 are suspended within the cabinet and cushioned in respect to the cabinet walls in a manner to practically prevent vibrations particularly of the speaker element being transmitted mechanically to the cabinet walls. As the cabinet walls are deadened in respect to vibrations and resonance, the sound waves emanating from the instrument are practically uninfluenced or distorted by air waves set up by vibration of the cabinet to a degree not previously attained.

The above description has referred principally to a rectangular form of the cabinet but this cabinet may be of any desired form in cross section as round for instance as is suggested in Fig. 6, it being understood that the wall 50 is coated interiorly and preferably exteriorly with cork or like material tending to reduce the mechanical vibration of the wall structure and to prevent resonance. In the round structure the wall is recessed as at 51 to receive leg portions 52 which, as in the form shown in Fig. 1, are connected at two points only with the cabinet wall.

By recessing the wall in the form shown in either Fig. 3 or Fig. 6, the leg members are practically within the outline of the body form of the cabinet and thus do not detract from the appearance of the body shape and as these legs do not project to any material degree, the space occupied by the cabinet is not materially greater than the cross sectional area of the body. Other forms of the cabinet may be used in the embodiment of the invention herein disclosed and various changes may be made in the structure without

departing from the spirit and scope of the invention as set forth in the appended claims.

Having thus briefly described my invention, what I claim and desire to secure by Letters Patent of the United States is—

1. A radio cabinet comprising walls forming a hollow body having an opening at its lower end, said walls being formed of practically non-resonant material, a radio set including a loud speaker, means for supporting the same within the hollow body, comprising a non-resonant frame member secured to the walls of the hollow body, a series of vertically extending rods, the upper ends of which are bent to extend over the non-resonant frame member and the lower ends of which are unattached to the hollow body, a non-resonant element between the said ends of the rod and the said frame attached to the hollow body, said receiving set having portions adapted to receive the rods and on which the set is vertically adjustable, a loud speaker at the free lower ends of the rods, means for adjusting the speaker vertically on the rods, and a flexible connection between the speaker and the receiving set to permit relative adjustment of the set and speaker.

2. A radio cabinet comprising walls forming a hollow body open at the lower end and practically closed at the upper end, said open end providing practically the only point of egress of sound waves, said walls comprising plies of material and the ply on at least the outer face of the wall being a sheet of material of decorative appearance and having the characteristic of deadening the vibration of the walls, a supporting frame including vertical portions extending upwardly along and spaced relative to the walls of the cabinet, and a non-resilient means between said vertical portions of the frame and the cabinet to thereby in effect suspend the same therebetween.

3. A radio cabinet comprising walls forming a hollow body having an opening at its lower end providing practically the only point of egress of sound waves, said walls being constructed of plies of material including an outer sheet of material of decorative appearance tending to dampen vibrations due to sound waves, a radio receiving set within the hollow body including a loud speaker positioned to direct sound waves through the said lower open end against a sound reflecting surface, a supporting means for the loud speaker, and a cushion like member between the supporting means and the said speaker for preventing transmission of vibrations of the speaker to the supporting means, and a supporting frame secured in spaced relation to the said walls.

4. A radio cabinet comprising walls forming a hollow body having an opening at its lower end providing practically the sole point of emanation of sound waves, a supporting framework for the said body including vertical portions extending upwardly along and spaced relative to the said walls, non-vibratory means for attaching each of the said vertical portions to the hollow body at a point adjacent the bottom thereof supporting the body therebetween, a radio set including a loud speaker within the body, a framework for supporting the said radio receiving set and speaker within the hollow body, and a cushioning means between the said framework and the body for preventing vibrations of the speaker from being transmitted to the body.

5. A radio cabinet comprising walls forming a hollow body having an opening at its lower end, a supporting frame for the said cabinet including vertical leg portions extending to adjacent the top of the body at one end and to below the bottom of the body at the other end in a relation parallel to and out of contact with the walls of the body, means for supporting the body between the legs, said means comprising an element at the top and at the bottom of the cabinet between each leg and the cabinet whereby the said cabinet is in effect suspended between the legs, and a radio receiving set including a loud speaker positioned to direct sound waves vertically downward through the opening, said legs supporting the body with the open end above a surface.

6. A radio cabinet comprising vertical walls forming a hollow body having an opening at its lower end, a supporting means therefor including vertical elements extending parallel with the walls from the top thereof to below the bottom, the said walls having vertical recesses to respectively receive the said vertical elements, non-resilient means for attaching each vertical element to the body adjacent the top and adjacent the bottom and supporting said body in spaced relation to the vertical elements, a radio receiving set including a loud speaker positioned in the body to direct sound waves vertically downward through the opening in the lower end, and means for supporting the loud speaker and radio receiving set as a unit within the body, said means including non-resonant elements preventing transmission of vibrations of the speaker to the body.

7. A radio cabinet comprising non-resonant walls forming a hollow body having an opening at its lower end for emission of sound waves, a radio set and a loud speaker, a framework supporting the said speaker and the radio set as a unit within the hollow body, and a cushioning means between the framework and the body for preventing mechanical vibrations of the frame by the speaker from transmission to the said walls, said speaker being mounted in the framework to permit adjustment toward or from the opening in the lower end of the body through which the sound waves are directed.

8. A radio cabinet comprising walls forming a body, a radio receiving set positioned in the body and including a loud speaker through vibration of which the walls tend to vibrate, means for supporting the cabinet above a surface comprising legs including portions extending upwardly in spaced relation with the walls of the cabinet, and means connecting the body and the said upwardly extending portions comprising elements each extending from the cabinet to the respective leg portions and suspending the cabinet therebetween, said elements being of a character to prevent material transmission of the vibrations of the speaker and walls of the cabinet to the said leg portions.

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