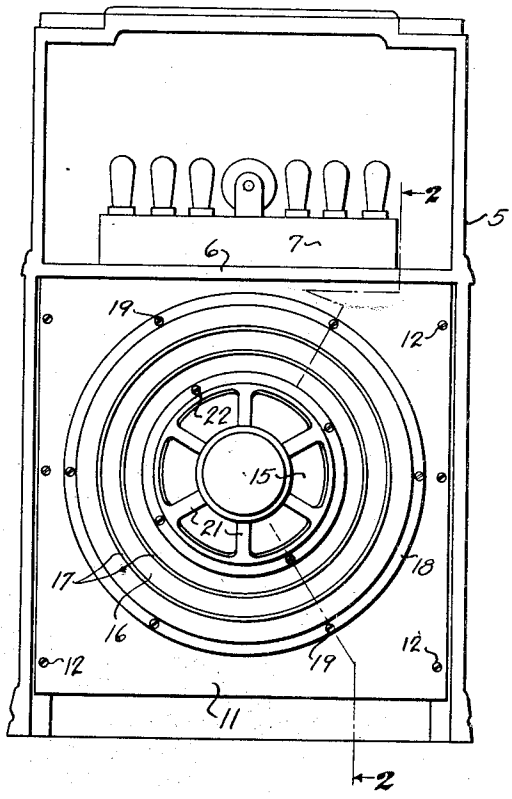
April 12, 1938. V. C. MACNABB 2,113,623

SOUND REPRODUCING APPARATUS

Filed Dec. 11, 1936

Fig. 1.



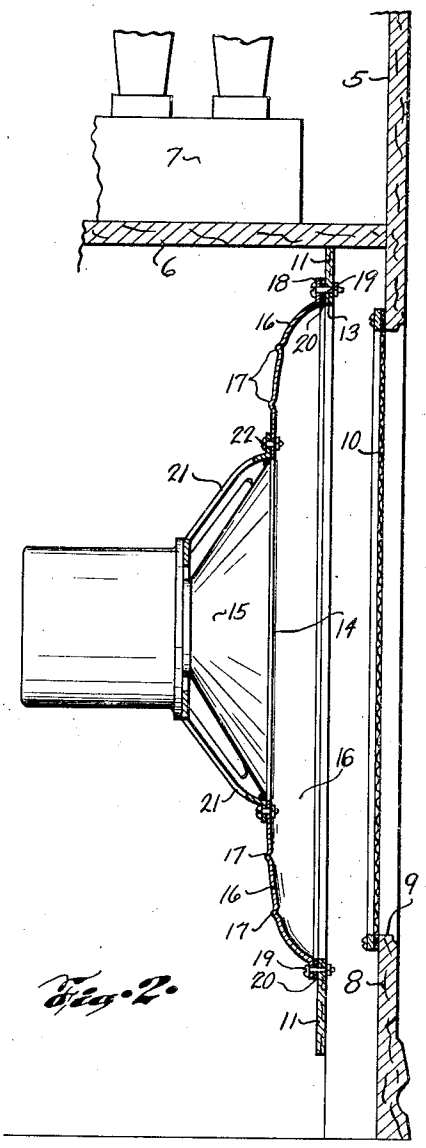


Fig. 2.

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SOUND REPRODUCING APPARATUS

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Application December 11, 1936, Serial No. 115,329

1 Claim. (Cl. 181—31)

This invention relates to sound reproducing apparatus, and more particularly to means for improving the acoustical effects of so-called loud speakers in radio-receiving and other types of telephonic equipment.

An object of this invention, generally, is to improve the sound distribution and tone accuracy, and to increase the volume capacity of loud speakers.

Another object of the invention is to provide an acoustical device for use in combination with a loud speaker to remove the unnatural "boom" which normally attends the reproduction of the bass, or low frequency notes in radio voices and music, to the end of enhancing tone fidelity.

The means hereinafter described provides for a more efficient loading of the speaker diaphragm at the lower frequencies, which improves the quality of the bass notes and results in high and low frequency tones of uniform high quality. By virtue of the more efficient loading of the diaphragm the amplitude of vibration of the diaphragm at its resonant frequency is reduced, and a more uniform base response is attained.

These advantages are realized by the structural provisions and mounting arrangement described in following description and accompanying drawing, in which:

Fig. 1 is a rear elevational view of a radio-receiving unit of conventional type, embodying the acoustical means of the present invention, and Fig. 2 is a sectional elevation of the same taken at the line 2—2 of Fig. 1.

Referring now by characters of reference to the drawing wherein the acoustical means of the present invention are shown, by way of example, in connection with the speaker of a radio-receiving set, 5 designates generally a radio cabinet, partitioned in conventional manner by a horizontal shelf 6 which supports the radio chassis 7. The front panel 8 of the cabinet is provided with an opening or sound passage 9, which opening may be covered with a reticulate screen 10, of fabric or other suitable material. Extending substantially the full width of the cabinet near the front panel 8, is a so-called baffle board 11, secured at its side margins to the cabinet by screws 12. The baffle board 11, is essentially a relatively thin panel of wood, or other suitable material, having a circular opening 13 which is considerably larger than the mouth 14 of the speaker diaphragm 15, and serves to support the acoustical member 16 and the speaker assembly, as will be hereinafter described.

The acoustical member 16 is essentially a concavo-convex annular shell formed of resonant material, a member of the shape described fabricated from 22 gauge sheet steel having been tried and found desirable for the intended purpose. To prevent excessive vibration tending to occur especially when the member 16 is subjected to impulses at its resonance frequency, the member is provided with concentric ribs or beads 17. The opening at the larger end of the dished annulus 16 corresponds in size and registers with the circular opening 13 in the baffle-board, and an integral circumferential flange 18 at such end of the member is secured by screws 19 to the baffle-board. A felt or other suitable gasket strip 20 preferably intervenes the flange 18 and baffle-board. The inner end of member 16 is dimensioned to fit the annular spider or frame 21 surrounding the speaker diaphragm and customarily forming a part of the speaker assembly, and the frame 21 and member 16 are secured together by screws 22. Pursuant to conventional construction, the outer circumferential margin of the speaker diaphragm, which is shown to be of conic type, is cemented or otherwise secured to the forward end of the frame 21, and accordingly the acoustical member 16 juxtaposes the forward end of the conic diaphragm.

As distinguished from the conventional and heretofore prevailing mounting arrangement, wherein the speaker frame or housing is secured directly to a baffle-board having an opening of approximately the same size or only slightly larger than the forward end of the diaphragm, in carrying out the teachings of the present invention the forward end of the speaker cone is spaced rearwardly from the plane of the baffle-board. The baffle-board is provided with an opening or tone passage, which is considerably larger than the speaker diaphragm, and a bowl-shaped annulus extends between the speaker cone and baffle-board.

It is to be understood, of course, that the present description exemplifies a presently preferred embodiment of the invention, and that alterations and modifications may be made therein without departing from the spirit and full intendment of the invention as defined by the following claim.

I claim:

In a radio cabinet having vertical front and side walls, a relatively thin wood panel extending in parallel spaced relation to the front wall, between opposite side walls of the cabinet, said panel having a circular opening therein, a concavo-con-

vex annular metal shell mounted on said panel with its larger end opening in registration with said panel opening, said shell being formed with a plurality of concentric ribs, and a circumferential flange at its larger end opening, an annular felt gasket interjacent said flange and panel; a speaker assembly, including a conical diaphragm and an annular frame surrounding the diaphragm, means securing the speaker frame to the inner circumferential margin of said shell, said speaker diaphragm and shell being juxtaposed in axial relation.

VERNON C. MACNABB.