Jan. 28, 1958 E. E. SHAFFER 2,821,260

BUILT-IN SOUND SYSTEM FOR HOME

Filed June 28, 1956 2 Sheets-Sheet 1

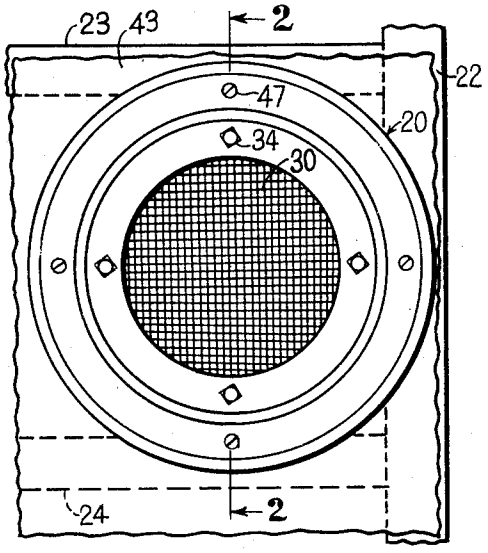


Fig. 1

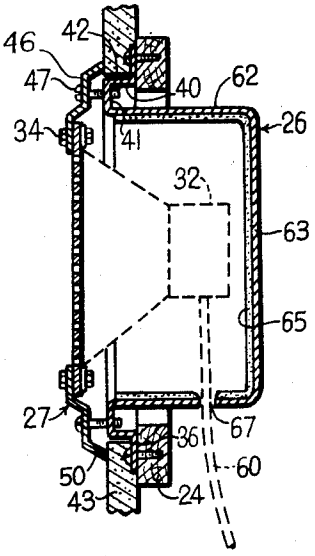


Fig. 2

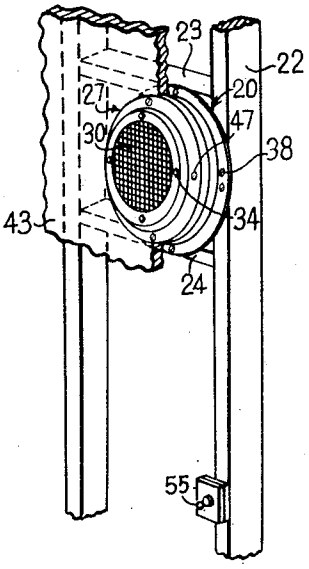


Fig. 3

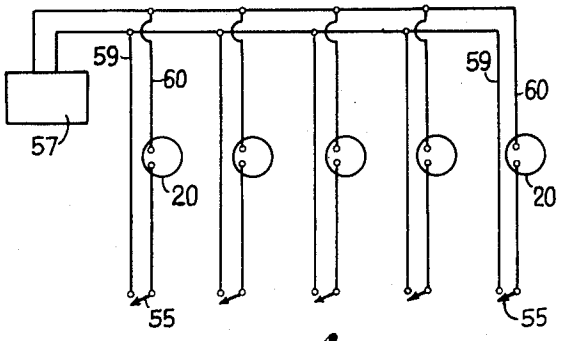


Fig. 4

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BUILT-IN SOUND SYSTEM FOR HOME

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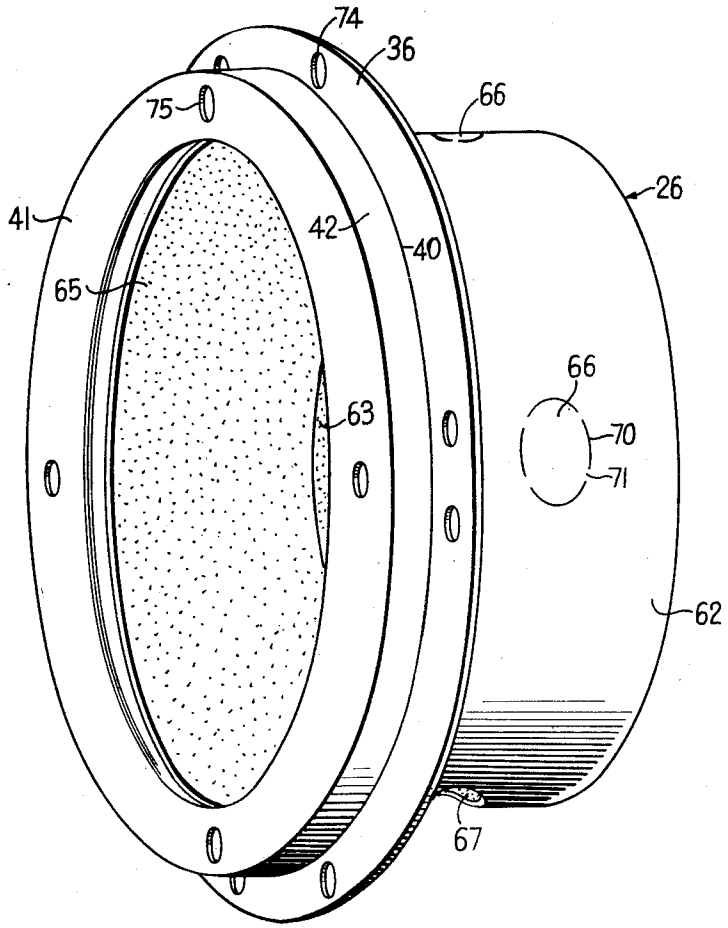


Fig. 5

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BUILT-IN SOUND SYSTEM FOR HOME

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Application June 28, 1956, Serial No. 594,513

22 Claims. (Cl. 181—31)

The present invention relates to built-in sound systems for homes and particularly to a novel apparatus for mounting remote speakers in wall structures.

The present apparatus constitutes an improvement in the wall mounting apparatus for speakers disclosed in my co-pending application Serial Number 489,723 filed February 21, 1955, now Patent No. 2,753,009, issued July 3, 1956.

When a speaker for a built-in sound system for a home is mounted within the wall structure during construction of the wall, such speaker, being of delicate construction, is in danger of being damaged by falling objects or careless workers. According to the present invention a novel wall mounting means is provided which includes a protective guard or housing for protecting the speaker when in a mounted position within the wall. Such guard is preferably formed integrally with the base or plaster ring that is secured to the frame members of the wall. The guard is also preferably provided with a sound absorbing inner surface to achieve efficient sound reproduction from the speaker notwithstanding the fact that the guard per se may be formed of structurally advantageous material, such as sheet metal, which possesses poor acoustical characteristics without the provision of an acoustically advantageous inner surface.

It is an object of the present invention to provide a novel improved wall mounting means for a speaker which can be readily mounted to conventional wall structure, which provides a sturdy and accessible means for retaining the speaker in position and which protects the speaker from damage.

It is another object of the present invention to provide a novel improved mounting means for securing speakers to wall structures which mounting means, although of simple and inexpensive construction, provides an attraction junction between the speaker and the finish of the wall structure and which also serves to protect the speaker from damage.

It is another object of the present invention to provide a wall speaker mounting apparatus that comprises a novel guard for protecting the speaker within the wall, which guard is integrally formed with a base portion that also serves as a plaster ring or end termination for other types of finish that may be applied to the wall.

It is another object of the present invention to provide a wall speaker mounting apparatus that includes a novel speaker guard means formed of structurally advantageous material provided with acoustically desirable properties by the application of an interior cover or coating.

It is still another object of the present invention to provide a wall speaker mounting apparatus that includes a novel guard means adapted for the convenient connection of the speaker to a power supply by the admission of a power line through the guard means from any one of a plurality of directions.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings wherein

a preferred form of embodiment of the invention is clearly shown.

In the drawings:

Figure 1 is a front elevational view of a novel speaker mounting means constructed according to the present invention;

Figure 2 is a side sectional view of the apparatus of Figure 1 with the section being taken substantially along the line 2—2 of Figure 1;

Figure 3 is a perspective view of the speaker mounting means of the present invention and showing such mounting means secured to a conventional wall structure;

Figure 4 is a schematic view of a built-in sound system of the type in which the speaker mounting means of the present invention can be utilized; and

Figure 5 is a perspective view showing a novel base member forming a plaster ring and guard means, said base member being constructed according to the present invention and comprising a portion of the speaker mounting means of the preceding figures.

Referring next to the drawings and particularly to Figure 1, a speaker mounting constructed according to the present invention is indicated generally at **20** with such mounting means being supported by a vertical wall member **22** and horizontal wall members **23** and **24**. The mounting means includes a base member indicated generally at **26** and a cover member indicated generally at **27**. Cover member **27** includes a grilled central portion **30** and is adapted to support a speaker **32** by means of a plurality of threaded fastenings **34** which extend through the cover member **27** and the mounting flange provided on the speaker.

Referring particularly to the base member **26**, illustrated in Figures 2 and 5, such member includes a flange **36** adapted to overlie the frame members of the wall. A plurality of screws **38** serve to secure the base member **26** to such frame members. Base member **26** further includes an outwardly extending portion **40** which adjoins a flange **41** that extends substantially parallel to the inner flange **36**. The outwardly extending portion **40** includes an outer surface **42** adapted to confront the edge of the finish **43** of the wall.

As best seen in Figure 5 base member **26** further includes a radially inwardly extending flange **41**, an annular wall **62**, and a rear wall **63**. All of said portions can be integrally formed with previously mentioned portions **36** and **40** from a single piece of sheet metal by forming such metal in a suitable die or series of dies. Base member **26** further includes a plurality of knock-out plugs **66**, preferably spaced peripherally around annular wall **62** at ninety degree intervals. One of the plugs has been removed in Figures 2 and 5 to form a hole **67** through which is received a power supply line **60** for connecting speaker **32** with a source of electric current. Knock-out plugs **66** may be formed by perforating annular wall **62** with arcuate slots **70** separated by uncut connecting portions **71**, the latter being readily ruptured when a plug **66** is punched out to form a hole **67**.

As seen in Figure 5, the outer flange **36** is provided with holes **74** for receiving the screws **38** that secure base means **26** to frame members **22**, **23**, and **24**. The surface **41** includes holes **75** for receiving threaded fastenings **47** which fastenings may be utilized as a means for securing cover member **27** to base member **26**.

As is illustrated in the sectional view of Figure 2, the inner surfaces of annular wall **62** and rear wall **63** may be provided with acoustically desirable surfaces which may be formed by a coating **65** applied to the inner surface of sheet metal from which the walls are formed. In practice, where base means **26** is fabricated of sheet metal, for structural reasons, it has been found that the resulting sheet metal housing can be made acoustically

desirable by spraying the inner surfaces of annular wall **62** and rear wall **63** with a self-hardening liquid coating comprising asbestos and tar. Such coating is represented at **65** in Figure 2. It will be understood that the inner surface of walls **62** and **63** can be made acoustically desirable in other ways without departing from the spirit of the present invention. For example, the walls **62** and **63** can be formed of or lined with a suitable sound absorbing material.

Referring again to the cover member **27**, such member includes a central portion **46** provided with a plurality of holes through which are extended the threaded fastenings **47** which extend inwardly and engage the flange **41** of the base member **26**. Hence it is seen that the cover member **27** and the speaker **32** supported thereby, can be readily and removably secured to the base member **26**.

The cover member **27** further includes an inwardly extending flange **50** adapted to engage the outer surface of the finish **43** at a location radially outwardly from the junction of the surface **42** with the edge of the finish **43**.

As seen in Figure 3, speaker mounting means **20** is located on the wall structure by securing the base member to the vertical structural member **22** and the two horizontal structural members **23** and **24** whereby the speaker **32** extends rearwardly within the guard means formed by annular wall **62** and rear wall **63**. Only the cover portion **27** and the centrally disposed grilled portion **30** are exposed to the interior of the room. As seen in Figure 3, a switch **55** is provided with such switch being secured to one of vertical structural members of the wall at a convenient height.

Reference is next made to Figure 4 which schematically shows a plurality of the speaker mounting means **20** connected with a central sound source **57** such as radio or phonograph apparatus. Each of the speaker mounting means **20** supports a speaker **32** and can be located in a separate room, or at separate locations in a building, with each of such units being provided with an individual switch **55** and wires **59** and **60**, which connect the unit with a sound source remote from the unit and conveniently located in the building.

In operation, installation of the speaker mounting means **20** is made by first fastening the base member **26** to the rough structural members of the wall. The finish **43** is then secured to the structural members with such finish extending to the outer surface **42** on the base member **26**. The cover member **27**, with the speaker **32**, can then be secured to the base member **26** without the necessity of drilling or in any way altering the finish, since the threaded fastenings **47** need merely be screwed into exposed preformed holes provided in the base member **26**.

In summary, it is seen that the present invention provides novel speaker mounting means, of simple and inexpensive construction, which is not only readily attachable to conventional wall structures, but which supports a speaker in a protected yet accessible manner.

While the form of embodiment of the present invention as herein disclosed constitutes a preferred form, it is to be understood that other forms might be adopted, all coming within the scope of the claims which follow:

I claim:

1. In a built-in sound system for homes, a novel apparatus for mounting remote speakers in walls, comprising, in combination a base member including a surface adapted to engage the framing members of the wall; fastening means for securing said base member to the framing members; a cover member overlying said base member, said cover member including an edge portion adapted to engage the finish of the wall beyond the edge of said finish, one of said members including a mount portion for mounting a speaker in said apparatus; guard means carried by certain of said members for protecting a speaker supported by said apparatus; and fastening means for securing said cover member to said base member.

2. Apparatus defined in claim 1 characterized by said guard means including a coating forming a sound absorbing inner surface.

3. In a built-in sound system for homes, a novel apparatus for mounting remote speakers in walls, comprising, in combination, a base member including an open central portion and a surface adapted to engage the framing members of the wall; fastening means for securing said base member to the framing members; a cover member having a centrally disposed grill means and overlying said base member, said cover member including a shoulder portion adapted to engage the finish of the wall beyond the edge of said finish; mounting means on one of said members for securing a speaker thereto; speaker guard means carried by certain of said members; and fastening means for securing said cover member to said base member.

4. Apparatus defined in claim 3 characterized by said guard means including a sound absorbing inner surface.

5. Apparatus defined in claim 3 characterized by said guard means being integrally formed with said base member.

6. In a built-in sound system for homes, a novel apparatus for mounting remote speakers in walls, comprising, in combination, a base member including an open central portion and a surface adapted to engage the framing members of the wall; fastening means for securing said base member to the framing members; a cover member having a centrally disposed grill means and overlying said base member, said cover member including a shoulder portion adapted to engage the finish of the wall beyond the edge of said finish; mounting means on one of said members for securing a speaker thereto whereby said speaker extends through said open central portion and confronts said grill means; speaker guard means carried by certain of said members; and fastening means for securing said cover member to said base member.

7. Apparatus defined in claim 6 characterized by said guard means including a sound absorbing inner surface.

8. Apparatus defined in claim 6 characterized by said guard means being integrally formed with said base member.

9. In a built-in sound system for homes, a novel apparatus for mounting remote speakers in walls, comprising, in combination, a base member including an open central portion and a surface adapted to engage the framing members of the wall; fastening means for securing said base member to the framing members; a cover member having a centrally disposed grill means and overlying said base member, said cover member including a shoulder portion adapted to engage the finish of the wall beyond the edge of said finish; mounting means on said cover member for securing a speaker thereto; speaker guard means carried by certain of said members; and fastening means for securing said cover member to said base member.

10. Apparatus defined in claim 9 characterized by said guard means including a sound absorbing inner surface.

11. Apparatus defined in claim 9 characterized by said guard means being integrally formed with said base member.

12. In a built-in sound system for homes, a novel apparatus for mounting remote speakers in walls, comprising, in combination, a base member including a surface adapted to engage the framing members of the wall; fastening means for securing said base member to the framing members; a cover member overlying said base member, said cover member including a shoulder portion adapted to engage the finish of the wall beyond the edge of said finish; a pair of overlying flange means, one on each of said members, disposed inwardly of the edge of said finish; speaker guard means carried by

certain of said members; and means for securing said overlying flange means together subsequent to the mounting of said base member to the frame members and the application of the wall finish thereto.

13. Apparatus defined in claim 12 characterized by said guard means including a sound absorbing inner surface.

14. Apparatus defined in claim 12 characterized by said guard means being integrally formed with said base member.

15. In a built-in sound system for homes, a novel apparatus for mounting remote speakers in walls, comprising, in combination, a combined base and speaker guard member including a first surface adapted to engage the framing members of the wall, a second surface extended outwardly to confront the edge of the finish of the wall, and a third surface extended inwardly to overlie a speaker mounted to the apparatus; fastening means for securing said base member to the framing members; a cover member overlying said base member, said cover member including an edge portion adapted to engage the finish of the wall beyond the edge of said finish, one of said members including a mount portion for mounting a speaker in said apparatus; and fastening means for securing said cover member to said base member.

16. Apparatus defined in claim 15 characterized by said third surface of said combined base and speaker member being covered with a sound absorbing material.

17. In a built-in sound system for homes, a novel apparatus for mounting remote speakers in walls, comprising, in combination, a combined base and speaker guard member including an open central portion, a first surface adapted to engage the framing members of the wall, a second surface extended outwardly to confront the edge of the finish of the wall, and a third surface extended inwardly to overlie a speaker mounted to the apparatus; fastening means for securing said base member to the framing members; a cover member having a centrally disposed grill means and overlying said base member, said cover member including a shoulder portion adapted to engage the finish of the wall beyond the junction of said second surface and the edge of said finish; mounting means on one of said members for securing a speaker thereto whereby said speaker extends through said open central portion and confronts said grill

means; and fastening means for securing said cover member to said base member.

18. Apparatus defined in claim 17 characterized by said third surface of said combined base and speaker member being covered with a sound absorbing material.

19. In a built-in sound system for homes, a novel apparatus for mounting remote speakers in walls, comprising, in combination, a combined base and speaker guard member including a first surface adapted to engage the framing members of the wall, a second surface extended outwardly to confront the edge of the finish of the wall, and a third surface extended inwardly to overlie a speaker mounted to the apparatus; fastening means for securing said base member to the framing members; a cover member overlying said base member, said cover member including a shoulder portion adapted to engage the finish of the wall beyond the junction of said second surface and the edge of said finish; a pair of overlying flange means, one on each of said members, disposed inwardly of said finish confronting outwardly extending surface; and means for securing said overlying flange means together subsequent to the mounting of said base member to the frame members and the application of the wall finish thereto.

20. Apparatus defined in claim 19 characterized by said third surface of said combined base and speaker member being covered with a sound absorbing material.

21. Apparatus defined in claim 1 characterized by said guard means including an annular metal wall provided with a plurality of spaced partially cut hole-forming portions adapted to be punched out to provide a hole for the entrance of a power supply line at various locations on said guard.

22. Apparatus defined in claim 15 characterized by said third surface being formed by an annular metal wall provided with a plurality of spaced partially cut hole-forming portions adapted to be punched out to provide a hole for the entrance of a power supply line at various locations on said guard.

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