May 15, 1934. G. G. CROMARTIE 1,958,888

LOUD SPEAKER MOUNTING

Filed April 12, 1933

Fig. 1.

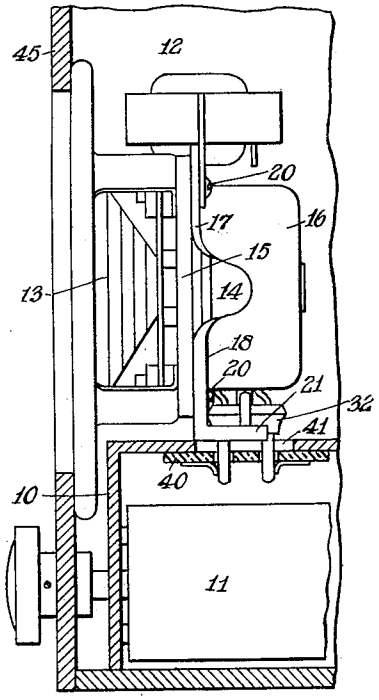


Fig. 3.

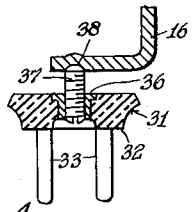


Fig. 4.

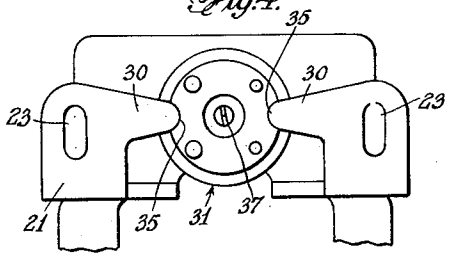


Fig. 5.

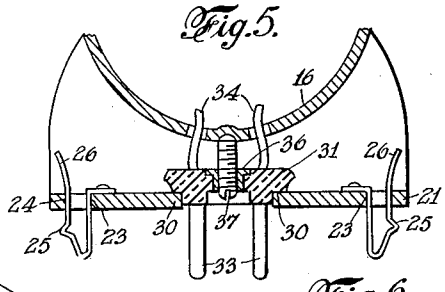


Fig. 2.

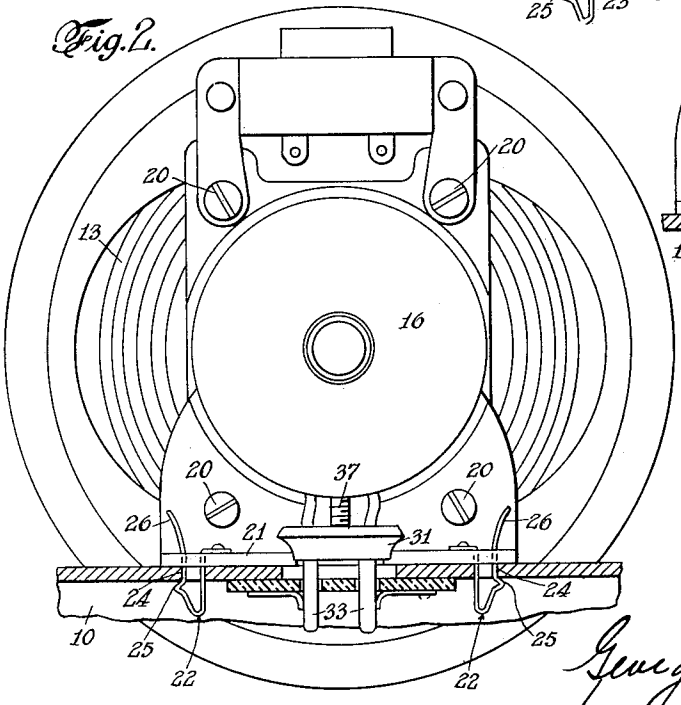


Fig. 6.

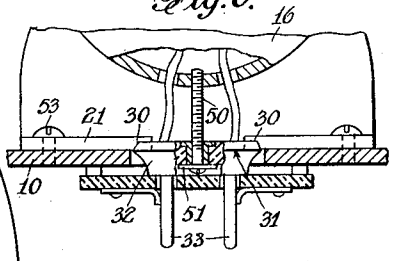
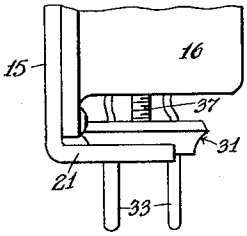


Fig. 7.



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LOUD SPEAKER MOUNTING

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17 Claims. (Cl. 179—146)

This invention relates to radio receivers, and more particularly to means for mounting and connecting a loud speaker in a radio receiver.

The invention is particularly applicable to small compact radio receivers in which mechanical difficulties frequently arise in making the electrical connections, due to the small amount of space available therefor. In order to facilitate connections to the loud speaker in such receivers, it has been the practice to mount the loud speaker first and to make the proper connections thereto before assembling the remainder of the parts. This procedure has been unsatisfactory, however, because of the fragile nature of the loud speaker and the liability of injury thereto while the other parts are being mounted.

It is accordingly an object of this invention to provide a mounting for a loud speaker which permits the loud speaker to be mounted and connected after the remainder of the apparatus has been assembled.

Another object is to provide a cheap, simple and convenient connector and mounting for a loud speaker.

A further object is to provide a unitary mounting and connector for the loud speaker.

A still further object is to provide a mounting of the above character which is adapted to form a rigid support for the loud speaker and to permit the loud speaker to be assembled and disassembled without disturbing the electrical connections of the other apparatus.

The invention also consists in certain novel and original features of construction and combination of parts hereinafter set forth and claimed.

Although the novel features which are believed to be characteristic of this invention will be particularly pointed out in the claims appended hereto, the invention itself, as to its objects and advantages and the manner in which it may be carried out, will be better understood by referring to certain preferred embodiments thereof which are shown and described for purposes of illustration only.

In the accompanying drawing,

Figure 1 is a broken side elevation of a part of a radio receiver showing a loud speaker mounted therein in accordance with the present invention;

Figure 2 is a rear elevation of the loud speaker and mounting;

Figure 3 is a detail sectional view of the connector and support therefor;

Figure 4 is a bottom plan view of the loud speaker housing and connector;

Figure 5 is a section taken on the line 5—5 of Figure 4;

Figure 6 is a detail view showing a modified form of mounting for the loud speaker; and

Figure 7 is a broken side elevation similar to Figure 1 showing a further modified form of mounting.

In the various figures of the drawing, like reference characters have been used to designate like parts.

Referring to the drawing more in detail, the invention is shown as embodied in a radio receiver comprising a chassis 10 which is adapted to support the various pieces of receiving apparatus including a tuning element 11. The chassis 10 also carries a loud speaker unit 12 of any well-known type comprising, for example, a diaphragm 13 and a motor element 14 having a pole plate 15. The motor element 14 is enclosed in a cup-shaped housing 16 forming a part of the magnetic circuit and having vertical flanges 17 and 18 which are adapted to be secured to the pole plate 15 in any convenient manner, as by screws 20. Horizontal flanges 21 are also provided which may be formed integral with the flanges 18 of the housing 16 and are adapted to be attached to the chassis 10, for supporting the loud speaker unit.

The flanges 21 may be secured to the chassis 10 in any convenient manner, for example, by spring members 22 which may be secured to the upper surface of the flanges 21 and extended through slots 23 in said flanges and through aligned slots 24 in the chassis 10. The spring members 22 are preferably V-shaped to provide resilience and may have inclined shoulders 25 adapted to engage the lower surface of the chassis 10 and to hold the flanges 21 securely in position. The spring members 22 may be provided with projections 26 adapted to be engaged manually for depressing the spring members and releasing the loud speaker unit from the chassis 10. The members 22 are preferably shaped to permit the loud speaker unit to be snapped into position and to automatically lock the same in position until manually released.

Vertical flanges 17 and 18 and horizontal flanges 21 are preferably cast or milled accurately at right angles to each other so as to insure the correct positioning of the loud speaker unit when the horizontal flanges 21 are mounted upon the chassis 10. The horizontal flanges 21 are spaced apart transversely of the speaker and are provided with lugs 30 for the purpose to be described.

A connecting plug 31, comprising a base 32 of insulating material carrying contact fingers 33 which are connected by suitable flexible leads to the motor element 14, is mounted on the unit 12 in the manner to be described. The base 32 is provided with a central metal bushing 36 which may be secured thereto in any convenient manner, for example, by casting the base 32 thereabout. The bushing 36 is threaded to receive a screw 37, which is adapted to seat in a recess 38 formed in the housing 16. The base 32 may be rigidly secured to the housing by first inserting the same between the housing and the lugs 30 and thereafter causing the screw 37 to enter the recess 38 in the housing 16 and to thereby securely clamp the base 32 between said housing 16 and the lugs 30. The base 32 may be recessed, as at 35, to form a seat for the lugs 30.

A suitable socket 40, adapted to receive the plug 31, is rigidly mounted on the chassis 10 in any convenient manner. This socket 40 is preferably mounted directly under the loud speaker unit and in register with an aperture 41 formed in the chassis 10, through which the fingers 33 are adapted to pass. The socket 40 is permanently wired to the receiving apparatus (not shown) and is adapted to establish electrical connection between such apparatus and the loud speaker 12. It is to be understood that the entire apparatus may be enclosed in any suitable cabinet 45 in a manner well-known in the art.

In assembling the above-described apparatus, the socket 40 is first mounted on the chassis 10 and suitable electrical connections are made thereto. The remaining parts of the apparatus are then mounted on the chassis. After the entire apparatus has been assembled and wired, the loud speaker 12 is placed in position, thereby bringing the plug 31 into engagement with the socket 40 and automatically making the electrical connections to the loud speaker. The loud speaker is secured to the chassis 10 by means of the spring members 22 which engage the chassis in the manner described above.

It is to be noted that in the above construction the socket 40 is mounted within the general confines of the loud speaker and requires substantially no space in addition to that necessary for mounting the loud speaker on the chassis. Furthermore, the housing 16, when secured to the chassis 10, forms a rigid connection between the plug 31 and the socket 40 and prevents the plug from becoming loosened during the entire life of the receiver. Furthermore, the housing 16 shields the plug 31 and prevents access thereto while the loud speaker is in mounted position, thereby positively preventing the electrical connections from being broken, except when the loud speaker is removed from the chassis.

Referring to the embodiment of Figure 6, the housing 16, chassis 10 and socket 40 are constructed as above described. In this embodiment, however, the plug 31 is mounted below the lugs 30 and is held in engagement with said lugs by a screw 50 engaging a washer 51 seating in a suitable recess in the base 32 of said plug and threaded into the housing 16. The adjacent surfaces of the base 32 and the lugs 30 are so formed that the plug 31 is held in rigid engagement with said lugs by the screw 50.

The flanges 21 are shown as secured to the chassis 10 by screws 53 which are threaded into said chassis in any convenient manner. It is obvious, however, that releasable locking means, such as that described in connection with Figures 1–5, may be employed if desired.

In the modification shown in Figure 7 the flanges 21 are shown as formed as a part of the pole plate 15. The other parts are similar to those shown in Figure 1. In Figure 7 the unit is supported directly by the pole plate. This construction may be desirable in certain instances for mechanical reasons.

The specific form of fastening means shown in Figures 1–5 is intended as an illustration only. The spring members 22 may, for example, be secured to the chassis instead of to the flanges 21, or other types of spring fasteners may be employed.

Although certain mountings have been shown for the purposes of illustration, it is obvious that the specific details of the mountings may be varied and various substitutions and omissions may be made as will be apparent to a person skilled in the art.

In the description and in the claims various details are identified by specific names for convenience, but they are intended to be as generic in their application as the art will permit. The invention is only to be limited in accordance with the following claims when interpreted in view of the prior art.

I claim:

1. In a radio receiver, a chassis, a loud speaker mounted on said chassis, a two-part connector, one part being connected to said loud speaker, the other part being adapted to establish electrical connections to the remainder of said receiver, said loud speaker and said connector being so relatively disposed that said loud speaker prevents access to said connector when the loud speaker is in operative position.

2. In a radio receiver, a chassis, a loud speaker mounted on said chassis, a two-part connector, one part being connected to said loud speaker, the other part being adapted to establish electrical connections to the remainder of said receiver, said connector being clamped in position by said loud speaker whereby removal thereof is prevented while said loud speaker is in operative position.

3. In a radio receiver, a chassis, a loud speaker mounted on said chassis, a two-part connector, one part being connected to said loud speaker, the other part being adapted to establish electrical connections to the remainder of said receiver, said other part being mounted closely adjacent said loud speaker and being shielded thereby to prevent access to said connector when said loud speaker is in operative position.

4. In a radio receiver, a chassis, a loud speaker mounted on said chassis, a two-part connector, one part being connected to said loud speaker, the other part being adapted to establish electrical connections to the remainder of said receiver, said other part being mounted within the general confines of said loud speaker and closely adjacent thereto.

5. In a radio receiver, a chassis, a loud speaker mounted on said chassis, a two-part connector, one part being associated with said chassis and adapted to establish electrical connections between said loud speaker and the remainder of said receiver, the other part being mounted on said loud speaker and electrically connected thereto, said loud speaker being adapted to secure said parts in operative position.

6. In a radio receiver, a chassis, a loud speaker,

means mounting said loud speaker on said chassis and a two-part connector associated with said mounting means and adapted to detachably connect said loud speaker to the receiving apparatus.

7. In a radio receiver, a chassis, a loud speaker having a housing, means mounting said housing on said chassis and a two-part connector comprising a part carried by said housing and removable with said loud speaker and a part permanently associated with said chassis, said connector being adapted to detachably connect said loud speaker to the receiving apparatus.

8. In combination, a chassis adapted to support parts of a radio receiver, a loud speaker unit, a housing therefor, said housing having a supporting flange adapted to engage said chassis, a two-part connector, one part being mounted adjacent said flange and removable with said loud speaker, the other part being mounted to cooperate therewith and to establish electrical connection to said loud speaker when said housing is in mounted position on said chassis.

9. In combination, a chassis adapted to support radio receiving apparatus, a loud speaker having a housing, said housing having a supporting flange mounted on said chassis, a two-part connector, the parts being respectively connected to said loud speaker and to the receiving apparatus, said flange engaging said connector to hold the same assembled when said loud speaker is in mounted position.

10. In combination, a chassis adapted to support radio receiving apparatus, a loud speaker having a housing, said housing having a pair of spaced supporting flanges mounted on said chassis, a two-part connector, one part being mounted between said flanges and removable with said loud speaker, the other part being mounted on said chassis in position to cooperate with said first part when said loud speaker is in mounted position.

11. A loud speaker unit having a diaphragm and a motor element, a housing therefor adapted to support said unit, said housing having horizontal supporting flanges and a plug electrically connected to said motor element, said flanges having lugs adapted to seat in said plug, and means engaging said housing for rigidly seating said lugs therein.

12. A loud speaker unit having a diaphragm and a motor element, a housing therefor adapted to support said unit, said housing having horizontal supporting flanges and a plug electrically connected to said motor element, said flanges having lugs adapted to seat in said plug, and a screw threaded in said plug and bearing against said housing for rigidly seating said lugs in said plug.

13. A loud speaker unit comprising a diaphragm and a motor element, a frame supporting the same, a housing enclosing said motor element, and a plug electrically connected to said motor element and mounted adjacent said housing and within the general confines of said unit.

14. In combination, a chassis adapted to support radio receiving apparatus, a loud speaker unit having a housing provided with a flange mounted on said chassis for supporting said unit, a plug electrically connected to said loud speaker, a socket mounted on said chassis adjacent said flange, said flange engaging said plug to secure the same in said socket whereby said plug cannot be disconnected until said unit has been removed from said chassis.

15. A loud speaker unit comprising a diaphragm and a motor element, a supporting frame therefor, a housing for said motor element having integrally formed flanges adapted to engage said frame and a support respectively, said flanges having surfaces accurately formed at the proper relative angles whereby adjustment of the unit, after mounting on a horizontal surface, is avoided, a connecting plug connected to said motor element, said plug being rigidly secured adjacent said flange and having connecting fingers extending normal to said supporting surface.

16. In combination, a chassis adapted to support radio receiving apparatus, a loud speaker unit having a supporting member adapted to engage said chassis for mounting said unit thereon and resilient means releasably securing said supporting member to said chassis, said resilient means being adapted to permit said unit to be placed in mounted position, to automatically secure the same and to be manually released to permit said unit to be detached from said chassis.

17. In combination, a chassis adapted to support radio receiving apparatus, a loud speaker unit having a supporting member adapted to engage said chassis for mounting said unit thereon, resilient means releasably securing said supporting member to said chassis, said resilient means being adapted to permit said unit to be placed in mounted position, to automatically secure the same and to be manually released to permit said unit to be detached from said chassis, and a two-part connector, one part being carried by said loud speaker unit, the other part being associated with said chassis and adapted to receive said first part when said unit is placed in mounted position, whereby said unit may be mounted and connected or disconnected and removed in a single operation.

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