

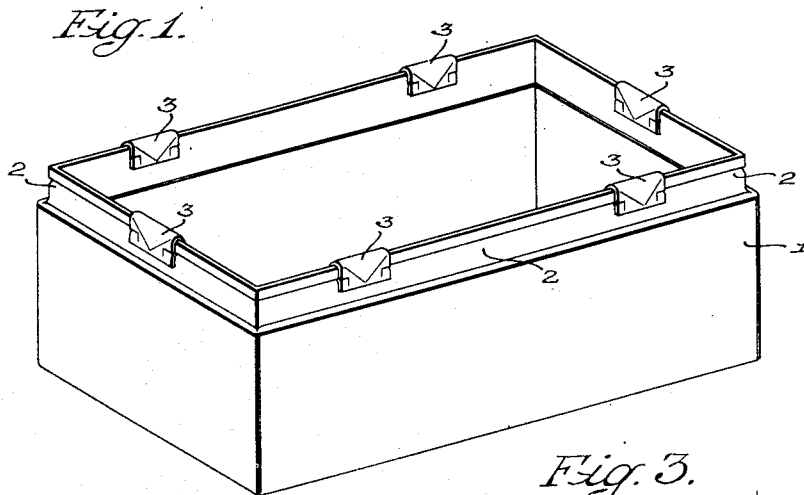
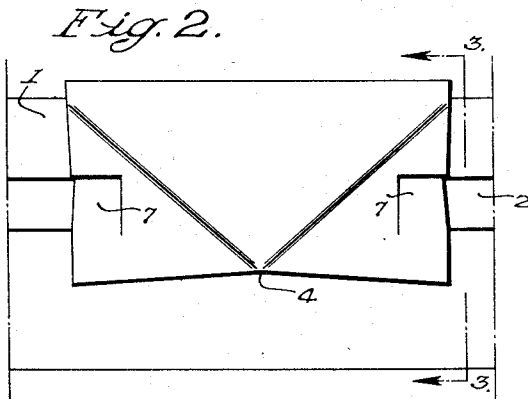
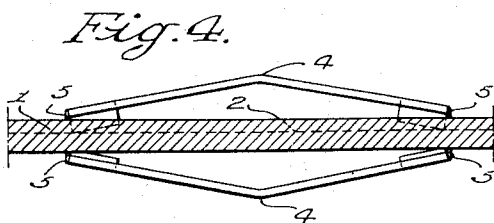
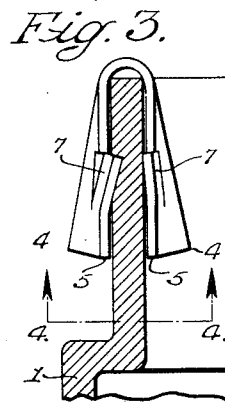
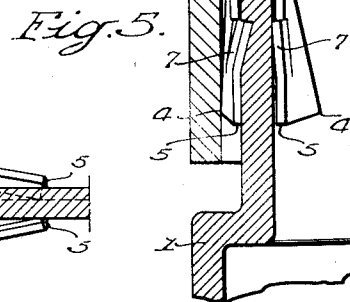
Dec. 29, 1936.

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2,065,651

NOISE SUPPRESSION DEVICE FOR AUTOMOBILE RADIO RECEIVERS

Filed Dec. 2, 1935



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UNITED STATES PATENT OFFICE

2,065,651

NOISE SUPPRESSION DEVICE FOR AUTOMOBILE RADIO RECEIVERS

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Application December 2, 1935, Serial No. 52,614
In Great Britain December 3, 1934

8 Claims. (Cl. 250—16)

This invention relates to radio receivers for vehicles such as automobiles and, more particularly, to novel means for improving the shielding of such a receiver against disturbances, particularly those originating in the various parts of an automobile, such as the ignition system. As is now well known, such disturbances result in the production of noise by the radio receiver. The present invention is directed to the suppression of such noise in automobile radio reception.

It has been found that the reproduction of disturbance noises by the radio receiver may be effectively reduced by completely enclosing the radio receiver in a grounded metallic casing. Therefore, it has been the practice to thus enclose a vehicle radio receiver, and the metallic casing employed usually comprises the casing or container proper and a cover or lid adapted to fit over the same. The present invention provides a simple device in the form of a clip adapted to be placed over the edge of the casing and to contact the lid, which device insures good electrical contact between the casing and the lid, thereby improving the shielding of the receiver, and also prevents rattle of the lid, particularly when the vehicle is in motion.

The principal object of the invention, therefore, is to provide a simple device of this character which may be manufactured economically, which is adapted for easy use, and which functions efficiently to achieve the desired purpose.

The invention may be more clearly understood by reference to the accompanying drawing illustrating a preferred embodiment of the device.

In the drawing:

Fig. 1 is a perspective view of the casing with a plurality of clips applied thereto in accordance with the invention;

Fig. 2 is an enlarged fragmentary face view of the casing wall showing a clip applied thereto;

Fig. 3 is a fragmentary sectional view taken along line 3—3 of Fig. 2;

Fig. 4 is a fragmentary sectional view taken along line 4—4 of Fig. 3; and

Fig. 5 is a fragmentary sectional view similar to Fig. 3, showing the lid in position.

Referring to Fig. 1, the metallic casing which is adapted to contain or house the radio receiver is shown at 1. Preferably, the casing is provided with a groove 2 running about the same near the edges of the casing walls, the purpose of which will be understood later. A plurality

of clips 3 are mounted upon the edge portion of the casing and, although six clips are shown in the illustration, it will be understood that any desired number may be employed depending upon the requirements in a particular case.

Each of the clips 3 is formed from a piece of springy metal which may be substantially rectangular or square in shape prior to its being bent to form the clip. The piece of springy metal is bent along one axis to provide a U-shaped structure, as shown clearly in Fig. 3, thus adapting the device to fit over the edge portion of the casing. The piece of metal is also bent slightly along its other major axis so that the opposed sides of the U-shaped structure are bowed outward, as shown in Fig. 4. When the device is placed over the edge of the casing, the center portion 4 of each side extends outward about one-sixteenth of an inch from the side of the casing at the bottom of the clip, while the ends 5 of each side of the clip are disposed adjacent the casing wall. When the lid is placed on the casing, the side of the clip between the casing and the lid forms a tensioned spring, the central portion of the said side pressing against the lid, while the two ends of the said side are pressed against the casing, thus forming a good electrical connection between the casing and the lid and serving to prevent the lid from rattling against the casing. This may be clearly seen in Fig. 5, wherein the lid is designated 6. It will be seen that the central portion of the side of the clip between the casing and the depending flange of the lid presses against the flange of the lid by reason of the bowed construction of the said side above described.

In order to hold the clip in place when the lid is not on the casing, the clip is preferably provided with detents 7 which are adapted to cooperate with the groove 2 formed in the casing wall as above mentioned. The detents may be formed by cutting a small tongue at the end of each side, as shown in Fig. 2, and by bending the end of the tongue inward, as shown in Fig. 3, so that the tongues on the outside of the casing will engage in the groove 2, as clearly illustrated in Fig. 3. It will be seen that this locks the clip with the casing. It will be understood, of course, that the detents may be formed in any desired manner and it will be obvious that the detents may be provided on one side only of the clip when a single groove is used. By providing the detents on both sides of the clip, however, the

clip is reversible so that either side may be associated with the outer grooved surface of the casing. Moreover, it will be obvious that the inside surface of the casing may be grooved either in lieu of the outer groove or in addition thereto. Furthermore, the casing may be provided with small recesses adapted to cooperate with the detents of the clip instead of providing a groove running entirely about the casing, or the casing may be provided with projections or with a projecting bead so that the detents may be interlocked therewith. Thus, various modifications of the device are possible and are deemed to be within the scope of the invention.

The clips may be made of any suitable material which is adapted to serve the intended purpose. In order to improve the electrical connection, however, the clips are preferably plated with a metal having little tendency to oxidize, such as cadmium.

It will be seen that the clip may be formed in a simple manner by punching or stamping a piece of metal from a sheet and, at the same time, the detents may be cut and bent. The piece of metal may then be bent as above described. Thus, the device may be made in a few simple steps and at low cost.

Although a single preferred embodiment of the device has been illustrated for the purpose of disclosure, it will be understood that various modifications, such as those above mentioned, may be resorted to without departing from the scope of the invention.

I claim:

1. Means for insuring tight fit and good electrical contact between a radio receiver casing and a cover therefor, comprising a plurality of clips each formed of resilient material and adapted to fit over the edge of said casing, each of said clips having a spring portion disposed adjacent the edge portion of the casing when the clip is in place, said spring portion being engageable by said cover when the latter is placed upon said casing.

2. Means for insuring tight fit and good electrical contact between a radio receiver casing and a cover therefor, comprising a plurality of U-shaped clips each formed of resilient material and adapted to fit over the edge of said casing, each of said clips having a bowed side adapted for disposition outside the edge portion of the casing when the clip is in place, said bowed side being engageable by said cover when the latter is placed upon said casing.

3. A device for insuring tight fit and good electrical contact between a radio receiver casing and a cover therefor, comprising a U-shaped clip formed of resilient material and adapted to fit over the edge of said casing, at least one side of said clip being bowed in the direction of the U bend and adapted for disposition adjacent the edge portion of the casing when the clip is in place with the ends of said bowed side engaging a surface of said casing, said bowed side being

engageable by said cover when the latter is placed upon said casing.

4. A device for insuring tight fit and good electrical contact between a radio receiver casing and a cover therefor, comprising a U-shaped clip formed of resilient material and adapted to fit over the edge of said casing, the sides of said clip being bowed in the direction of the U bend and adapted for disposition on opposite sides of the edge portion of the casing when the clip is in place, the bowed side outside said edge portion being engageable by said cover when the latter is placed upon said casing.

5. A device for insuring tight fit and good electrical contact between a radio receiver casing and a cover therefor, comprising a clip formed of resilient material and adapted to fit over the edge of said casing, said clip having a spring portion disposed adjacent the edge portion of the casing when the clip is in place, said spring portion being engageable by said cover when the latter is placed upon said casing, and a detent on said clip interlockable with said edge portion to hold the clip in place.

6. A device for insuring tight fit and good electrical contact between a radio receiver casing and a cover therefor, comprising a U-shaped clip formed of resilient material and adapted to fit over the edge of said casing, at least one side of said clip being bowed in the direction of the U bend and adapted for disposition adjacent the edge portion of the casing when the clip is in place with the ends of said bowed side engaging a surface of said casing, said bowed side being engageable by said cover when the latter is placed upon said casing, and a detent on said bowed side interlockable with said edge portion to hold the clip in place.

7. A device for insuring tight fit and good electrical contact between a radio receiver casing and a cover therefor, comprising a U-shaped clip formed of resilient material and adapted to fit over the edge of said casing, the sides of said clip being bowed in the direction of the U bend and adapted for disposition on opposite sides of the edge portion of the casing when the clip is in place, the bowed side outside said edge portion being engageable by said cover when the latter is placed upon said casing, and detents on said sides interlockable with said edge portion to hold the clip in place.

8. A device for insuring tight fit and good electrical contact between a radio receiver casing and a cover therefor, comprising a U-shaped clip formed of resilient material and adapted to fit over the edge of said casing, the sides of said clip being bent slightly about an axis perpendicular to the axis of the U bend to provide bowed portions adapted for disposition on opposite sides of the edge portion of the casing when the clip is in place, the bowed side outside said edge portion being engageable by said cover when the latter is placed upon said casing.

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