Jan. 9, 1934. E. C. BOOTH 1,943,255

RADIO CONTAINER

Filed March 30, 1933

Fig. 1.

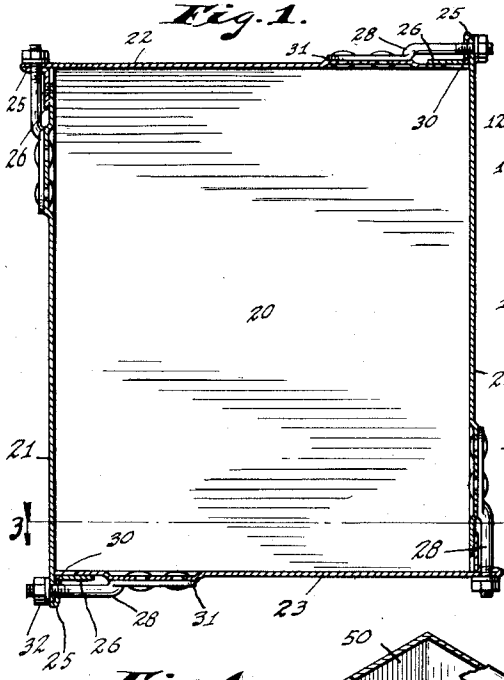


Fig. 2.

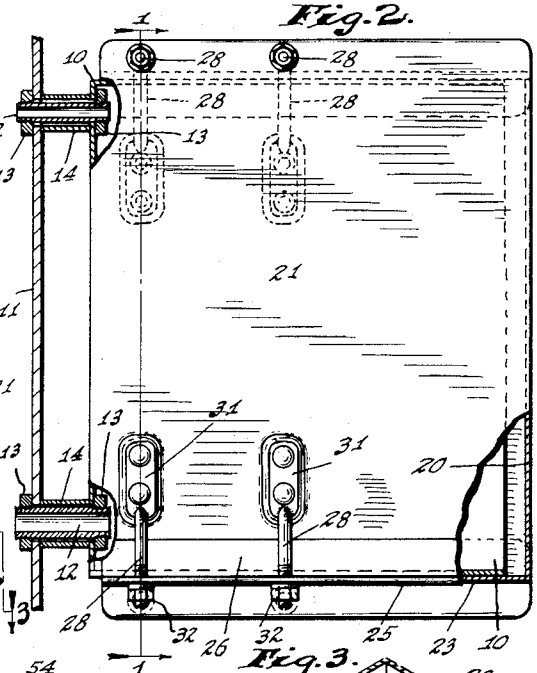


Fig. 3.

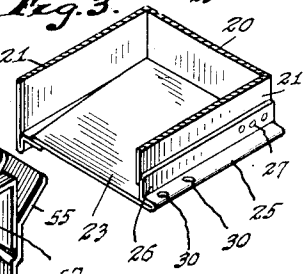
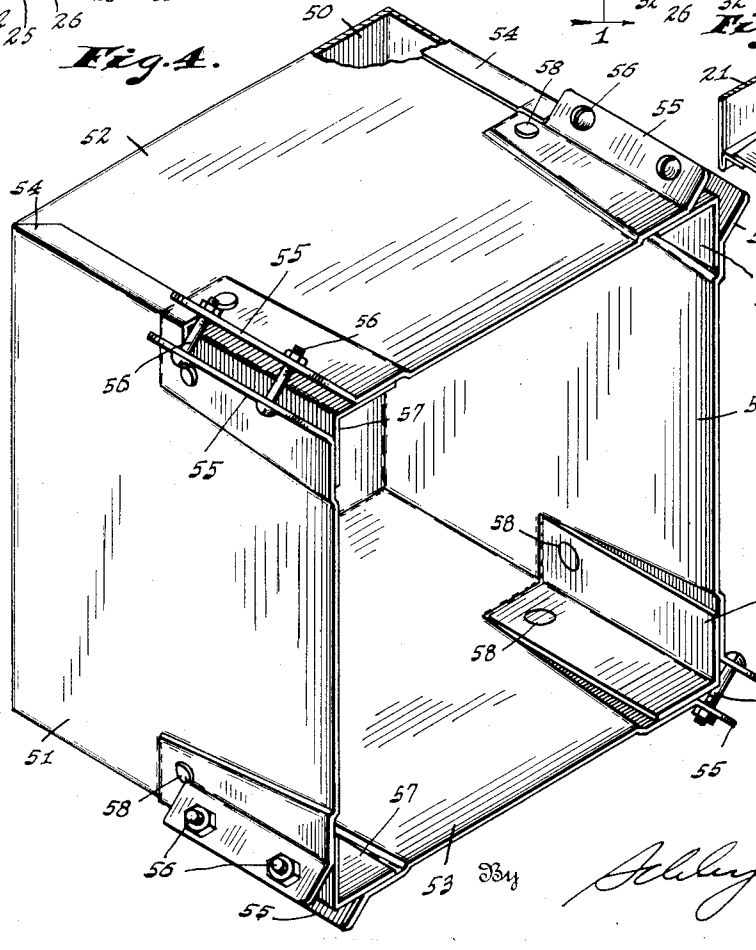


Fig. 4.



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# UNITED STATES PATENT OFFICE

1,943,255

## RADIO CONTAINER

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Application March 30, 1933. Serial No. 663,564

6 Claims. (Cl. 250—16)

My invention is concerned with an enclosing shield for electrical apparatus and especially with a shield suitable for use in connection with automobile-radio sets where extremely effective shielding is required in order to shield the radio apparatus from the electrical disturbances incident to the operation of the ignition system of the automobile engine.

In carrying out my invention I mount the electrical apparatus which is to be shielded in a metallic box having one open side, and I provide for this box a cover which is preferably of substantially the same depth as the box. To provide for the securing of a tight fit between the cover and the box, and, at the same time to permit easy removal of the cover when desired, I provide at the edges of the cover clamping means by means of which the sides of the cover can be drawn into tight engagement with the sides of the box.

The accompanying drawing illustrates my invention: Fig. 1 is a vertical section through the cover on the line 1—1 of Fig. 2; Fig. 2 is a side elevation of the box with the cover in place; Fig. 3 is an isometric view of the box-cover broken away on the line 3—3 of Fig. 1; and Fig. 4 is an isometric view of a box-cover embodying a modification of my invention.

In the particular embodiment of my invention illustrated in the drawing, the box 10 which is to enclose the shielded radio apparatus is mounted on the dash 11 of the automobile by threaded bushings 12, nuts 13, and spacing collars 14 as set forth in the co-pending application of myself and Walter E. Peek, Serial No. 668,776, filed May 1, 1933. The bushings 12 pass through the vertical wall of the box 10 opposite the open side thereof.

For the purpose of closing the open end of the box 10, I provide the cover which forms the subject-matter of the present invention. The cover illustrated in Figs. 1, 2, and 3 has an end wall 20, closing the open side of the box 10, side walls 21, and top and bottom walls 22 and 23. Conveniently, the entire cover is formed of a single piece of sheet metal.

The two cover-walls meeting at each side edge of the cover are differently formed, as is best shown in Fig. 3. One is cut obliquely to slope away from the other toward the open end of the cover. In the other, the material along the side edge is bent back on itself to provide an outwardly projecting rib 25 and is then bent outwardly at a right angle to provide a portion 26 which overlaps exteriorly the oblique side edge of the adjacent cover-wall. At points near the end wall 20, each of the side-wall portions 26 is secured to the adjacent side wall which it overlaps as by spot-welding. This is indicated at 27 in Fig. 3.

Clamping means are provided at each side edge of the cover near the open end thereof. Each such clamping means conveniently takes the form of one or more clamping members 28 secured near the obliquely-cut edge of each cover-wall and having screw-threaded ends projecting respectively through holes 30 in the rib 25 of the adjacent cover-wall. Conveniently the members 30 are cylindrical rods having flattened ends 31 riveted to the outer surface of the cover-wall, the cover-wall being offset outwardly in the vicinity of the flattened ends 31 to provide a space for the heads of the rivets between the adjacent walls of the cover and box, as is clear from Fig. 1.

After the cover is in place on the box, nuts 32 on the threaded ends of the members 28 are tightened to collapse the side, top, and bottom walls of the cover into firm engagement with the corresponding walls of the box thus making a tight joint which is essential for effective shielding.

The box-cover illustrated in Fig. 4 is, like that illustrated in Figs. 1, 2, and 3, preferably formed from a single piece of sheet-metal with an end wall 50, side-walls 51, and top and bottom walls 52 and 53. Along each side edge of the cover near the end wall 50 thereof one of the side walls meeting at such edge is provided with a flange 54 which overlies and is secured to the other wall. The flanges 54 do not extend to the open end of the cover, but instead the walls of the cover along each of the side edges near the open end are bent diagonally outward to provide on each side edge of the cover a pair of generally parallel ears 55 through which there pass clamping bolts 56.

Corner-closures 57 are provided at each outer corner of the cover to close the gaps left by the outward bending of the material which provides the ears 55. These corner closures 57 are L-shaped in cross-section and have their inner ends secured to the adjacent walls of the cover as by spot-welding or riveting, as indicated at 58. In the vicinity of the corner closures 57, the side, bottom, and top walls of the cover are offset outwardly so that the inner surfaces of the remainder of the side walls and the inner surfaces of the corner closures will be substantially flush. The offset portion of each wall of the cover is somewhat wider than the corner-closure near the open end of the cover to permit such

relative movement of the side wall and corner-closure as may be necessary in tightening the cover on the box 10 when it is in place thereon.

I claim as my invention:

1. Shielding means for electrical apparatus, comprising a box adapted to contain the electrical apparatus and having an open end, a cover for said box, said cover being formed of conducting material and having an end wall, side walls, and an open end adapted to receive said box, the adjacent side walls near the open end of the cover being free from any rigid connection at their meeting edges, and clamping means mounted at each edge of said cover near the open end thereof and acting between adjacent side walls for constricting such open end.

2. Shielding means for electrical apparatus, comprising a box adapted to contain the electrical apparatus and having an open end, a cover for said box, said cover being formed of conducting material and having an end wall, side walls, and an open end adapted to receive said box, one of the two cover-walls meeting at each side edge of the cover being provided with a flange overlapping the other wall and with an outwardly projecting rib, and the other wall being provided with clamping means co-operating with said rib to constrict the open end of the cover.

3. Shielding means for electrical apparatus, comprising a box adapted to contain the electrical apparatus and having an open end, a cover for said box, said cover being formed of conducting material and having an end wall, side walls, and an open end adapted to receive said box, one of the two cover-walls meeting at each side edge of the cover being provided with a flange overlapping the other wall and with an outwardly projecting rib, and the other wall being provided with one or more clamping members, said clamping members having threaded ends projecting through holes in the rib on the adjacent wall of the cover, and nuts on the threaded ends of said clamping members and adapted to act on the associated rib to constrict the open end of the box.

4. Shielding means for electrical apparatus, comprising a box adapted to contain the electrical apparatus and having an open end, a cover for said box, said cover being formed of conducting material and having an end wall, side walls, and an open end adapted to receive said box, the material at the edge of each side wall near such open end being bent outwardly to form an ear, bolts extending through adjacent ears, and a corner closure of conducting material secured to said cover at each side edge thereof and closing the space between adjacent ears.

5. Shielding means for electrical apparatus, comprising a box adapted to contain the electrical apparatus and having an open end, a cover for said box, said cover being formed of conducting material and having an end wall, an open end opposite said end wall, and side walls free-edged near the open end of the cover, and means for drawing adjacent edges of the side walls toward each other.

6. Shielding means for electrical apparatus, comprising a box adapted to contain the electrical apparatus and having an open end, a cover for said box, said cover being formed of conducting material and having an end wall, an open end opposite said end wall, and side walls slotted at the open end of the cover, a slot-closure of conducting material associated with each slot in the side wall of the cover, and means for constricting the open end of said cover to clamp it to said box.

EARL C. BOOTH.