June 21, 1938. A. W. KIMBELL 2,121,524

RADIO CONTAINER AND FASTENER FOR THE SAME

Filed May 8, 1935

Fig. 1.

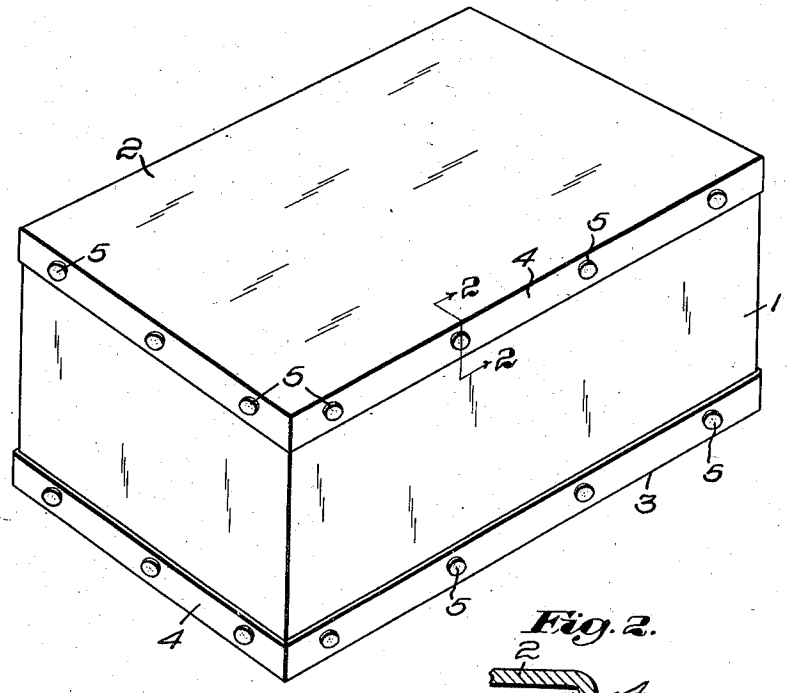


Fig. 2.

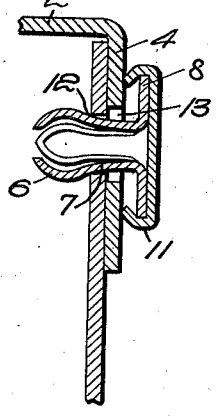


Fig. 3.

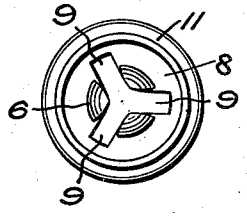
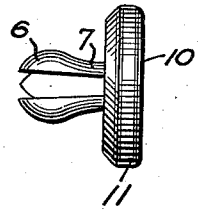


Fig. 4.



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RADIO CONTAINER AND FASTENER FOR THE SAME

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Application May 8, 1935, Serial No. 20,351

4 Claims. (Cl. 220—55)

My invention aims to provide improvements in fastener means particularly adapted for securing covers to radio containers and like structures.

In the drawing which illustrates a preferred form of my invention:

Figure 1 is a plan view of a radio set container with covers attached;

Fig. 2 is a section taken along the line 2—2 of Fig. 1;

Fig. 3 is an end elevation of the snap fastener stud used in my invention; and

Fig. 4 is a side elevation of the snap fastener stud.

My invention relates especially to a metal box and cover installation for housing an automobile radio set and the like, although it may have other similar uses.

It is well known that an automobile radio set, in order to obtain clear radio performance, must be completely shielded from all outside interferences. The most common method is to install the set in a metal box which completely surrounds the set and is thoroughly grounded to the automobile body. At the same time, it is necessary that some means of access to the interior of the box be provided in order that repairs may be made to the inclosed set or parts substituted. For that reason, I have provided top and bottom detachable cover parts to the box portion of the complete container, although a container with but one cover may be used. The cover portions together with the box portion must be of good conductive metal material, and, in order that the grounding means which surrounds the set be complete and unbroken at all times while the covers are on the box, it is necessary that the covers be attached to the box in a manner which will allow no possibility of dislodgment or loose electrical contact between the covers and the box.

The main object of my invention is to provide an improvement in the method of attachment of the cover portions to the box. Heretofore, the usual method has involved the use of screws or bolts, and while a secure attachment of the cover portions has been provided, it has resulted that an appreciable amount of time is lost in assembling the respective parts by these means. The attaching method referred to is especially inconvenient to a radio repairman who finds it necessary to unloose and return a plurality of screws or bolts in order to take off and afterwards replace the cover portions.

It is among the special purposes of my invention to avoid the objection noted, by applying a plurality of snap fastener studs for securing the covers to the box. The fastener studs are more quickly and easily applied than the screws or bolts and can be easily removed to permit entrance to the radio set.

Referring now to the drawing, I have shown in Fig. 1 a metal box or cabinet having the box portion 1 and the cover portions 2 and 3. The cover portions have the flanges 4 extending at substantially right angles from the cover base. As a means for securing the cover portions 2 and 3 to the box portion 1, I prefer to use a plurality of snap fastener studs 5.

The studs for use in connection with the installation, as illustrated in Figs. 3 and 4, are preferably made of high carbon tempered steel and comprise, in my preferred form, a head portion 6, a relatively long shank portion 7, a stud base 8 and a plurality of slots 9 which extend through the head and shank portions and far enough into the base portion 8 to permit a proper contraction and expansion of the head portion 6. The stud base 8 is, in my preferred form, inclosed within a cap member 10. The caps 10 are secured to the stud bases 8, in my preferred form, by bending a portion of the cap side walls 11 inward and over the bases 8, as illustrated in Fig. 2, and in final assembly of the studs with the container, as shown in Fig. 2, the caps 10 are adjacent to the outside surface of the cover flange 4. An angle is thereby formed by the cover flange 4 and the inwardly bent portion of the cap side walls 11 (Fig. 2) which will permit a suitable tool (such as a screw driver) to be inserted between the cover flange and the overhanging portion of the stud cap for the purpose of prying or otherwise unloosing the fastener studs from their seats.

I do not wish to limit myself to having the cap member 10, because I realize that the stud base 8 could be formed in such a way that it would engage the outside surface of the cover flange 4 and, at the same time, have means providing an overhanging portion for the purpose described.

In assembling the snap fastener studs 4 with the box 1 and the cover portions 2 and 3, I have preferably first formed two rows of stud-receiving apertures around the side walls of the box portion. The rows are spaced from the free edges of the side walls, and the apertures 12 of each individual row are located at a spaced distance apart. Apertures 13 are formed in the cover flanges 4 and spaced to correspond with the apertures of the side walls. I have preferred that the apertures of the flanges be of slightly larger diameter than those of the side walls to permit

engagement of the studs with the apertures without the necessity of absolute alignment of the respective apertures.

When the studs 5 are inserted through the apertures 13 of the cover flanges the head portion 6 will contract upon entering the stud-receiving apertures 12 of the side walls until sufficient pressure has been applied to the cap members 10 to force the heads through the apertures 12 whereupon the shanks 7 will be engaged with the walls surrounding the apertures of the side walls.

The caps 10 will engage the outside surface of the cover flange 4, and because of the portion overhanging the cover flange, a tool may be used for quick disengagement of the fastener studs as has been described.

I do not wish to limit myself to any particular form or shape of my cap member, because I realize the cap could be made in various forms and still retain the essential features of my invention.

Although I have illustrated and described a preferred embodiment of my invention, I do not wish to be limited thereby, because the scope of my invention is best defined by the following claims.

I claim:

1. A radio container and the like comprising, in combination, a box portion having side walls, said side walls having a stud-receiving aperture therein, a cover for said box portion having flanges overlapping said side walls of said box, said flanges having an aperture in substantial alignment with the aperture of said side walls, and a snap fastener having a shank portion and means providing an overhanging portion in spaced relation to the outside surface of said cover flanges for the purpose described, said shank portion extending through the apertures of said side walls and said cover whereby said cover is firmly attached to said box.

2. A radio container and the like comprising, in combination, a box portion having side walls, said side walls having a plurality of stud-receiving apertures therein, a cover for said box portion having flanges adapted to fit said side walls, said flanges having a plurality of apertures in substantial alignment with the apertures of said side walls, and a plurality of snap fastener studs supported in said apertures, each of said snap fastener studs comprising a stud portion and a cap portion, said cap portions lying outside said cover flanges and each having means providing an overhanging portion in spaced relation to the cover flanges for the purpose described, said shank portions having a base located within said cap and a relatively long tapering shank adjacent said base and extending through the aligned apertures of said side walls and said flanges whereby said cover is attached to said box portion.

3. A radio container and the like comprising, in combination, a box portion having relatively thin side walls, said side walls having stud-receiving apertures therein at a spaced distance apart and at a spaced distance from the top of said side walls, a cover portion for said box having flanges overlapping said side walls, said flanges having a plurality of apertures larger than and in substantial alignment with the apertures of said side walls, and a plurality of snap fastener studs projecting through said apertures, said fastener studs having a cap portion and a stud portion, said cap portion located outside said cover flanges, a part of said cap portion engaging said cover flanges and a part overhanging said cover flanges in spaced relation thereto for the purpose described, said stud portion having a base located within said cap and a relatively long contractible shank extending from said base and projecting through the aligned apertures of said side walls and said cover flanges thereby securing said cover to said box.

4. A radio container of the class described comprising, in combination, a metal box portion, a metal cover for said box and there being overlapping portions of said box and said cover with aligned apertures through said overlapping portions and snap fastener stud members each having means engaging the cover, a yieldable shank passing through aligned apertures in the overlapping portions and having diverging portions providing an enlarged end on the inner end of said shank engaging the box adjacent its aperture and cooperating with said cover-engaging means to draw the cover firmly in place against said box portion for the purposes described.

ARTHUR W. KIMBELL.