April 27, 1943. F. J. W. SCHOENBORN 2,317,813

SHIELDING

Filed Feb. 28, 1940

Fig. 1.

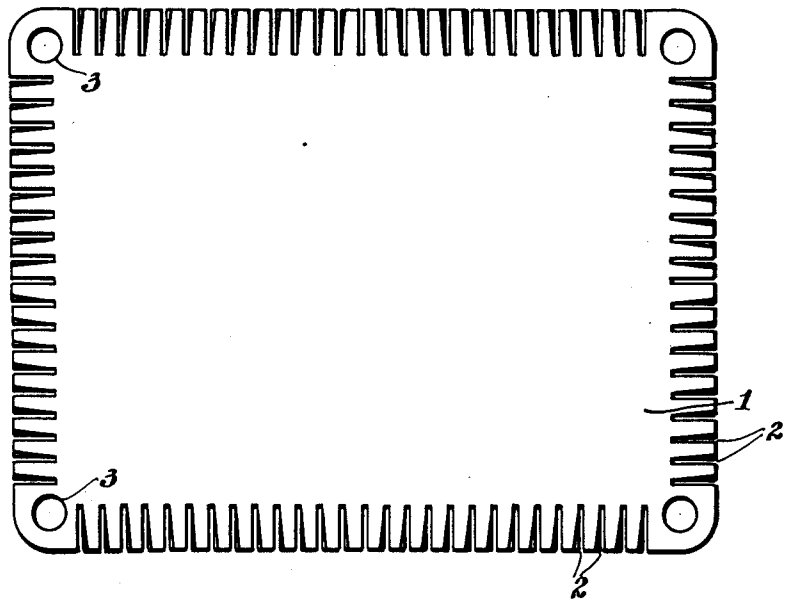

Fig. 2.

Fig. 3.

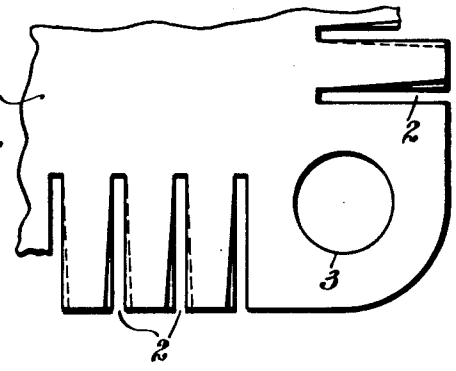

Fig. 5.

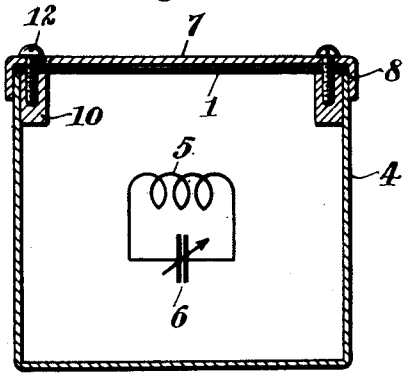

Fig. 4.

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SHIELDING

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Application February 28, 1940, Serial No. 321,220

6 Claims. (Cl. 174—35)

This invention relates to a new and useful shielding method and devices to obtain good electrical shielding and conductivity between the metallic surfaces which are normally not tight fitting.

An object of this invention is to provide an improved shield which when employed in an ultra high frequency receiver or a diversity radio receiver circuit will result in substantially no electrical leakage which is usually caused by insufficient contacts where shields join, and the elimination of circuit noise caused by imperfect contact.

Another object of this invention is to provide an improved shield member in which the teeth are slanted in opposing directions and fashioned to result in a non-creeping metallic electrical shield which causes no misalignment of assembled parts.

A feature of this invention is the novel method of cutting multiple teeth in both metal surfaces of the shielding parts when pressure is applied to such surfaces.

Previous methods known in the prior art included the use of flat springs, wire gauze gaskets, or round cans.

Briefly, the method of this invention employs the use of a thin sheet of spring tempered metal having high electrical conductivity and will be more completely understood by the accompanying drawing, in which:

Fig. 1 shows a plan view of a simple contact plate;

Fig. 2 is a side elevation of Fig. 1;

Fig. 3 is an enlarged view of Fig. 1;

Fig. 4 is an enlarged view of Fig. 2; and

Fig. 5 is a section through a shielding can employing this invention.

Referring now in detail to the drawing, it will be noted that slots are cut on all sides of the metal sheet 1 which is preferably beryllium copper having high electrical conductivity. The thickness of the metal should be about .010 of an inch to .020 of an inch thick. A plurality of slots 2 are cut on all sides of the sheet to form teeth which are located at intervals of ⅛" or more since the number of teeth used are in direct proportion to the shielding quality obtained. After the slots are cut, the teeth are given a twist to an angle of about 30° in the same general direction starting at the longitudinal and transverse axis or center of a given side of the sheet and in an opposite direction for the remaining half of the sheet. This novel arrangement of twisting the teeth results in an improved non-creeping metallic electrical shield and therefore causes no misalignment of the assembled parts.

The twisted teeth extend approximately .050 of an inch beyond the solid surface of sheet 1.

By alternating the direction of the twist of the teeth, as described above, the sheet or electrical shield member 1 will not creep in any direction as pressure is applied to bring the surfaces of two or more metallic parts together.

The sheets are bound together by any suitable means such as having a plurality of apertures 3 therein in which bolts, screws, rivets or the like may pass.

Fig. 5 shows the same general method applied to a shielding can 4 for enclosing and shielding a coil 5 and/or condenser unit 6. The can is closed by a cover 7 secured to a marginal end 8 by binding means such as screws 12 passing through apertures in cover 7, also the apertures 3 in the electrical shield member 1 to the can corner posts 10.

Although only a few embodiments of this invention are shown, it should be understood that the invention is not to be limited precisely as described.

What is claimed is:

1. A non-creeping electrical shielding member comprising a spring tempered metallic sheet fabricated in such a fashion as to provide multiple marginal teeth which are bent to slant in an opposing direction each side of the center of said sheet and along all contact edges for insertion between butt joints of radio frequency shielding members thereby providing a means for good electrical leakage-free contact joints due to the biting action of the slanted teeth when said members are assembled.

2. A non-creeping electrical shielding member comprising a spring tempered metallic sheet fabricated to provide marginal teeth cut and bent to produce a cutting action on contact surfaces of assembled metallic shielding devices, said teeth bent to slant in an opposing direction each side of the center of said sheet to result in a non-creeping metallic member which causes no misalignment of assembled parts.

3. A metallic electrical shielding device comprising a metallic casing, a cover for said casing, a non-creeping spring tempered metallic sheet having a plurality of slots bent in opposing directions each side of the longitudinal and transverse axis of said sheet forming teeth interposed between the upper open end of said casing and the underside of said cover, and means within

said casing for binding said sheet and said cover thereto.

4. A metallic electrical shielding device comprising a metallic casing, a cover for said casing, a non-creeping spring tempered metallic sheet having a plurality of slots bent in opposing directions each side of the longitudinal and transverse axis of said sheet forming teeth interposed between the open end of said casing and the underside of said cover, and means located at each corner of said casing for binding said sheet and cover thereto.

5. A non-creeping electrical shielding member comprising a spring tempered sheet having high electrical conductivity, said sheet including a plurality of slots cut on its marginal zone and forming teeth thereon, said teeth which are located on one side of the longitudinal and transverse axis being twisted in one diretcion and the teeth on the other side of the longitudinal and transverse axis being bent in the other direction, and means binding said sheet to another metallic member.

6. A non-creeping electrical shielding member comprising a spring tempered rectilinear sheet having high electrical conductivity, said sheet having an aperture located in each corner and including a plurality of slots cut on its marginal zone and forming teeth thereon, said teeth which are located on one side of the longitudinal and transverse axis being twisted in one direction and the teeth on the other side of the longitudinal and transverse axis being bent in the other direction, and means passing through said apertures for binding said sheet to another metallic member.

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