

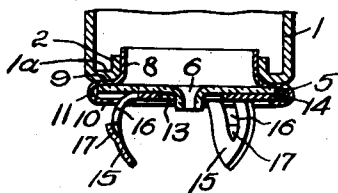
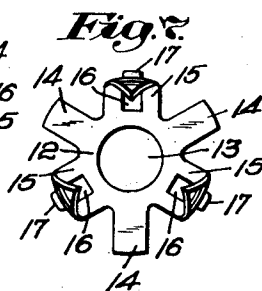
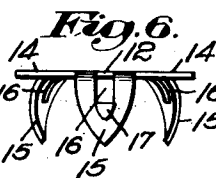
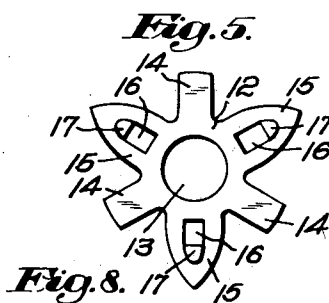
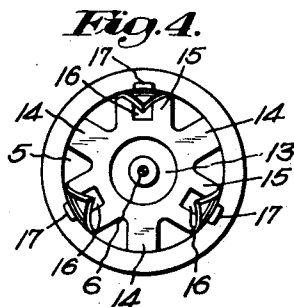
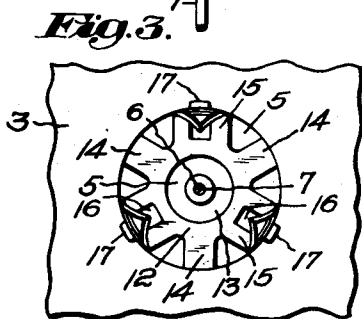
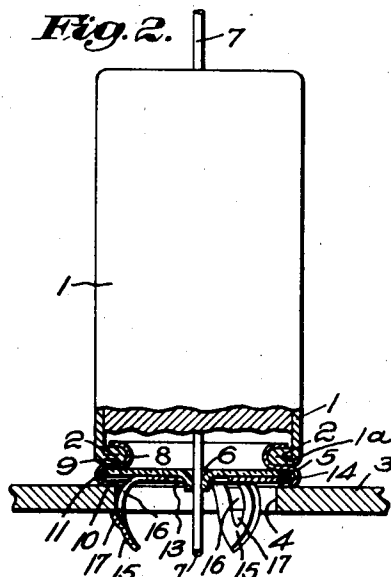
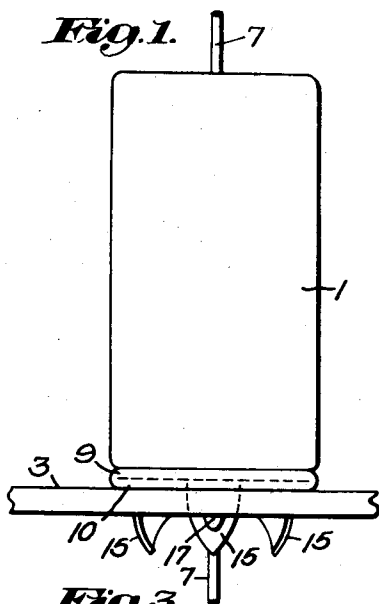
May 24, 1938.

W. H. CHURCHILL

2,118,665

ELECTRICAL UNIT AND FASTENER MEMBER FOR THE SAME

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Inventor:
Wilmer H. Churchill
by Walter S. Jones
Atty.

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2,118,665

ELECTRICAL UNIT AND FASTENER MEMBER
FOR THE SAMEWilmer H. Churchill, Saugus, Mass., assignor to
United-Carr Fastener Corporation, Cambridge,
Mass., a corporation of Massachusetts

Application January 29, 1936, Serial No. 61,433

7 Claims. (Cl. 248—223)

My invention relates to improvements in a fastening device for securing an electrical or the like unit to a supporting structure and an installation of the same.

Referring to the drawing which represents a preferred embodiment of my invention:—

Figure 1 is a plan view of an electrical unit in the form of a fixed condenser secured to a support by means of my improved fastener device;

Fig. 2 is a fragmentary section of the installation shown in Fig. 1 showing the manner by which the fastener device is assembled with the condenser covering;

Fig. 3 is a bottom plan view of the installation shown in Fig. 1;

Fig. 4 is a bottom plan view of the condenser unit;

Fig. 5 is a view of the blank of the attaching member of my fastener device;

Fig. 6 is a side view of the attaching member;

Fig. 7 is a bottom view of the attaching member; and

Fig. 8 is a section showing a portion of the unit covering and my improved fastener device before the parts are finally secured together.

The object of my invention is to provide a simple and inexpensive fastening means for securing an electrical unit, such as a fixed condenser, to a supporting panel of a radio set. It is understood, however, that I do not wish to limit my fastener to assembly with a unit of the class illustrated and described, because the fastener might be attached advantageously to many other articles in a way to cause the complete assembly to fall within the scope and spirit of my present invention.

Referring to the drawing, I have illustrated in Figs. 1 and 2 a fixed condenser of the type commonly used in a radio set having a tubular-shaped outer covering 1 of cardboard or other relatively stiff material. The covering 1 is open at at least one longitudinal end and the material adjacent to the open end is bent at right angles to the straight wall of the covering 1 and then is folded back upon itself when the parts of the unit are finally assembled together, as illustrated in Fig. 2. The condenser is secured to a supporting panel 3 by means of my improved fastener device, which will be hereinafter more fully described, having one end inserted within the opening in the end of the covering 1 and in clamped engagement with the bent portion 2 of the covering material, and the other end presenting a series of yieldable portions extending through an aperture 4 of a

supporting panel 3 and engaging the material of the panel surrounding the aperture for attaching the condenser unit to the panel.

A plate 5 of suitable insulating material is assembled with the fastener device having an aperture 6 therethrough permitting passage of a wire 7 through the unit for attachment with suitable electrical connections within the set.

Referring in more detail to my fastener device, as illustrated in Figs. 4–8, I have provided an eyelet member having a tubular shank 8 open at both ends. The walls at one end of the shank 8 are flared outwardly, as at 9, and then terminated in an inwardly disposed portion 10 whereby the portions 9 and 10 will form a base flange enclosing a groove 11 (Fig. 2). The insulating plate 5 is seated within the groove 11 with one surface in final attachment lying adjacent to the flared portion 9. I have employed the plate 5, in my preferred form, because it is essential to satisfactory working of the condenser due to the fact that it serves to prevent contact of the wire 7 with the metal parts of the fastener device, but I do not wish to limit my invention to the use of a plate, as illustrated and described, because there are many installations with which my fastener could be employed advantageously which would not require any insulating means.

As a means of securing the electrical unit to the supporting panel, I have provided an attaching member, which is preferably stamped out of a piece of sheet metal, to form a blank of the shape illustrated in Fig. 5. The blank, in my preferred form, presents a ring 12 surrounding an aperture 13. Integral with the ring 12, and extending outwardly from the periphery thereof, are series of projections 14 and 15, preferably arranged alternately around the center of the ring 12. The projections 14 are shown substantially rectangular in shape and disposed around the ring in a series of three. The projections 15 are preferably of triangular form and provided with an aperture 16. The material of the projections 15 has been pressed out adjacent to one end of the aperture 16 to form an outwardly disposed bump 17 (Fig. 7) located at a predetermined distance from the eyelet flange in accordance with the thickness of the panel material to which the fastener is to be attached. The projections 15 have also been shown as disposed around the ring 12 in a series of three, but it is understood that the number and arrangement of the projections 14 and 15 may be altered in some degree without interfering with the satisfactory opera-

tion of the attaching member. After the formation of the blank, the projections 15 are bent downwardly out of the plane of the ring and, at the same time, bowed slightly so that they present a curved cross-section (Figs. 6 and 7).

The attaching member is secured to the eyelet part by first positioning the projections 14 within the flange groove 11, and then bending the inwardly disposed portion 10 so that the projections are clenched between the insulating plate 5 and the portion 10, as best illustrated in Figs. 2 and 8. After the insulating plate and the attaching member are finally secured with the eyelet, the fastener device is complete and ready for attachment to the part with which it is to be assembled, or, in the present case, with the condenser covering 1.

The method by which the fastener is attached to the covering 1 is most clearly shown in Fig. 8, in which the covering 1 has its free end bent at right-angular relation to the longitudinal walls of the covering to form an inwardly extending portion 1^a, and then bent again to form an upwardly extending portion 2 in substantially parallel relationship to the longitudinal walls. The tubular shank 8 of the eyelet is placed within the circular opening at the end of the covering 1 so that the walls of the shank are either adjacent to, or in very close relation with the upwardly-extending portion 2. In the next step, the shank 8 of the eyelet is struck with a suitable tool (not shown) so as to collapse it in a way to force the upwardly-extending portion 2 of the covering adjacent to the portion 1^a and, at the same time, clenching the adjacently disposed portions 1^a and 2 between the material adjacent to the free end of the shank 8 and the flared out portion 9 of the eyelet flange (Fig. 2). The fastener device is now securely assembled with the condenser covering 1, and the entire unit is ready to be attached to the panel support 3.

During attachment of the condenser unit to the panel, the projections 15, extending downwardly beneath the unit, are entered into the aperture 4 of the panel. The resiliency of the projections 15 is increased slightly by the apertures 16, and as the projections are passed through the aperture 4, the curved exterior surface, in engagement with the walls surrounding the aperture, will act as a cam to contract the projections sufficiently to enable the bumps 17 to be passed entirely through the aperture. After this action, the projections will expand toward normal position and the exterior surface thereof will engage the walls of the panel surrounding the aperture. The bumps 17 will bear upon the under surface of the material of the panel surrounding the aperture (Fig. 2) thereby preventing any upward axial movement of the unit relative to the aperture. Axial downward movement of the unit relative to the aperture is prevented by the base flange of the eyelet member, which is of larger diameter than the aperture and which, preferably, engages the upper surface of the material of the panel surrounding the aperture when the unit is attached to the panel. Thus it will be seen that I have provided a very simple and inexpensive construction which is particularly adapted to attach cartridge type condensers. This is of great commercial value to the radio set manufacturer because it saves time and space.

Although I have illustrated and described a preferred form of my invention, I do not wish to be limited thereby, because the scope of my in-

vention is best set forth in the following claims.

I claim:

1. An installation for an electrical or the like unit comprising, in combination, a relatively thin supporting structure having an aperture therein, said unit having an outer covering of suitable material, a fastener means secured directly to one end thereof, said fastener comprising a metal eyelet in clenched engagement with said covering, and a plurality of independently yieldable portions extending from beneath said eyelet, said yieldable portions extending through said aperture and bearing on said supporting structure adjacent said aperture thereby securing said unit to one side of said support.

2. An installation of an electrical or the like unit comprising, in combination, a relatively thin supporting structure having a circular aperture therethrough, said unit having a tubular-shaped outer covering of cardboard or the like material, said covering having an opening at one of the longitudinal ends thereof, a fastener means mounted on said open end, said fastener comprising a metal eyelet and an attaching member, said eyelet having a shank portion in clenched engagement with said covering, and a flanged base portion bearing against said support adjacent to said aperture, said attaching member having a relatively flat plate assembled with said flanged base portion, and a series of yieldable portions bent out of the plane of said plate, said yieldable portions extending through said aperture and bearing on said supporting structure adjacent said aperture thereby securing said unit to one side of said support, and said fastener having means preventing upward axial movement of said unit relative to said aperture.

3. An installation for an electrical or the like unit comprising, in combination, a relatively thin supporting structure having an aperture therein, said unit having an outer covering of cardboard or the like material, a fastener means mounted on one end thereof, said fastener comprising a metal eyelet having one end in clenched engagement with said covering, the other end bearing against said support adjacent to said aperture, an apertured plate of insulating material assembled with said other end, and a plurality of yieldable portions extending from beneath said eyelet, said yieldable portions extending through said aperture and bearing on said supporting structure adjacent said aperture thereby securing said unit to one side of said support.

4. An electrical or the like unit having a tubular-shaped outer covering of relatively stiff material, an opening at one of the longitudinal ends of said covering, the material of said covering being folded under at said open end, and a snap fastener unit secured to said open end, said snap fastener unit including an eyelet having a tubular portion, said portion seated within said open end and in clenched engagement with the folded under material of said covering whereby said fastener is permanently secured to said covering, and said snap fastener unit having snap fastener means extending beyond the end of the covering for engagement with a suitable support.

5. A fastener for an electrical or the like unit comprising an eyelet member, said member having a tubular shank, the walls of said shank flaring outwardly adjacent to one end and terminating in an inwardly disposed flange, an apertured plate of insulating material seated within said flange, and an attaching member, said attaching member including a flat metal ring having

projections integral with the periphery thereof, said projections secured within said flange whereby said ring is attached to said eyelet, and a series of yieldable portions integral with said ring and positioned around the periphery thereof, said portions extending downwardly from said ring for engagement with the material surrounding the aperture of a supporting structure, and said portions having projecting means preventing upward axial movement of said fastener relative to said aperture.

6. A fastener for an electrical or the like unit comprising an eyelet member, said member having a tubular shank, the walls of one end of said shank adapted to be bent into fastening engagement with the walls of the unit to which the fastener is to be attached, the walls of said shank flaring outwardly adjacent to the other end and terminating in an inwardly disposed flange, an attaching member carried by said eyelet, said attaching member comprising a metal ring secured within said flange, and a series of yieldable portions integral with said ring and extending downwardly therefrom for engagement with

the walls surrounding an aperture of a supporting structure, each of said yieldable portions having an aperture therein, and a projecting means bent out of the material of each of said portions adjacent to said aperture for preventing upward axial movement of said fastener relative to the aperture of said support.

7. A fastener for an electrical or the like unit comprising a shank adapted to be secured in fastening engagement with the unit to which the fastener is to be attached and a series of yieldable portions extending downwardly from beneath said shank for engagement with the material surrounding the aperture of a supporting structure, said portions being of a substantially triangular shape having a generally bow-shaped cross-section, each of said portions having an aperture therein and a projecting means bent out of the material of said portion adjacent to one end of said aperture for preventing upward axial movement of said fastener relative to the aperture of said support.

WILMER H. CHURCHILL.