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W. C. SLAUSON
ELECTROMAGNETIC DEVICE

1,938,726

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FIG. 1

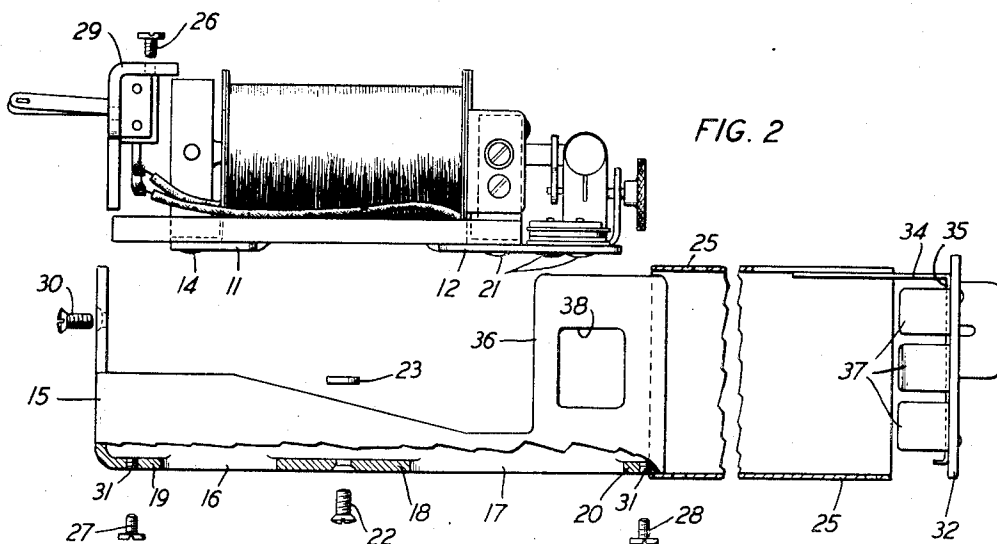
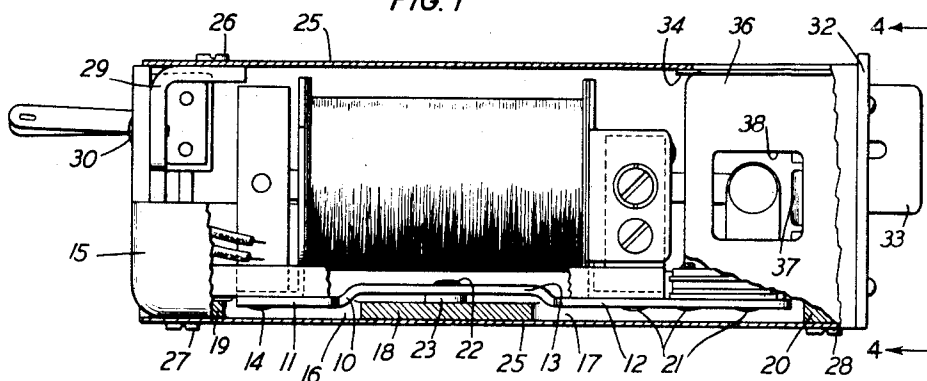


FIG. 3

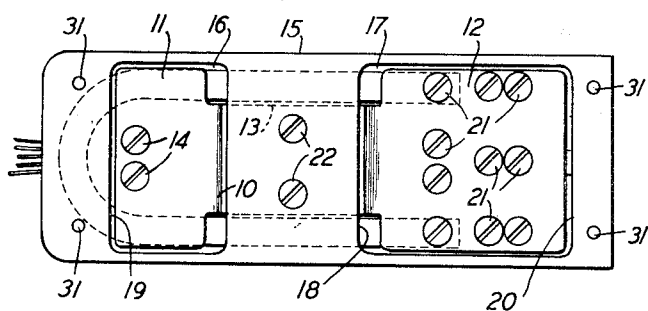
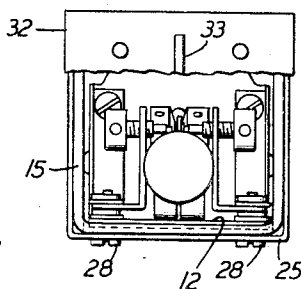


FIG. 4



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7 Claims. (Cl. 175—336)

This invention relates to supports for electrical apparatus and more particularly to means for mounting delicately adjusted relays.

It has become common practice in the design of electromagnetic relays and particularly of relays employed in the art of telephony to provide each device with a protective casing, such as a metal container which, with its associated cover, completely encases the operating parts of the relay and renders the relay dust and dirt proof.

Though casings of this type are very essential to satisfactory maintenance of such electromagnetic relays, it has been found that they present a source of disturbance, particularly to highly sensitive types of relays, such as are used on long telephone lines for signaling purposes. The highly sensitive relay is usually adjusted prior to its assembly on the relay mounting plate but provision must also be made to permit minor adjustments to be made after installation. In assembling a relay of this type on a relay mounting plate after adjustment and in removing and replacing the cover cap for adjustment purposes, it has been experienced that the relay mounting base is subjected to strains and stresses which are imparted to the relay structure itself and tend to place the relay out of adjustment.

It is the object, therefore, of this invention to render highly sensitive relays immune to stresses and strains experienced by their associated mounting bases and thereby stabilize the adjustments of such devices.

This object is attained in accordance with a feature of the invention by substantially isolating the relay structure from its associated mounting base and securing it thereto at a point at which the stresses and strains experienced by the mounting base are at a minimum and practically negligible.

The invention will be readily understood from the following detailed description made with reference to the accompanying drawing in which:

Fig. 1 is an enlarged side elevation of a highly sensitive type relay housed in a protective casing, the latter being broken away to show the method of mounting the relay on the auxiliary base in accordance with a feature of this invention;

Fig. 2 is an exploded view of the combination of relay, auxiliary mounting base, cover and cover cap showing the relative dispositions of each, parts of the various elements being broken

away to give a better understanding of the construction;

Fig. 3 is a bottom plan view of the relay and its associated mounting base, and

Fig. 4 is a front end view of the relay shown in the other figures.

Referring to the drawing in detail, the mounting base generally indicated by the numeral 10, upon which the relay structure is mounted is substantially I-shaped, consisting of the integral portions 11, 12 and 13, the portions 11 and 12 serving as seats upon which the rear and front ends of the relay rest respectively. It is believed unnecessary to describe the parts of which the relay per se is constituted, as these details do not involve features of the present invention. It is only essential to point out that the mounting base 10 carries the entire relay structure which is secured to the base 10 by means of the two screws 14 at the rear and the ten screws 21 at the front end. These screws are countersunk so as to present a smooth surface with the under face of the mounting base.

The intermediate portion 13 of the mounting base 10 is slightly raised out of the plane in which the end portions 11 and 12 lie. The purpose of this construction is to permit a substantially dovetail association of the base 10 with the auxiliary mounting base 15, as will presently appear.

The auxiliary mounting base 15 is substantially trough-shaped, being open at the front end to permit the relay per se and its associated mounting base 10 to be slipped into position therein, and also to permit adjustments of the relay to be made while in service. The base of the trough-shaped mounting base 15 is provided with two rectangular apertures 16 and 17 which correspond in size substantially to the dimensions of end portions 11 and 12 of the mounting base 10. These apertures are effected by the integral transverse portion 18 which lies in the same plane with the end portions 19 and 20 of the base 15.

When the relay and its associated mounting base 10 are placed in position in the trough-like base 15, the portion 13 of the former bridges the portion 18 of the latter so that the end portions 11 and 12 of the base 10 substantially fit into the apertures 16 and 17 respectively.

The bridging portion 13 is provided with two transversely disposed tapped holes and the portion 18 of base 15 is provided with two countersunk holes which come into alignment with the tapped holes in the part 13 when the relay is

positioned on the auxiliary mounting base 15. Two screws 22 fit into the countersunk holes in part 18 and are screwed into the tapped holes in part 13, each screw being provided with a washer 23 which is interposed between the parts 13 and 18.

From the construction so far described, it is evident that the entire relay and its mounting base 10 are supported by the auxiliary mounting base and that the mounting bases 10 and 15 are in engagement substantially at their transverse center lines only.

A cover or container 25 having a rectangular section is secured to the auxiliary mounting base by means of screws 26, 27 and 28. The screws 26, there being two in number, secure the cover 25 to a U-shaped bracket 29, only one side of which is shown in the drawing, which in turn is secured to auxiliary mounting base 15 by screws 30. The screws 28 which fit into the tapped holes 31 secure the front end of the cover 25 to the base 15 whereas the screws 27 secure the rear portion of the cover 25 to the base 15.

The cover cap consists of a rectangular face plate 32 to which is secured a finger grip 33 by virtue of which the cap may be readily placed in and removed from association with the cover. An L-shaped element of resilient spring material has one side 35 thereof permanently secured to the face plate 32, the portion 34 extending at right angles therefrom and adapted to slide into position between the front upper surface of the cover 25 and the upper edges of the portions 36 of the trough-like base 15, as clearly shown in Fig. 1. From either side of the portion 35 extend three prongs 37 which serve to secure the cap in position, the center prongs being provided with a lip which engages with the outer edges of the apertures 38 located in the portions 36 of base 15, when the cap is in position on the structure.

It will be noted that when the cap is placed in position or removed therefrom, the portion 34 rides over the upper edges of the base portions 36 thereby subjecting the base to stresses and strains which, with the usual type mounting, would be imparted to the relay per se thereby causing the relay to be thrown out of adjustment. The same effect is experienced by the base 15 when the relay is being mounted on the relay mounting plate, it being understood that the relay is supported on the mounting plate by two screws which engage the rear end of the base 15 with the mounting plate.

By substantially isolating the mounting base 10 which supports the relay per se from the auxiliary mounting base 15, the former, and consequently the relay per se, do not experience the stresses and strains to which the base 15 is subjected. This is due to the fact that any stresses or strains experienced by the base 15 are of minimum magnitude and practically negligible at its transverse center line and since the relay mounting base 10 is secured to the base 15 substantially at its transverse center line, the forces which tend to throw the relay out of adjustment and which are transmitted to the relay mounting base 10 are therefore of minimum

magnitude and practically negligible and the relay adjustment is therefore stabilized.

What is claimed is:

1. A mounting for delicately adjusted electrical apparatus, comprising a mounting base upon which the apparatus is secured and supported and an auxiliary mounting base secured to said first mounting base substantially at its transverse center line only.

2. A mounting for delicately adjusted electrical apparatus, comprising a mounting base upon which the apparatus is secured and supported and an auxiliary mounting base secured at only two points to said first mounting base, the said points being positioned substantially on the transverse center line of said auxiliary mounting base.

3. A mounting for delicately adjusted electrical apparatus comprising two mounting bases, one of said mounting bases serving as a support for the electrical apparatus and the other of said mounting bases supporting said first mounting base in substantial equilibrium on a line support coinciding substantially with the transverse center lines of both said mounting bases.

4. A mounting for an electromagnetic relay, a mounting base upon which the elements of said relay are supported and a second mounting base in mechanical engagement with said first mounting base at but two points, said points being located substantially on the transverse center lines of both said bases.

5. In combination, a relay, a mounting base upon which said relay is supported, a second mounting base, a cover encasing said relay and said mounting bases, a cap for said cover adapted to exert a strain upon said second mounting base when placed in position and fastening means for securing said mounting bases together, so positioned that when said cap is placed in position the strain exerted thereby upon said second mounting base is not transmitted to said relay.

6. In combination, a relay, a mounting base upon which said relay is mounted, a trough-like receptacle housing said relay and its mounting base, a cover for said trough-like receptacle, relay and mounting base, a cap for said cover having a portion thereof fitting between said trough-like receptacle and said cover and capable of exerting a strain upon said receptacle when placed in position, and means joining said mounting base and said trough-like receptacle substantially at their transverse center lines only to render said relay immune to the strain exerted upon said trough-like receptacle by positioning said cap on said cover.

7. A mounting for delicately adjusted electromagnetic devices comprising a mounting base normally subject to stresses and strains, an auxiliary mounting base supporting said electromagnetic device, and means for rigidly securing said bases together substantially at their center lines and rendering said auxiliary mounting base and its associated electromagnetic device immune to the stresses and strains experienced by said first mounting base.

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