

[54] **TERMINAL ENCLOSURE**

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174/138 F, 66; 339/19, 31, 116, 198.2, 222, 272.1;
336/107, 105; 248/361 B, 27

[56] **References Cited**

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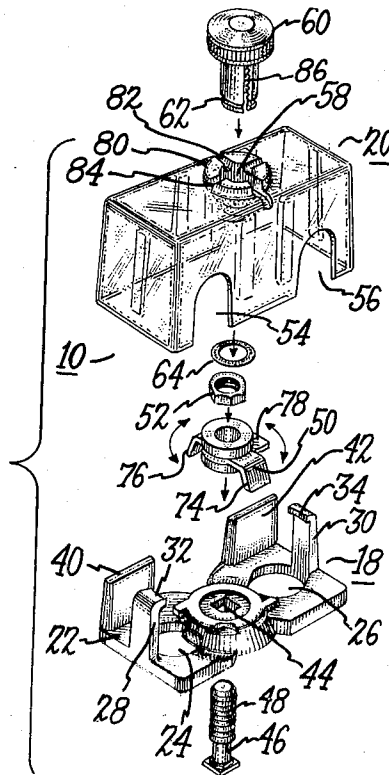
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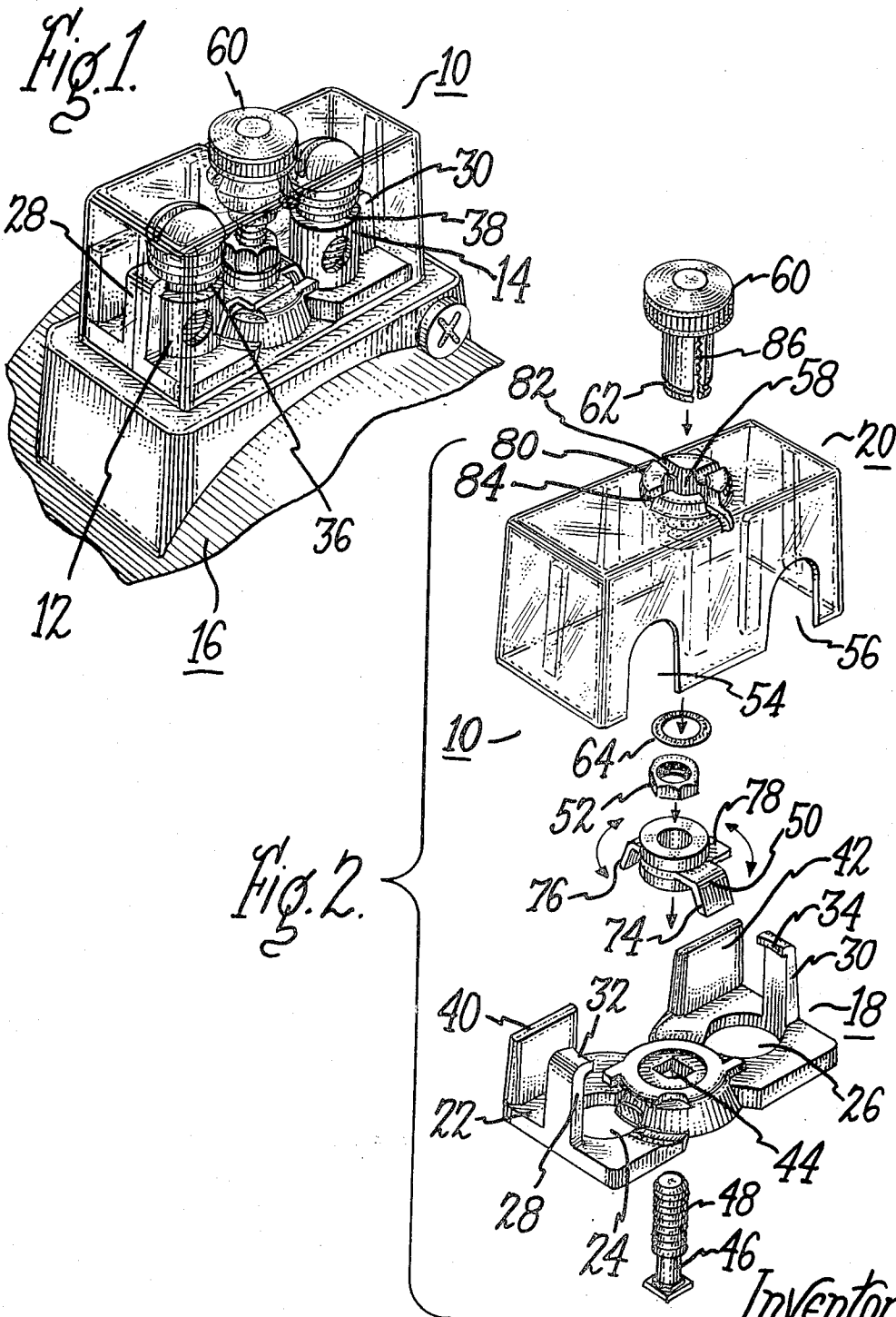
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ABSTRACT

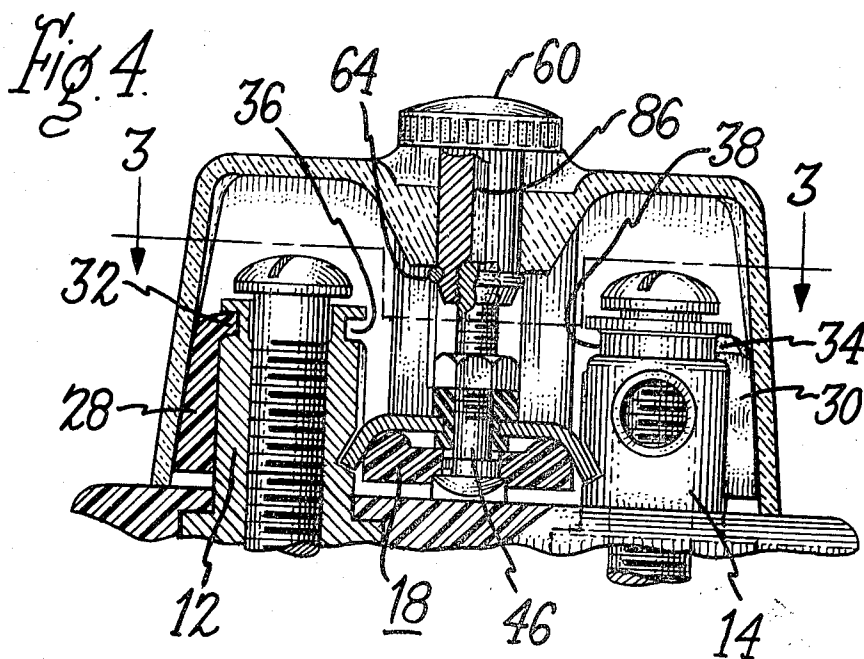
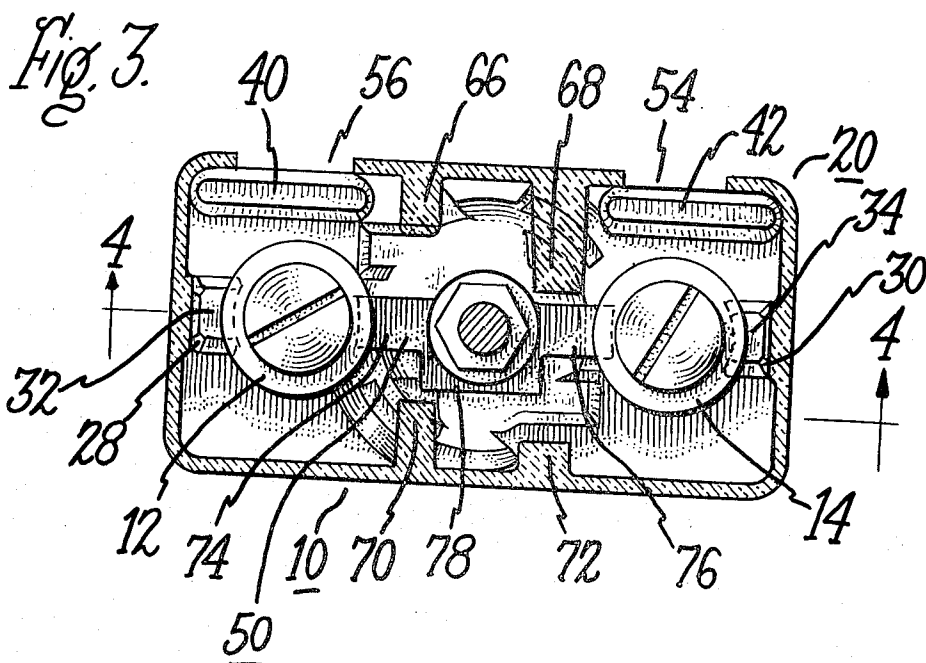
A terminal enclosure for the secondary terminals of an instrument transformer. The enclosure comprises a terminal block or securing member mounting on the secondary terminals. The securing or block member is provided with port barriers to bar access to the secondary terminals. A clear plastic box cover is provided made of electrically insulating material which fits over the terminal block member. A thumb nut is held captive in the cover and engages a stud on the securing member to secure the cover to such securing member for enclosing the terminals. A pair of ports are formed in the cover to provide access to the secondary terminals in one position of the cover. A short circuit device is mounted on the stud and interlocks with the cover such that the ports in the cover are barred when the shorting device is in its closed position.

4 Claims, 4 Drawing Figures





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TERMINAL ENCLOSURE

BACKGROUND OF THE INVENTION

This invention relates to instrument transformers and more particularly it relates to a terminal enclosure for the secondary terminals of an instrument transformer.

In the instrument transformer field, it has long been the practice to provide terminal enclosures for the secondary terminals of instrument transformers. These enclosures are provided to secure the connections to the secondary terminals and prevent tampering with such connections. The enclosure are also considered desirable to shield the secondary terminals from exposure to the elements and to prevent persons and metallic objects from coming in contact with such secondary terminals. As will be understood, the secondary terminals of an instrument transformer could under some circumstances provide a lethal shock to a person contacting them. Of course, a metallic object contacting the terminals of the transformer could short such terminals, causing the malfunction of any instruments connected thereto.

Many types of secondary terminal enclosures have been used previously. One example of a secondary terminal enclosure is disclosed in U.S. Pat. No. 3,283,062. While this type of terminal enclosure has proved very useful in the instrument transformer field, it has been found desirable to provide other types of terminal enclosures. It is considered desirable in the instrument transformer field to provide a terminal enclosure for the secondary terminals which performs the dual function of enclosing the terminals when the secondary leads are connected thereto and which may also be used to close off the secondary terminals when the transformer is not in use. It is also considered desirable to have the terminal enclosure of a transparent material such that the condition of the connections to the secondary terminals may be readily determined without removing the enclosure.

As is well known to those skilled in this art, it is often necessary to determine during manufacture whether or not a secondary enclosure will be provided on an instrument transformer. A desirable feature for instrument transformer manufacturing would be an enclosure which could be applied to an instrument transformer after manufacture, if desirable, without substantially increasing the cost of such transformers.

It is, therefore, a principle object of this invention to provide a novel secondary terminal enclosure for instrument transformers.

A further object of this invention is to provide a two-position enclosure for the secondary terminals of an instrument transformer.

Yet another object of this invention is to provide a terminal enclosure for the secondary terminals of an instrument transformer which includes a securing member which may be mounted on the secondary terminals and which will secure a cover member thereto.

A still further object of this invention is to provide a terminal enclosure for the secondary terminals of an instrument transformer which may be reversed if desired to change the lead access to such instrument transformer.

SUMMARY OF THE INVENTION

In carrying out this invention in one form, a terminal enclosure is provided which comprises a securing member and a cover member. The securing member is formed of electrically insulating material having a base portion with openings to fit over the secondary terminals of an instrument transformer. A pair of snap locks are provided on the base portion designed to lock the securing member to the secondary terminals. A center stud is provided on the base and may carry a shorting device. The cover member is formed of clear plastic electrically insulating material and is of substantially open box construction. Ports are provided in one side of the cover allowing access to the secondary terminals. A captive thumb nut is provided cooperating with the stud to fasten the cover to the securing member.

The invention which is sought to be protected will be particularly pointed out and distinctly claimed in the claims appended hereto. However, it is believed that this invention and the manner in which its various objects and advantages are obtained as well as other objects and advantages thereof will be more clearly understood from the following detailed description of a preferred embodiment particularly when considered in the light of the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of one form of terminal enclosure according to this invention enclosing the secondary terminals of an instrument transformer;

FIG. 2 is an exploded perspective view of the preferred form of terminal enclosure according to this invention;

FIG. 3 is a top sectional view of the preferred form of terminal enclosure in place on the secondary terminals of a transformer and taken on the line 3—3 of FIG. 4; and

FIG. 4 is a front sectional view taken on the line 4—4 of FIG. 3.

DESCRIPTION OF PREFERRED EMBODIMENT

Reference will now be made to the drawings wherein like numerals are used to indicate like parts, for a more complete description of the present preferred embodiment of this invention. While the following description sets forth the specific details of the present preferred embodiment, it will be apparent as the description proceeds, to those skilled in the art that various changes may be made without departing from the scope of the claimed invention.

FIG. 1 shows a perspective view of the preferred terminal enclosure 10 enclosing the secondary terminals 12 and 14 of an instrument transformer 16, only partially shown. FIG. 2 is an exploded perspective view of the preferred form of terminal enclosure 10. As can be seen from FIG. 2, the terminal enclosure 10 includes a securing member 18 and a cover member 20. The securing member 18 has a base portion 22 with openings 24 and 26 therein which fit over terminals 12 and 14 as is clearly apparent from FIG. 1. Snap locks 28 and 30 are formed on opposite ends of base member 22 include inwardly extending tabs or fingers 32, 34. The tabs or fingers 32, 34 cooperate with grooves 36 and 38 formed in the secondary terminals 12 and 14. This cooperate action of the fingers or tabs 32 and 34 and the grooves 36 and 38 of secondary terminals 12 and 14 is clearly shown in FIG. 4. Also formed on the securing member 18 are a pair of barriers 40, 42 which serve to block access to the secondary terminals 12 and 14 as will be more fully explained hereafter.

A central opening 44 is formed in base portion 22 for receiving a stud 46. Stud 46 is threaded at one end as at 48 and receives a shorting bar 50 which is used to short circuit the secondary terminals 12 and 14 as can be clearly seen in FIG. 1. The specific type of shorting bar is more fully described and claimed in U.S. application, Ser. No. 859,338 now U.S. Pat. No. 3,573,692 filed Sept. 19, 1969, for Secondary Terminal and Shorting Device in the name of Ralph B. Stetson and is assigned to the same assignee as this application. A nut 52 threads on the stud 46 holding it and the shorting bar 50 in place on securing member 18.

A cover member 20 is of open box construction as is shown and is desirably formed from a clear plastic electrically insulating material. The cover 20 has a pair of ports 54 and 56 formed in one side thereof to provide access to the secondary terminals 12 and 14. An opening 58 is provided in the top for a thumb nut 60. The thumb nut 60 is provided with a groove 62 which receives snap ring 64 for holding the thumb nut captive in the cover 20 in a manner well understood in this art. A plurality of bosses or projections are provided on the inner surface of cover member 20 to insure the proper positioning of cover 20. These projections cooperate with shorting bar 50 to insure that the cover 20 will only seat with ports 54 and 56 in the open access position when the shorting bar 50 is in open

position and will only seat with ports 54 and 56 barred by the barriers 40 and 42 when the shorting bar 50 is in shorting position. This is more clearly shown in FIG. 3.

FIG. 3 is a top sectional view of the enclosure 10 of this invention showing the enclosure 10 in position on the secondary terminals 12 and 14 of instrument transformer 16. As is clearly apparent from FIG. 3, the projections 66, 68, 70 and 72 are provided on the inner surface of cover 20. The projections 66, 68 and 70, 72 are spaced from each other on opposite walls, as is shown, to receive the contact ends 74, 76 of the shorting bar 50 therebetween. Thus, when the shorting bar 50 is in open position it is held in such position by the projections 66, 68 on one side and 70, 72 on the other side. The shorting bar 50 is also provided with a tab portion 78 along the center of such shorting bar 50. When the shorting bar 50 is in the closed or shorting position as is particularly shown in FIG. 3, projection 70 will almost contact tab portion 78 when cover 20 is in the position shown. As is clear from FIG. 3 in the shown position of cover 20, barriers 40 and 42 are blocking the ports 56, 54 of cover 20. As clearly appears from FIG. 3 should cover 20 be placed over terminals 12 and 14 with ports 56 and 54 on the opposite side, that is, with ports 56, 54 open to terminals 12 and 14, the projection 68 would contact or interfere with tabs 78 preventing the cover 20 from seating over the terminals 12 and 14. When the shorting bar 50 is rotated 90 ° counterclockwise to the open position (the position shown in FIG. 2), it will be apparent that tab 78 will contact or interfere with projection 68 in the port blocking position of cover 20. Thus, with the shorting bar 50 in open position, cover 20 would have to be reversed in order to seat properly over terminals 12 and 14. Of course, it will be apparent that projections 68 and 70 aid in retaining the shorting bar 50 in the shorted position, while projections 66, 68 and 70, 72 aid in retaining the shorting bar 50 in its open position when the cover is properly placed over the terminals 12 and 14.

From the above description, it will be apparent that the terminal enclosure 10 of this invention may be readily mounted on the secondary terminals 12 and 14 of an instrument transformer. Also, it will be clear that if desired the enclosure 10 may be readily removed and also may be reversed to allow lead entry from an opposite direction. Provisions are made on cover 20 and thumb nut 60 to seal the enclosure 10 as is usual with utilities. As is shown particularly in FIG. 2, the cover 20

has a raised portion 80 surrounding opening 58 which has a pair of slots 82 and 84 at right angles to each other. The thumb nut 60 is slotted as is shown at 86. When thumb nut 60 engages stud 46 at threads 48, slot 86 will be within the raised portion 80. The thumb nut may be rotated slightly in either direction to align slot 86 with either slot 82 or 84. A utility sealing wire or ribbon may then be placed through the aligned slots and sealed in the usual manner to prevent unauthorized removal of the cover 20.

While there has been shown and described the present preferred embodiment of this invention, it will be obvious to those skilled in this art that various changes may be made in the constructional details thereof without departing from the spirit and scope of the invention, especially as it is defined in the appended claims.

What is claimed as new and which it is desired to secure by Letters Patent of the United States is:

1. A terminal enclosure for the secondary terminals of an instrument transformer comprising, in combination;

a. a securing member including a base portion having openings to receive the secondary terminals, snap locking means on said base portion, said snap locking means acting to lock said securing member to the secondary terminals,

b. an open box cover member of clear plastic material, said cover member having a pair of ports in a side thereof to provide access to the secondary terminals and attaching means for attaching said cover member to said securing member.

2. A terminal enclosure as claimed in claim 1 in which a pair of barriers are formed on said base member, said barriers closing said ports in one position of said cover.

3. A terminal enclosure as claimed in claim 2 in which a shorting bar is provided, said shorting bar being mounted on a stud member in said base portion of said securing member, said shorting bar being movable between a shorting and an open position.

4. A terminal enclosure as claimed in claim 3 in which a plurality of projections are provided on the inner surface of said cover member, said projections cooperating with said shorting bar such that said cover member will only seat on said securing member in a position in which said barriers close said ports when said shorting bar is in a shorting position.

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