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3,058,612

COMBINATION PROTECTIVE COVER AND STANDARD FOR AN INSTRUMENT

Filed Oct. 12, 1959

3 Sheets-Sheet 1

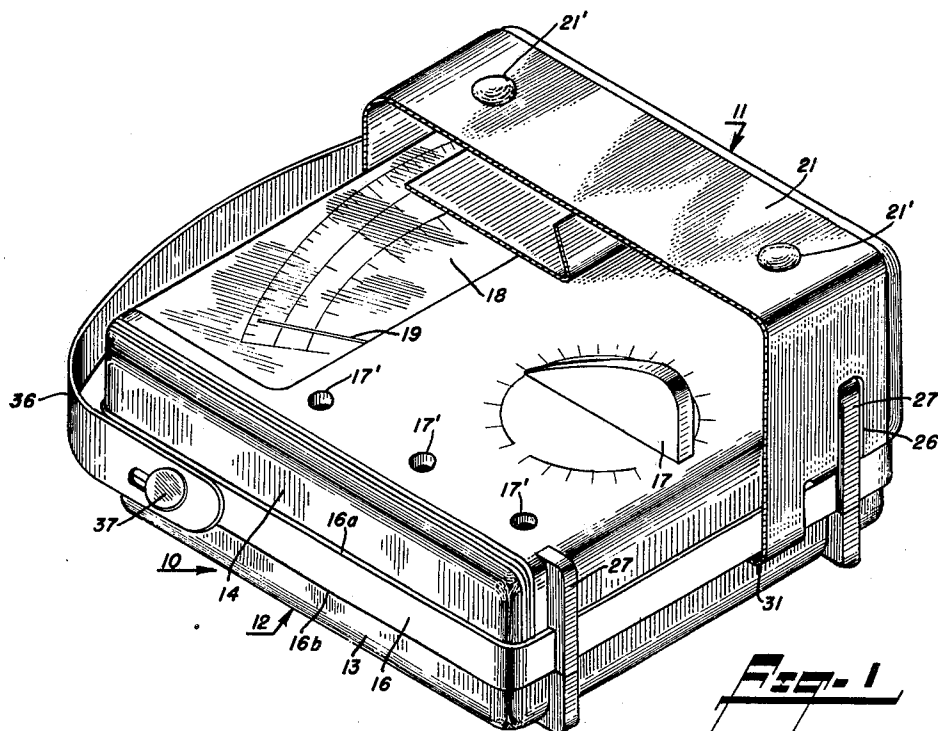


Fig. 1

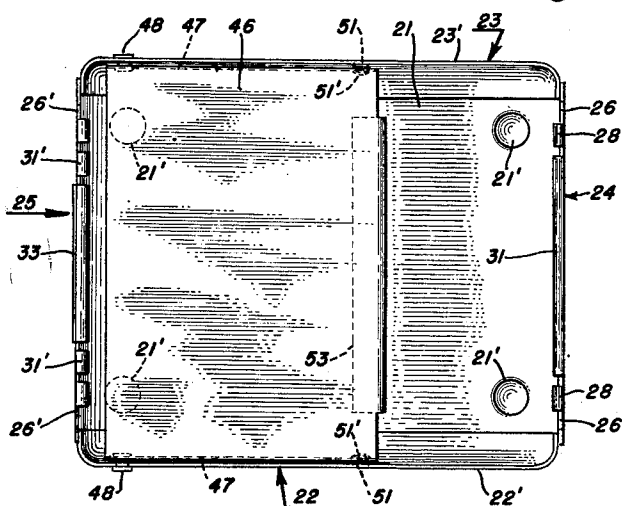


Fig. 2

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3 Sheets-Sheet 2

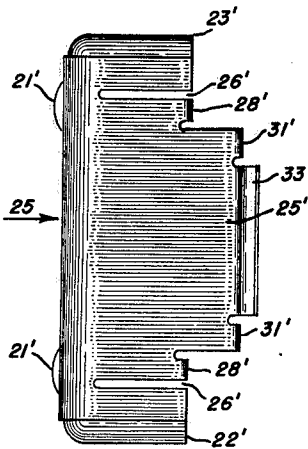


Fig- 4

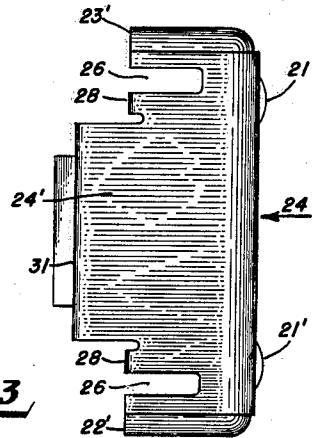


Fig- 3

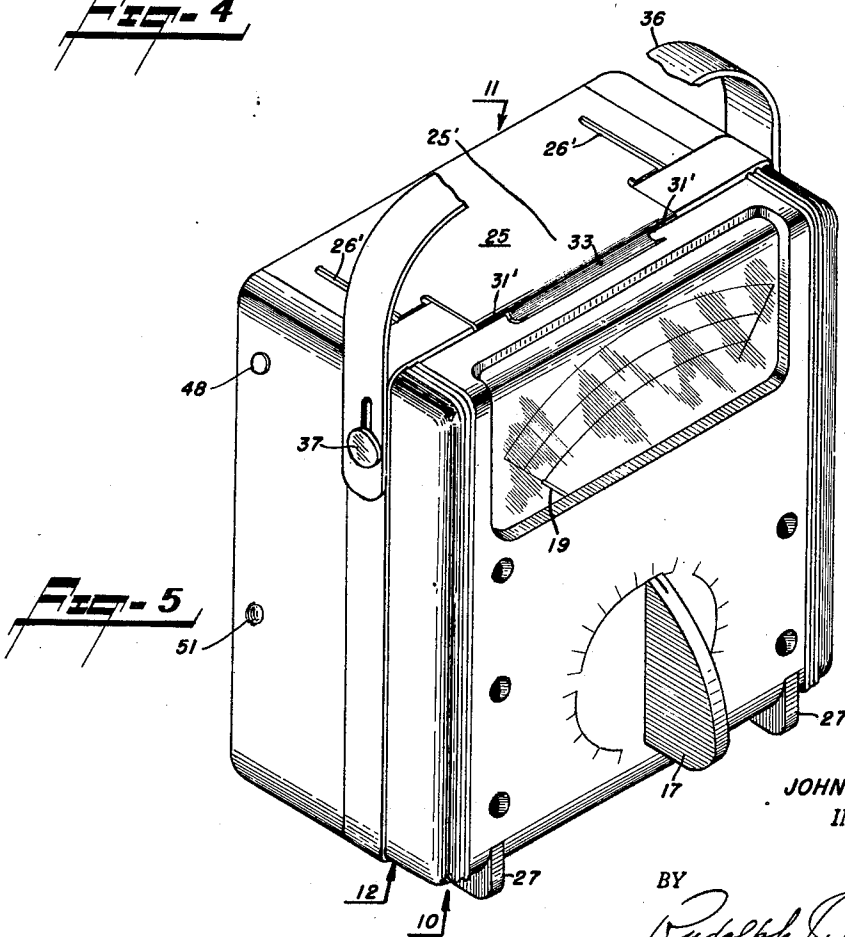


Fig- 5

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3 Sheets-Sheet 3

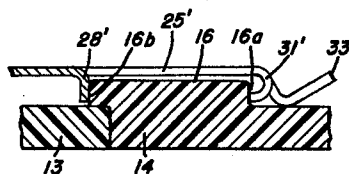
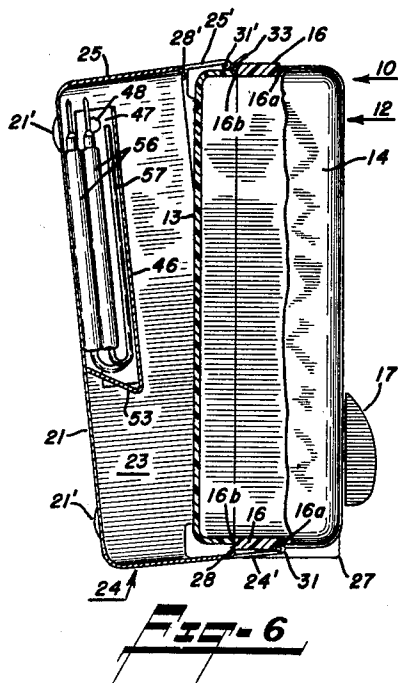


Fig. 8

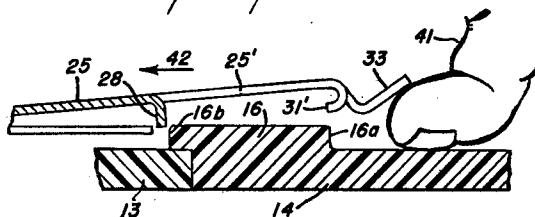


Fig. 9

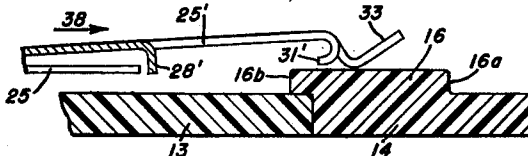
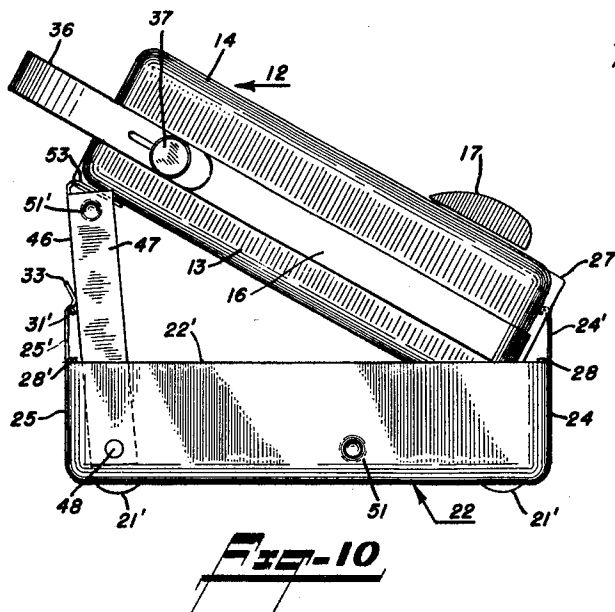


Fig. 7



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COMBINATION PROTECTIVE COVER AND
STANDARD FOR AN INSTRUMENT

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Filed Oct. 12, 1959, Ser. No. 845,868
1 Claim. (Cl. 220-60)

This invention relates to a portable instrument and more particularly to a combination protective cover and standard for use with a portable electrical instrument.

Electrical instruments, such as voltmeters, ammeters, ohm-meters, or combination volt-ohm-ammeter, and the like, are sometimes provided with a case having a pivotal or roll-top type cover, or the like, the function of which cover is to protect the instrument meter, switching knobs, and like members when in place on the instrument. Standards for the support of instruments are also known. This invention relates to a multi-purpose device for use with electrical instruments, which device serves the function of a protective cover during the transportation of the instrument, and which serves as a standard for supporting the instrument horizontally, vertically, or at a convenient viewing angle during use of the instrument. The said cover includes a pivotally supported panel member therewithin behind which accessories, such as test leads and instruction booklets or manuals may be stored. The panel member is pivoted outwardly from the cover for access to such accessories, and for the inclined support of the instrument.

An object of this invention is the provision of a novel combination protective instrument cover and standard which is of a rugged construction for the safe protection of the covered instrument and which is adapted to stably support the instrument in any one of several different positions, as desired.

An object of this invention is the provision of a protective cover which is easily snapped into position over the instrument, and which is easily removed from the said instrument.

An object of this invention is the provision of a protective cover for an electrical instrument which cover includes a panel member pivotally secured therewithin, the said panel member being adapted to be unfolded into an extended position from the cover adjacent one end thereof to thereby provide means for supporting the instrument at a convenient viewing angle, the said panel member functioning as a wall of a storage compartment for accessories, such as an instruction booklet or manual, instrument test leads, and the like, when folded down into the said cover.

An object of this invention is the provision of a protective cover device which is adapted to snap over either the front or the back of an electrical instrument, the said device functioning as a protective cover when placed on the front of the instrument, and providing an enlarged base for the support of the instrument when placed on the rear of the instrument.

These and other objects and advantages will become apparent from the following description when taken with the accompanying drawings. It will be understood, however, that the drawings are for purposes of illustration and are not to be construed as defining the scope or limits of the invention, reference being had for the latter purpose to the appended claim.

In the drawings wherein like reference characters denote like parts in the several views:

FIGURE 1 is a top perspective view of an electrical instrument closed by the novel protective cover of my invention, the cover being shown in sectional view for clarity;

FIGURE 2 is a bottom plan view of the cover;

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FIGURES 3 and 4 are opposite side views of the cover showing those sides which include the means for securing the cover to the instrument case;

FIGURE 5 is a perspective view of an electrical instrument showing the cover secured to the back thereof for either vertical or horizontal support of the instrument while the instrument is in use;

FIGURE 6 is a vertical sectional view showing the protective cover being placed upon the back of an electrical instrument case;

FIGURE 7 is an enlarged fragmentary sectional view showing one side wall of the cover in advanced engagement with the instrument case;

FIGURE 8 is a view which is similar to FIGURE 7 only showing the one side wall of the cover in final engagement with the instrument case;

FIGURE 9 is a view which is also similar to FIGURE 7 only showing the one side wall flexed to disengage the same from the instrument case; and

FIGURE 10 is a side view of the instrument supported at a convenient viewing angle on the said inverted protective cover.

Reference is first made to FIGURE 1 of the drawings wherein there is shown an electrical instrument, designated by the reference numeral 10, which instrument is provided with a protective cover 11 embodying my invention, the cover being shown in sectional view therein. The cover, which serves also as a standard for the instrument, is shown positioned over the face of the instrument in FIGURE 1, thereby functioning as a protective cover for the instrument. The instrument case 12, shown in the drawings, comprises a generally rectangular shaped base 13 which is closed by a cover member 14. An outwardly extending flange, or rib, 16 is formed on the cover member and extends about the entire periphery of the case 12. The flange 16 serves as an attaching member for securing the protective cover 11 to either the front or back of the instrument case 12, in a manner described in detail hereinbelow.

In the drawings, the instrument illustrated includes a range and selector switch knob 17 and suitable jacks 17' for the connection of test leads thereto, whereby the instrument may be used for the measurement of voltage, resistance and current. The case is provided with a window 18 made of suitable transparent material and behind which is located an instrument scale plate having suitable indicia and over which scale plate a pointer 19 is adapted to move. It will here be understood that the said case may house any type instrument. That is, the invention is not limited to the electrical instrument shown in the drawings; the particular instrument housed within the instrument case forming no part of this invention.

Reference is now also made to FIGURE 2 of the drawings wherein the protective cover 11 is shown comprising a generally flat, rectangular-shaped, top member 21 having four outwardly extending protrusions 21' located adjacent the corners thereof, which protrusions serve as legs for the support of the cover. The protective cover may be made of cold rolled steel, for example, or any other suitable metal having sufficient strength and flexibility. The cover top 21 is provided with four connected side walls 22, 23, 24 and 25, which extend at right angles with the said cover top, and two opposite side walls 24 and 25 being shown, also, in FIGURES 3 and 4, respectively. The side walls 22 and 23 terminate in straight-line edges 22', 23', and when the protective cover is attached to the instrument case, the said edges 22', 23' are located a short spaced distance from either the upper or lower face of the case flange 16, depending upon whether the cover is mounted on the front or back, respectively, of the instrument case. In the drawings, the upper and lower faces of the flange 16 are

designated 16a and 16b, respectively, for purposes of identification and description.

The other opposite side walls 24 and 25 are provided with means for securing the protective cover to the case. The one side wall 24, as seen in FIGURES 2 and 3, is provided with a pair of parallel slots 26, 26 which extend from the free edge of the said wall. The slots are suitable size and shape to accommodate elongated legs 27, 27 formed on one side of the case, as seen in FIGURE 1, when the cover is attached to the front or back of the case. Abutment, or stop, members 28, 28 are formed adjacent the slots 26, 26, which abutments comprise intumed lips at the free edge of the said side wall 24, the said stop members being adapted to abut either the upper or lower face 16a or 16b, respectively, of the flange 16 when the protective cover is secured to the instrument case. The side wall 24, between the said abutment, or stop members, 28, 28 extends beyond the said stop members for a distance of substantially the height of the instrument case flange 16 between the flange faces 16a and 16b. The said integrally formed extension wall, designated 24', is provided with an inwardly directed, reverse bend, or lip, 31 which is adapted to engage one face 16a or 16b of the case flange when the said protective cover is secured to the case. Thus, as seen in FIGURE 1, the protective cover is secured to the instrument case at one side thereof by means of the abutments 28, 28 and the lip 31; the abutments 28, 28 preventing further movement of the protective cover 11 onto the instrument case while the lip 31 prevents the removal of the said protective cover therefrom.

The side 25 of the protective cover 11, opposite the above-described side 24, is somewhat similar in construction to the side 24 and includes, as seen in FIGURES 2 and 4, a pair of spaced-apart elongated slots 26', 26' extending from the free edge of the wall 25. Unlike the slots 26, 26 in the wall 24, the slots 26', 26' are included therein for the purpose of providing flexibility to the side wall portion therebetween, and are narrower, and extend for a greater length than the slots 26, 26. A pair of abutment members 28', 28', comprising intumed lips at the free edges of the side wall 25, are formed adjacent the said slots 26', 26', and a pair of inwardly directed lips, or reverse bends 31', 31' are integrally formed in the side wall extension, designated 25', adjacent the stop members 28', 28'. An outwardly directed and inclined extension 33 is integrally formed on the side wall extension 25' between the said lips 31', 31' which extension provides means for aiding in both the attachment and the removal of the protective cover from the case, in a manner described hereinbelow.

Reference is now made to FIGURE 5 of the drawings wherein the said protective cover 11 is shown attached to the rear of the instrument 10. As seen in FIGURE 5, the lips 31', 31' engage the front face 16a of the case flange 16 to thereby prevent the removal of the protective cover from the case, while the stop members 28', 28' (which are not visible in FIGURE 5) abut the rear face 16b of the flange 16 to prevent the further engagement of the cover onto the instrument. It will be understood that the lips 31, 31 and stop members 28, 28 on the opposite wall 24 engage the flange 16 at the opposite end of the case in a similar manner. Although the instrument 10 is adapted to set in a vertical position upon the legs 27, 27 formed on the case, without the protective cover secured thereto, with the protective cover attached to the rear of the instrument, as shown in FIGURE 5, additional base surface is provided for the stable support of the instrument whereby the instrument is not easily tipped over when setting vertically. Since the protective cover adds to the stability of the instrument by the enlargement of the supporting base, it will be understood that the instrument case 12 may be made of a relatively small dimension from the front to the back thereof, and still be used in the vertical position without easily tipping

when the protective cover is secured to the rear thereof.

It will here be noted that the instrument includes a carrying handle 36 secured to the instrument case 12 by means of lugs 37, 37 at the flange 16. As seen in FIGURES 1 and 5, the carrying handle remains accessible when the protective cover is secured to either the face or back of the instrument case, for easy transportation of the instrument.

The protective cover is easily and simply attached to the instrument case in a substantially jam-proof manner. Reference is now made to FIGURE 6 wherein the protective cover is shown in the process of being attached to the rear of the instrument case. It will be noted that the lip 31 on the side wall 24 of the cover is first hooked over the face 16a of the case flange 16 at the side of the instrument which includes the legs 27, 27, and the inclined extension 33 on the other side wall 25 of the case is butted against the flange 16 at the opposite sides of the case. Referring, now, to FIGURE 7, the protective cover is next pushed in the direction of the arrow 38 whereupon the wall 25 between the slots 26', 26' is flexed outwardly as the extension 33 and then the lips 31', 31' engage the face of the flange 16. Upon continued pushing of the protective cover onto the instrument case, the lips 31', 31' reach the upper edge 16a of the flange 16 and the flexed portion of the wall 25 snaps back into normal position whereupon the extension wall 25', together with the lips 31', 31' and stops 28', 28' straddle the flange 16 in a manner shown in FIGURE 8. It will here be understood that in order to attach the protective cover to the face of the instrument case the above-described steps are performed with the face of the instrument extending into the protective cover rather than the rear thereof, as illustrated.

The protective cover is also easily removed from the instrument. Referring, now, to FIGURE 9, it will be seen that the protective cover may be removed from the instrument case by extending a finger, designated 41, behind the inclined extension 33 and raising the flexible portion of the wall 25 from the instrument case to disengage the lips 31', 31' from the flange 16. By then merely pushing on the cover in the direction of the arrow 42, the protective cover is removed from the instrument.

Reference is again made to FIGURES 2 and 6 wherein there is shown a panel member 46 pivotally mounted within the protective cover 11. The panel 46 is provided with a pair of parallel extending side walls 47, 47 which are hingedly fastened to the side walls 22 and 23 of the cover by rivet-type hinge pins 48, the panel 46 being pivotally mounted about the axis of the rivets 48 which serve as hinge members. A catch construction is provided by protrusions and indentations 51, 51 and 51', 51', respectively, spaced from the said hinge construction. An end wall 53 is formed on the panel 46 between the side walls 47, 47, which end wall 53 forms an acute angle with the panel. The wall 53 is easily grasped by one's fingers to thereby pivot the panel outwardly from the closed position shown in FIGURE 6 to a raised position, as shown in FIGURE 10.

Referring to FIGURE 10, the panel 46 may be pivoted into abutting relation with the extension 33 on the end wall 25. In this position, the protective cover is adapted for use as a standard for the inclined support of the instrument 10. The back of the instrument is adapted to rest upon the end wall 53 of the panel 46, the rear face 16b of the flange 16 on the instrument case rests upon the edges 22' and 23' of the opposite side walls 22 and 23 (only the side wall 22 being visible in FIGURE 10) and the side of the instrument case which includes the legs 27, 27 abuts the extension 24' of the side wall 24 of the protective cover in the illustrated inclined supported arrangement. The instrument is thereby positioned at a convenient viewing angle on a stable base or support.

In addition to serving as a supporting member for the angular support of the instrument when pivoted to

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the extended position shown in FIGURE 10, the panel 46, when latched within the protective cover as seen in FIGURE 6, provides a convenient storage space for instrument accessories, such as test leads, and for the storage of an instruction manual, or the like, for the instrument; said storage area being provided between the panel 46, side walls 47, 47 and end wall 53 of the panel, and portions of the cover top 21 and cover side 25. In FIGURE 6, a pair of probes 56, 56 are shown stored there-within, together with a booklet 57.

Having now described my invention in detail in accordance with the requirements of the patent statutes, various changes and modifications will suggest themselves to those skilled in this art, and it is intended that such changes and modifications shall fall within the spirit and scope of the invention as recited in the following claim.

I claim:

A protective cover for an instrument case of the type which includes a pair of generally parallel extending opposite sides each with an outwardly-extending flange formed thereon which flanges each include oppositely facing wall portions thereon, the said protective cover comprising a top member, a pair of side walls extending in the same direction from opposite sides of the top member,

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inwardly turned spaced lips formed on each of the said side walls, which lips are adapted to be positioned adjacent the oppositely facing wall portions of the flanges on the instrument case to thereby secure the cover to the said case, means forming a pair of elongated slots on one of the said cover end walls which slots extend from the free edge of the said end wall, the end wall portion between the said slots carrying at least the one lip nearest the free edge of the side wall, the end wall portion carrying the said lip being flexed outwardly when attaching and removing the cover from the instrument case.

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