United States Patent

Gillemot et al.

[15] **3,665,991**

[45] **May 30, 1972**

[54] PROTECTIVE ENCLOSURE FOR TEST INSTRUMENT

[72] Inventors: **George W. Gillemot**, 2331 20th St., Santa Monica, Calif. 90405; **John T. Thompson**, 244 Loring St., Los Angeles, Calif. 90024

[22] Filed: **July 24, 1970**

[21] Appl. No.: **57,912**

[52] **U.S. Cl.** .....**150/52 R**, 73/431, 324/156

[51] **Int. Cl.**.....**B65b 11/00**

[58] **Field of Search**.....150/52 R, 52 J, 52 K; 324/156; 73/431

[56] **References Cited**

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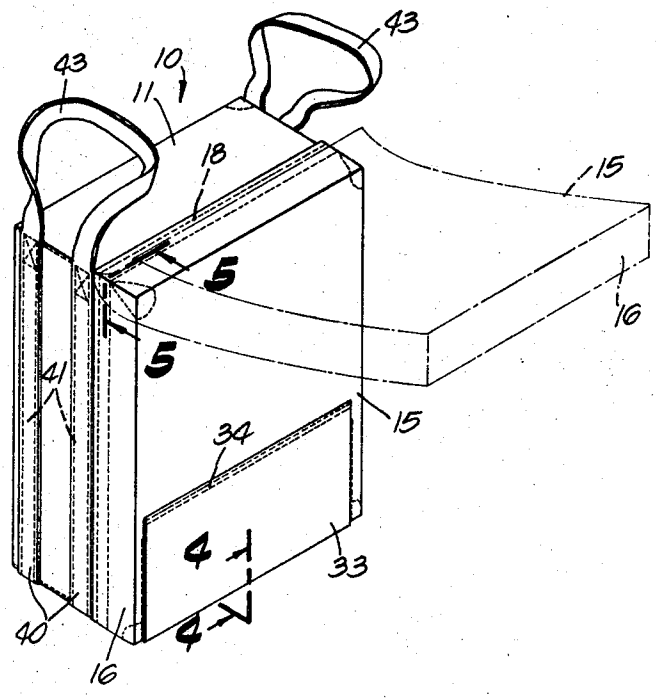
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Primary Examiner—Joseph R. Leclair
Assistant Examiner—Stephen P. Garbe
Attorney—Sellers and Brace

[57] **ABSTRACT**

A weather-proof flexible enclosure for electrical test equipment commonly used in the field. The enclosure or casing has a built-in window of flexible transparent material with sufficient excess to permit the user to manipulate, from the exterior thereof, control elements on a panel of test equipment housed in the casing. Loops of strip material secured to the enclosure serve to reinforce the saem as well as to carry and to suspend it in the filed from any convenient support.

8 Claims, 6 Drawing Figures



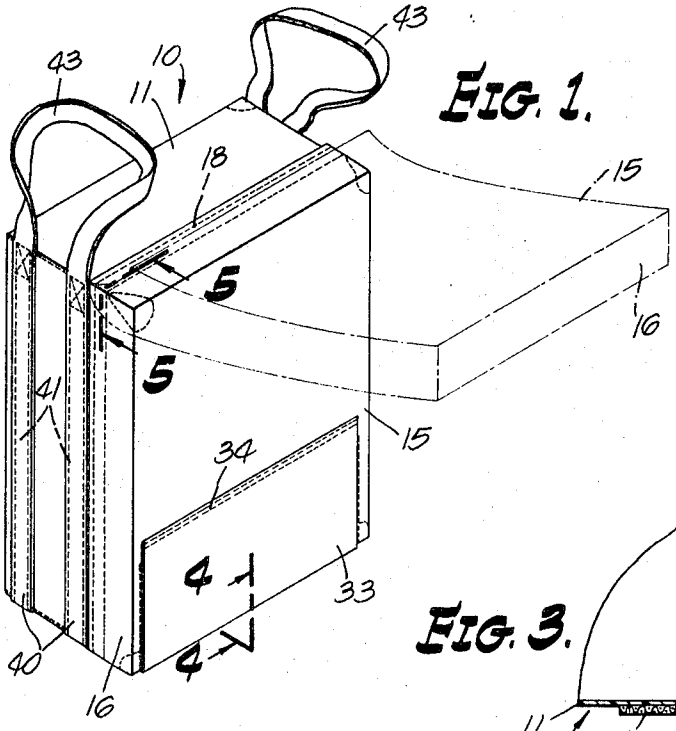


FIG. 1.

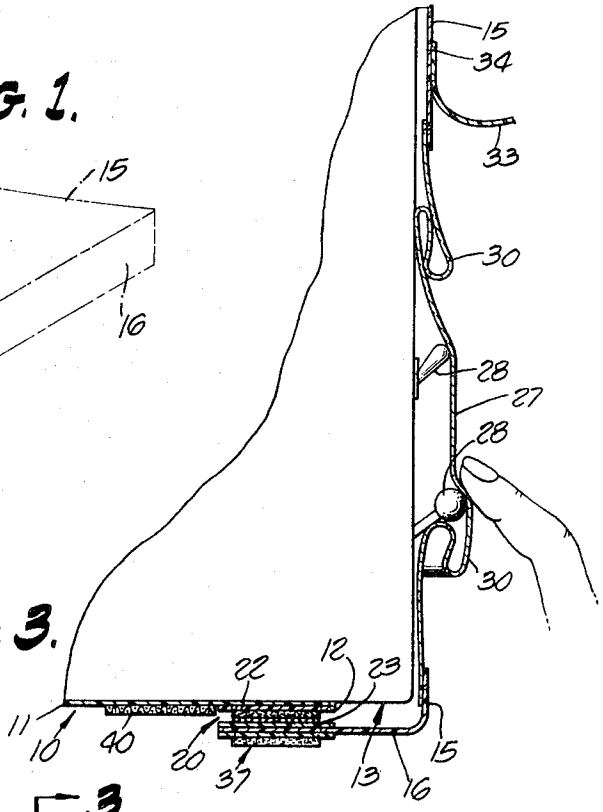


FIG. 3.

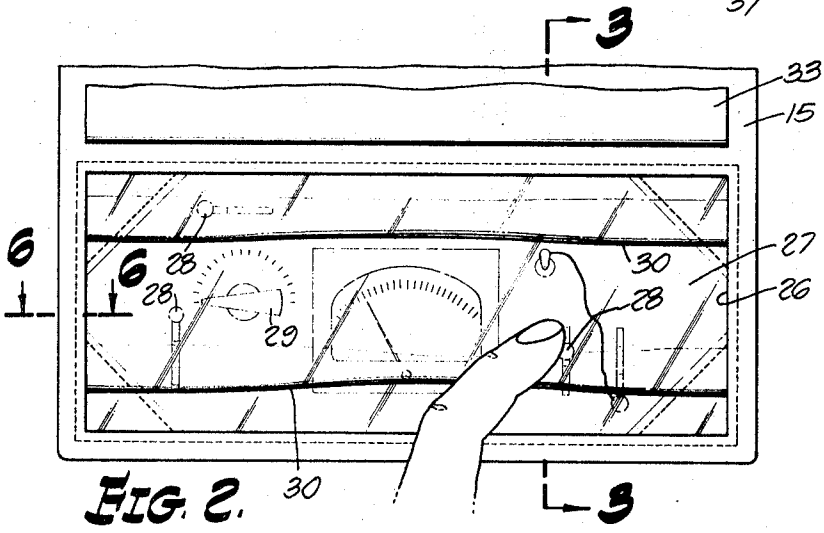


FIG. 2.

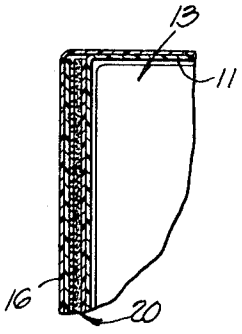


FIG. 5.

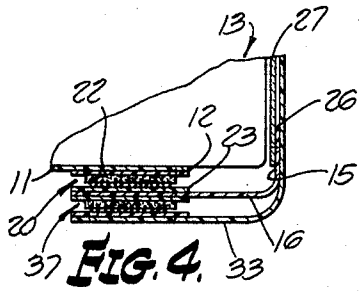


FIG. 4.

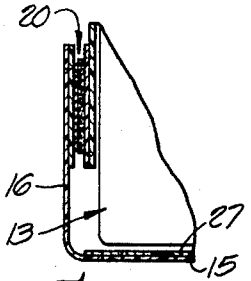


FIG. 6.

INVENTORS.
GEORGE W. GILLEMOT
JOHN T. THOMPSON
BY

ATTORNEYS

PROTECTIVE ENCLOSURE FOR TEST INSTRUMENT

This invention relates to carrying cases for electrical test equipment and more particularly to an improved, versatile, lightweight, weatherproof enclosure sized to fit snugly over a test instrument and equipped with a pair of covers and featuring a window of flexible transparent material folded to provide excess through which the instrument controls can be manipulated.

The casing is tailored to fit snugly the particular instrument to be protected and includes a main access opening through which the instrument proper is installed. Desirably this cover has wide flanges equipped with a non-tacky pressure-sensitive fastener without moving parts or portions protruding through apertures in the rim of the cover and having no mechanical parts requiring servicing or exposure to hazards in the use of the equipment. One or more walls of the casing are equipped with a window opposite an associated instrument panel or controls which window is closed by excess flexible transparent material so arranged that the controls can be manipulated therethrough and yet effective to prevent the passage of moisture and foreign matter. This window is preferably protected by a cover flap equipped with suitable fastener means, such as that employed for holding the main cover closed.

Another feature of the invention instrument case is the provision of reinforcing straps secured about three sides of the casing and including a pair of loops usable as carrying grips and additionally to suspend the instrument in the field from any available support.

Accordingly, it is a primary object of the present invention to provide a lightweight, inexpensive, protective enclosure for electrical test equipment of the type commonly used in the field and so designed as to permit observation and control of the instrument controls without need for opening the enclosure or exposing its contents to the weather or foreign matter.

Another object of the invention is the provision of an improved enclosure for electrical test equipment embodying carrying handles embracing a major part of the equipment and usable additionally to suspend it from any available support.

Another object of the invention is the provision of a protective enclosure for field test equipment having a window of excess flexible, transparent material closely overlying a control panel and through which controls can be manipulated and observed without opening the main enclosure.

These and other more specific objects will appear upon reading the following specification and claims and upon considering in connection therewith the attached drawing to which they relate.

Referring now to the drawing in which a preferred embodiment of the invention is illustrated:

FIG. 1 is a perspective view of an illustrative embodiment of the invention in fully closed condition;

FIG. 2 is a fragmentary front elevational view of the invention enclosure taken opposite the instrument viewing window and showing the window cover in open position;

FIG. 3 is a fragmentary cross sectional view on an enlarged scale taken along line 3—3 on FIG 2; and

FIGS. 4, 5 and 6 are fragmentary cross sectional views taken on an enlarged scale taken along lines 4—4 and 5—5 on FIG. 1 and along line 6—6 on FIG. 2.

Referring initially more particularly to FIG. 1, there is shown a preferred embodiment of the invention casing, designated generally 10, formed of any suitable, strong, lightweight, waterproof material such as cotton or fiberglass fabric impregnated with waterproofing material or an elastomeric coating of any well known composition. Enclosure 10 has a deep, cup-shaped main body 11 provided with an access opening 12 (FIG. 3) here shown as being coextensive in size with the larger upright dimension of the instrument 13 for which enclosure 10 is designed. Access opening 12 is normally closed by a cup-shaped cover 15 made of the same coated material as main body 11. The wide flange 16 embracing the periphery of cover 15 has a snug fit over the exterior of access opening 12, as is best illustrated in FIGS. 3 and 6. As herein shown, cover 15 is hinged to the top end of casing 11 by stitching 18.

Normally, cover 15 is held securely closed about the rim of access opening 12 by a dust-proof, concealed fastener means 20. Preferably fastener means 20 is of the pressure-sensitive mechanical type available on the open market as, for example, the type known commercially under the tradename Velcro. This fastener comprises an inner tape 22 secured about the exterior of the casing wall adjacent access opening 12 and featuring loosely matted fibers adapted to interlock releasably with a multiplicity of flexible plastic barbs carried by a second tape 23 secured to the inner surface of cover flange 16. The barbs on tape 23 readily interlock with the fibers of tape 22 as light pressure is applied to press these barbs into the fiber. Opening of the fastener is accomplished by grasping the rim edge of flange 16 and peeling it out of engagement with the fibers of tape 23. So long as wide versions of the fastener tapes are mated the cover is held firmly and securely closed and it is virtually impossible for moisture or foreign matter to escape therepast into the interior of enclosure 10.

Referring now more particularly to FIGS. 2 and 3, it is pointed out that one wall of enclosure 10 such as the cover 15, is provided with a window 26 opposite the instrument panel of test equipment 13. This window is sealed closed by a sheet of tough, transparent, flexible, plastic material 27 in a manner providing ample excess material to permit easy manipulation therethrough of the switches 28 and the control knob or knobs 29 on the instrument panel. As here shown, switches 28 are of the well known toggle type, whereas control knob 29 is of the rotary type, However, both may be of various well known constructions. One practical mode of providing excess window material is to drape it in transverse folds 30,30 overlying control knobs or switches to be manipulated. Excess material together with its suppleness and flexibility permits the operator to grasp the control elements to manipulate them as necessary to operate the test equipment. It will also be apparent that the control positions and instrument readings are readily observed through the window.

Additional protection for the window and the control elements is desirably provided, as by a flap cover 33 of the same material as the main body of the enclosure. Window cover 33 is stitched or otherwise secured to the enclosure along one edge of the window as by stitching 34. The opposite rim portion of cover 33 is equipped with pressure sensitive fastener means 37 of the same type described above and employed to hold main cover 15 in closed position.

To facilitate carrying and handling the equipment in the field, enclosure 10 is preferably provided with heavy-duty flexible tapes or straps 40,40 secured to the main body of the enclosure as by stitching 41. Straps 40, as herein shown, extend along the opposite vertical ends and across the lower end of the enclosure and include loops 43 projecting above the upper ends of the enclosure. Desirably these loops include adequate material to permit one loop to be inserted through the other, if this should be desirable in order to suspend the equipment from a single support in the field. Also, the two grips 43 may be brought together and used as hand grips in carrying the instrument in a single hand.

While the particular protective enclosure for test instrument herein shown and disclosed in detail is fully capable of attaining the objects and providing the advantages hereinbefore stated, it is to be understood that it is merely illustrative of the presently preferred embodiment of the invention, and that no limitations are intended to the details of construction or design herein shown other than as defined in the appended claims.

We claim:

1. A protective enclosure for use about a field electrical test instrument of the type having a casing including an exposed panel equipped with manually adjustable control elements and visually readable indicia useful in testing electrical equipment in the field, said protective enclosure comprising a heavy duty flexible waterproof wrapper sized for snug assembly about and fully enclosing said instrument casing, said wrapper having a window in juxtaposition to said instrument control panel including a sheet of pliant transparent material arranged in

pleated fulness with excess material closely overlying control elements on said panel which control elements are manipulatable through said pleated fulness, said transparent sheet and protective enclosure cooperating to protect testing equipment and its instrument panel in inclement weather without interferring with its use and the manipulation of its control elements, one face of said main body having an access opening, a shallow cup-like cover for said access opening hinged along one rim edge of said access opening, the interior surfaces of the sidewalls of said cover having a snug overlapping fit with the exterior sidewalls of said main body adjacent the rim of said access opening, fastener means normally holding the rim of said cover closed over said access opening, a second cover of flexible sheet material having one edge thereof hinged to said first mentioned cover along one edge portion of said window and of a size adequate to cover and protect said window when closed thereover, and releasable means for securing said second cover closed over said window when the latter is not in use.

2. A protective enclosure as defined in claim 1 characterized in that said fastener means comprises a multiplicity of pressure sensitive interlocking elements of flexible material.

3. A protective enclosure as defined in claim 1 characterized in that said fastener means comprises pairs of tapes of flexible material secured one to the rim portion of said access opening and one to the rim portion of said cover, said tapes being separably mateable to secure said cover closed.

4. A protective enclosure as defined in claim 1 characterized in that said releasable means for said second window comprises a multiplicity of pressure sensitive interlocking elements of flexible material.

5. A protective enclosure as defined in claim 1 characterized in the provision of a pair of flexible loops of strong strip material secured to the opposite upper end corners thereof and usable selectively as carrying hand grips for said protective enclosure and its contents and as means for suspending said protective enclosure from a wall bracket, the footsteps on a telegraph pole and the like type supports available in an outdoor operating environment.

6. A protective enclosure as defined in claim 5 characterized in that said pair of loops and the strip material thereof extend downwardly along the opposite ends and across the bottom of said protective enclosure so as to embrace three exterior sides of said enclosure to strengthen and reinforce the same.

7. A protective enclosure as defined in claim 5 characterized in that said window is located in a vertical sidewall of said protective enclosure located between said pair of carrying loops.

8. A protective enclosure as defined in claim 7, characterized in that the hinge for said cover is located between said carrying loops, and said hinge for said window cover being along the edge of said window closer to the top edge of said protective enclosure.

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