

[54] **INSTRUMENT CASE FOR MOUNTING ON A PANEL**

[75] Inventor: **Maurice Harrold**, Warley, England

[73] Assignee: **Joseph Lucas (Industries) Limited**,
Birmingham, England

[22] Filed: **Dec. 14, 1970**

[21] Appl. No.: **97,966**

1,257,785	2/1918	Benzinger	285/360 X
2,005,792	6/1935	Leins	248/27 X
2,586,869	2/1952	Sculthorpe.....	248/27 X
2,745,275	5/1956	Jacobi.....	248/27 X

Primary Examiner—Thomas F. Callaghan
Attorney—Holman & Stern

[30] **Foreign Application Priority Data**

Dec. 15, 1969 Great Britain 60,976/69

[52] U.S. Cl. **248/27, 285/205**

[51] Int. Cl. **G12b 9/10, F16l 41/00**

[58] **Field of Search**..... 248/27; 285/205,
285/206, 209, 210, 360, 361, 362, 396;
339/129, 90 R, 90 C, 90 F

[56] **References Cited**

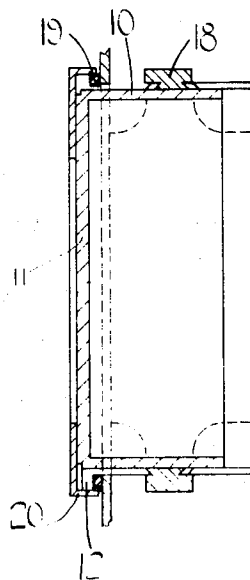
UNITED STATES PATENTS

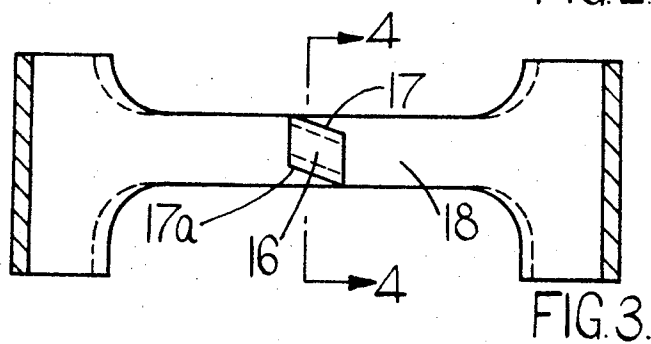
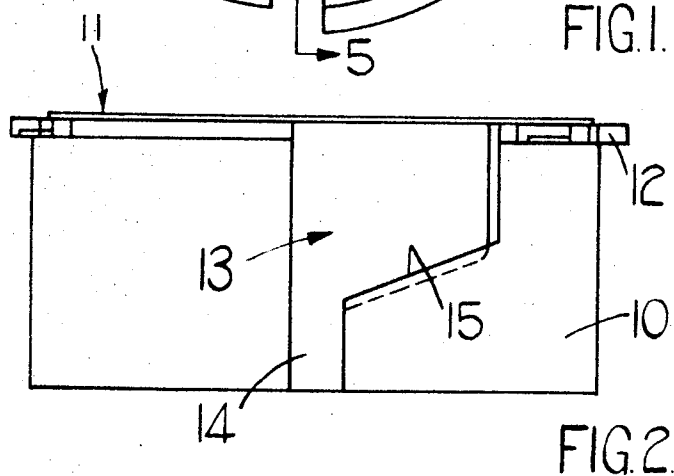
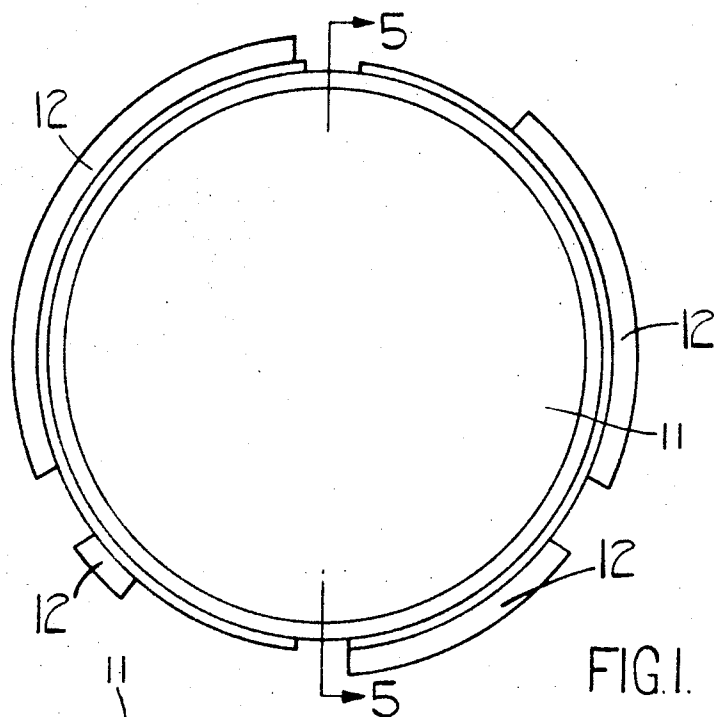
1,272,714 7/1918 Reinhalter 285/360 X

[57] **ABSTRACT**

An instrument casing has a flanged body with a flange at one end. The side wall of the body has recesses which define inclined ramp surfaces. A flexible clamping ring with inward projections having inclined end surfaces is engaged with the body to clamp it to a panel and these end surfaces and the interengaged ramp surfaces are undercut to prevent outward flexing of the ring.

4 Claims, 5 Drawing Figures





INVENTOR

Maurice Harold
Wolman & Stern
 ATTORNEYS

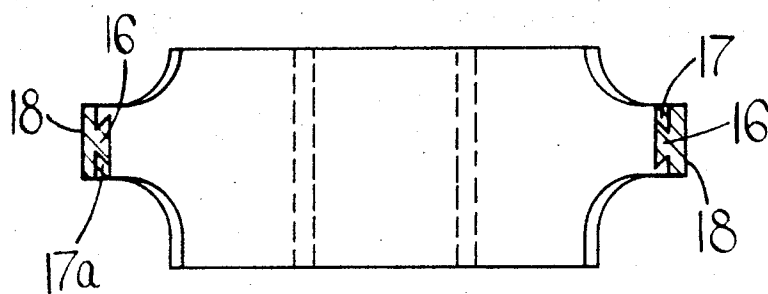


FIG. 4.

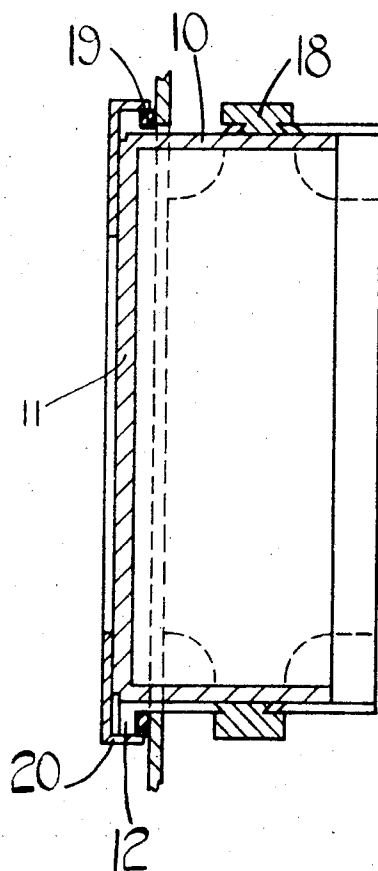


FIG. 5.

INVENTOR

Maurice Harold
Holman & Stern
ATTORNEYS

INSTRUMENT CASE FOR MOUNTING ON A PANEL

This invention relates to an instrument case for mounting on a panel.

An instrument case in accordance with the invention comprises a cylindrical body having an external flange and a plurality of ramp surfaces spaced around the body, said ramp surfaces being inclined to said flange and spaced therefrom, and a clamping ring having inwardly projecting parts engageable with said ramp surfaces respectively for clamping the body in an aperture in a panel.

An example of the invention is illustrated in the accompanying drawings in which:

FIG. 1 is a rear elevation of the body of the case;

FIG. 2 is a side elevation of the body;

FIG. 3 is a section through a clamping ring used in conjunction with the body;

FIG. 4 is a section on line 4—4 in FIG. 3; and

FIG. 5 is a section on line 5—5 in FIG. 1, additionally showing the ring of FIGS. 3 and 5 and a panel to which the body is clamped by the ring.

The body of the instrument which is shown in FIGS. 1, 2 and 5 is formed as a moulding in a clear synthetic resin material. The body is of cylindrical form having a side wall 10 and an end wall 11. An external flange 12 is provided on this side wall 10, this flange being interrupted at several positions to allow a bezel 20 (see FIG. 5) to be attached to the body by a form of bayonet fastening. At two diametrically opposite positions in the side wall of the body there are formed recesses 13 each of which comprises a groove portion 14 extending parallel to the axis of the body and opening onto the end of the side wall remote from the flange 12. These recesses define ramp surfaces 15 which are inclined to the plane of the flange 12 at an angle of say 20° and are undercut at an angle of 45°.

The ring shown in FIGS. 3 and 4 is formed of a flexible resilient synthetic material and has a pair of inwardly projecting portions 16 which can pass through the grooves 14 respectively when the ring is slid onto the side wall portion 10 of the body. These inward projections 16 terminate at each axial end in surfaces 17 and 17a, which are inclined to the general plane of the ring at an angle of 20° and which are undercut at an angle of 45°, the surfaces 17 being closer to the adjacent end of the ring than the surfaces 17a are to the other end of the ring. The inwardly projecting portions 16 are formed on a pair of oppositely disposed narrow portions 18 of the ring, which is formed of a resilient synthetic resin material such as nylon.

In use, the bezel 20 is fitted on the flange 12 and an instrument is fitted inside the casing so that its dial is visible through the end wall 11 thereof. The casing is inserted through an aperture in a panel and to a seal

ring 19 on the wall 10 against the flange 12 engages one side of the panel. The ring 15 then engages with the body by first sliding it onto the body and then turning it to engage the surfaces 17 with the ramp surfaces 15 on the body. The ring is then drawn into tight clamping engagement with the rear surface of the panel.

The use of the narrow portions 18 of the ring imparts additional flexibility to the ring so that, in effect, the panel is spring-loaded by its engagement with the ring, to prevent rattling, etc. The provision of two sets of surfaces 17 and 17a enables the instrument to be mounted on panels of thicknesses varying within a considerable range. The undercuts of the ramp surfaces and the inclined end surfaces of the inwardly projecting parts ensure that the flexible narrow portions 18 do not flex outwardly to allow unwanted release of the ring from the body.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is as follows:

1. An instrument case for mounting in an aperture in a panel, comprising a cylindrical body having an external flange, which engages one side of the panel and whose outer dimension is greater than that of said aperture, and a plurality of ramp surfaces spaced around the body, said ramp surfaces being inclined to said flange and spaced therefrom, and a clamping ring engageable with said panel and having inwardly projecting parts, said parts having inclined surfaces engageable with said ramp surfaces respectively, for clamping the body in said aperture as said inclined surfaces are advanced along said ramp surfaces, said ring being formed of a flexible resilient material and said inwardly projecting parts are formed on portions of the ring which have smaller axial dimensions than the remainder of the ring.

2. An instrument case as claimed in claim 1 in which said ramp surfaces are defined by a plurality of recesses in the wall of the body, each recess including a groove portion extending axially of the body and opening onto the end of said wall remote from said flange, whereby the ring can be slid onto the body with the inward projections on the ring passing along said groove portions respectively.

3. An instrument case as claimed in claim 1 in which each inwardly projecting part has an inclined surface at each of its axial ends, one of said inclined surfaces being closer to the adjacent one of the axial ends of the ring than the other inclined surface is to the other axial end of the ring.

4. An instrument case as claimed in claim 1 in which said inclined surfaces and said ramp surfaces are undercut so that their interengagement prevents outward flexing of the narrow portions of the ring.

* * * * *