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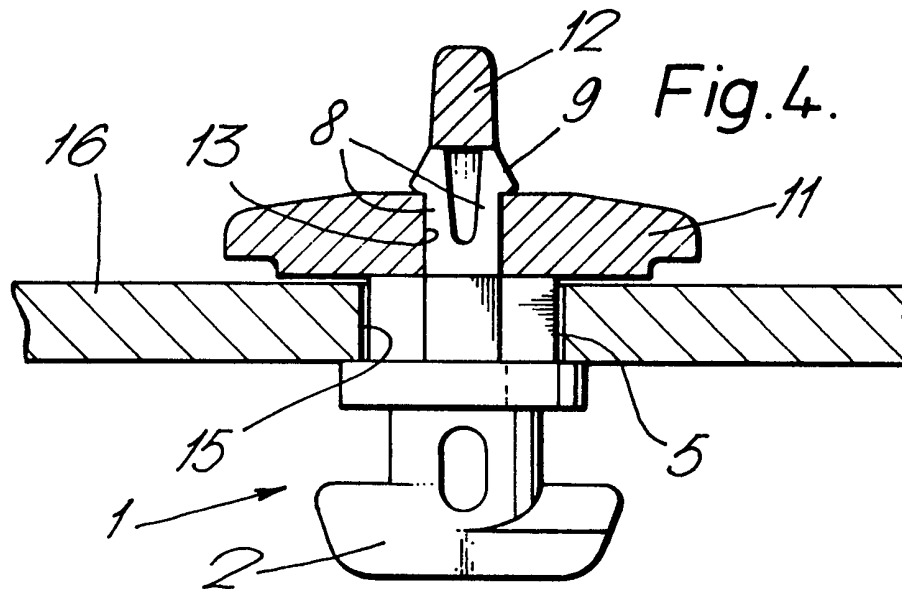
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(54) Stud fastener

(57) A pawl type stud fastener has two parts (1,11) which can be snap-fitted together on a panel (16) by means of a snap-fit coupling which may comprise shoulders (9) on legs (8) engaging in an aperture (13) in head part (11) of the fastener.



GB 2 165 298 A

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Fig.1.

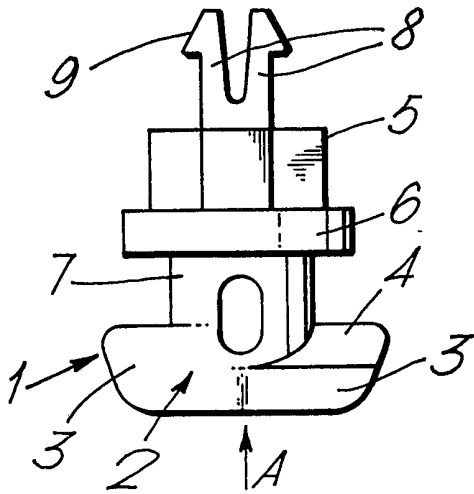


Fig.2.

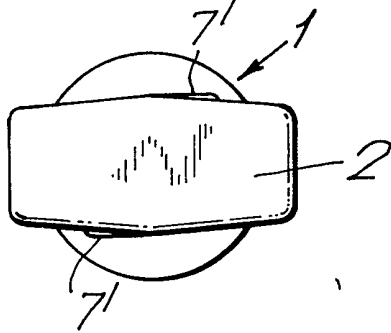


Fig.3.

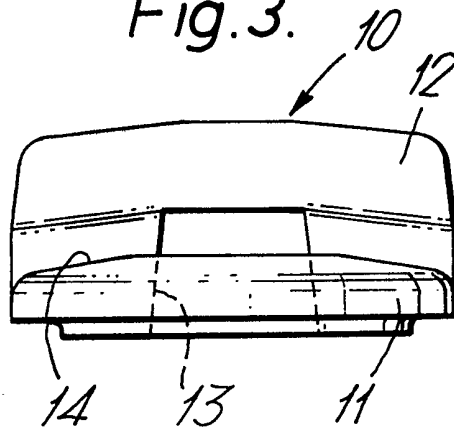
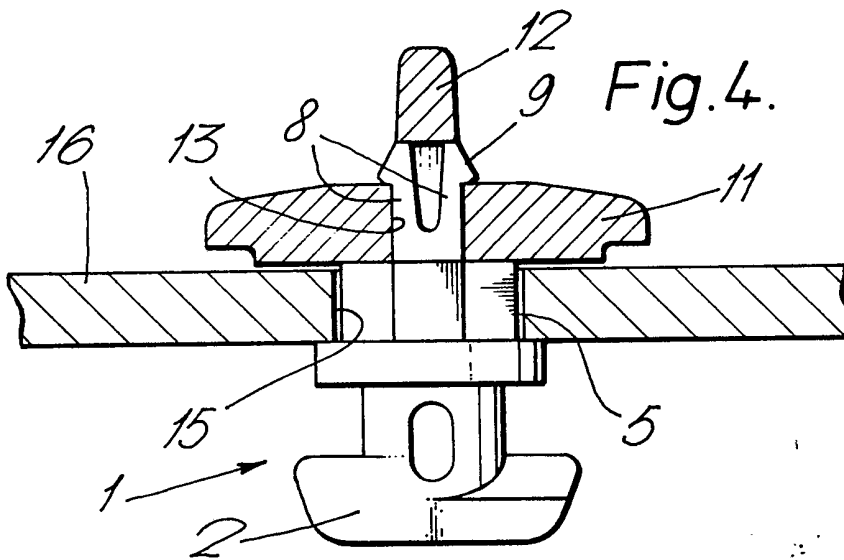


Fig.4.



SPECIFICATION

Pawl fastener

5 The present invention relates to so-called pawl fasteners of the type which are mounted on a panel or like member to enable the panel to be attached to a support member, the fastener usually being rotatable through a quarter
10 of a turn between fastening and non-fastening positions. A fastener of this general type is shown in GB-A-1538133.

In order to give such a fastener sufficient strength it is necessary for the pawl to be
15 considerably wider than the diameter of the shank to which it is attached. Although GB-A-1538133 shows a fastener which can be snap-fitted into its aperture in a panel a retaining member of some sort is usually used to
20 retain the fastener at the aperture in the panel and although it is known to use circlips and the like to retain the fastener in the aperture the aperture has to be larger than is required simply to retain the shank in order that the
25 pawl can pass through it when the fastener is being mounted on the panel. Frequently therefore, and unless a more complex form of retainer is used, the fastener is able to move transversely in the aperture and this can cause
30 problems when locating the panel on its support and in aligning the fastener with the aperture in the support in which it engages.

To overcome these problems and in accordance with the present invention a pawl type stud fastener for mounting on a panel or the
35 like comprises a stud formed in two pieces, a first piece having a pawl for engagement with the rear of a support member to which the panel is mounted in use, a shank portion for extending through an aperture in the panel for
40 mounting of the stud on the panel, a flange between the shank portion and the pawl, and a snap-fit coupling part adjacent to the shank portion at the end of the stud remote from the panel; the second piece providing a head
45 portion and having a complementary snap-fit coupling part, the snap-fit coupling between the first and second pieces being a non-rotatable coupling and allowing the fastener to be
50 assembled in situ at the aperture in the panel.

By this means, the fastener can be mounted in an aperture in the panel just sufficiently large to contain the shank portion and thereby prevent lateral movement of the stud in the
55 aperture.

This construction is thus particularly useful when the pawl is wide (to enable a larger support hole size for greater acceptable position tolerances), allowing a much smaller panel
60 hole size to be used than with conventional pawl fasteners (for example cross-shaped in cross-section).

The shank may be cylindrical or may be shaped to reduce material weight.

65 The stud is mounted by inserting the first

piece through the aperture and thereafter snap-fitting the second piece on to the snap-fit coupling part of the first piece which extends through the panel.

70 Such a fastener avoids the need for additional retainers and considerably simplifies both production and mounting of the fastener.

Preferably, the fastener is of the quarter-turn type and includes abutments for engaging the
75 sides of the aperture in a support to prevent over-rotation. The snap-fit coupling between the two pieces may be releasable and preferably comprises a pair of depending substantially parallel leg portions extending in the axial direction of the fastener, the free end of each
80 leg having an outwardly extending shoulder chamfered towards the free end of the leg, and the second piece having an aperture into which the leg portions can be snap-fitted so that the shoulders lie behind suitable abutments on the second piece.

One example of a fastener constructed in accordance with the present invention will now be described with reference to the accompanying drawings in which:—

90 *Figure 1* is a side elevational view of a first piece of the stud fastener;

Figure 2 is an end view of that piece on arrow A;

95 *Figure 3* is a side elevational view of a second piece of the fastener; and,

Figure 4 is a side elevational view of the assembled fastener.

The fastener has first and second pieces 1
100 and 10 made of an acetal copolymer.

The first piece 1 has a pawl 2 which comprises a pair of arms 3 having ramped engagement surfaces 4 which in use engage the rear surface of a support member (not shown) immediately adjacent a hole or aperture in the support member through which the fastener extends in use and during rotation of the stud into the fastening position.

The shank of the stud comprises a portion
110 5, which is cross-shaped in cross section, a larger diameter cylindrical flange portion 6 and a generally lozenge-shaped (in section) portion 7 which provides a pair of abutments 7' to define the extent of rotation of the stud by engagement with the sides of the aperture in the support (not shown). A pair of depending leg portions 8 extending generally parallel to one another and to the axial direction of the fastener extend from the cylindrical portion 5
115 on the side remote from the pawl 2, the legs having chamfered shoulders 9 which form one half of a snap-fit coupling.

The second piece 10 comprises the head of the stud and has a generally disc-shaped portion 11 with an upstanding web 12 which forms a handle portion to enable rotation of the stud in use. An elongate slot 13 is formed through the disc portion 11 and is of a size commensurate with the legs 8 on the first piece 1, the aperture 13 extending up-
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wardly into the handle portion 12 as can be seen in Fig. 3.

As shown in Fig. 4 the leg portions 8 on the first piece 1 extend in use through the aperture 13 so that the shoulders 9 engage on the top surface 14 of the disc portion 11, the cylindrical shank portion 5 abutting the underside of the head portion 11.

Fig. 4 shows the stud mounted in an aperture 15 in a panel 16, the two pieces being snap-fitted together from opposite sides of the panel 16 after insertion of the legs 8 and cylindrical shank 5 through the aperture 15. The fastener is then ready for use in mounting the panel to a support having an appropriate shaped aperture through which the pawl 2 passes in use and on the rear surface of which its surface 4 engage to fasten the panel 16 to the support (not shown).

CLAIMS

1. A pawl type stud fastener for mounting on a panel or the like, comprising a stud formed in two pieces, a first piece having a pawl for engagement with the rear of a support member to which the panel is mounted in use, a shank portion for extending through an aperture in the panel for mounting of the stud on the panel, a flange between the shank portion and the pawl, and a snap-fit coupling part adjacent to the shank portion at the end of the stud remote from the panel; the second piece providing a head portion and having a complementary snap-fit coupling part, the snap-fit coupling between the first and second pieces being a non-rotatable coupling and allowing the fastener to be assembled in situ at the aperture in the panel.

2. A fastener according to claim 1, which is of the quarter-turn type and includes abutments for engaging the sides of the aperture in a support to prevent over-rotation.

3. A fastener according to claim 1 or claim 2, wherein the snap-fit coupling between the two pieces is releasable.

4. A fastener according to any of claims 1 to 3, wherein the snap fit coupling comprises a pair of depending substantially parallel leg portions extending in the axial direction of the fastener, the free end of each leg having an outwardly extending shoulder chamfered towards the free end of the leg, and the second piece having an aperture into which the leg portions can be snap-fitted so that the shoulders lie behind suitable abutments on the second piece.

5. A fastener according to claim 4, wherein the abutments are formed on the head of the fastener and the legs on the shank of the fastener.

6. A fastener according to claim 5, wherein the abutments are formed by a top surface of the head of the fastener.

7. A fastener according to claim 1, substantially as described with reference to the

accompanying drawings.

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