Nov. 15, 1966 C. A. SECKERSON 3,284,844

HINGE

Filed July 10, 1964 2 Sheets-Sheet 1

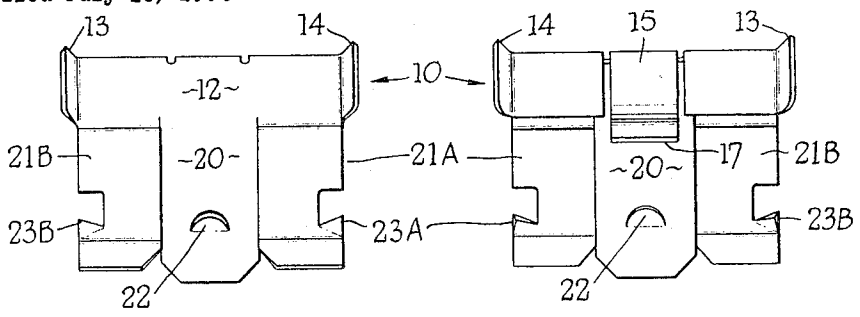


FIG.2 FIG.3

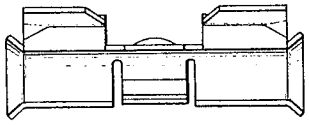


FIG.1

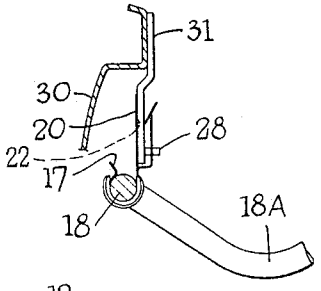


FIG.7

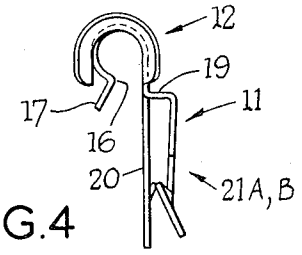


FIG.4

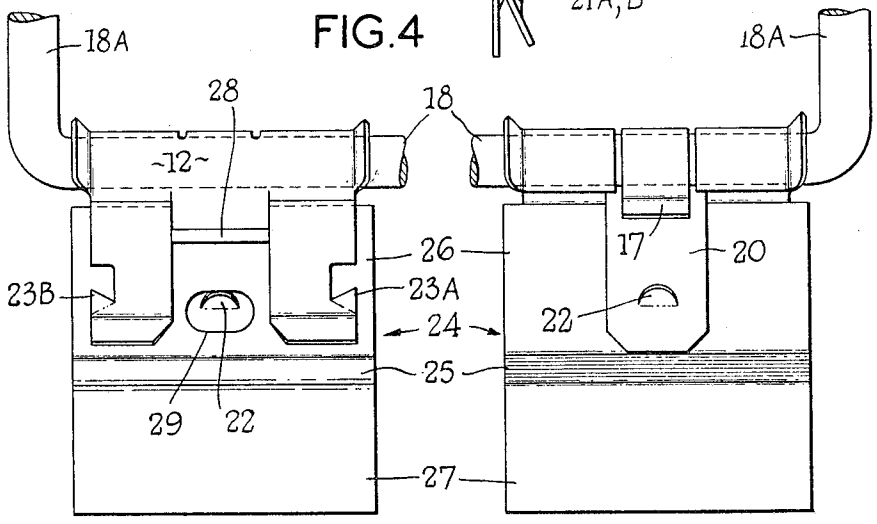


FIG.5 FIG.6.

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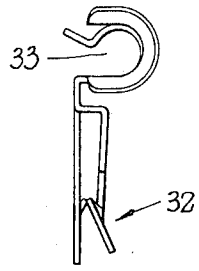


FIG.8

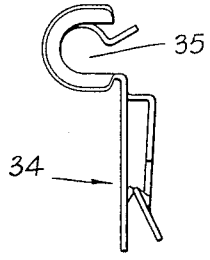


FIG.9

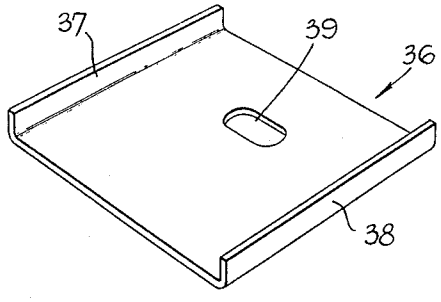


FIG.10

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Claims priority, application Great Britain, July 16, 1963, 28,175/63
7 Claims. (Cl. 16—171)

The present invention relates to an improved hinge.

According to the invention there is provided a hinge comprising a pin for attachment to one of two parts to be hinged together, a plate for attachment to the other of said two parts, and a resilient clip to which both the pin and plate may be removably attached, the clip being formed from a single piece of resilient material having one portion bent to U-shape so as to have a web and two limbs and another portion bent to substantially part cylindrical shape so as to serve as a bearing for the pin, the pin being rotatably mounted in the bearing portion of the clip and the plate being gripped between the limbs of the clip.

A preferred form of the invention will now be described with reference to the accompanying diagrammatic drawings in which:

FIGURES 1, 2, 3 and 4 are respectively plan and front, rear and side elevations of a clip forming a part of the hinge,

FIGURES 5 and 6 are front and rear elevations respectively of the same clip assembled with a hinge pin and a hinge plate,

FIGURE 7 is a side elevation of the same assembly but also showing two members hinged together,

FIGURES 8 and 9 respectively show two other forms of clip, and

FIGURE 10 is a perspective view of another hinge plate.

The clip indicated generally at **10** in FIGURES 1, 2 and 3 consists of a single sheet of material which is sheared and bent to the shape shown. It will be seen that the finished clip has a U-shape portion **11** and a part-cylindrical bearing portion **12** (FIGURES 2 and 6). The ends of the bearing portion are flared as at **13** and **14**.

A centre portion **15** of the bearing **12** is cut away from the remainder and is bent inwardly, as at **16**, and then outwardly as at **17**. The radius of the bearing portion is a little less than that of a hinge pin **18** (FIGURES 5, 6 and 7) with which the bearing co-operates.

The U-shaped portion **11** of the clip has a web **19**, and single limb **20** and a bifurcated limb the parts of which will be referred to as legs **21A** and **21B** respectively.

The single limb **20** is formed with a detent **22** and the legs **21A** and **21B** are formed in their outer edges with prongs **23A** and **23B** respectively. Both the detent and the prongs are directed inwardly of the U and towards the web **19**.

At **24** in FIGURES 5, 6 and 7 is indicated generally a hinge plate which is formed with a step **25** intermediate its length so that the plate is divided into two portions **26** and **27** one of which is offset a little with respect to the other. The portion **27** is intended to be welded to another member, e.g. the wall of a box, and bring the wall or other member into the same plane as the part **26** of the hinge plate. The portion **26** of the plate is formed with a lug **28** and an aperture **29**.

One purpose for which the hinge may be used is illustrated, by way of example, in FIGURE 7. A thin metal panel is shown at **30**. To this panel the portion **27** of a hinge plate is spot-welded, as indicated at **31**, either before or after the spot-welding, a clip is engaged over the

portion **26** of the hinge-plate by forcing the limbs **20, 21** over the edge of the portion **26** of the plate until the detent **22** snaps into the aperture **29**. During this operation the lug **28** passes down between the legs **21A** and **21B** of the fastener, so that the legs straddle the lug to locate the clip. Thereafter, the clip cannot be removed from the plate unless the limbs are spread apart to disengage the detent from the aperture and the prongs from the surface of the plate.

When the clip has been assembled in this way to the plate **24** and to the panel **30** the pin **18** is pushed, transversely of its length into the bearing portion **12**, the pin snapping over the inwardly directed ridge **16** of the centre portion **15** of the bearing.

The panel constitutes one of the members to be hinged together and the other (not shown) is attached, by any convenient way, to the pin **18**. For some purposes the end **18A** of the pin may be bent as shown to receive the said other member.

The pin may be made a loose or tight fit in the bearing as may be desired.

Each of the constructions described above forms a robust support for the pin and is entirely free from rattle in operation.

In FIGURES 8 and 9 are shown two alternative forms of clip. The clip **32** has an open mouth **33** of its bearing portion directed at right angles to that of its U-shaped portion. The clip **34** has its open mouth **35** also at right angles to that of its U-shaped portion, and in the reverse sense with respect to that of the clip **32**.

In FIGURE 10 is shown a modified form of hinge-plate **36** formed of a rectangular sheet of metal having a pair of opposite edges turned up at right angles to form flanges **37** and **38**. The plate is also formed with an aperture **39**.

In use a clip **10**, such as is described above, is pushed over an unflanged edge of the hinge-plate **36** until the detent **22** of the clip latches into the aperture **39**, the flanges **37** and **38** serving meanwhile to guide the clip into its correct position in the hinge-plate.

What I claim is:

1. A hinge comprising a pin for attachment to one of two parts to be hinged together, a plate for attachment to the other of said two parts, and a resilient clip to which both the pin and plate may be removably attached, the clip being formed from a single piece of resilient material having one portion bent to U-shape so as to have a web and two limbs and another portion bent to substantially part cylindrical shape so as to serve as a bearing for the pin, the pin being rotatably mounted in the bearing portion of the clip and the plate being gripped between the limbs of the clip.

2. A hinge as claimed in claim **1**, in which the plate is apertured and a limb of the U-shaped portion of the clip has a tang seated in the aperture in the plate to locate the plate with respect to the clip.

3. A hinge as claimed in claim **1**, in which the U-shaped portion of the clip is divided lengthwise into three parts, the centre part forming one limb and the two outer parts forming the other limb, the plate is formed with a lug which is straddled by the two outer parts forming the other limb to locate the clip on the plate and each outer part has a prong directed inwardly and rearwardly of the clip to retain the plate within the clip.

4. A hinge as claimed in claim **2**, in which the U-shaped portion of the clip is divided lengthwise into three parts, the centre part forming one limb and the two outer parts forming the other limb, the plate is formed with a lug which is straddled by the two outer parts forming the other limb to locate the clip on the plate and each outer

part has a prong directed inwardly and rearwardly of the clip to retain the plate within the clip.

5. A hinge as claimed in claim 4, in which at least a part of the part-cylindrical bearing portion of the clip is, in its unstressed condition, of radius less than that of the pin.

6. A hinge as claimed in claim 5, in which one limb of the clip is substantially tangential to the bearing portion and the other limb is spaced from the one limb on the side opposite to the bearing portion.

7. A hinge as claimed in claim 2, in which the plate is formed with a pair of upturned flanges between which the clip is located on the plate.

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