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(71) Applicant: **R.G. Trade Supplies & Engineering Ltd.**
**Stoke-on-Trent, Staffordshire, ST4 3DR (GB)**

(72) Inventors:
- **Hill, Reginald George**
  **Fenton, Stoke-on-Trent, Staffs ST4 3DR (GB)**
- **Hill, Gary**
  **Fenton, Stoke-on-Trent, Staffs ST4 3DR (GB)**

(74) Representative: **Sales, Robert Reginald**
**Swindell & Pearson,**
**48 Friar Gate**
**Derby DE1 1GY (GB)**

Remarks:
A request for correction to the reference numbering has been filed pursuant to Rule 88 EPC. A decision on the request will be taken during the proceedings before the Examining Division (Guidelines for Examination in the EPO, A-V, 3.).

## (54) Hinge apparatus

(57) Hinge apparatus comprising a cover 28 and a hinge 16. The hinge 16 comprising a bracket member 18 which rotates a pin, about which pin a plate member 20 is pivotally movable. The cover 28 fully encloses the plate member 20 and pin, and being spring biased away from the plate member 20.

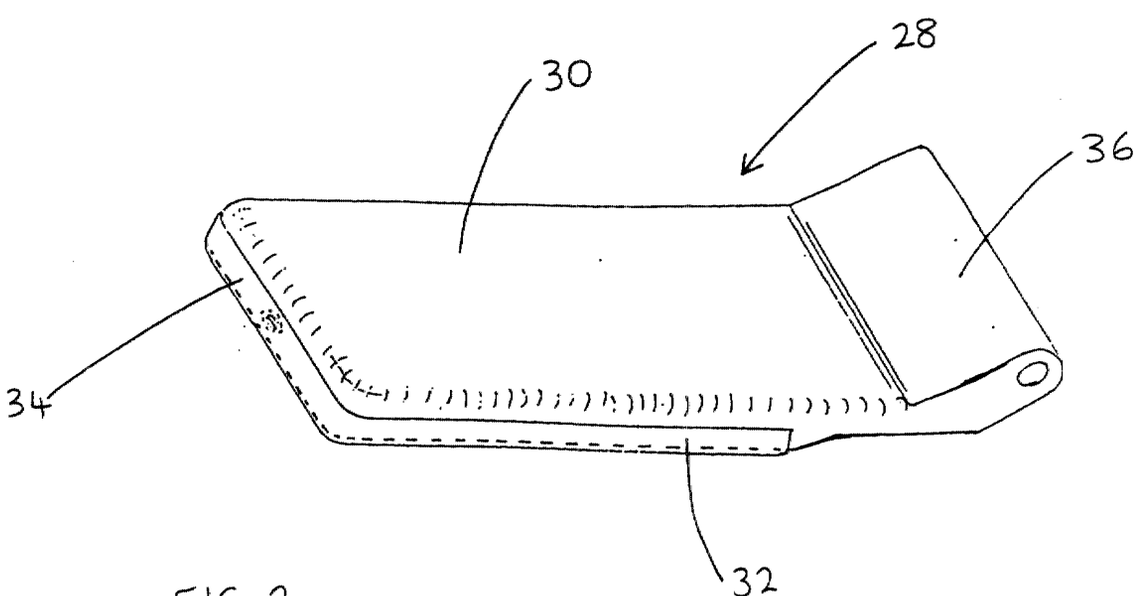


FIG 2

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## Description

**[0001]** The invention relates to a hinge apparatus, and particularly but not exclusively to such apparatus for a vehicle door.

**[0002]** Vehicles such as vans and lorries often include doors at their rear and sides, the doors being attached to the main body of the vehicle by externally mounted hinges. The hinges generally support the doors at their outside edges such that the doors can each pivot about a vertical axis to open and close.

**[0003]** Such hinges are not aesthetically particularly pleasing. Also such hinges are often manufactured from stainless steel in order that they maintain a smart appearance and tend not to rust or corrode. Because the hinges must be strong enough to support the weight of the vehicle door, they are generally manufactured from heavy duty material such as 4mm thick stainless steel. This results in the hinges being relatively expensive.

**[0004]** According to the present invention there is provided a hinge apparatus, the apparatus including a hinge for pivotally connecting a first member to a second member and a cover mountable on the hinge to at least partially conceal the hinge when the hinge is located on the first and second members.

**[0005]** The first member may comprise a vehicle door, and preferably a rear door of a vehicle. The hinge may be for mounting externally on the vehicle to pivotally connect the rear door to a body portion of the vehicle, preferably such that the rear door may pivot about a vertical axis.

**[0006]** The hinge may be manufactured from stainless steel or mild steel. Preferably the hinge includes a plate member attachable to the first member and a bracket member including a pin, and attachable to the second member, the plate member being pivotally mounted on the pin. The bracket member is preferably formed such that when mounted on the second member the pin is spaced therefrom. Preferably the plate member includes a reinforcing rib.

**[0007]** The plate member may include a protrusion for mounting the cover. The protrusion may include a hole for receiving a screw, and preferably a self-tapping screw.

**[0008]** The cover is preferably manufactured at least partially from stainless steel. It may include a curved portion for mounting around the pin of the hinge, and may also include a substantially flat portion preferably having depending walls. One or more holes may be provided in the walls, each for receiving a screw. Preferably at least one of the holes is alignable with the hole in the protrusion. Preferably the cover may completely conceal the plate member, and desirably also the pin, when it is located on the hinge on the first and second members.

**[0009]** The hinge apparatus may include a compression spring locatable between the hinge and the cover to bias the hinge and the cover apart. A plastics material edging strip may be provided extendable around the walls of the cover when the cover is mounted on the hinge.

**[0010]** According to the invention there is also provided a cover for a hinge apparatus, the cover being as defined in any of the preceding six paragraphs.

**[0011]** An embodiment of the invention will now be described for the purposes of illustration only with reference to the accompanying drawings, in which:-

Fig. 1 is a diagrammatic rear view of a van fitted with prior art hinges on its left door and hinge apparatus according to the invention on its right door;

Fig. 2 is a diagrammatic perspective view of a cover of a hinge apparatus according to the present invention;

Fig. 3 is a partial diagrammatic cross section of part of a hinge apparatus according to the present invention; and

Figs. 4A and 4B are similar diagrammatic perspective partial views showing alternative methods of manufacture of a hinge for a hinge apparatus according to the present invention.

**[0012]** Referring to Fig. 1, a van 10 includes a body 12 and rear doors 14 pivotally mounted at their edges on the body 12. On the left side of the van as shown the pivotal attachment comprises three conventional hinges 16. Each hinge 16 includes a bracket member 18 attached to the body 12, the bracket member including a pin spaced from the body 12. The hinge 16 also includes a plate member 20 pivotally connected to the pin of the bracket member 18. The plate member 20 is attached to the door 14 and the hinge 16 thus pivotally mounts the door 14 on the body 12. The plate member 20 includes a strengthening rib 22 and is provided with threaded fasteners 24 for attaching the plate member 20 to the vehicle door 14.

**[0013]** The hinges 16 are manufactured from 4mm thick stainless steel in order to provide the necessary strength and keep corrosion and rusting to a minimum. However dirt accumulates on the hinges 16 and is difficult to remove from the regions around the ribs 22 and fasteners 24. This dirt can impair the performance of the hinge in addition to making it look unsightly. The hinges 16 are also quite unattractive even when clean due to the presence of the strengthening rib 22 and particularly the threaded fasteners 24.

**[0014]** On the right of the van as shown in Fig. 1 a door 14 is mounted on the body 12 by hinge apparatus 26 according to the invention. Three hinges (not visible in Fig. 1) pivotally attach the door 14 to the body 12. Each hinge is concealed by a stainless steel cover 28 shown in more detail in Figs. 2 and 3. The cover 28 includes an essentially flat outer portion 30 and side and

end walls 32 and 34 respectively which depend from the outer portion 30. The cover 28 also includes a hook portion 36 remote from the end wall 34 for engaging the hinge 16 in the region of its bracket member 18.

**[0015]** Referring to Fig. 3, the hinge of the hinge apparatus 26 includes a clip 40 which protrudes from the hinge plate 20 and to which the cover 28 may be attached. Figs. 4A and 4B show alternative methods of attaching the clip 40 to the hinge plate 20. In Fig. 4A, a recess 38 is pressed into the hinge plate 20 to accommodate the clip 40, while in Fig. 4B the clip 40 is welded to an end of the hinge plate 20. In each case the clip 40 is provided with a hole 42 suitable for a self-tapping screw.

**[0016]** Referring again to Fig. 3, when the hinge apparatus is assembled a screw 44 extends through a hole 46 in the end wall 34 of the cover 28, and self-taps into the hole 42 in the clip 40, to retain the cover 28 in place on the hinge 16. The hook portion 36 at the other end of the cover 28 (shown in Fig. 2) engages the hinge 16 in the region of its bracket member 18.

**[0017]** A U section sealing strip of plastics material 48 is fitted around the side and end walls 32,34 of the cover 28 to conceal the fixing screw, give a neat appearance and help prevent damp and dirt from penetrating through to the hinge 16.

**[0018]** A compression spring 50 fits over a hinge mounting nut 48 and keeps the top 30 of the cover tensioned away from the hinge 16.

**[0019]** There is thus provided a hinge apparatus in which substantially only the cover 28 is visible, and exposed to the elements. The hinge 16 does not need to be manufactured from stainless steel but can instead be manufactured from a more economical material such as mild steel, which may be zinc plated or galvanised. When a stainless steel finish is required, as only the cover 28 need be manufactured from this material and the cover is not load-bearing it can be manufactured from relatively thin and light materials, thus keeping the cost of the hinge apparatus relatively low. In other applications a cover of a less expensive material would be quite satisfactory. The cover also prevents the hinges from becoming stiff and clogged with dust and debris and makes them much less likely to rust or degrade in any way.

**[0020]** Whilst endeavouring in the foregoing specification to draw attention to those features of the invention believed to be of particular importance it should be understood that the Applicant claims protection in respect of any patentable feature or combination of features hereinbefore referred to and/or shown in the drawings whether or not particular emphasis has been placed thereon.

## Claims

1. Hinge apparatus, the apparatus including a hinge for pivotally connecting a first member to a second member and a cover mountable on the hinge to at least partially conceal the hinge when the hinge is located on the first and second members.

2. Apparatus according to claim 1, wherein the first member comprises a vehicle door.

3. Apparatus according to claim 2, wherein the first member comprises a vehicle door, and preferably a rear door of a vehicle.

4. Apparatus according to claim 3, wherein the hinge is for mounting externally on the vehicle to pivotally connect the rear door to a body portion of the vehicle.

5. Apparatus according to claim 4, wherein the hinge is connected such that the rear door may pivot about a vertical axis.

6. Apparatus according to any of the preceding claims, wherein the hinge is manufactured from stainless steel.

7. Apparatus according to any of claims 1 to 5, wherein the hinge is manufactured from mild steel.

8. Apparatus according to any of the preceding claims, wherein the hinge includes a plate member attachable to the first member and a bracket member including a pin, and attachable to the second member, the plate member being pivotally mounted on the pin.

9. Apparatus according to claim 8, wherein the bracket member is formed such that when mounted on the second member the pin is spaced therefrom.

10. Apparatus according to claims 8 or 9, wherein the plate member includes a reinforcing rib.

11. Apparatus according to any of claims 8 to 10, wherein the plate member includes a protrusion for mounting the cover.

12. Apparatus according to claim 11, wherein the protrusion includes a hole for receiving a screw.

13. Apparatus according to claim 12, wherein the screw is self-tapping.

14. Apparatus according to any of claims 8 to 13, wherein the cover includes a curved portion for mounting around the pin of the hinge.

15. Apparatus according to any of claims 8 to 14, wherein the cover includes a substantially flat por-

tion.

**16.** Apparatus according to claim 15 wherein the flat portion has depending walls.

**17.** Apparatus according to claim 16, wherein one or more holes is provided in the walls, each for receiving a screw.

**18.** Apparatus according to claim 17 when independent on claim 12, wherein preferably at least one of the holes is alignable with the hole in the protrusion.

**19.** Apparatus according to any of claims 8 to 18, wherein the cover completely conceals the pin when the cover is located on the hinge on the first and second members.

**20.** Apparatus according to any of claims 8 to 18, wherein the cover completely conceals the plate member when the cover is located on the hinge on the first and second members.

**21.** Apparatus according to any of the preceding claims, wherein the cover is manufactured at least partially from stainless steel.

**22.** Apparatus according to any of the preceding claims, wherein the hinge apparatus includes a compression spring locatable between the hinge and the cover to bias the hinge and the cover apart.

**23.** Apparatus according to any of the preceding claims, wherein plastics material edging strip is provided extendable around the walls of the cover when the cover is mounted on the hinge.

**24.** A cover for a hinge apparatus, the cover being as defined in any of the preceding claims.

**25.** Hinge apparatus substantially as hereinbefore described with reference to the accompanying drawings.

**26.** A cover for a hinge apparatus, the cover being substantially as hereinbefore described with reference to the accompanying drawings.

**27.** Any novel subject matter or combination including novel subject matter disclosed herein, whether or not within the scope of or relating to the same invention as any of the preceding claims.

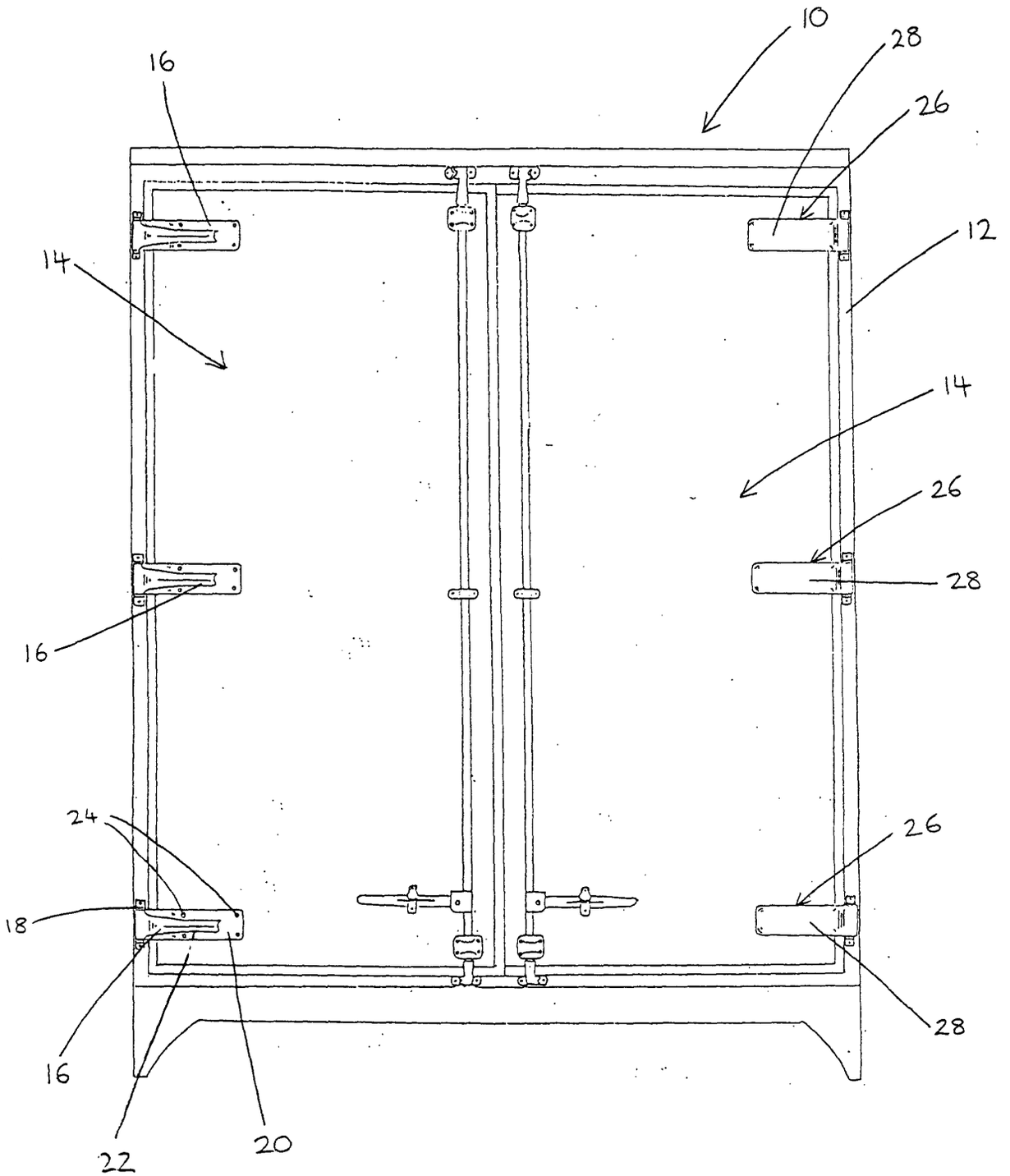


FIG 1

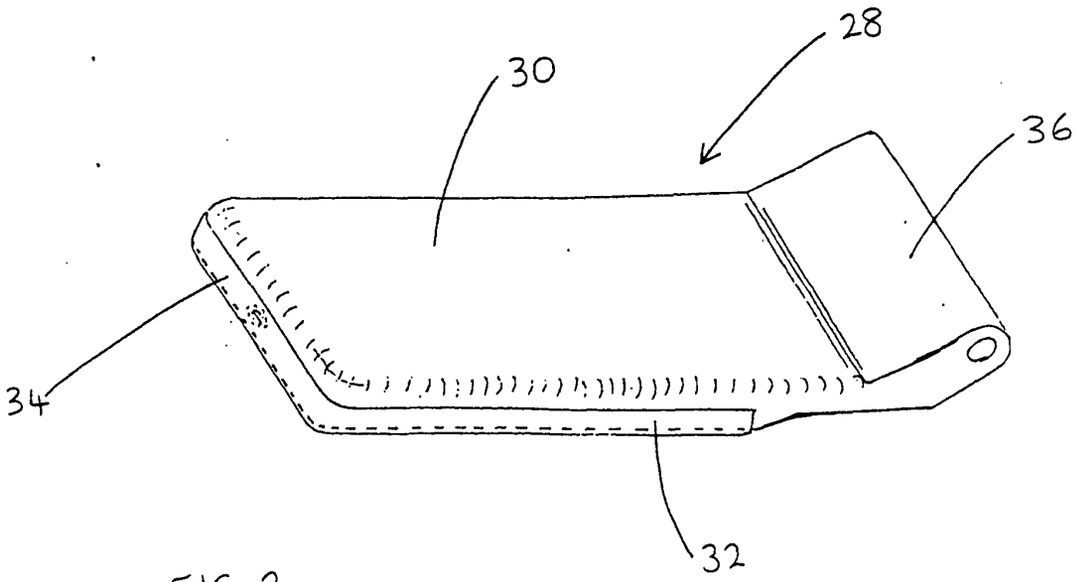


FIG 2

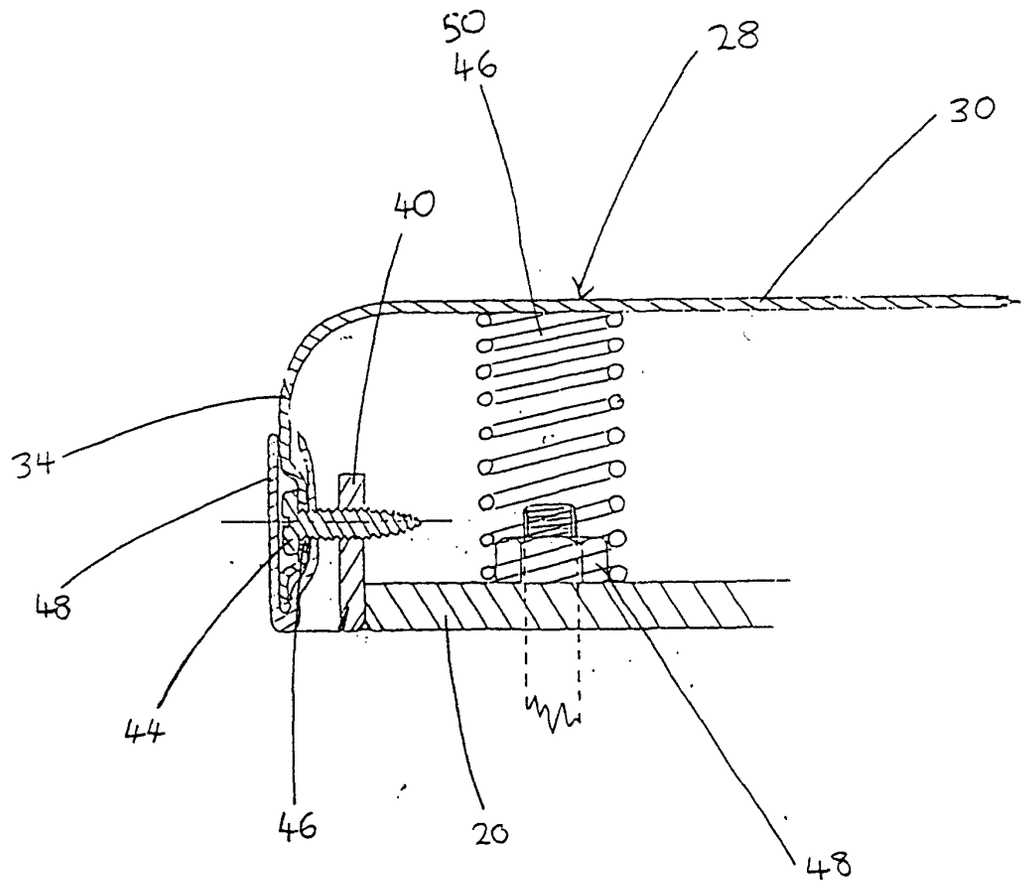


FIG 3

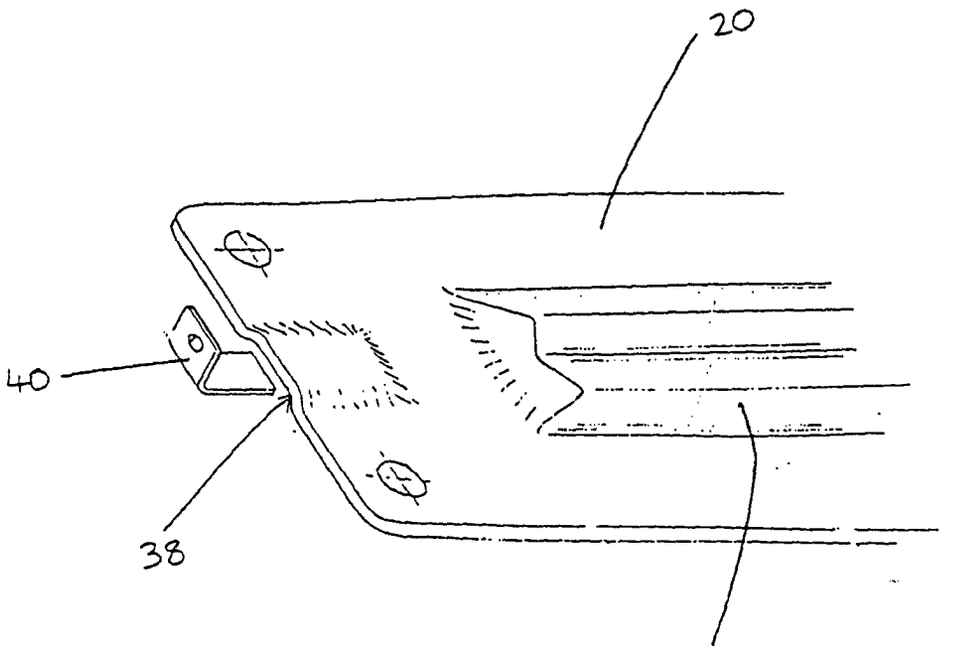


FIG 4A

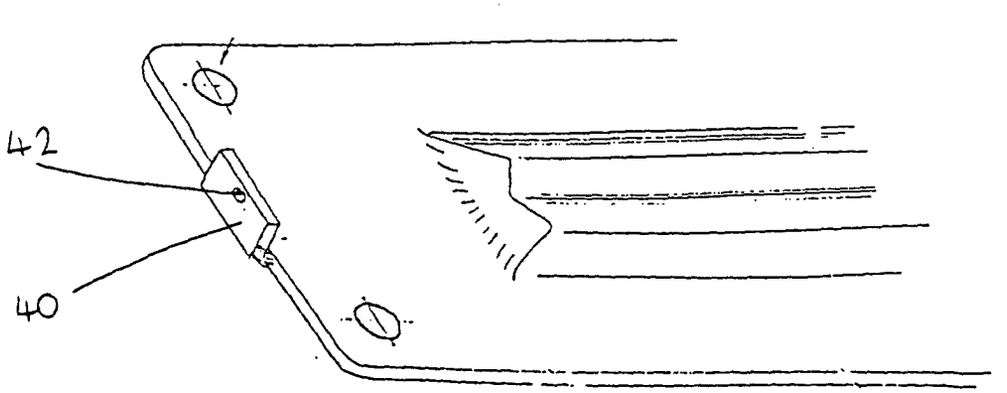


FIG 4B

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# EUROPEAN SEARCH REPORT

Application Number
EP 00 30 2668

## DOCUMENTS CONSIDERED TO BE RELEVANT

| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int.Cl.7) |
|---|---|---|---|
| X<br><br>Y | US 3 422 486 A (THOMAS HENRY JR)<br>21 January 1969 (1969-01-21)<br>* column 1 - column 3; figures * | 1-3,8,9,<br>14-16,<br>21,23-25<br>4,5,10,<br>19,20 | E05D11/00<br>B60J5/10 |
| Y<br>A | US 4 263 751 A (DIXON JR ROBERT J ET AL)<br>28 April 1981 (1981-04-28)<br>* column 2, line 22 - line 24; figures * | 4,5,10<br>8,9 | |
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The present search report has been drawn up for all claims

| Place of search | Date of completion of the search | Examiner |
|---|---|---|
| THE HAGUE | 23 August 2000 | Van Kessel, J |

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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## ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 00 30 2668

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82