

[54] **PANEL SPACING AND HOLDING CLIP**  
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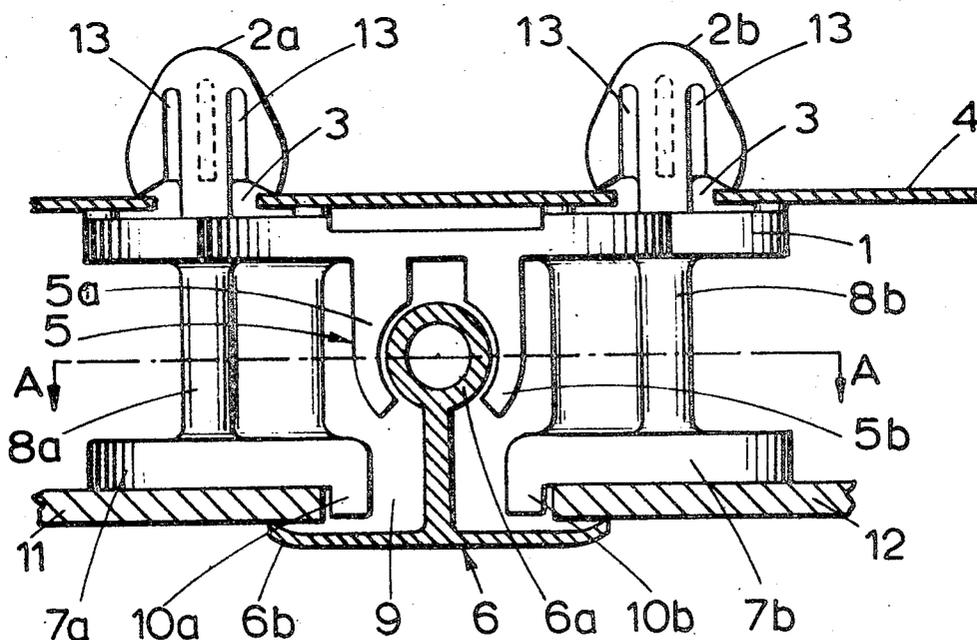
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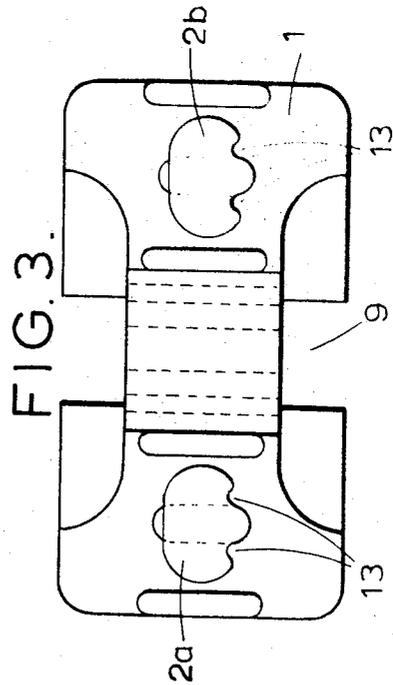
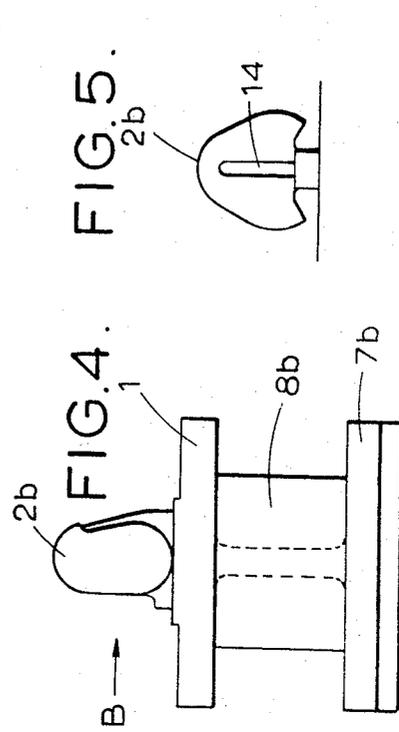
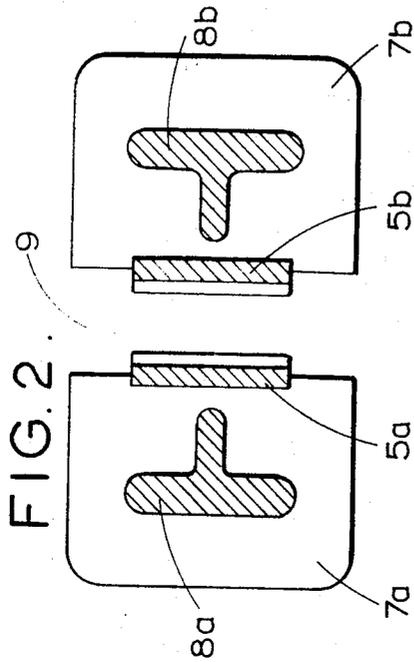
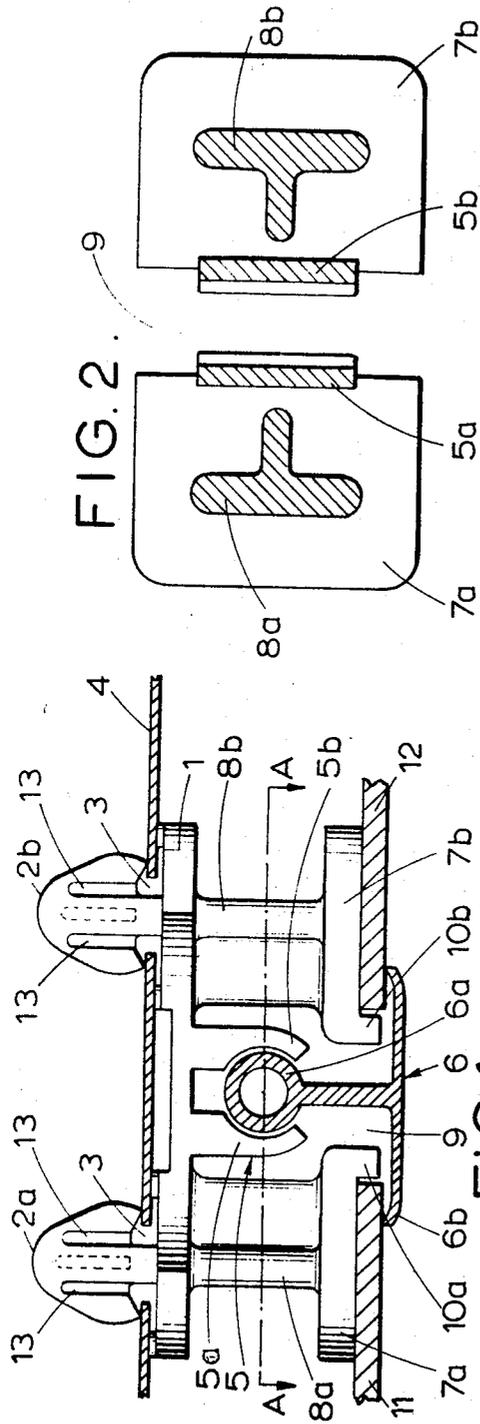
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 287/20.92 C, 20.92 J; 52/464, 468, 716, 489

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[57] **ABSTRACT**  
 Trim panels are held on by clips each of which has: a plurality of pegs or other means by which it may be applied to or engage a support; lugs or projections arranged to locate the adjacent edges of two panels against the clip; and means to engage and retain a finishing mould which is adapted to retain the panels against the clip and cover the joint between the panels.

**16 Claims, 5 Drawing Figures**





## PANEL SPACING AND HOLDING CLIP

The invention relates to a clip for the assembly of unstressed panels to frame members and is particularly applicable to the assembly of interior trim panels to body frames in the bodywork of a passenger service vehicle, such as a bus or coach.

The invention is concerned with enabling panels to be assembled to frames with a finished mould over the joints between adjacent panels in a manner requiring very much less skilled labour than the traditional practice of screwing or rivetting the panels to the structure and then securing the finishing mould with further screws.

In accordance with the invention a clip has: a plurality of pegs or other means by which it may be applied to or engage a support; lugs or projections arranged to locate the adjacent edges of two panels against the clip; and means to engage and retain a finishing mould which is adapted to retain the panels against the clip and cover the joint between the panels.

How the invention may be carried out will now be described, by way of example only and with reference to the accompanying drawings in which:

FIG. 1 is a plan view of a clip constructed according to the invention;

FIG. 2 is a section on the line A—A of FIG. 1;

FIG. 3 is a rear view of the clip in FIG. 1;

FIG. 4 is an end view of the clip in FIG. 1; and

FIG. 5 is a fragmentary view taken in the direction of the arrow B in FIG. 4.

The clip comprises a first portion 1 which has two pegs 2a and 2b formed on one of its sides, the pegs being adapted to locate in apertures 3 in a metal support 4. A resilient socket portion 5 is formed on the other side of the first portion 1 and is adapted to engage and retain a finishing mould 6.

The socket portion comprises two projections 5a and 5b formed on the first portion 1, the projections 5a and 5b being part cylindrical in shape in order to accommodate a correspondingly cylindrical shaped portion 6a of the finishing mould 6.

The clip has two second portions 7a and 7b which are connected to the first portion 1 by webs 8a and 8b, the two second portions 7a and 7b having a gap 9 between them which is aligned with the socket portion 5.

Lugs or projections 10a and 10b are formed on the two second portions 7a and 7b respectively and define the edges of the gap 9. The lugs or projections 10a and 10b are adapted to locate the adjacent edges of two trim panels 11 and 12 respectively against the clip.

The finishing mould 6 has a facing portion 6b which covers the gap between the two trim panels 11 and 12.

The whole of the clip is moulded in one piece from a synthetic plastics material. The pegs 2a and 2b are formed with two indentations 13 (FIG. 1) on one side of the peg and a third indentation 14 (FIG. 5) on the other side of the peg in order to make the peg resilient so that it can pass through the aperture 3 in the support 4 and then regain its original shape to locate the clip against the support 4.

The socket portions 5a and 5b are also dimensioned to make them resilient so that the cylindrical portion 6a in the finishing mould can be snapped into the socket portions and be retained therein.

Variations may be made to the clip described above without departing from the scope of the invention.

For example, the lugs 10a and 10b can have a second portion which extends parallel to the portions 7a and 7b respectively in order to enclose the edge of the respective trim panels. Variations may also be made in the shape of the first portion 1, the second portions 7a and 7b and the connecting webs 8a and 8b.

Furthermore, instead of the clip having integral pegs 2a, 2b for mounting it on the support, the first portion 1 can carry a separate carrier member which itself has means for engaging in apertures in the support. For example, the separate carrier member could be made of metal and comprise a pressed metal member having a portion which engages the first portion 1 and having projections which engage in the aperture 3 in the support 4.

The clip described and shown has been designed for mounting internal trim panels in the body of a bus. The bus body is of integral construction and comprises a series of frame members each of which includes two up-rights, one on each side of the body and a roof member or roof-stick which interconnects two up-rights. Each of the up-rights has a plurality of apertures formed in it into which the pegs 2a, 2b of clips as shown in the drawings can be inserted. After all the clips have been mounted on the up-rights the trim panels are then located against the clips, by the lugs 10a, 10b and the finishing moulds 6 are then snapped into place.

By this method of mounting the frame panels, a considerable reduction in assembly time is achieved. Furthermore, less skill is required to mount the panels than is the case when conventional methods employing screwing or rivetting the panels to the structure and then securing the finishing mould with further screws.

I claim:

1. A clip comprising:

- a. a main portion,
- b. resilient catch means on one side of said main portion,
- c. resilient socket means on the opposite side of said main portion from said catch means,
- d. two projections extending from said opposite side of said main portion on opposite sides of said socket means and defining therebetween a gap affording access to said socket means, and
- e. locating means formed on said projections adjacent said gap.

2. A clip as claimed in claim 1 in which the said first portion, the said resilient catch means, the said resilient socket portion, the said two projections, and the said locating means are all formed from a synthetic plastics material and are all integral with one another.

3. A clip comprising:

- a. a main portion;
- b. a carrier member having resilient peg means, adapted to snap into apertures in a support member and being adapted to engage one side of said main portion;
- c. resilient socket means formed on the opposite side of said main portion;
- d. two projections connected to the said main portion and located on the said opposite side thereof, and defining therebetween a gap which is aligned with said socket means; and
- e. locating means formed on the said two projections adjacent the said gap.

4. A clip comprising:

- a. a main portion;

- b. resilient catch means carrier on one side of the said main portion;
- c. resilient socket means formed on the opposite side of said main portion;
- d. webs extending from said main portion in the opposite direction to the said catch means;
- e. two panel-supporting portions connected to the said webs and located on the said opposite side of the said first portion;
- f. the two said panel-supporting portions defining a gap which is aligned with said socket means; and
- g. locating means formed on the said two panel-supporting portions adjacent the said gap.
5. A clip comprising:
- a. a main portion which has a plurality of pegs formed on one side, the pegs being adapted to be snap-fit in apertures in a support;
- b. resilient socket means formed on the opposite side of the said main portion and adapted to retain a finishing mould therein;
- c. two panel-supporting portions connected to the said first portion by webs and defining therebetween a gap which is aligned with the said socket means; and
- d. lugs formed on the two panel-supporting portions which define the edges of the said gap and are adapted to locate the adjacent edges of two panels.
6. A clip as claimed in claim 5 in which the lugs extend normally to the said two panel-supporting portions to form abutments against which the edges of supported panels can engage.
7. A clip as claimed in claim 5 in which each lug has a first part extending normally and a second part extending parallel to its respective panel-supporting portion to define a U-shaped location for the edge of the respective panel.
8. A clip as claimed in claim 5 in which the said socket means comprises two projections from the said main portion, the said projections being spaced apart from one another and shaped to accommodate a correspondingly shaped portion of a finishing mould.
9. A clip for holding a finishing mould having a central protuberance in position across a space between two panels, said clip comprising
- a. a main portion,
- b. resilient catch means on one side of said main portion,
- c. resilient socket means on the opposite side of said main portion from said catch means for receiving said finishing mould protuberance,
- d. two projections extending from said opposite side of said main portion on opposite sides of said socket means and defining therebetween a gap affording access to said socket means, and
- e. locating means for said panels formed on said projections adjacent said gap.
10. A clip for mounting panels on a support member and holding a finishing mould having a central protuberance in position across a space between two of said panels, said clip comprising:
- a. a main portion;
- b. a carrier member having resilient peg means, adapted to snap into apertures in said support member and being adapted to engage one side of the said main portion;
- c. resilient socket means formed on the opposite side of said main portion for receiving said finishing mould protuberance;
- d. two projections connected to the said main portion and located on the said opposite side thereof, and defining therebetween a gap which is aligned with said socket means; and
- e. locating means for said panels formed on the said two projections adjacent the said gap.
11. A clip for holding a finishing mould having a central protuberance in position across a space between two panels, said clip comprising:
- a. a main portion;
- b. resilient catch means carried on one side of the said main portion;
- c. resilient socket means formed on the opposite side of the said main portion for receiving said finishing mould protuberance;
- d. webs extending from said main portion in the opposite direction to the said catch means;
- e. two panel-supporting portions connected to the said webs and located on the said opposite side of the said first portion;
- f. the two said panel-supporting portions defining a gap which is aligned with said socket means; and
- g. locating means for said panels formed on the said two panel-supporting portions adjacent the said gap.
12. A slip for mounting panels on a support member and for holding a finishing mould having a central protuberance in position across a space between two panels, said clip comprising:
- a. a main portion which has a plurality of pegs formed on one side, the pegs being adapted to be snap-fit in apertures in said support;
- b. resilient socket means formed on the opposite side of the said main portion and adapted to retain said finishing mould therein;
- c. two panel-supporting portions connected to the said first portion by webs and defining therebetween a gap which is aligned with the said socket means; and
- d. lugs formed on the two panel-supporting portions which define the edges of the said gap and are adapted to locate the adjacent edges of two of said panels.
13. A device for mounting laterally spaced panels on a support member and covering the gap between said spaced panels, and device comprising:
- a finishing mould having a face portion dimensioned to cover said gap and a central protuberance projecting away from said face portion, and
- a clip comprising:
- a. a main portion,
- b. resilient catch means on one side of said main portion,
- c. resilient socket means on the opposite side of said main portion from said catch means,
- d. two projections extending from said opposite side of said main portion on opposite sides of said socket means and defining therebetween a gap affording access to said socket means for receiving said protuberance, and
- e. locating means for said panels formed on said projections adjacent said gap.

14. A device for mounting laterally spaced panels on a support member and covering the gap between said spaced panels, said device comprising:
- a finishing mould having a face portion dimensioned to cover said gap and a central protuberance projecting away from said face portion, and
  - a clip comprising:
    - a. a main portion;
    - b. a carrier member having resilient peg means, adapted to snap into apertures in said support member and being adapted to engage one side of the said main portion;
    - c. resilient socket means formed on the opposite side of said main portion for receiving said protuberance;
    - d. two projections connected to the said main portion and located on the said opposite side thereof, and defining therebetween a gap which is aligned with said socket means; and
    - e. locating means for said panels formed on the said two projections adjacent the said gap.
15. A device for mounting laterally spaced panels on a support member and covering the gap between said spaced panels, said device comprising:
- a finishing mould having a face portion dimensioned to cover said gap and a central protuberance projecting away from said face portion, and
  - a clip comprising:
    - a. a main portion;
    - b. resilient catch means carried on one side of the said main portion;
    - c. resilient socket means formed on the opposite side of the said main portion for receiving said

- portuberance;
  - d. webs extending from said main portion in the opposite direction to said catch means;
  - e. two panel-supporting portions connected to the said webs and located on the said opposite side of the said first portion;
  - f. the two said panel-supporting portions defining a gap which is aligned with said socket means; and
  - g. locating means formed on the said two panel-supporting portions adjacent the said gap.
16. A device for mounting laterally spaced panels on a support member and covering the gap between said spaced panels, said device comprising:
- a finishing mould having a face portion dimensioned to cover said gap and a central protuberance projecting away from said face portion, and
  - a clip comprising:
    - a. a main portion which has a plurality of pegs formed on one side, the pegs being adapted to be snap-fit in apertures in said support;
    - b. resilient socket means formed on the opposite side of the said main portion and adapted to retain said finishing mould therein;
    - c. two panel-supporting portions connected to the said first portion by webs and defining therebetween a gap which is aligned with the said socket means; and
    - d. lugs formed on the two panel-supporting portions which define the edges of the said gap and are adapted to locate the adjacent edges of two of said panels.

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UNITED STATES PATENT OFFICE  
CERTIFICATE OF CORRECTION

Patent No. 3,778,958 Dated December 18, 1973

Inventor(s) GERALD FOWLER

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

[73] Assignee: British Leyland Truck & Bus Division Ltd.,  
Leyland, Lancashire, England

Signed and sealed this 16th day of April 1974.

(SEAL)  
Attest:

EDWARD M. FLETCHER, JR.  
Attesting Officer

C. MARSHALL DANN  
Commissioner of Patents