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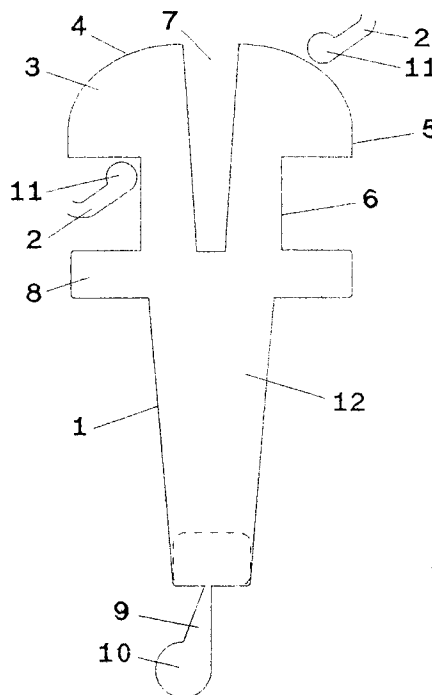
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BE CH DE DK FR GB LI LU NL(71) Applicant: **FOREST GROUP NEDERLAND B.V.**
Rostockstraat 13
NL-7418 EL Deventer(NL)(72) Inventor: **Bosgoed, Henrikus Wilhelmus**
Frederikus
Hagenvoorderdijk 187
NL-7413 CX Schalkhaar(NL)(74) Representative: **de Wit, Gerard Frederik, Ir. et**
al
Octrooi- en Merkenbureau De Wit B.V.
Breitnerlaan 146
NL-2596 HG Den Haag (NL)(54) **Combination of a curtain rail and a glider; glider and curtain rail applicable in the combination, as well as method of inserting gliders into a curtain rail.**

(57) The invention relates to a combination of a curtain rail (2) with a slot (11-11), whereby the glider (1) has a slit (7) and can be clipped into the rail (2) by elastical deformation which is made easier by the slit (7), wherewith the upper side (4) of the glider (1) is round, having preferably the shape of a cilindre sector, which makes inserting easier. According to another aspect of the invention the gliders (1) to be inserted are combined to a set and firstly a number of sets is brought into a rail and only when attaching the curtain the relatively few additional gliders will be inserted.

**FIG. 1****EP 0 601 663 A1**

The invention relates to a combination of a metal curtain rail provided with a slot with a pre-determined slot-width, and a glider having a head with a head-width greater than the slot-width and beneath it a shaft portion with a shaft-width smaller than the slot-width, the sum of the head-width and the shaft-width being greater than twice the slot-width, and the head and shaft being provided with a central slit.

Such a combination is known from the German Gebrauchsmuster DE-G-8527230.2.

Said known Gebrauchsmuster provides that the upper side of the head is on each side provided with a straight downward sloping surface. Consequently, when swivelling the glider in order to be able to insert it into the slot, the angle under which said surface comes into contact with the edge of the slot becomes increasingly unfavourable and, as a result, necessitates an ever increasing swivelling force. This is all the more serious because initially the force required for deformation is smaller than afterwards, when a considerable deformation has already occurred.

This means that in case of the known glider either great forces have to be exerted in order to insert this into the rail, or, in case of very supple gliders, a not particularly solid glider is obtained.

The invention aims at removing aforementioned disadvantages. Accordingly the invention provides that the upper surface of the head is round with a downward angle of inclination that increases towards the outside of the head.

The invention also comprises a glider which is applicable in the aforementioned combination and which is fitted with a head and a shaft, provided with a central slit, and that is characterized in that the upper surface of the head is round with a downward angle of inclination that increases towards the outside of the head.

Reference is made to the American patent application 2 848 735, in which a combination of a rail and a vertical slot has been described, wherein gliders with claws of a very different rigidity can be inserted by hooking up one claw behind the edge of the slot and subsequently, by swivelling the glider, moving the claws towards each other by causing a rounding of the other claw to cam the other edge of the other claw.

In accordance with a further elaboration of the invention it is provided that the round part of the head's upper surface comprises more than 70% of the width of the head portion, from the top side of the slit to the outside of the head portion. Running the head portion through the slot becomes easier with a larger round part. A small round part results only in a stiffer action, but from 70% of the indicated width, satisfactory results are possible, at least so far as is known.

In order to enhance the snap action, which already has been obtained to a considerable degree due to the round shape of the upper surface of the head, it can be provided in accordance with a further characteristic of the invention that the upper surface changes close to the outside of the head into a surface with an angle of inclination which is in good approximation perpendicular. It is observed that in said German Gebrauchsmuster something similar is described, but in that case said surface has a downward rounded shape. As a result, when completing the snap action, only a very small length of said surface remains and, in consequence, danger arises of damage to the glider.

Therefore, in accordance with a further characteristic of the invention it is preferably provided that the round part of the upper surface and the surface with an approximately perpendicular angle of inclination, extend over the entire length of the glider.

According to another further characteristic of the invention it can be provided that the central slit converges with the greatest width at the head's upper surface. By virtue of this arrangement, the parts of the shaft that are subject to bending, become narrower in upward direction, by which means, in that place, more bending action may be possible. This also prevents excess bending and stress direct at the lower side of the slot.

To prevent the glider from penetrating too deeply into a slot, in accordance with a further characteristic of the invention, known per se, it is provided that at some distance below the head there are insertion restricting members protruding from the shaft.

It is known to connect a number of curtain rail gliders that can be separated, so that the gliders can be easily inserted into the rail at the rail's end. This, however, relates to gliders of the type that cannot be inserted via a slot into the rail. According to a further understanding on which this aspect of the invention is based, it is, however, possible and economical to manufacture such a set of gliders for gliders insertable through a slit. In that case a number of sets can be quickly inserted into a rail that requires a specified amount of gliders. Afterwards, when the curtain is to be attached or hung, the few additional gliders can be inserted via the slot. Thus gliders are always in the place where they are desired for a proper hanging of the curtain, speeding up the entire procedure.

A preferable construction of such a set of gliders is constituted in that, at their sides averted from the head, the gliders are provided with an moulded broadening lip that is narrow where it is connected to the gliders, and that at its other side is connected to a connecting cord provided with a

holding means.

Finally, the invention also comprises a method of inserting the gliders into the curtain rail, characterized in that first a number of sets is inserted at the end of the rail, in such way that the total amount of gliders less the amount of gliders of a set is smaller than the amount required for said rail, and that the additional gliders are inserted through the slot of the rail when the curtain is connected to the gliders.

The invention will hereinafter be further explained, reference being made to the drawing, where;

fig. 1 shows a cross-section of a glider in accordance with the invention, and, schematically, the rail slit with which it cooperates.

fig. 2 shows a front view of the glider in fig. 1; and

fig. 3 shows, on a smaller scale, a set of gliders that are connected and can be separated.

In figs. 1 and 2 a glider is indicated by 1, the restricting parts of a rail with a bulge 11, are indicated by 2.

The glider 1 has a head portion 3, the upper surface 4 of which is round and preferably forms in good approximation a circular cylinder. By 5 a surface is indicated that serves to enhance the snap action. In addition, a downward narrowing slit 7 is provided, the side walls of which may enclose an angle of for example 10°. Stopping members 8, known per se, located at the lower end of the shaft portion 6, serve to prevent the glider from penetrating too deeply into the rail.

In fig. 1 a curtain rail 2 is schematically shown together with a slot located between built-up edges 11. By swivelling the glider in fig. 1 counter-clockwise, the glider is clipped into the rail while deforming the slit 7.

In fig. 1 it can be observed that the upper side 4 from the top down consists first of a round part and subsequently of a vertical surface 5. Viewed from above, the round part comprises the entire surface between the top edge of the slit 7 and the surface 5. However, a preferably narrow flat surface may be situated between the curve and the edge of the slit 7. Also a small angle may exist in the direction of the round part's surface and an adjacent surface, such as 5 or said narrow flat surface. However, viewed from above, the surface of the round part is preferably over 70% of the surface, viewed from above, from the edge of the slit 7 to the outside of head portion 3. The arc angle of the round part is preferably 60-90°.

At the lower side of an eye 12 a lip 9 is placed, which at its connection with the eye 12 is very narrow and at its broader lower end is provided with a cord 10.

As can be observed more in particular in fig. 3, said cord 10 is connected to a holding member 13, by which the lips 9 can be torn loose from the eyes 12, which is particularly easy when the gliders have already been placed in the rail.

It will be clear that the invention is not restricted to the drawn construction example, but that variations hereon can be applied, e.g. in the shape of the slit 7 and the curvature of the upper surface 4. Moreover, the material used for the glider in accordance with the invention can be chosen within relatively wide margins: it may be any rigid elastic synthetic material, such as polyvinyl chloride, polyethylene, polystyrene and so on.

Claims

1. Combination of a metal curtain rail (2) provided with a slot (11-11) with a predetermined slot-width, and a glider having a head (3) with a head-width greater than the slot-width and beneath it a shaft portion (6) with a shaft-width smaller than the slot-width (11-11), the sum of the head-width and the shaft-width being greater than twice the slot-width, and the head (3) and shaft (6) being provided with a central slit (7), **characterized in that** the upper surface (4) of the head is round with a downward angle of inclination that increases towards the outside of the head.
2. Glider for a curtain rail, applicable in the combination as claimed in claim 1, which glider has a head (3) and a shaft (6), provided with a central slit (7), **characterized in that** the upper surface of the head is round with a downward angle of inclination that increases towards the outside of the head.
3. Glider as claimed in claim 2, **characterized in that** the round part of the head's upper surface comprises more than 70% of the width of the head portion, from the top side of the slit to the outside of the head portion.
4. Glider as claimed in claim 2, **characterized in that** the upper surface (4) changes close to the outside or the head into a surface (5) with an angle of inclination which is in good approximation perpendicular.
5. Glider as claimed in claim 4, **characterized in that** the round part of the upper surface (4) and the surface (5) with an approximately perpendicular angle of inclination, extend over the entire length of the glider.

6. Glider as claimed in claims 2-5, **characterized in that** the central slit (7) converges with the greatest width at the head's upper surface.
7. Glider as claimed in claims 2-6, **characterized in that** at some distance below the head there are insertion restricting members (8) protruding from the shaft. 5
8. Set of gliders in a row, which are connected but can be separated, **characterized in that** the gliders are gliders as claimed in any of the claims 2-7, or allow insertion into a curtain rail appropriate to that purpose through the slot of said rail. 10
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9. Set as claimed in claim 8, **characterized in that** the gliders are provided with an moulded broadening lip (9) that is narrow where it is connected to the gliders, and that at its other side is connected to a connecting cord (10) provided with a holding means (13). 20
10. Method of inserting gliders as claimed in claim 7 or 8 into a curtain rail, **characterized in that** first a number of sets is inserted at the end of the rail, in such way that the total amount of gliders less the amount of gliders of a set is smaller than the amount required for said rail, and that the additional gliders are inserted through the slot of the rail when the curtain is connected to the gliders. 25
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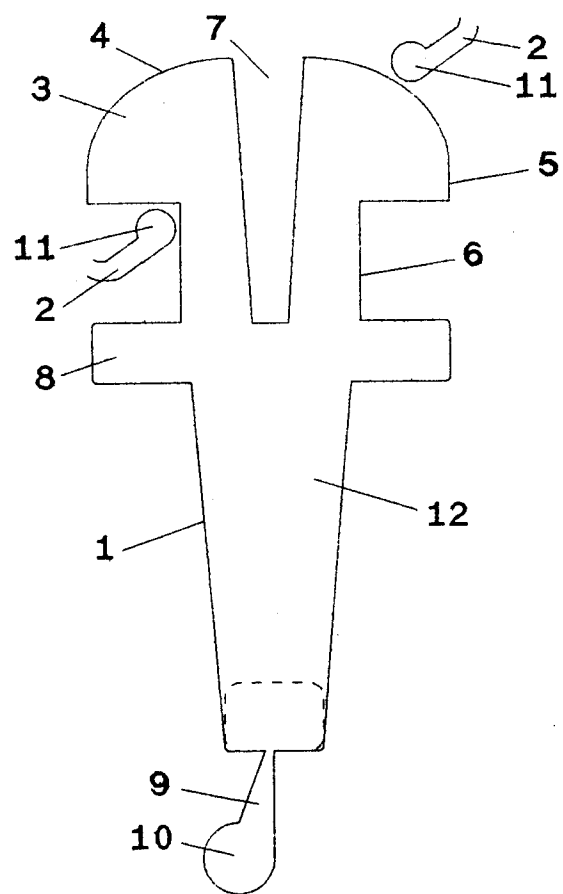


FIG. 1

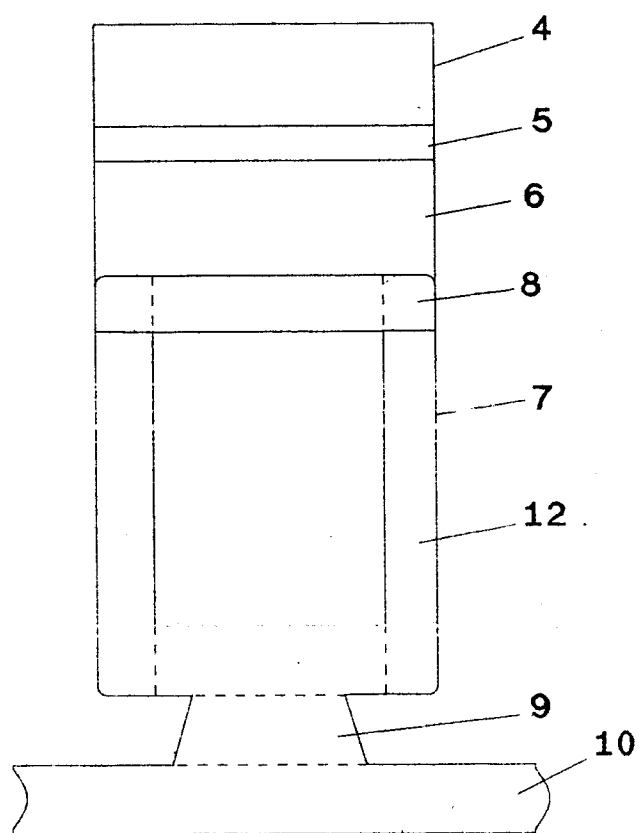


FIG. 2

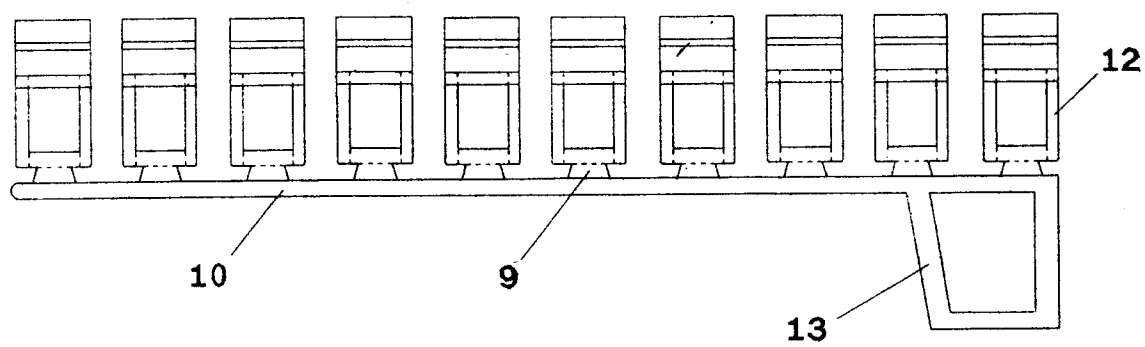


FIG. 3



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EUROPEAN SEARCH REPORT

Application Number
EP 93 20 3423

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.5)
Y	US-A-2 848 735 (AULT & AL) * column 2, line 65 - column 4, line 21; figures 1-4 * ---	1-7	A47H15/04
Y A	GB-A-2 218 621 (HEINRICH) * page 7, line 38 - page 8, line 15 * * page 8, line 37 - page 9, line 22; figures 6-9 * ---	1-7 8	
D,A	DE-U-85 27 230 (SCHADE) * page 3, line 4 - page 4, line 26; figures 1-5 * ---	1-7	
A	10490 Silent Gliss (1991) 76-7, Kent, GB page 1, lowermost item on picture page 6, "glider 3533" and "universal nylon bracket 3630" page 7, "fitting instructions" ---	1-3,8,9	
A	DE-B-11 79 342 (STÖRZBACH) * column 2, line 25 - line 28; figures 3,4 * -----	1-5	TECHNICAL FIELDS SEARCHED (Int.Cl.5) A47H
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 22 March 1994	Examiner Porwoll, H
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			