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(54) **Rung for a swimming pool ladder.**

(57) This is formed of a metal plate (1) with a general section of an inverted U which is attached to the ladder beams (M) through end headpieces (5) by means of a bolt (15) and nut (18). It is characteristic because at each end of the top surface of the metal plate (1) a slot (8) has been opened in which the respective blocks (9) with orifices (12) are inserted, these blocks (9) presenting a head (10) which rests on the rim of the corresponding slots (8), the orifices (12) of said blocks (9) being aligned with the orifices (13 and 14) presented in the headpieces (5) and the corresponding ladder beams (M), in order to insert the pertinent bolt (15).

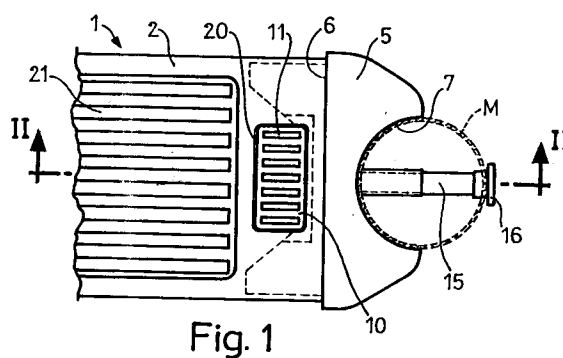


Fig. 1

The invention refers to a rung for a swimming pool ladder.

There are well-known rungs for this application which basically consist of a metal plate with a general section of an inverted U which is fixed at each end to the ladder beams through the two headpieces which are attached, on one of their sides, to the corresponding plate ends and which, on the opposite side, are attached to the profile of the respective ladder beams.

The applicant firm is titleholder of the Utility Model ES 288.641 which refers to a rung of this class in which the attachment between the metal plate, headpiece and ladder beam by means of nut and bolt is carried out by a fin at the end of the metal plate with a die-cut slot, this fin being bent towards the inside of the rung is applied against the inner side of the headpiece, the bolt being threaded through orifices in the tubular beam, through a bore hole in the headpiece and through the orifice in said fin, against which the nut is screwed down to the bolt.

The objective of this invention is to improve these methods of attachment by carrying out the aforementioned die cut-outs in smaller sizes to avoid weakening the end sections of the rung composition, and to include a sturdy linking element to reinforce this attachment.

As a result a block has been designed as a basic linking element between the metal plate, the end headpiece, and the corresponding ladder beam, which is inserted in each of the slots at the end of the metal plate and which has a head which rests on the rim of said slots. This block presents an orifice which when attaching the block to the metal plate is aligned with the orifices in the headpiece and corresponding ladder beam, the block, headpiece and beam being fixed in position with the nut and bolt.

The slots at each end of the metal plate are obtained by means of a partial die cut-out which leaves a small flange, which is bent 90° towards the inner section of the rung and is thus positioned between the aforementioned block and the inner side of the corresponding ladder beam.

To prevent the head of the block from protruding or protruding excessively from the top side of the rung, it has been designed to fit in an inset recess formed in the contour of the slot in which the block is inserted, the head of the block being marked with slip-proof protrusions on the upper side.

These and other characteristics will be better comprehended from the following detailed description which is accompanied by a sheet of drawings to facilitate the explanation and in which a practical case of the carrying out of this invention has been represented, here shown merely by way of a non-

limiting example of the scope of the invention.

Figure 1 shows a plan view of one of the ends of the rung,

figure 2 is a lengthwise section of said area,

figure 2 is a cross section of said area of the rung, and

figure 4 indicates a perspective view of the block which constitutes the linking element between the metal plate, the corresponding headpiece and the ladder beam.

In accordance with the drawings, the rung includes a metal plate 1 in a flattened and inverted U section, forming an upper surface 2 with a slight crosswise arch and lengthwise fins 3 with the edge formed by a curved recessed fold 4.

The two headpieces 5 are attached to the ends of this plate, these headpieces being formed of moulded one-piece sections which are fitted with a step 6 along the middle which determines the limit abutment of said attachment, the opposite side of said headpieces presenting a circular recess 7 for attachment to the corresponding metal and tubular ladder beams M.

In the two ends of the top surface of the metal plate 1, rectangular, crosswise slots 8 have been opened, with a section corresponding to a linking element formed of a block 9 with a likewise rectangular head 10, which is slightly arched and marked with ribs 11 for slip-proof purposes.

This block presents an orifice 12 which coincides with the orifice 13 of the headpiece and with the orifices 14 of the ladder beam, through which orifices a bolt 15 is inserted, whose head 16 butts against the outer side of the ladder beam M, this bolt protruding through the block 9 where it is coupled to a spring washer 17 and the corresponding nut 18.

The slots 8 are obtained by partial die cut-outs leaving a flange 19 which is bent at 90° towards the interior of the rung and which contributes towards reinforcing the attachment being positioned between the block 9 and the inner side of the corresponding headpiece 5.

To avoid the head 10 of the block 9 protruding, or protruding excessively, over the top surface 2 of the rung, the contour of slots 8 present peripheral inset recesses 20 in which the aforementioned head is embedded.

The top surface 2 of the metal plate presents slightly protruding embossed ribs for slip-proof purposes.

Claims

1. Rung for a swimming pool ladder, formed of a metal plate (1) with a general section of an inverted U which is attached to the ladder beams (M) through end headpieces (5) by

means of a bolt (15) and nut (18), characterised because at each end of the top surface of the metal plate (1) a slot (8) has been opened in which the respective blocks (9) with orifices (12) are inserted, these blocks (9) presenting a head which rests on the rim of the corresponding slots (8), the orifices (12) of said blocks (9) being aligned with the orifices (13 and 14) presented in the headpieces (5) and the corresponding ladder beams (M), in order to insert the pertinent bolt (15).

2. Rung for a swimming pool ladder, according to claim 1, in which the slots (8) at each end of the metal plate (1) are obtained by partial die cut-outs leaving a flange (19) which is bent at 90° towards the interior of the rung and is positioned between the aforementioned block (9) and the inner side of the corresponding headpiece (5).
3. Rung for a swimming pool ladder, according to claim 1, in which the contour of the slots (8) at each end of the metal plate (1) presents a peripheral inset recess (20) where the head (10) of the aforementioned blocks (9) is embedded.
4. Rung for a swimming pool ladder, according to claim 1, in which the top surface of the heads (10) of the blocks (9) present protrusions (11) for slip-proof purposes.

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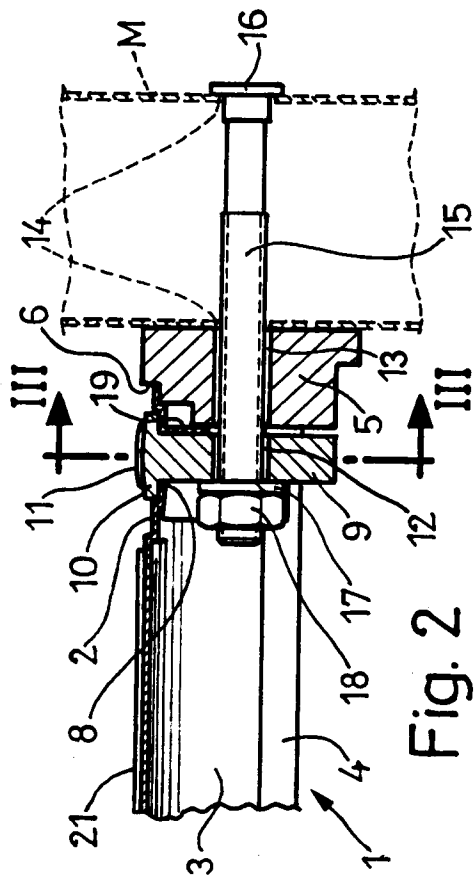


Fig. 2

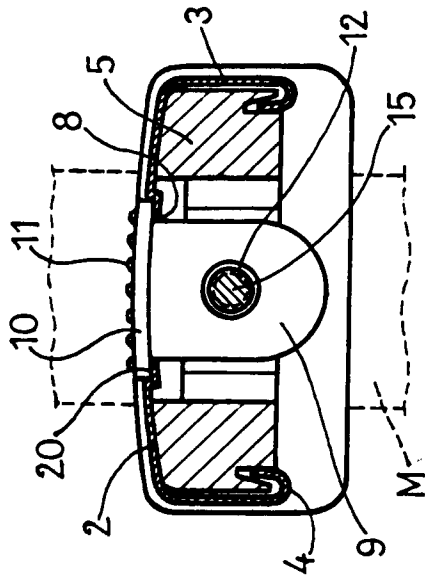


Fig. 3

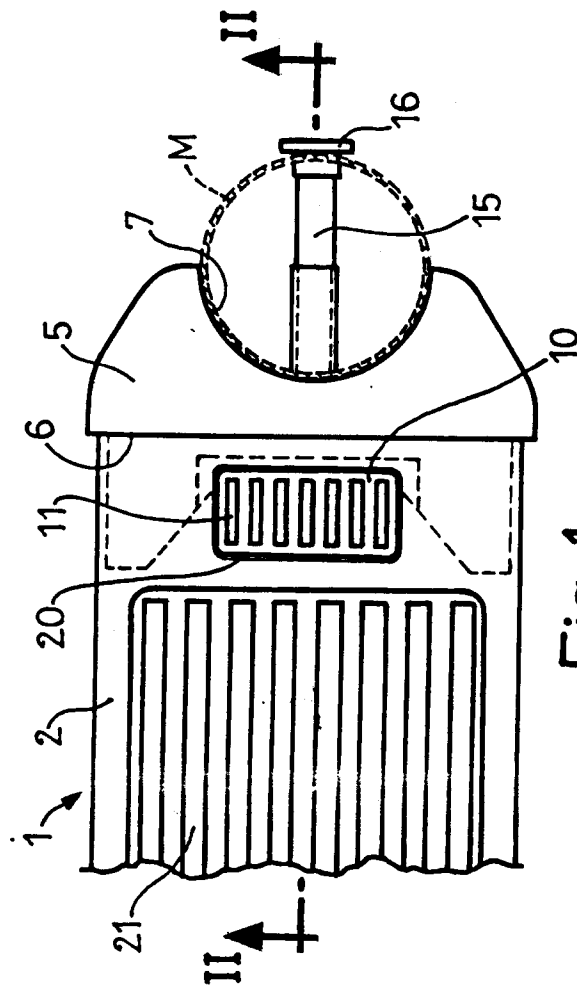


Fig. 1

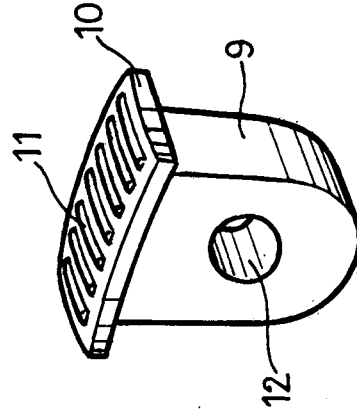


Fig. 4



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 93 50 0168

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)
D,A	ES-U-288 641 (ASTRAL) ---	1,2,4	E06C7/08 E04H4/14
A	ES-U-288 640 (ASTRAL) ---		
A	US-A-1 676 317 (BENNETT) -----		
			TECHNICAL FIELDS SEARCHED (Int.Cl.5)
			E04H E06C E04F
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 26 April 1994	Examiner Fordham, A
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			