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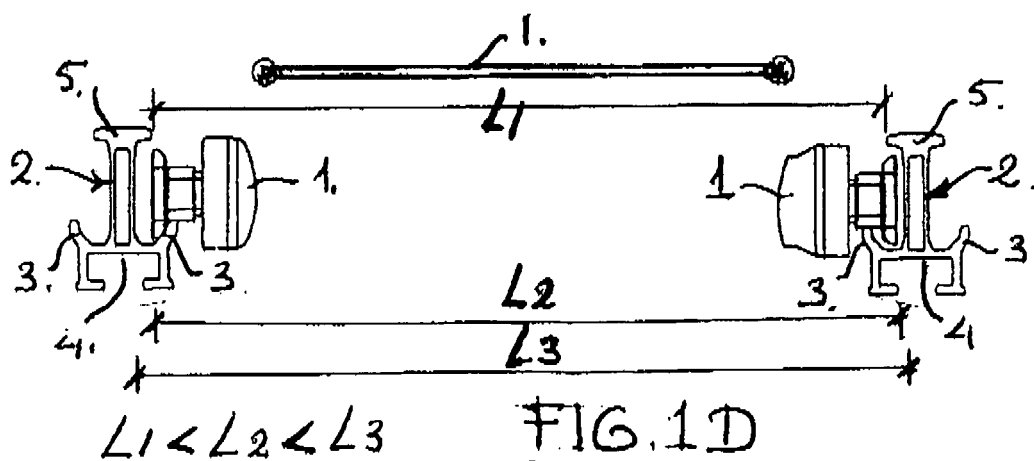
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(54) **Beam/floor board combination for scaffold systems**

(57) The invention relates to a beam/floor board combination, in which the transverse profile of the beam (1) is provided with a lower flange (4) having raised edges (3) at its extremities and that at its upper side, said transverse profile is further provided with a narrow upper flange, in which the floor board (1) has its extremities

provided with hitching means (6, 7, 8, 9, 10) for suitably sliding across and turning in the floor board (1) on the beam (2) across the various lengths L1, L2 and L3, in which the hitching means (6, 7, 8, 9, 10) together with the beam (2) lock the floor board against getting blown up by the wind in a surprising way.



Description

[0001] The invention relates to a beam/floor board combination for system scaffolds having beams, mostly cross girders, for supporting floor boards, the extremities of the floor boards being provided with hitching means which will hitch across a portion of the beam.

[0002] Traditionally, in scaffolding one often employs the standardized scaffold pipe having an outer diameter of 48.3 mm. Also, this pipe is often used in system scaffold elements like frames, posts and beams, because then it is easy to establish connections to standard scaffold couplings, for small adaptations. For this reason, beams serving to support floor boards are made using this pipe. System floor boards are then provided with hooks that fit across said pipe and are mounted in offset relationship to provide space for the adjacent floor board. The designer has the task to find a best possible balance between hooks as narrow as possible, for keeping the offset as small as possible, and hooks as wide as possible, to make the hooks as strong as possible. Especially for narrow floor boards, this is a difficult task, also because the difficulty arises at two opposite angles. Thus, practice has shown that the hook means of the floor boards on the market are very vulnerable, which causes problems during mounting and requires much maintenance.

[0003] There are solutions on the market which require less maintenance, in which the cross girder of the system scaffold is designed as an inverted T-profile, so that system floors can be put onto the supporting planes thus provided, which require no hooks and therefore do not have the above-mentioned difficulties. However, to my knowledge, it has turned out to provide a practical and robust solution for the problem of floor board getting blown up by the wind. Further, the solution has the difficulty, that the floor boards can not be under strain of tension and thus are not part of the complete supporting construction of the scaffold, as a result of which usually additional beams have to be mounted at both sides of the floor.

[0004] A considerable improvement was achieved with the German patent application P 23 41 176.8 of Bera Berlin in 1973. There, the cross girder is designed as a U profile, in which hook-shaped means are hitched across both raised edges of the U-profile. The hitching means can be made considerably more compact and robust than the members mentioned earlier; however, the hitching means will remain vulnerable during rough treatment on the building site. Since this concerns a closed frame system, the floor boards are prevented from blowing away in that the hitching means are covered by the upper scaffold frame. Such locking does not exist in a system scaffold having modular posts and beams. This would require an additional cross profile, which is difficult to realize in existing modular post systems.

[0005] The object of the present invention is to provide a solution for the difficulties mentioned above by which a suitable beam/floor board combination can be put on

the market in a labour technically and economically sound way.

[0006] To this end, the beam/floor board combination according to the invention has been developed further, c.q. modified, in a novel way, characterized in that the cross-section of said beam is provided with a lower flange having raised edges at the extremities, with said hitching means hitching across the raised edges, said cross-section of the beam also being provided with a narrow upper flange, in which the intermediate distance L1 between two successive upper flanges of the beams is smaller than the total length L2 of the floor board plus hitching means and the length L2 in turn is smaller than the length L3 between the webs of the beams.

[0007] The advantage is that the floor board can be mounted to and be demounted from the beam in a smooth way and that if the floor board is blown up by the wind, this will only be possible at one side and across a small height, and that subsequently the floor board will be locked to the beam at the other side. Further, the cross-section of the beam allows the use of various profiles, such as an inverted T-profile, a rectangular or a U-shaped profile and transverse profile and the like, said transverse profile being provided with raised edges and a narrow upper flange.

[0008] Further, the beam/floor board combination according to the invention has been developed such, that said hitching means at the extremities of the floor board for hitching across the raised edges of the beam are fastened to the floor board by means of shock absorbing intermediate layers.

[0009] The advantage is that on demounting the floor boards, parts will be thrown to the ground from the scaffold and will hit the hitching means, which will then be able to absorb the shock without getting damaged.

[0010] Then, the beam/floor board combination has been developed further, characterized in that the resulting transverse profile of the beam is a hollow web having a narrow upper flange and a U-shaped bottom flange for receiving the hitching means at the extremities of the floor boards.

[0011] The advantage is a relatively low cross girder having a relatively large stiffness against bending and torsion and allowing for easy insertion of the hitching means.

[0012] Further, the beam/floor board combination has been developed further, characterized in that said hitching means have an H-shaped transverse profile.

[0013] The advantage is that the floor boards can also be mounted and demounted in inverted positions.

[0014] Then, the beam/floor board combination has been developed further, characterized in that said hitching means have an inverted U-shaped transverse profile.

[0015] The advantage is that the hitching means can be designed in a more robust cross-section, however, the floor boards can only be mounted in one position.

[0016] Hereinafter, the invention is explained further by way of the preferred embodiments illustrated in the

drawing, in which:

figures 1A-1D show a mounting diagram of the beam/floor board combination in the system scaffold;
 figures 2A-2D show a demounting diagram of the beam/floor board combination in the system scaffold;
 figure 3 shows a locking of the beam/floor board combination on getting blown up by the wind;
 figures 4A-4C show a hitching means having an H-shaped transverse profile at the extremity of the floor board; and
 figures 5A-5B show a hitching means having an inverted U-shaped transverse profile at the extremity of the floor board.

[0017] Figures 1A through 1D illustrate the mounting diagram of the floor board 1 in the mutually parallel beams 2 having e.g. a roughly inverted T-shaped cross-section. The lower flange of the inverted T-shaped cross-section of the beams 2 have raised edges 3 at the lower flange 4 and a narrow upper flange 5. The length L1 between upper flanges 5 is smaller than L2 being the complete floor board 1 having the hitching means 6, 7, 8, 9, 10 (see figures 4A-4C and 5A-B) and in turn smaller than L3 being the distance between the webs 11 of beam 2 having the inverted T-shaped cross-section (see also figure 3). Sliding in or mounting the floor board 1 is indicated by arrows and can therefore be deducted from figures 1A through 1D.

[0018] Figures 2A through 2D show the opposite, namely, demounting, and the complete process can be deducted from these figures too.

[0019] Figure 3 shows locking of the beam/floor board combination. At one side of the floor board, the beam 1 can be inserted completely, then the other side of the floor board 1 can be blown up by the wind past the narrow upper flange 5, causing the floor board 1 to be at an angle α briefly, and then the hitching means 6, 7, 8, 9, 10 will be fixedly clamped between web 11 and the raised edge 3 of the lower flange 4. When the gust of wind disappears again, the end brought up will, with its hitching means, fall back onto the raised edge 3, etc.

[0020] Figures 4A through 4C show a hitching means 6, 7, 8 having an H-shaped transverse profile. Then, the floor boards 1 can also be used in the opposite direction, which can be important when the floor boards are dirty. Between the hitching means 6, 7 of figures 4A and 4B and the floor boards 1, a shock absorbing intermediate layer 12, 13 is mounted in order to protect edges 13 of the hitching means 6, 7 against excessive permanent distortion during rough treatment (floor boards 1 falling from the scaffold onto the ground) of the floor boards 1. In figure 4C, the entire hitching means 8 is designed in shock absorbing material 14.

[0021] In figures 5A and 5B, the hitching means 9, 10 is designed with a U-shaped transverse profile. In figure

5A, a shock absorbing intermediate layer 15 is mounted and in figure 5B, the shock absorbing intermediate layer 16 is combined with a hook 17. Here, floor board 1 is designed as metal plate 18 having edges 19 all round.

[0022] Finally, it should be stated clearly, that preferred embodiments of the beam/floor board combination have been described above and that obviously further modifications and the like are possible, without departing from the scope of this patent.

Claims

1. Beam/floor board combination for system scaffolds having beams, mostly cross girders, for supporting floor boards, the extremities of the floor boards (1) being provided with hitching means (6, 7, 8, 9, 10) which will hitch across a portion of the beam, **characterized in that** the cross-section of said beam (2) is provided with a lower flange (4) having raised edges (3) at the extremities, with said hitching means (6, 7, 8, 9, 10) hitching across said raised edges, said cross-section of the beam (2) also being provided with a narrow upper flange (5), in which the intermediate distance L1 between two successive upper flanges (5) of the beams (2) is smaller than the total length L2 of the floor board (1) plus hitching means (6, 7, 8, 9, 10) and the length L2 in turn is smaller than the length L3 between the webs (11) of the beams (2).
2. Beam/floor board combination according to claim 1, **characterized in that** said hitching means (6, 7, 8, 9, 10) at the extremities of the floor board (1) for hitching across the raised edges (3) of the beam (2) are fastened to the floor board (1) by means of shock absorbing intermediate layers (12, 13, 15, 16).
3. Beam/floor board combination according to claim 1, **characterized in that** said hitching means (14) are made entirely of shock absorbing material.
4. Beam/floor board combination according to claims 1-2, **characterized in that** the hitching means (14) of the floor board (1) have one or more cavities at the side facing the floor board, in which said cavities have an overlap of ample clearance with protrusions (20) at the floor board (1) and in which the cavities thus formed are filled with a shock absorbing plastic (12), which plastic furthermore allows for the connection between the hitching means (12) and the floor board (1).
5. Beam/floor board combination according to claim 4, **characterized in that** said cavities have been filled with a shock absorbing material (12) by an injection-moulding method.

6. Beam/floor board combination according to claim 1, **characterized in that** the resulting transverse profile of the beam (2) is a hollow web (11) having a narrow upper flange (5) and a U-shaped lower flange (4) for receiving the hitching means (6, 7, 8, 9, 10) at the extremities of the floor boards (1). 5
7. Beam/floor board combination according to claims 1-4, **characterized in that** said hitching means (6, 7, 8) have an H-shaped transverse profile. 10
8. Beam/floor board combination according to claims 1-4, **characterized in that** said hitching means (9, 10) have an inverted U-shaped transverse profile. 15

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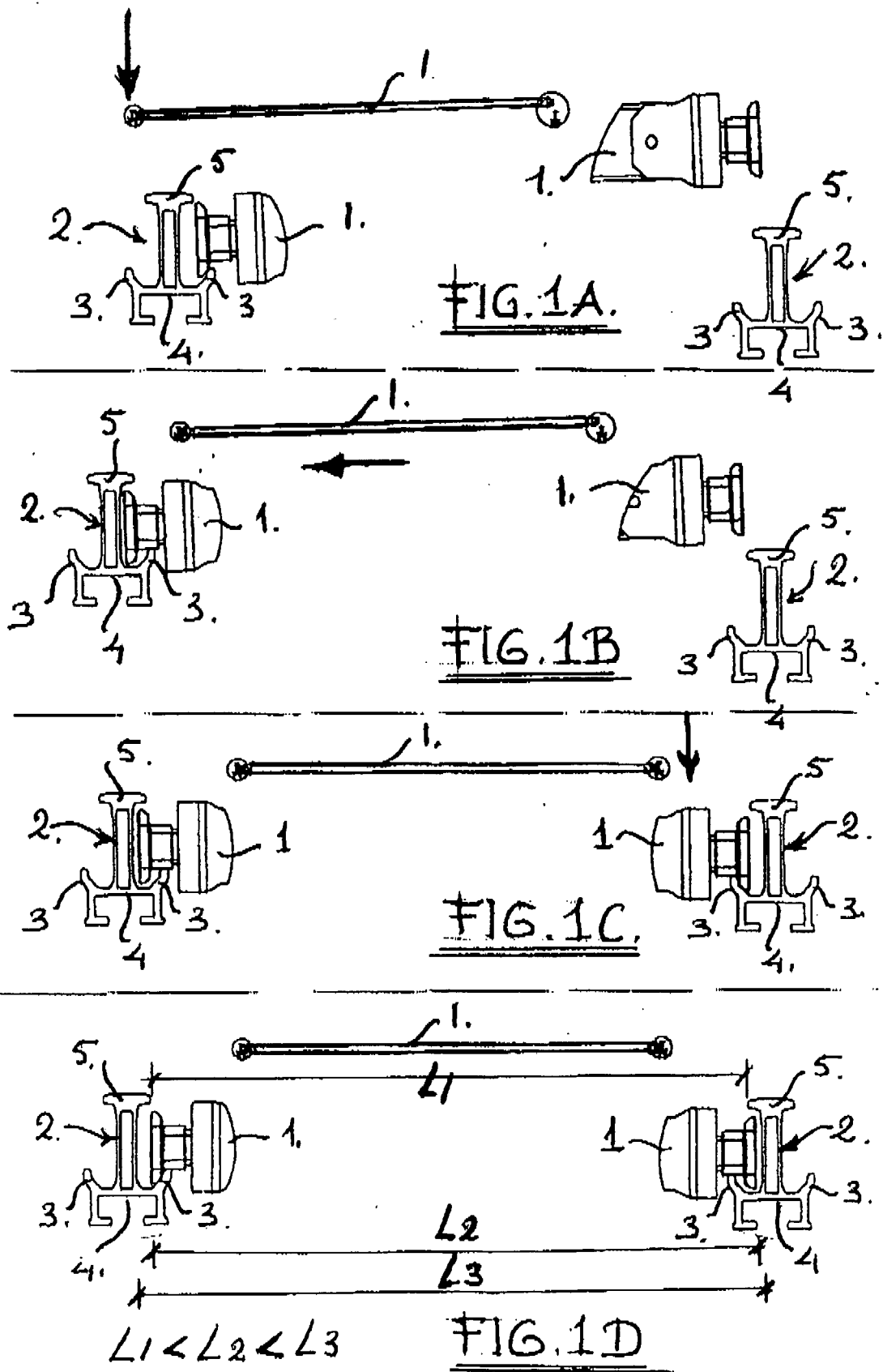
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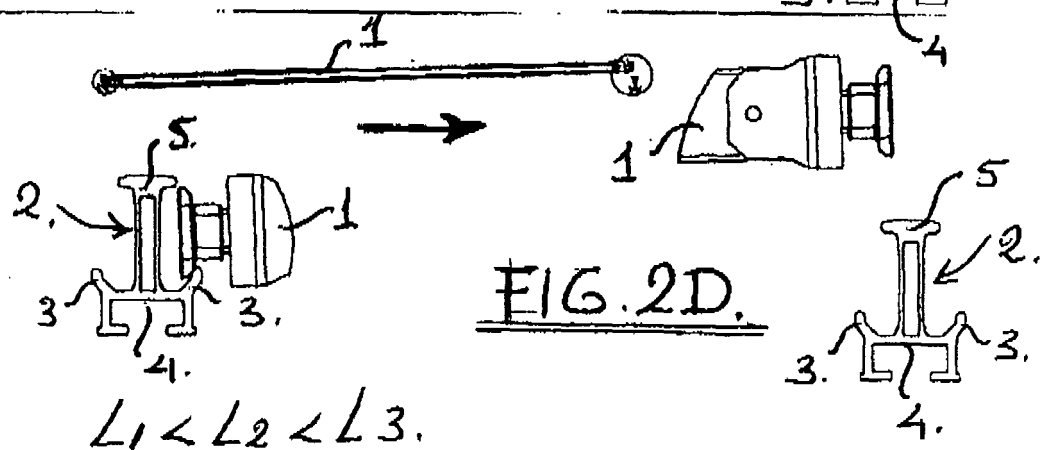
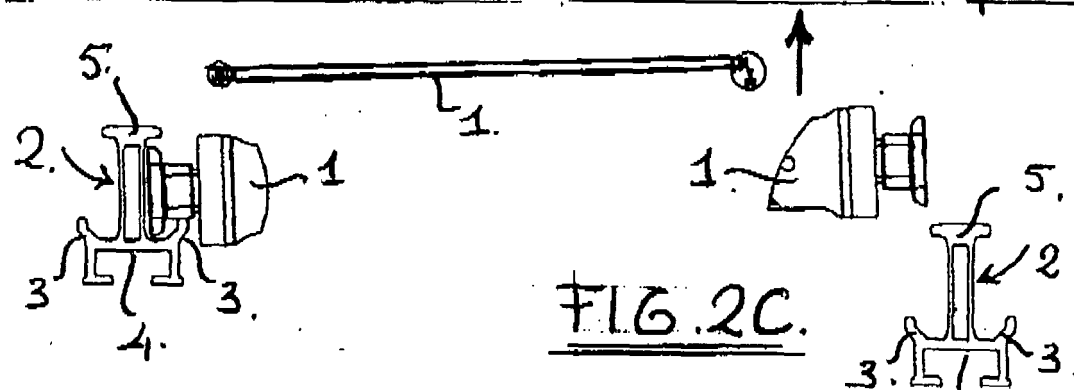
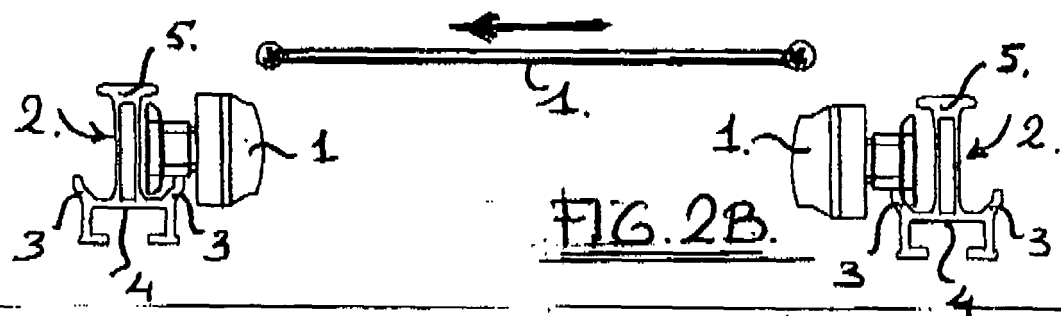
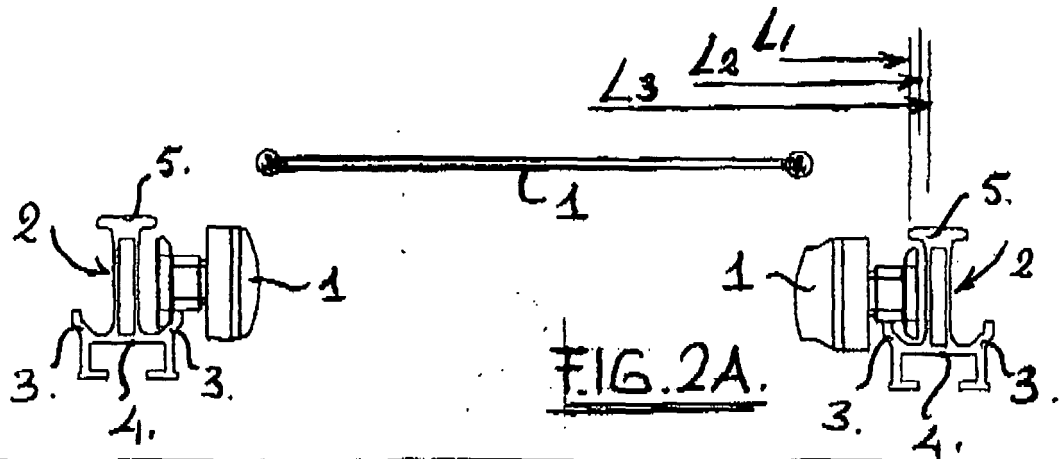
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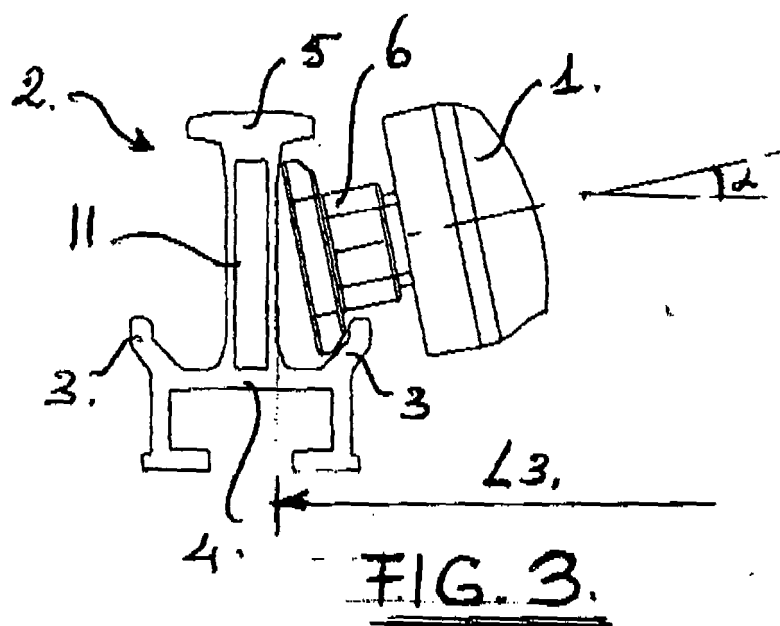
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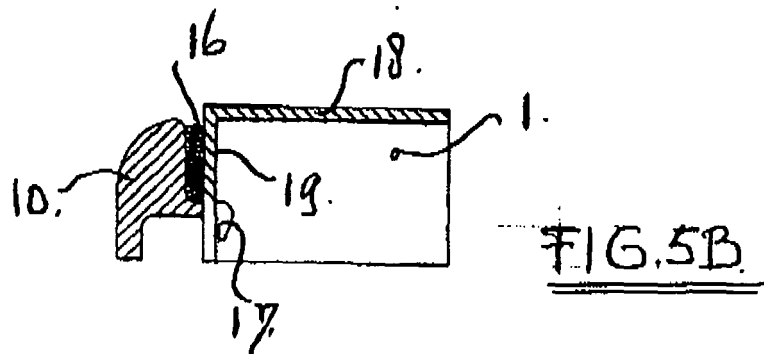
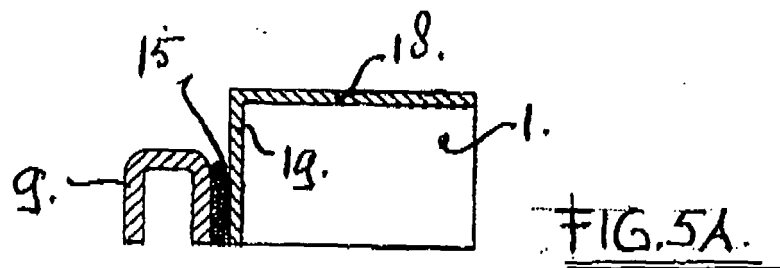
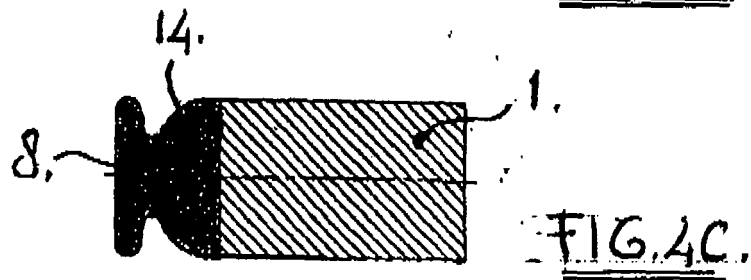
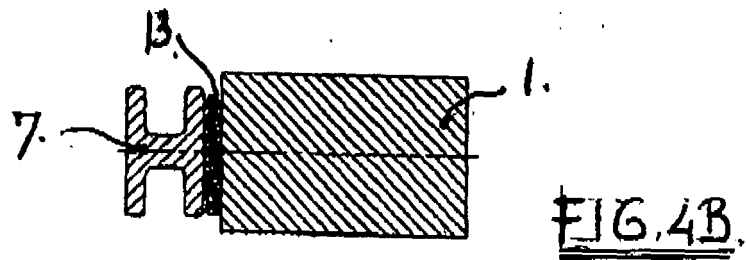
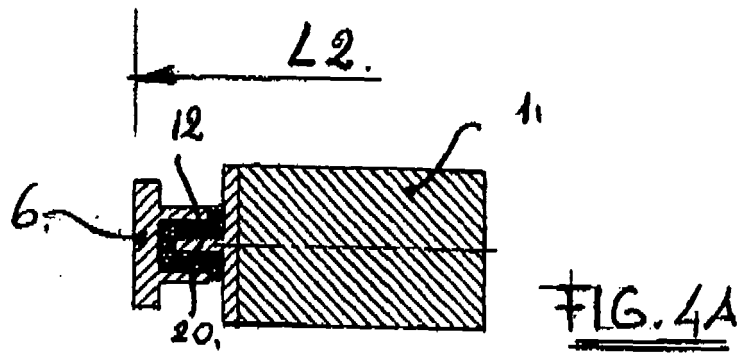
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EUROPEAN SEARCH REPORT

Application Number
EP 06 01 0286

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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