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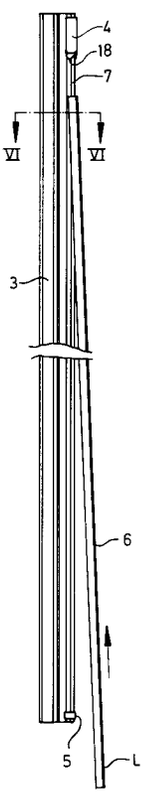
(54) Device at signs.

(57) The present invention relates to a device at signs, whereby each sign has display members which include an elongate carrier rod (3) of preferably a great length and which carrier rod is vertically oriented and provided to rotate about a longitudinal shaft, whereby blades (6) on a series of display members (2) mounted beside each other are adapted to together define various images and whereby the carrier rod (3) is provided with retaining means (4, 5) through which the blades (6) are mounted on said carrier rod (3). For quick and easy mounting of the blades (6), at least one upper retaining means (4) is mounted at the top of the carrier rod (3) and comprises at least one retaining portion with which a corresponding retaining portion on a blade (6) can be brought in engagement from below in upwards direction (U), whereby at least one lower retaining means (5) is mounted down below on the carrier rod (3) and comprises at least one retaining portion which is designed to permit engagement therewith by a corresponding retaining portion on said blade (6) after said blade (6) at the top has been brought in engagement with the upper retaining means (4) such that said blade can not slide out of engagement with the upper retaining means (4).

Fig. 3



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The present invention relates to a device at signs, whereby each sign has display members which include an elongate carrier rod of preferably a great length and which carrier rod is vertically oriented and provided to rotate about a longitudinal shaft, whereby first blades on a series of display members mounted beside each other are adapted to together define a first image, whereby second blades on said series of display members located beside each other are adapted to together define a second image, whereby preferably at least third blades on said series of display members mounted beside each other are adapted to together define at least a third image, whereby said first image can shift to said second image and preferably to at least one third image by rotating the display members and whereby the carrier rod is provided with retaining means through which the blades are mounted on said carrier rod.

At signs of the abovementioned type, the display members are often long - normally 2 m or more. This means that one does not reach up to the upper retaining means of the carrier rods when a new blade is to be snapped in position thereon and it has been necessary to hit the upper portions of the blade with a club or similar with a long hand grip in order to have the blade to snap in position at the top.

The necessity to proceed in this way however, is time consuming and thus, more costly, particularly if many blades - often more than 100 - shall be replaced at each sign each time the three images of the sign shall be exchanged for new images.

The object of the present invention has been to eliminate this problem by means of a simple and suitable device, which is defined substantially by the characterizing features of subsequent claim 1.

The device according to the invention permits that one from below can bring the blades into engagement with upper retaining means instead of snapping the blades thereinto, which means that the blades are quickly mounted at the top without tools and far above one's own reach.

The invention will be further described below with reference to the accompanying drawings, wherein

fig. 1 is a front view of a sign with a device according to the invention;

fig. 2 is a front view of a carrier rod forming part of the device of fig. 1 as well as upper and lower retaining means;

fig. 3 is a side view of the carrier rod of fig. 2 and a blade which is pushed upwards towards the upper retaining means;

fig. 4 corresponds with fig. 3 and illustrates the carrier rod with the blade inserted into the upper retaining means but not snapped into the lower retaining means;

fig. 5 corresponds with figs. 3 and 4 and shows the blade snapped into also the lower retaining means;

fig. 6 is a section through the carrier rod and blade along the line VI-VI i fig. 3;

fig. 7 is a section through the carrier rod and lower retaining means as well as the blade when said blade is situated adjacent to said retaining means for snapping thereinto;

fig. 8 is a view VIII-VIII, somewhat in perspective, of the carrier rod, upper retaining means and blade; and

fig. 9 is a section through the carrier rod, upper retaining means and blade along the line IX-IX in fig. 5.

The sign illustrated in fig. 1 includes a frame 1 with a series of display members 2 which are located beside each other and oriented vertically. Each such display member 2 preferably has a great length - e.g. 2 m or more - and it comprises a longitudinal carrier rod 3 which is adapted through retaining means 4, 5 to carry three blades 6 in such manner that the display member 2 gets a trilateral or triangular cross section.

Each carrier rod 3 is down below and at the top journalled on the frame 1 and cooperates with a pivoting device (not shown) which can pivot or rotate the carrier rod about a longitudinal shaft such that first one of the blades is turned or facing forward, then a second blade 6 and thereafter a third blade 6. Hereby, the sign can first show an image which a first blade 6 at all display members 2 located beside each other define together, whereafter the sign can change the first image to a second image which a second blade 6 of all display members 2 define together and finally, change the second image to a third image which a third blade 6 of all display members 2 define together.

Each carrier rod 3 preferably comprises an elongate hollow profile having three longitudinal retaining portions 7 and retaining means 4, 5 for a blade 6 is provided on each retaining portion.

The retaining means 4, 5 are preferably provided with two inner retaining shanks 8, 9 for being threaded onto the longitudinal retaining portions 7 of the carrier rod 3. The inner retaining shanks 8, 9 are preferably elastic so that the retaining means 4, 5 also can be snapped into the retaining portions 7, if desired.

Furthermore, the retaining means 4, 5 preferably have the same cross-sectional shape so that they can be manufactured with the same moulding tool. The upper retaining means 4 however, is preferably considerably longer than the lower retaining means 5.

Additionally, the retaining means 4, 5 have two outer retaining shanks 10, 11 which together with

the inner retaining shanks 8, 9, define two female shaped retaining portions 12, 13 in which two male shaped retaining portions 14, 15 on the blade 6 can be fixed in such a way that said male shaped retaining portions 14, 15 are stuck in said female shaped retaining portions 12, 13.

The female shaped retaining portions 12, 13 of the upper retaining means 4 preferably have entrances 16, 17 which are designed and/or located such that the male shaped retaining portions 14, 15 of the blade 6 can be fixed by insertion thereof from below into said entrances 16, 17 also if the blade is held in a somewhat inclined position L (see figs. 1, 3 and 4) relative to the carrier rod 3 when the blade 6 is moved in a direction U upwards towards the upper retaining means 4.

The upper retaining means 4 also includes a preferably downwardly directed end portion 18 which is designed to facilitate insertion of the male shaped retaining portions 14, 15 of the blade 6 into the retaining portions 12, 13 of the upper retaining means 4. This end portion 18 can preferably have two tongues 19 and 20, each of which defines an extension downwards of such inner sides of the retaining portions 12, 13 which are defined by the inner retaining shanks 8, 9. Each such tongue 19, 20 diminishes in thickness in downward direction and each tongue 19, 20 engages side surfaces 7a and 7b on the retaining portion 7 of the carrier rod 3.

The downwardly directed end portion 18 is also designed to permit that those central parts 21 of the blade 6 that are provided between the retaining portions 14, 15 of the blade 6 easily can slide up onto the upper retaining means 4. Hereby, the end portion 18 preferably has a central tongue 22 which defines an extension downwards of a central member or part 23 of the upper retaining means 4. The thickness of the central tongue 22 diminish successively in downward direction and said tongue engages a central surface 7c on the retaining portion 7 of the carrier rod 3.

The blade 6 can down below be fixed to the retaining means 5 such that it can not slide downwards and out of engagement with the upper retaining means 4. In order to permit this, the blade 6 can preferably be snapped into the lower retaining means 5 by pressing the lower portion of the blade 6 in radial direction R (see fig. 4) towards the carrier rod 3. Since the outer retaining shanks 10, 11 of the lower retaining means 5 are elastic, said shanks can be pressed aside by means of the retaining portions 14, 15 of the blade 6 and when they later are in engagement with the female shaped retaining portions 12, 13 of the lower retaining means 5, the elastic retaining shanks 10, 11 can spring back for retaining the blade 6 down below.

As an alternative to the abovementioned snap-in device, the retaining portions 14, 15 of the blade 6 may be elastic instead of those of the lower retaining means 5 or may the retaining portions of both the blade 6 and the lower retaining means 5 be elastic.

These fixing operations of the blade 6 at the top and down below can be carried out quickly and the blade 6 is thereafter firmly connected with the carrier rod 3 through the upper and lower retaining means 4, 5.

It can be advantageous to provide more than one upper retaining means 4, preferably two, beneath each other at the top of the carrier rod 3 in order to insert the retaining portions 14, 15 of the blade 6 from below into more than one retaining means 4 and thereby increase the retaining grip on the blade 6 at the top. These retaining means 4 are preferably of identical design, but they can alternatively have different shape.

The carrier rod 3 can be provided with more than one retaining means 5 beneath the upper retaining means 4 and the blade 6 can be snapped in position on all these additional retaining means 5 beneath the upper retaining means 5. All the retaining means 5 located beneath the upper retaining means 4 preferably have identical shape.

The upper retaining means 4 is preferably fixed at the carrier rod 3 such that said means can not be displaced when the retaining portions 14, 15 of the blade 6 are brought in engagement therewith. This fixing is carried out by means of one or more fixing or mounting screws 24, 25. The lower retaining means 5 can also be fixed at the carrier rod 3 e.g. by means of a mounting screw 26.

The longitudinal retaining portions 7 of the carrier rod 3 and/or the blade 6 and its retaining portions 14, 15 are preferably designed so that the retaining portions 7 of the carrier rod 3 can be used to guide the blade when it is moved upwards towards the upper retaining means 4 (see fig. 6), whereby the blade retaining portions 14, 15 are more easily brought in engagement with the retaining portions 12, 13 of the upper retaining means 4.

The outer retaining shanks 10, 11 of the upper retaining means 4 can be elastic so that the blade 6 can be snapped in position at the top instead of being fixed by movement thereof from below into cooperation with the upper retaining means 4. Hereby, the upper retaining means 4 can be utilized for either insertion or snap-in action of the blade retaining portions 14, 15.

The invention is not limited to the embodiment described above and shown in the drawings, but may vary within the scope of the following claims. As conceivable alternatives one could mention that the display members 2 instead of three blades have two, four, five or more blades. The carrier rod

3 can be designed otherwise and so can also the retaining means 4, 5, which instead of having the same cross-sectional shape can have different cross-sectional shapes. The lower retaining means 5 can be designed to permit another fixing of the blade 6 than by a snap-in action and/or said means can be integral with the carrier rod. The retaining means 4, 5 and blades 6 can have another number of retaining portions than two. Finally, it should be mentioned that the blade 6 can have another shape than described and shown.

Claims

1. Device at signs, whereby each sign has display members (2), which include an elongate carrier rod (3) of preferably a great length and which carrier rod is vertically oriented and provided to rotate about a longitudinal shaft, whereby first blades (6) on a series of display members (2) mounted beside each other are adapted to together define a first image, whereby second blades (6) on said series of display members (2) located beside each other are adapted to together define a second image, whereby preferably at least third blades (6) on said series of display members (2) mounted beside each other are adapted to together define at least a third image, whereby said first image can shift to said second image and preferably to at least one third image by rotating the display members (2) and whereby the carrier rod (3) is provided with retaining means (4, 5) through which the blades (6) are mounted on said carrier rod (3), **characterized in** that at least one upper retaining means (4) mounted at the top of the carrier rod (3) comprises at least one retaining portion (12 and/or 13) with which a corresponding retaining portion (14 and/or 15) on a blade (6) can be brought in engagement from below in upwards direction (U) and that at least one lower retaining means (5) is mounted down below on the carrier rod (3) and comprises at least one retaining portion (12 and/or 13) which is designed to permit engagement therewith by a corresponding retaining portion (14 and/or 15) on said blade (6) after said blade (6) at the top has engaged the upper retaining means (4), and whereby the retaining portion (12 and/or 13) of the lower retaining means (5) is designed also to prevent the blade retaining portion (14 and/or 15) cooperating therewith from sliding downwards such that said retaining portion (14 and/or 15) of the blade (6) can not slide out of engagement with the retaining portion (12 and/or 13) of the upper retaining means (4).

2. Device according to claim 1, **characterized in** that the retaining portion (14 and/or 15) of the blade (6), after it has been brought in engagement with the retaining portion (12 and/or 13) of the upper retaining means (4) from below, can be snapped into the retaining portion (12 and/or 13) of the lower retaining means (5) by pressing the lower part of the blade in radial direction (R) towards the carrier rod (3).

3. Device according to claim 1 or 2, **characterized in** that the retaining portion (12 and/or 13) of the upper retaining means (4) and/or a corresponding retaining portion (14 and/or 15) on the blade (6) is/are designed so that the retaining portion (14 and//or 15) of the blade can be brought in engagement with the retaining portion (12 and/or 13) of the upper retaining means (4) from below also if the blade during the upward movement is held in a somewhat inclined position (L) relative to the carrier rod (3).

4. Device according to claim 3, whereby the upper retaining means (4) comprises at least one female shaped retaining portion (12 and/or 13) and the blade (6) a male shaped retaining portion (14 and/or 15) or vice versa, whereby the male shaped retaining portion (14 and/or 15) fits into the female shaped retaining portion (12 and//or 13), **characterized in** that the female shaped retaining portion (12 and/or 13) has at least one entrance (16 and/or 17) for the male shaped retaining portion (14 and/or 15) which is designed and//or located such that the retaining portion (14 and/or 15) of the blade (6) can be inserted into said entrance (16 and/or 17) also if the blade is held in a somewhat inclined position (L) relative to the carrier rod (3) when the blade (6) is moved in upward direction (U) towards the upper retaining means (4).

5. Device according to any preceding claim, whereby the carrier rod (3) comprises longitudinal retaining portions (7) which are designed in such manner that retaining means can be threaded thereonto and/or snapped thereinto, whereby the upper retaining means (4) comprises two female shaped retaining portions (12 and 13) and the blade (6) two correspondingly male shaped retaining portions (14 and 15) and whereby the female shaped retaining portions (12 and 13) of the upper retaining means (4) are situated on opposite sides of the longitudinal retaining portion (7) of the carrier rod (3) when the upper retaining means (4) is mounted on said carrier rod (3), **character-**

ized in that the upper retaining means (4) comprises a downwardly directed end portion (18) which is designed to facilitate the insertion of the male shaped retaining portions (14 and 15) of the blade (6) into the retaining portions (12 and 13) of the upper retaining means (4), whereby said end portion (18) preferably includes two tongues (19, 20), each of which defines an extension downwards of an inner surface of each female shaped retaining portion (12 and 13) located closest to the retaining portion (7) of the carrier rod (3), and whereby the thickness of each tongue (19, 20) successively diminishes in downwards direction and each tongue (19, 20) engages a side surface (7a, 7b) on the retaining portion (7) of the carrier rod (3).

6. Device according to claim 5, **characterized in** that the downwardly directed end portion (18) is also designed to permit that such central parts (21) of the blade (6) that are located between the retaining portions (14 and 15) of the blade (6) can easily slide up onto the upper retaining means (4), whereby the end portion (18) preferably has a central tongue (22) which defines an extension downwards of a central part (23) of the upper retaining means (4) and whereby the central tongue (22) successively diminishes in thickness in downward direction and engages a central surface (7c) on the retaining portion (7) of the carrier rod (3).

7. Device according to any preceding claim, **characterized in** that the upper retaining means (4) after mounting on the carrier rod (3) can be fixed at said carrier rod such that said retaining means can not be displaced when the retaining portions (14 and/or 15) of the blade (6) is brought in engagement therewith from below.

8. Device according to any preceding claim, **characterized in** that the carrier rod (3) comprises such longitudinal retaining portions (7) and the blade (6) such retaining portions (14 and/or 15) that the retaining portions (7) of the carrier rod (3) can be used for guiding the retaining portions (14 and//or 15) of the blade (6) towards retaining portions (12 and/or 13) on the upper retaining means (4) when said blade (6) is moved in upward direction towards said upper retaining means.

9. Device according to any preceding claim, **characterized in** that the upper and lower retaining means (4, 5) have the same cross-sectional shape and that the upper retaining means (4) is substantially longer than the lower retaining means (5).

10. Device according to any preceding claim, **characterized in** that the retaining portions (12 and/or 13) of the upper retaining means (4) are designed such that the retaining portions (14 and/or 15) of the blade (6) can be connected thereto either by insertion of the retaining portions (14 and/or 15) of the blade (6) or by snapping said retaining portions into the retaining portions (12 and/or 13) of the upper retaining means (4).

11. Device according to any preceding claim, **characterized in** that a plurality, preferably two, upper retaining means (4) which can be engaged by the blade (6) from below, are provided on the carrier rod (3).

12. Device according to claim 11, **characterized in** that the upper retaining means (4) are mounted adjacent, preferably close to each other and that said upper retaining means (4) preferably are identical in shape.

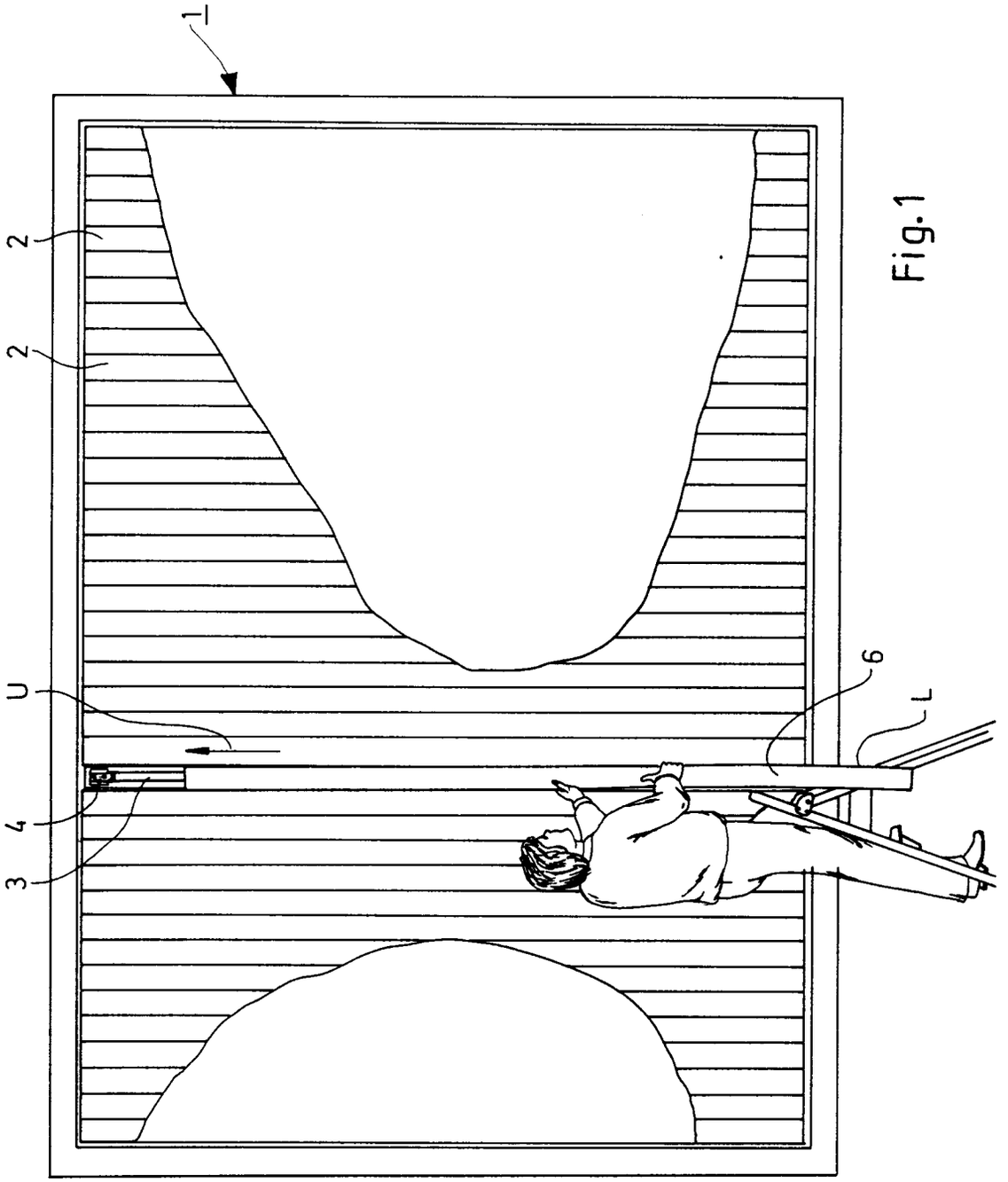
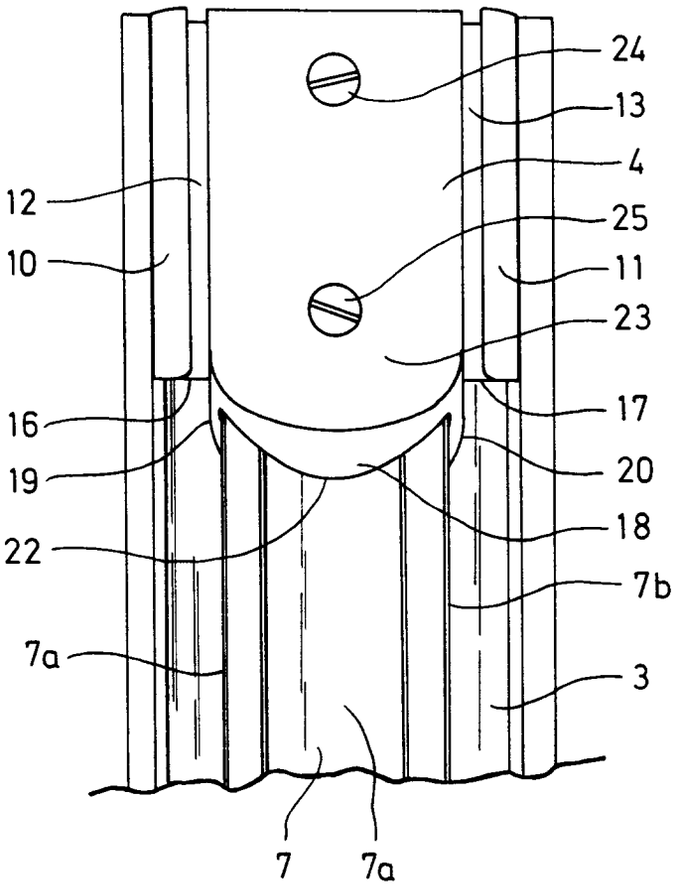


Fig.1

Fig. 2



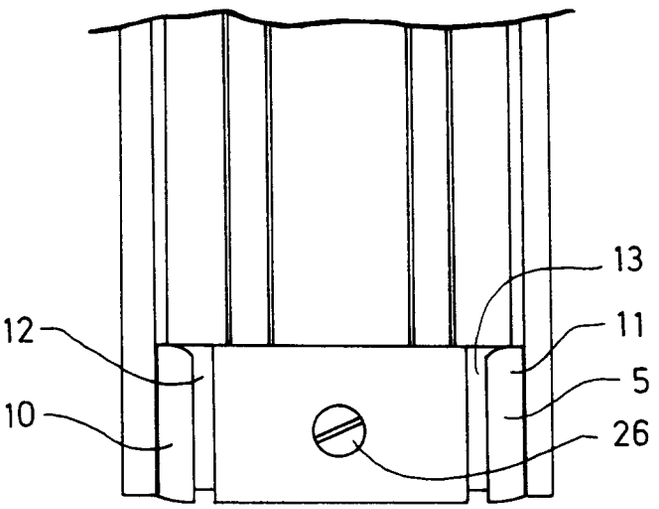


Fig. 3

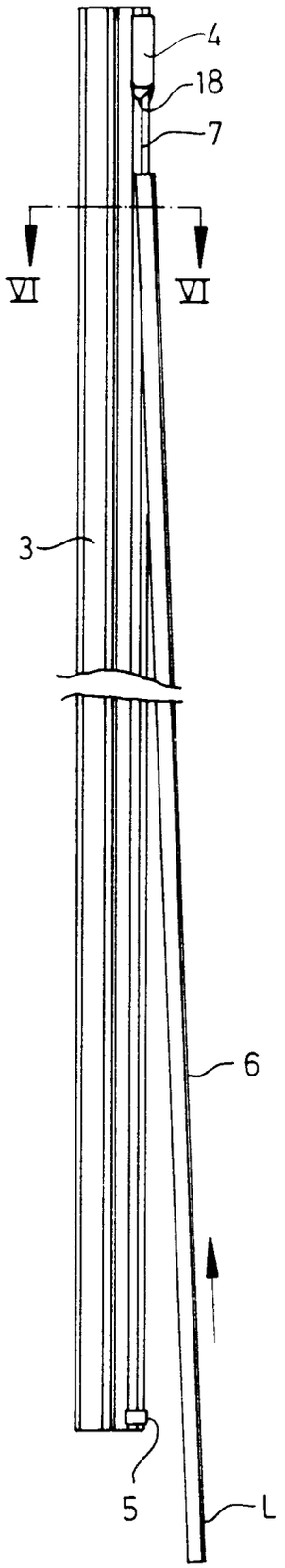


Fig. 4

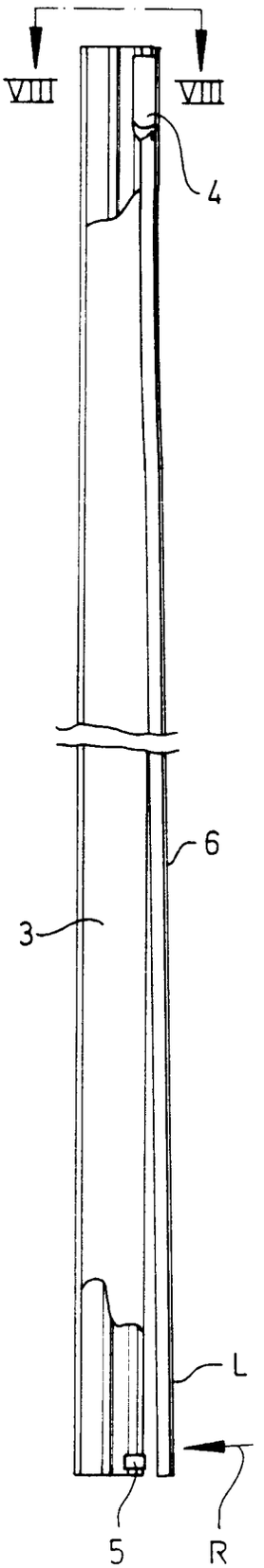
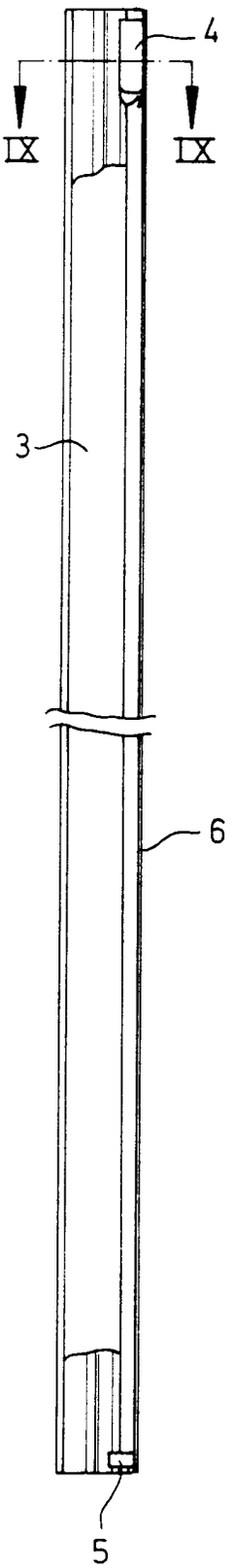


Fig. 5



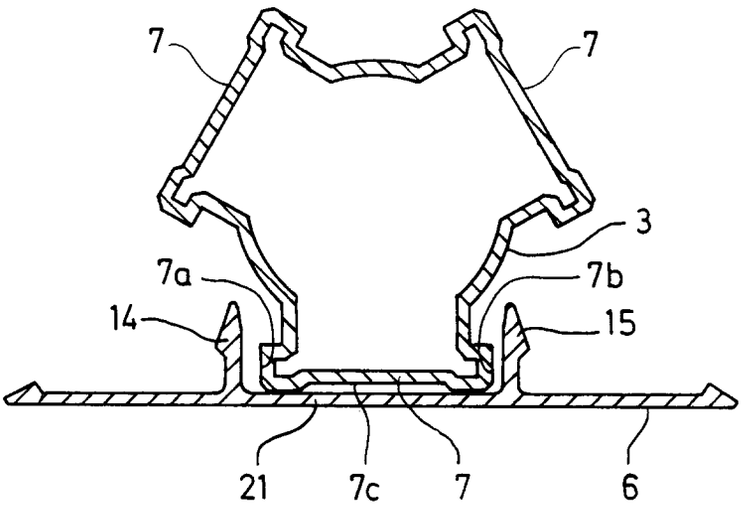


Fig 6

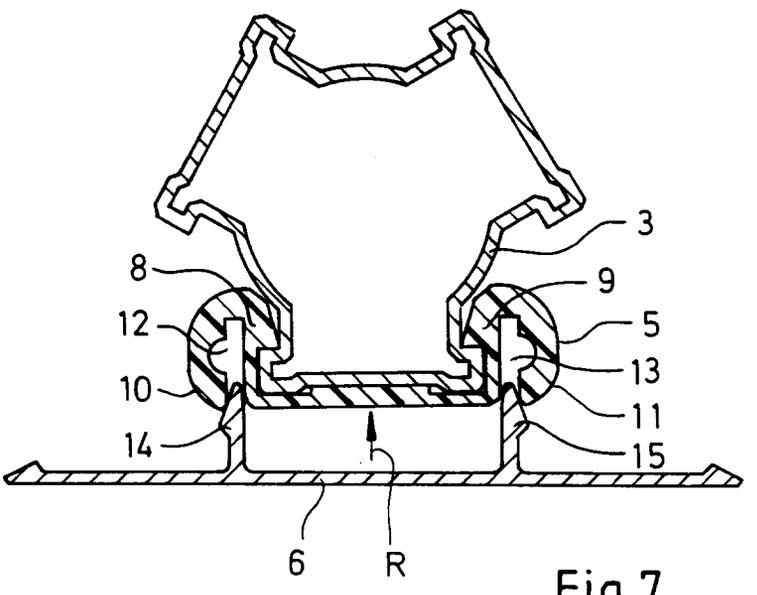


Fig. 7

Fig. 8

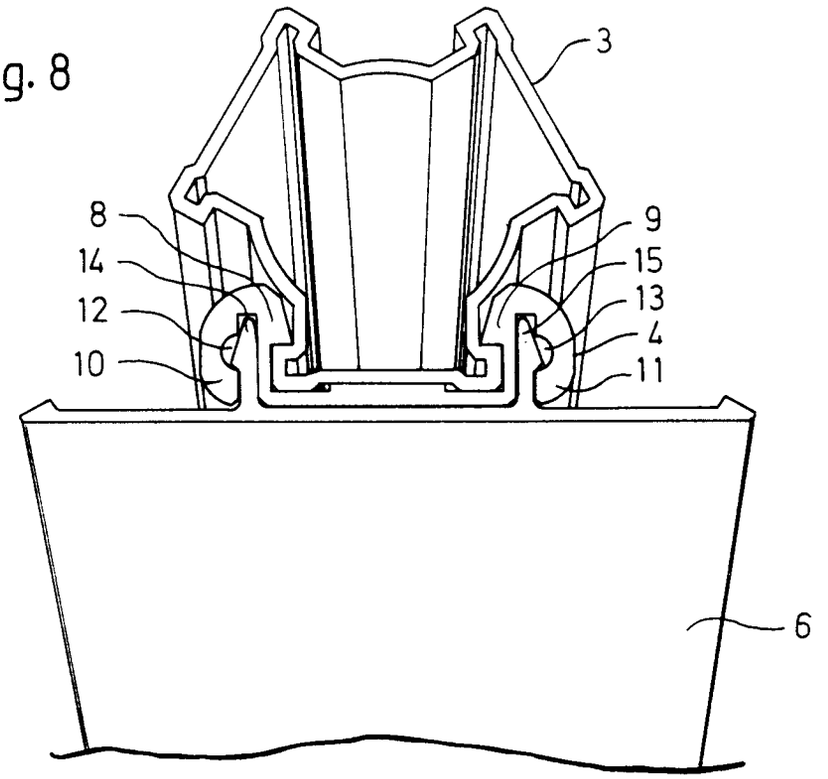


Fig. 9