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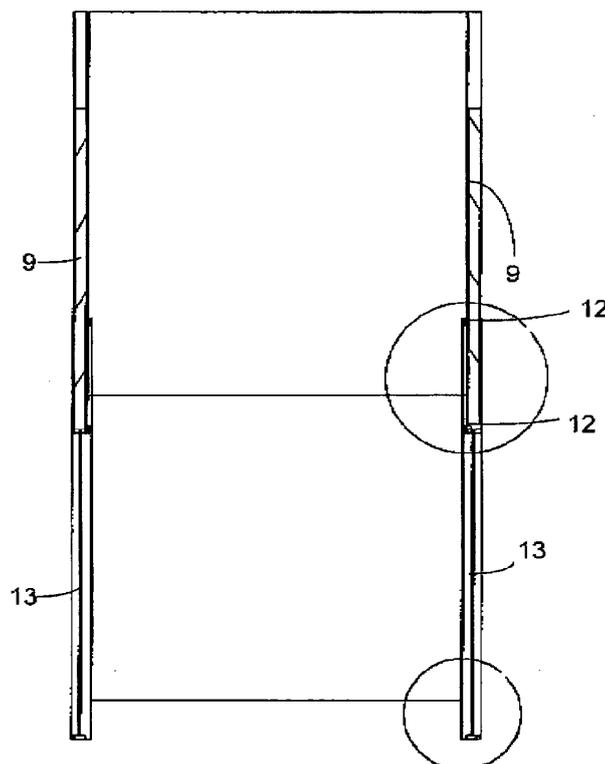
(54) **Barrier section and barrier including the barrier section.**

(57) A barrier section (1, 15) for a balcony, a platform or a restaurant area, comprises two side posts (3), which support a movable panel (4). The movable panel (4) has an upper and a lower position. Each side post (3) includes

a fluid cylinder (9), for raising or lowering the movable panel (4).

A barrier (23) may be constructed including at least one such barrier section (1, 15).

Fig 5a



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Description

FIELD OF THE INVENTION

[0001] The invention relates to a barrier section for a balcony, a platform or a restaurant area, comprising two side posts for supporting a movable panel, which has an upper and a lower position.

[0002] The invention also relates to a barrier.

PRIOR ART

[0003] It is known to provide barriers around areas such as outdoor cafés and restaurants, in order to separate the restaurant area from its surroundings. In many cases, there is a slightly raised platform, which needs a barrier to keep people from tripping or falling off the platform. This could also be the case with terraces or other structures in the yards of private homes, near the seaside or lakeside, or in public indoor spaces such as shopping malls with restaurants.

[0004] In many cases there is a wish to be able to provide a higher barrier in order to block out wind, heat, cold, disturbing sounds or light, or to provide a secluded area with privacy. Sometimes the barrier is combined with a temporary or permanent roof, to improve the conditions. However, the need for a higher barrier is not always permanent.

[0005] In order to be able to switch between a higher and lower barrier, different solutions have been suggested. In particular US2012/0181497 discloses a barrier with sections that may be raised and lowered according to need or wish. This barrier construction includes counterweights arranged in lines over break wheels to balance a glazed panel, which is adjustable in height.

[0006] There are several drawbacks of this construction. The counterweights are heavy, and add to the total weight of the construction, which in turn will be heavy and complex to manufacture, transport, and mount in its final position. Also, the counterweights are not aesthetically appealing. They extend across the fixed panel of each barrier section, and will be visible from at least one side of the barrier, or both sides, depending on whether the panels are transparent or not. Finally, the arrangement of the lines over the break wheels is complex, and the barrier sections will have to be manufactured and transported as whole units, so that the assembly needed on site will be minimal, and the function of the counterweight system can be ensured. Thus the cost for transport will be quite high, as the units are bulky.

[0007] DE29621995U1 discloses a barrier for a sports area. The height of the barrier may be varied. Side posts of movable section of the barrier extend in a guide profile. A mechanism for effecting the displacement of the movable barrier section is arranged underground beneath the guide profile. This mechanism is not described in detail, but the arrangement underground implies a complex construction, which is complicated to mount on the build-

ing site.

[0008] DE29807218U1 discloses a barrier for a sports area. The barrier is provided with motor-powered lifting by self-braking screws. Parts of the construction are arranged underground, and are complicated and expensive to mount.

PROBLEM STRUCTURE

[0009] The present invention has for its object to attain a barrier section which is uncomplicated and inexpensive to manufacture, mount, and handle. The barrier section should also be non-bulky to keep transport costs at a minimum and to give an aesthetically pleasing impression.

SOLUTION

[0010] The object forming the basis of the present invention will be attained if the barrier section referred to initially is characterized in that each side post includes a fluid cylinder, for raising or lowering the movable panel.

[0011] Further advantages will be apparent from the dependent claims.

[0012] Concerning the barrier, the object will be attained if the barrier includes at least one of the barrier sections.

BRIEF DESCRIPTION OF THE ACCOMPANYING DRAWINGS

[0013] The present invention will now be described in greater detail hereinbelow, with reference to the accompanying drawings. In the accompanying drawings:

- Fig 1 shows a perspective view of a barrier section according to the invention in a lower position;
- Fig 2 shows a view according to fig 1 of the barrier in a raised position;
- Fig 3 is a detail view from above of a part of the barrier section according to fig 1 and 2.
- Fig 4a is a sectional front view of the barrier according to fig 1 in its lower position;
- Fig 4b-c are detail views of parts of figure 4a;
- Fig 5a-c are views corresponding to figures 4a-c of the barrier in its raised position;
- Fig 6 is a perspective view of a barrier with a second type of panel in a lower position;
- Fig 7 is a perspective view of a barrier of the first and second type in a raised position; and

Fig 8 is an exploded view of a locking means for an alternative embodiment of the invention.

PREFERRED EMBODIMENT

[0014] In figure 1 a barrier section 1 according to the invention is shown in perspective. As mentioned initially, it is intended for construction of barriers for enclosed areas indoors or outdoors, such as cafés, restaurants, balconies, and different types of platforms.

[0015] This embodiment of the barrier section 1 comprises panels, whereof one is a stationary, or fixed, panel 2, and the other one is a movable panel 4. The barrier section 1 also comprises two side posts 3. In the figure, the barrier section 1 is in a lower mode, and its height is approximately equal to the height of the panels 2, 4, which are attached to the side posts 3 in a permanent manner e. g. by glue, screws, clamping or any other suitable means known in the art.

[0016] The barrier section 1 is viewed from an inner, or rear, side, from which the side posts 3 are clearly visible. If the barrier section 1 were to be viewed from the other side, the posts 3 would not be visible, if the stationary panel 2 is opaque. The material of the panels 2, 4 could be plastic, glass, wood, metal or any other material suitable for the conditions on the construction site and for the desired properties of the finished barrier.

[0017] In the present embodiment, there are two panels 2, 4, which are approximately parallel to one another. In the lower mode, they are arranged overlapping at a short distance from one another, to form a double panel, and the barrier section 1 gives the impression, at least from a distance, to consist of a single panel. In many applications this is a desirable appearance. The panels need not be of the same material, the movable panel 4 could for example be made of glass, while the stationary panel 2 is made of wood. Also the stationary panel 2 may be omitted completely, if the barrier section 1 are placed next to an existing barrier, such as a stone wall, a wooden fence, etc.

[0018] However, there may also be a need for a higher barrier, from time to time, and in figure 2, the barrier section 1 according to the invention is shown in its raised mode. The movable panel 4 is now arranged above the fixed panel 2, with a slight overlap at the bottom of the movable panel 4 and the top of the fixed panel 2.

[0019] The raised mode is, as mentioned initially, suitable for forming a wind-guard, built-in balconies, or a barrier for privacy or sound-damping and the like.

[0020] The side posts 3 are constructed as telescopically slidable posts, which each have an outer profile element 5 and an inner profile element 6. The outer profile elements 5 support the fixed panel 2, and the inner profile elements 6 support the movable panel 4. The modes of attachment could be, as mentioned above, glue, clamps, screws, etc. Each outer profile element has a longitudinal slit 7, to accommodate the movable panel 4, which extends from the inner profile element 6 through the outer

profile element 5. The length of the inner profile elements 6 is equal to or less than the length of the outer profile elements 5, so that the inner profile elements 6 may be completely concealed inside the outer profile elements 5.

[0021] The preferred manner of raising and lowering the movable panel 4 is to arrange a fluid cylinder in each side post 3, in particular a gas spring, which is not visible in figure 2, since it is arranged inside the inner profile element 6. The fluid cylinder could be attached to the inner profile element 6 with either of its cylinder or its piston rod, and rests at the ground level, at the bottom of the outer profile element 5, with the part that is not attached to the inner profile element 6.

[0022] Figure 3 shows one of the side posts 3 as seen from above when any upper, covering lids on the side post 3 have been removed. The position of the fluid cylinder 9 inside the inner profile element 6, which in turn is arranged inside the outer profile element 5, is clearly visible. The two panels 2, 4 are arranged at a small distance 10 from one another.

[0023] In order to maintain the inner profile element 6 and the fluid cylinder 9 in their positions relative to the outer profile element 5, there are one or more distance elements 12, the surfaces of which are smooth, so that the inner profile element 6 is slidable against the distance elements 12. The distance elements 12 prevent any motion of the inner profile element 6 and the fluid cylinder 9 in a direction transversal to their longitudinal direction. Hereby, the fluid cylinder 9 will be protected from damages that may otherwise occur.

[0024] Figure 4a shows a section through the side posts 3 and the fluid cylinders 9, when the barrier section is in its lowered mode. The fluid cylinders 9 are in their inserted positions, i. e. their respective lengths are minimal. The movable panel 4 cannot be raised a distance longer than the length of the fluid cylinder 9, but the cylinder 9 need not extend through all of the inner profile element 6. Hence there may be an overlap between the fixed panel 2 and the movable panel 4, when the barrier section 1 is in its raised mode.

[0025] The detail views of figures 4b and 4c show the positions of the distance elements 12, which mutually stabilize the inner and outer profile elements 6, 5. In figure 4b the lower end of the fluid cylinder 9, with the end of the piston rod directed downwards.

[0026] When the fluid cylinder 9 in the respective side post 3 is in its inserted position, the inner profile element 6 of the side post 3 is inserted in the outer profile element 5, and the barrier section 1 is in its lower mode. In the preferred embodiment of the invention, at least one of the fluid cylinders 9 is lockable in its inserted position with the aid of a locking mechanism. The locking mechanism is designed so that a slight pressure on the upper edge 8 of the movable panel 4 will release each of the fluid cylinders 9 from their locked, inserted position, and the fluid cylinders 9 will extend to their extended positions without any further influence from the user, and the movable panel 4 will be raised in accordance therewith.

[0027] In order to lower the movable panel 4, the user applies a moderate pressure downwards on the upper edge 8 of the movable panel 4, against the force from the fluid cylinders 9, until the fluid cylinders 9 have been brought to their inserted positions and have been locked in place.

[0028] In most applications it is preferred that the fluid cylinders 9 of a barrier section are connected in a master/slave arrangement, i. e. when one of the fluid cylinders 9 (the master cylinder) is locked, the other one (the slave cylinder) will be locked as a consequence thereof. Vice versa, when the master cylinder is released, the slave cylinder will be released as well. The connection between the cylinders could be electric or mechanical.

[0029] In figures 5a-c, the barrier section 1 is in its raised mode. The fluid cylinders 9 are in their extended positions, and the piston rod 13 extends inside the outer profile element 5. As the maximum extension of the fluid cylinder 9 is less than the length of the outer and inner profile elements 5, 6, there is still a distance between the two distance elements 12 in each side post 3, and the profile elements 5, 6 will be stabilized. In figure 5b it is clearly visible that the lower end of the piston rod 13 is provided with a base 14 which is supported in a stable way on the ground. Hence any side forces acting on the fluid cylinder 9 are eliminated, so that the fluid cylinder 9 is protected from damages.

[0030] In the preferred embodiment, the locking function is included in the fluid cylinder 9, i. e. a fluid cylinder 9 with an integrated locking means is used as a construction part in the barrier section 1 according to the invention. In particular, it is desired that the locking function is applied and released by a slight pressure in the direction of insertion of the piston rod 13 into the fluid cylinder 9, i. e. a click-lock cylinder, such as a CS gas spring from Bansbach, could be used. However, the skilled person realizes that a similar function could be obtained by other means, such as external locking means, or a separate release button connected to the fluid cylinder 9. It is also possible to use different means of locking on the two fluid cylinders 9 in a barrier element 1, in order to accomplish the master/slave arrangement described above.

[0031] Figure 6 shows another embodiment of the barrier section 15, where the panels 2, 4 are angled, to form a corner. With such a barrier section 15, a barrier without corner posts may be built, which is useful at construction sites where the available space or the ground conditions do not allow a corner post. Also, the barrier section 15 of figure 6 accommodates particular aesthetic appearances of the finished barrier.

[0032] The barrier section 15 of figure 6 could be provided with panels 2, 4 of a different shape, e. g. a different angle or a curve of the panels 2, 4 as seen from above. Hence other aesthetic impressions could be created, or other technical constructions could be obtained.

[0033] Figure 7 shows two embodiments 1, 15 of the barrier section according to the invention forming a barrier 23, or a part thereof. In this figure the barrier sections

1, 15 are in their raised mode. As described previously, the barrier sections 1, 15 each have two side posts 3, which are arranged next to one another, to form barriers 23 of different lengths or shapes in an easy and cost-efficient manner. Also the use and maintenance of the barrier is simple, as the construction is robust and comprises few components. The barrier sections 1, 15 could also be made easy to transport, as the panels could be attached to the posts on or near the site of construction.

[0034] Figure 8 shows an alternative embodiment of a locking mechanism 16 for the fluid cylinder 9. Such a mechanism 16 could be arranged at the lower end of the inner profile element 6, in order to provide a "click-lock" function, if such a function is not integrated in the fluid cylinder 9.

[0035] A ball bearing 17 is arranged under the lower end of the inner profile element 6. An inner ring 18 of the bearing 17 is fastened to an attachment profile 19, so that the attachment profile 19 is rotatable in relation to the inner profile element 6 and the cylinder 9. A guide means 20 includes two groups of positioning means. With the first group of positioning means, the attachment profile 19 is locked in its position, and the fluid cylinder 9 is locked in its inserted position. With the second group of positioning means, the attachment profile 19 is released from the guide means 20, and the fluid cylinder 9 is extended.

[0036] The projections 21 on the attachment means 19 interact with the guide means 20, so that the attachment profile 19 attains either of a locked or a released position. Below the guide means 20, there is finally a rotation ring 22, which has a shape designed to interact with the projections 21 to rotate the attachment profile 19 from a locked condition to a released condition and vice versa each time the locking mechanism 16 is pressed downwards, much in the same way as the mechanism of a retractable ball-point pen.

[0037] The movable panel 4 is, as mentioned above, attached to one side of the inner profile element 6, and in an alternative embodiment there is a small platform 11 extending from the inner profile element 6, on which platform 11 the lower edge of the movable panel 4 rests. The platform is visible in figure 3. The provision of the platform 11 will lessen the forces applied on the bond between the movable panel 4 and the inner profile element 6, as the platform 11 will support most of the weight of the movable panel 4. This could be useful if particularly heavy materials are used for the material of the panel 4.

[0038] One further embodiment of the invention, not shown in the drawings, includes the application on balconies of a house with several floors. In that application, the outermost side posts 3 of a barrier comprise outer profile elements 5, which is continuous along the sides of the balconies on all the floors of the building. The inner profile elements 6, however, do not extend along more than one single balcony, so that the panels 4 may be raised and lowered individually.

[0039] The invention could be varied further within the

scope of the appended claims.

Claims

- | | |
|---|----|
| | 5 |
| 1. Barrier section (1, 15) for a balcony, a platform or a restaurant area, comprising two side posts (3) for supporting a movable panel (4), which has an upper and a lower position, characterized in that each side post (3) includes a fluid cylinder (9), for raising or lowering the movable panel (4). | 10 |
| 2. Barrier section (1, 15) according to claim 1, characterized in that the side posts (3) support a fixed panel (2). | 15 |
| 3. Barrier section (1, 15) according to claim 1 or 2, characterized in that at least one fluid cylinder (9) is lockable. | 20 |
| 4. Barrier section (1,15) according to any of claims 1 to 3, characterized in that the side posts (3) comprise telescopically arranged profile elements (5, 6), which are mutually slidable when the movable panel (4) is raised or lowered. | 25 |
| 5. Barrier section (1, 15) according to claim 4, characterized in that the fluid cylinder (9) is arranged inside the profile elements (5, 6) of each post. | 30 |
| 6. Barrier section (1, 15) according to claim 4 or 5, characterized in that the fluid cylinder (9) is arranged in a substantially vertical position. | |
| 7. Barrier section (1, 15) according to claim 3, characterized in that the fluid cylinder (9) includes means for locking in its inserted position. | 35 |
| 8. Barrier section according to claim 3, characterized in that the means (16) for locking the fluid cylinder (9) in its inserted position are arranged outside the fluid cylinder (9). | 40 |
| 9. Barrier section (1, 15) according to any of claims 1 to 8, characterized in that the fluid cylinder (9) is a gas spring. | 45 |
| 10. Barrier section (1,15) according to any of claims 1 to 9, characterized in that the movable panel (4) is supported on a platform (11) attached to one of the profile elements (6). | 50 |
| 11. Barrier (23) including at least one barrier section (1,15) according to any of claims 1 to 9. | 55 |

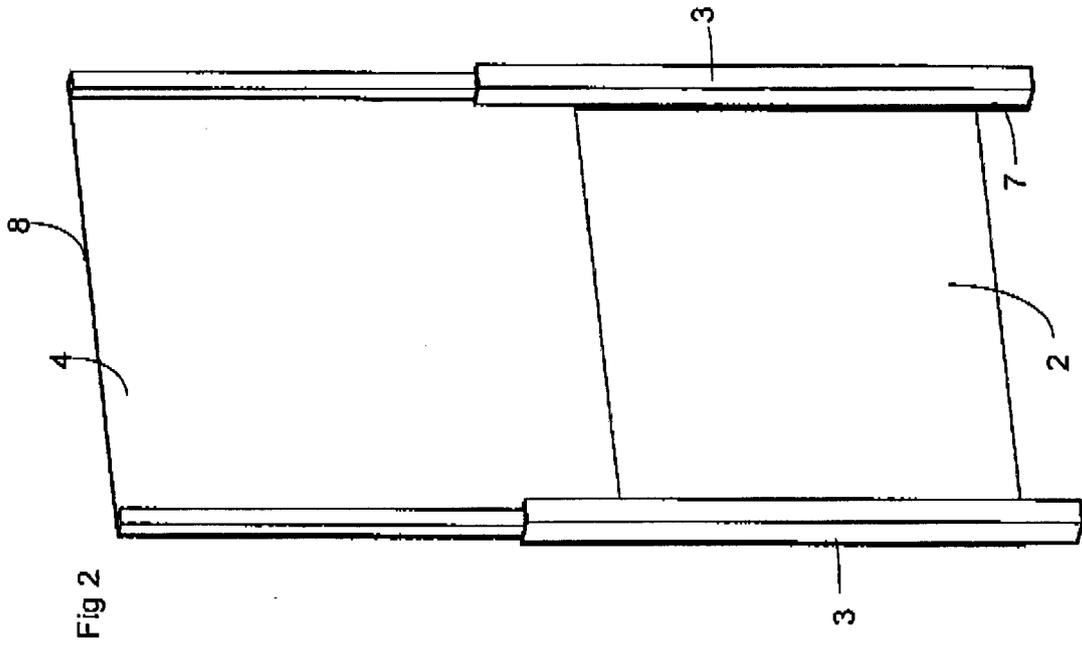


Fig 2

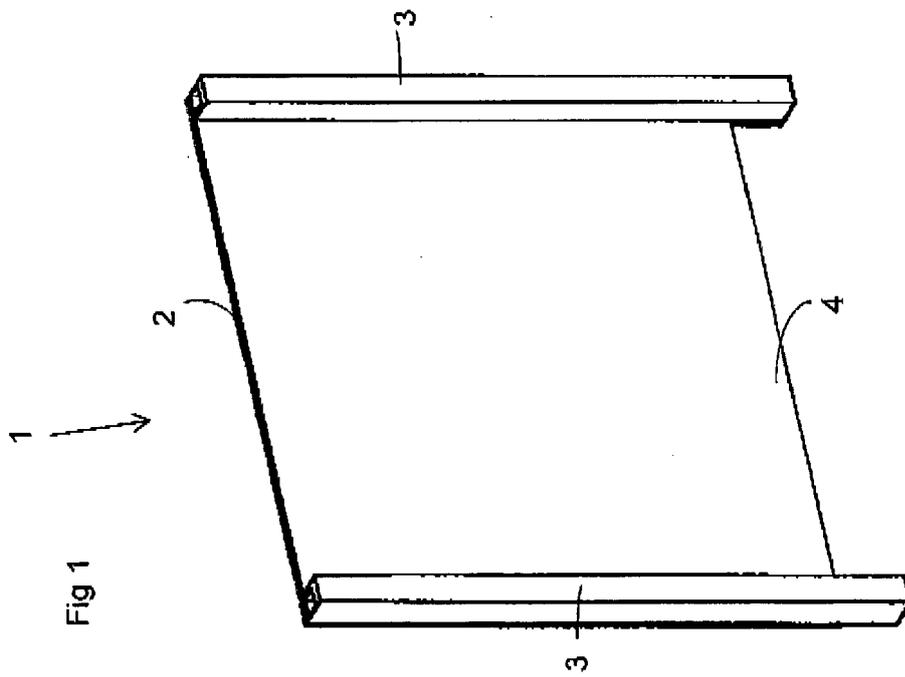
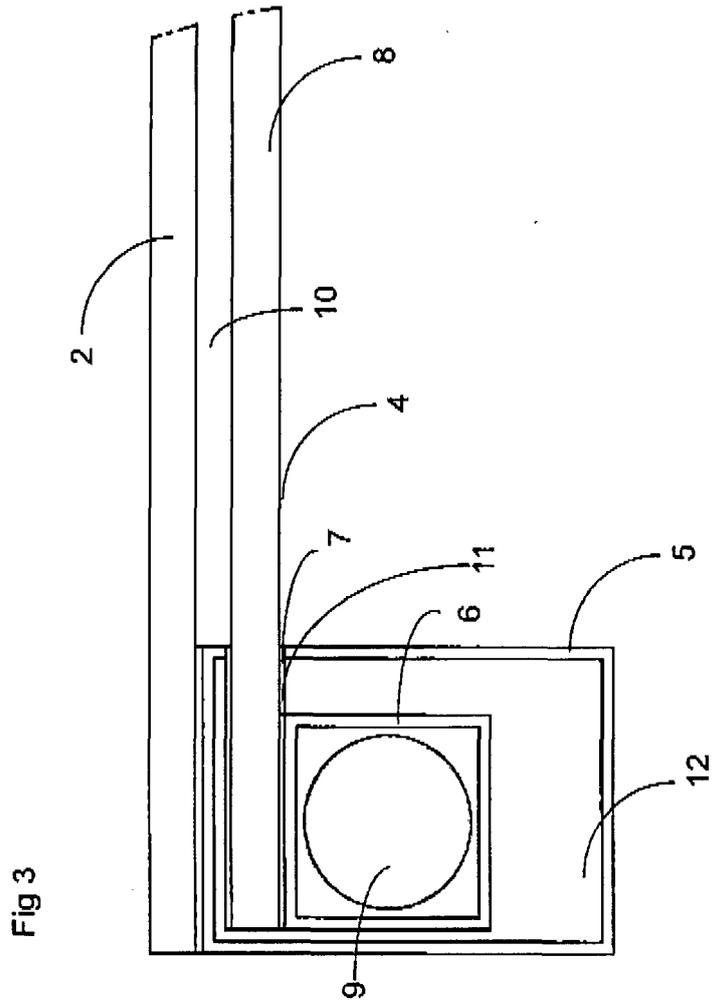
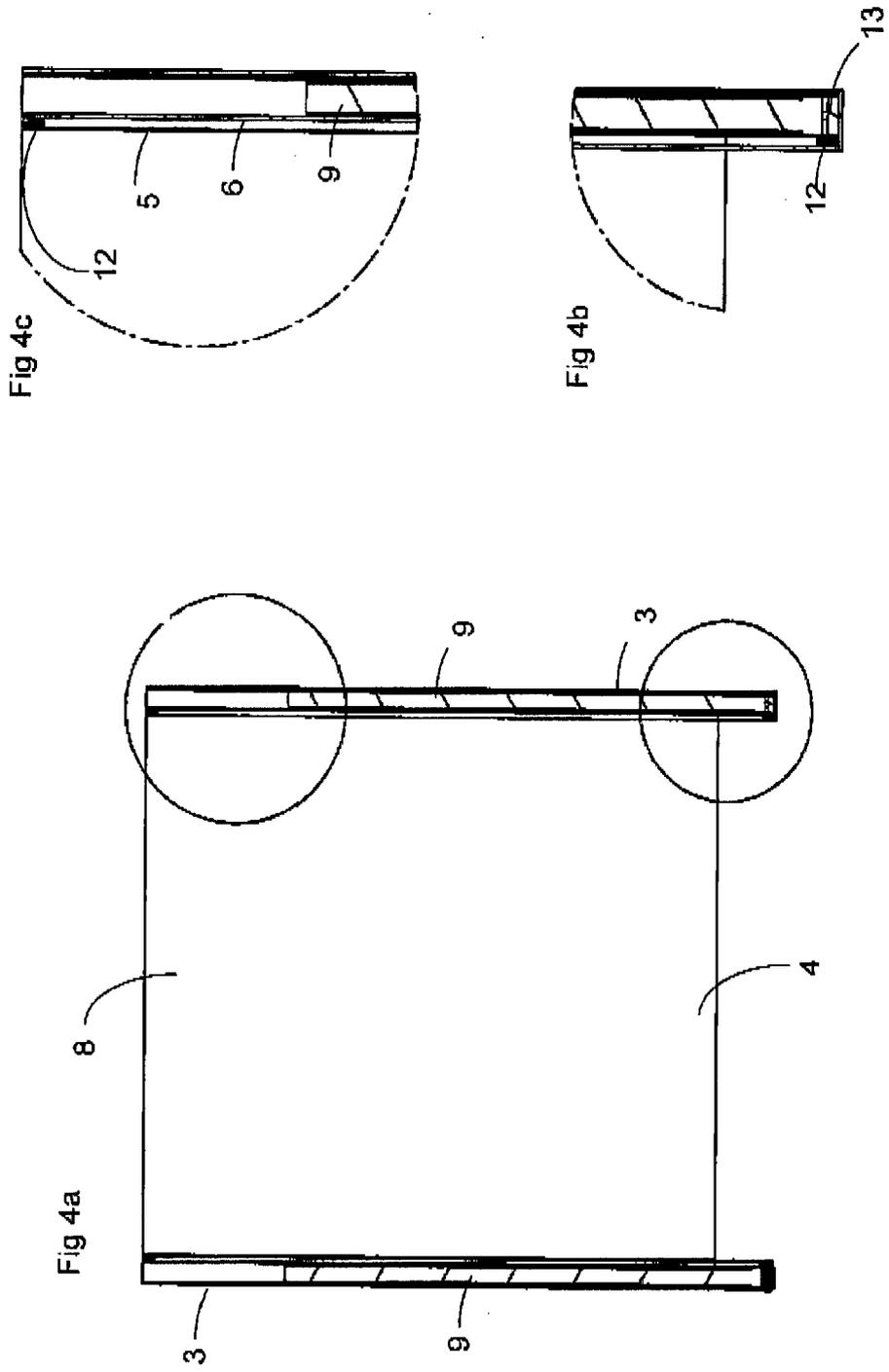


Fig 1





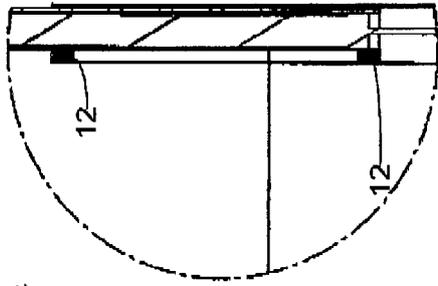


Fig 5c

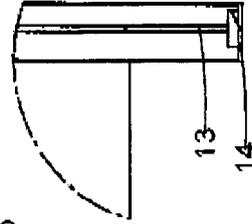


Fig 5b

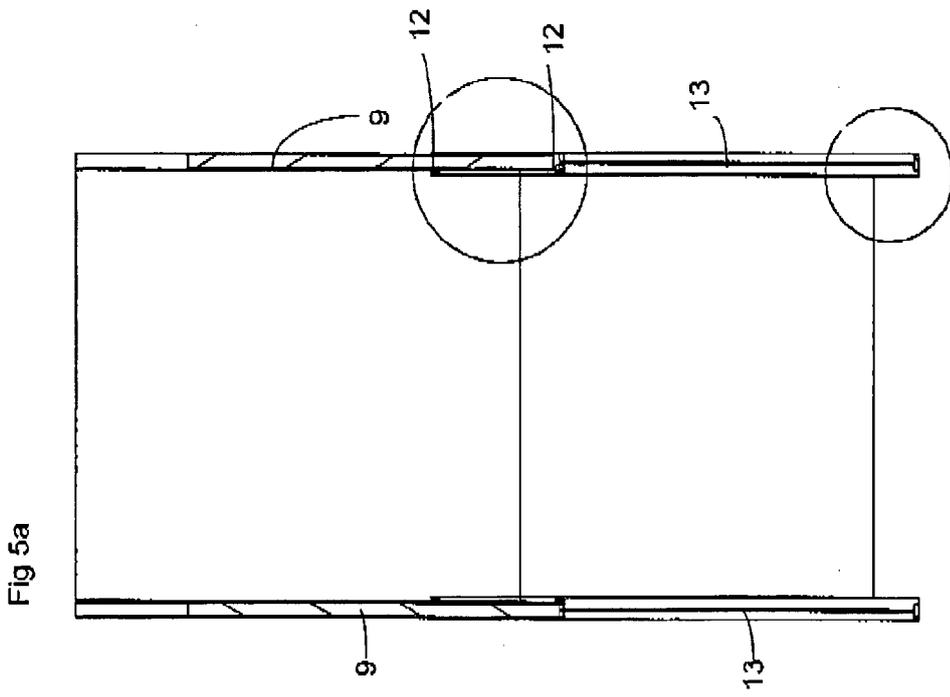
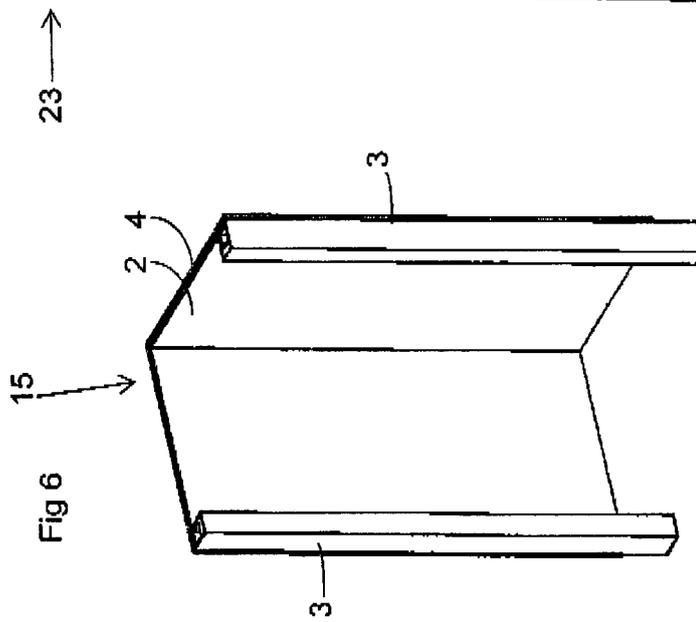
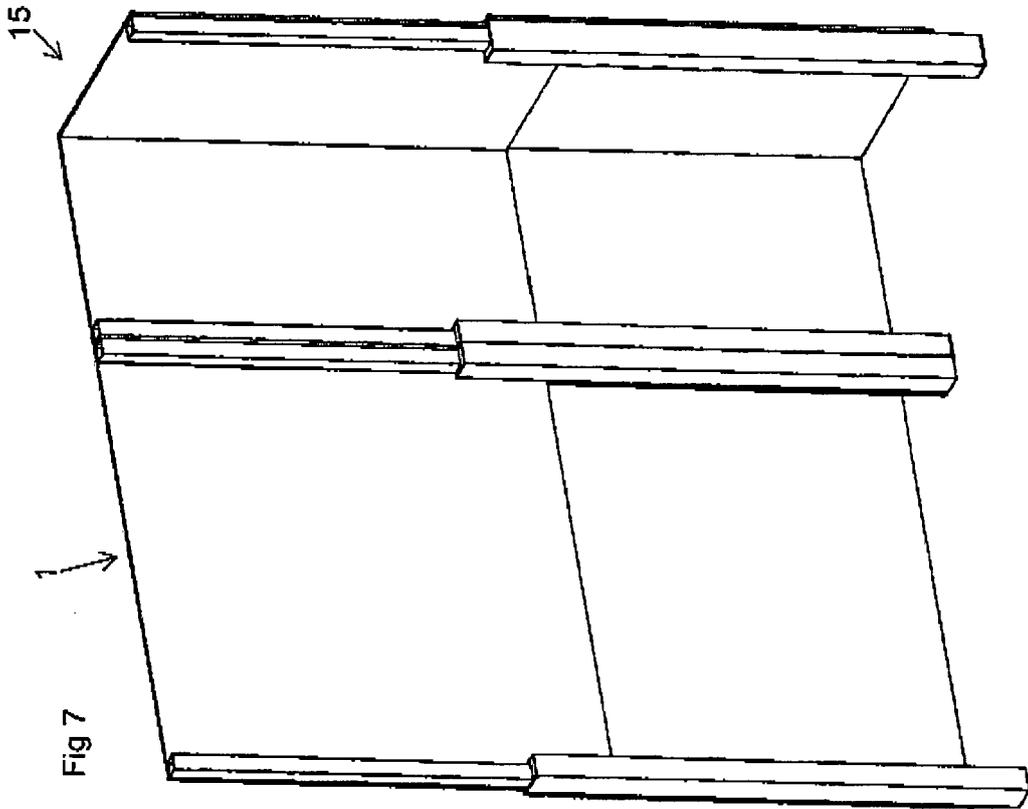


Fig 5a



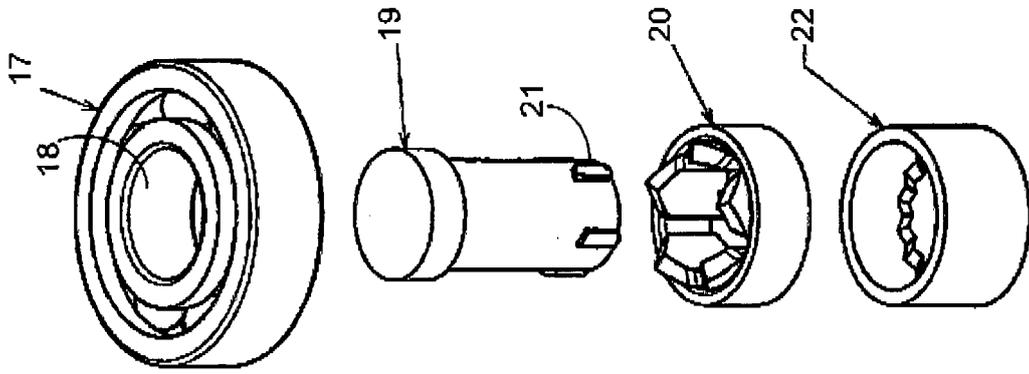


Fig 8





EUROPEAN SEARCH REPORT

Application Number
EP 13 00 1148

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DOCUMENTS CONSIDERED TO BE RELEVANT			
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X	EP 2 395 167 A1 (STAR PROGETTI TECNOLOGIE APPLICATE SRL [IT]) 14 December 2011 (2011-12-14) * the whole document * -----	1-11	INV. E04B2/74 E04F11/18 E04H17/16
			TECHNICAL FIELDS SEARCHED (IPC)
			E04B E04F E04H
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 22 May 2013	Examiner Delzor, François
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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