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(72) Inventor: **Arozena Bergaretxe, Alberto**
20560 Onati-Guipuzcoa (ES)

(74) Representative: **Carpintero Lopez, Francisco**
HERRERO & ASOCIADOS, S.L.
Alcalá, 35
28014 Madrid (ES)

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(71) Applicant: **ULMA C y E, S. COOP.**
20560 Onate (Guipuzcoa) (ES)

(54) **Construction stanchion with safety system**

(57) The stanchion comprises two tubes (1) and (2) telescopically coupled to each other in which the outer tube (1) is comprised of two segments (3) and (3') welded to each other and opposite said welding being provided a protrusion (15) under which is defined a lower edge (14) which is placed inside the segment (3), thereby defining a stop for a pin (11) which is housed transversely in two opposing orifices (10) of the inner tube (2), so that it limits the upwards displacement of said tube (2) inside the outer tube (1), while a deformation (12) made on the inner tube (2) after its bottom end is inserted in the outer tube (1) provides a stop which prevents said bottom end of the inner tube (2) from exiting through the orifice (7) of the baseplate (6) of the outer tube (1). The stops determined by the pin (11) and the deformation (12) against the edge (12) of the outer tube (1) and against its baseplate (6) provide a safety system which allows the longitudinal displacement of the inner tube (2) with respect to the outer tube (1), preventing their separation.

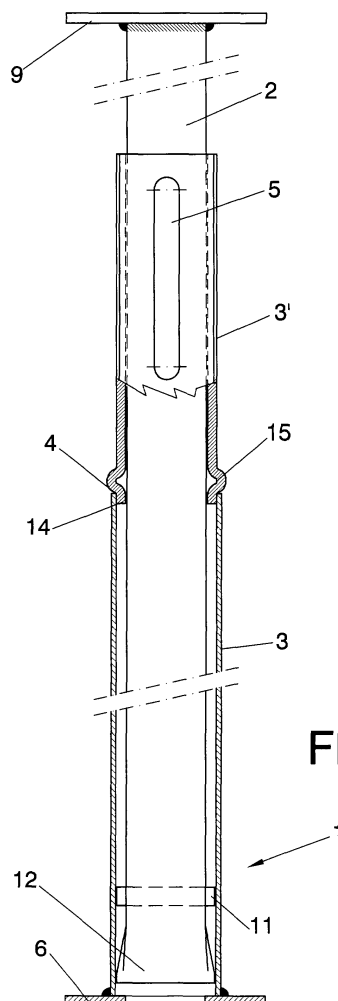


FIG.3

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Description

OBJECT OF THE INVENTION

[0001] The invention relates to a construction stanchion, of the type comprising two coupled telescoping tubes, with a safety system with novel characteristics which prevent the separation or exit of the inner tube from the outer one during their relative displacement.

[0002] The object of the invention is to provide a stanchion having means so that during the use of the stanchion the inner tube will not be separated from the outer one, preventing said inner tube from falling to the floor in the operations for which these stanchions are used, which means provide a safety system with simple and effective structural characteristics.

BACKGROUND OF THE INVENTION

[0003] Stanchions used in construction work to support loads comprise two coupled telescoping tubes, so that one slides inside the other in order to adapt the length to the separation between the surfaces to be supported.

[0004] Currently, applicable regulations require that the inner tube may not be fully separated or extracted from the outer one, so that said inner tube may slide along the entire length of the outer tube but cannot separate itself from it, remaining joined to it by a suitable means.

[0005] Spanish Utility Model 9501894 describes a stanchion with means providing a safety device to prevent the inner tube from exiting the outer tube, for which a tab is provided transversely housed in corresponding diametrically opposite orifices made in the inner tube itself, with the length of this tab slightly greater than the diameter of said tube, and aided by a ring externally placed on said inner tube and free to move on it, with the inner diameter of said ring smaller than the length of the tab, additionally provided with a pair of securing bolts transverse to the tab and placed near the ends of said tab, spaced so that they prevent an excessive displacement of the tab through the orifices of the inner tube where it is housed.

[0006] This safety system or device for preventing the exit of the inner tube from the outer one has structurally complex characteristics, without providing an effectiveness which compensates such complexity.

DESCRIPTION OF THE INVENTION

[0007] The stanchion disclosed includes a structurally simple and effective safety system.

[0008] More specifically, the stanchion of the invention is of the type involving the telescoping coupling of two tubes, an inner tube and an outer tube, with the latter formed by two welded segments, a lower one with a base plate which rests on the floor and an upper one

with an outer threaded fillet for the manual driving screw which, by its upwards or downwards motion causes the axial displacement in the corresponding sense of the inner tube with respect to the outer tube.

[0009] Based on these characteristics, one of the novel characteristics of the stanchion of the invention is that the lower end of the threaded segment of the outer tube has a draw on which is performed the outer welding of the two segments of said tube, such that the lower edge of said draw is housed in the upper segment of the unthreaded end, constituting a stop which limits the upwards displacement of the inner tube and preventing it from exiting from the top end of the outer tube.

[0010] A further complementary novel characteristic of the stanchion is that the inner tube is provided near its lower end with a pair of diametrically opposite orifices in which is placed a pin with a diameter greater than that of the tube and which when mounting the inner tube on the outer one passes through a widening made for such purpose in a corresponding orifice of the baseplate, such that the inner tube can be mounted on the outer one only in a certain position in which said pin of the inner tube meets the widening of the orifice provided on the baseplate of the outer tube.

[0011] In this manner the upwards motion of the inner tube in the outer one continues until the pin on said inner tube meets the inner drawings made in the threaded segment of the outer tube, thereby preventing the inner tube from leaving the top end of the stanchion.

[0012] A further novel characteristic of the stanchion is that the inner tube, once it is fully housed in the outer one, has its bottom end deformed with a suitable tool, so that it is widened, forming a stop which prevents said inner tube from exiting the orifice of the base plate of the outer tube.

[0013] In short the inner tube, once mounted in this manner on the outer tube, is free to slide in it but limited in its motion by the lower end of the draw made in the union of the two segments of the outer tube and by the stop provided by the widening made in the bottom end of the inner tube.

[0014] Therefore, these novel characteristics provide a safety system for the stanchion which prevents the separation or exit of the inner tube from the outer one, by means of a simple solution as regards its structure, as well as effective.

DESCRIPTION OF THE DRAWINGS

[0015] The characteristics of the invention will be better understood in view of the accompanying drawings of a preferred embodiment, where for purposes of illustration only the following is shown:

Figure 1 shows a side elevation view of the inner and outer tubes, separated and prior to their assembly to form the stanchion.

Figure 2 shows a side elevation view of the assembly of the two tubes which form the stanchion, specifically just before the inner tube is fully inserted in the outer one.

Figure 3 shows a side elevation view after the inner tube is fully inserted and just after performing the perimeter widening of its bottom end.

Figure 4 shows a side elevation view, with a section of part of the coupling between the two tubes of the stanchion after performing the widening and in the highest position of the bottom tube, clearly showing the stop which limits the upwards motion of the inner tube on the outer one, which stop consists of a transverse pin on the inner tube which meets the lower widening of the threaded segment of the outer tube.

Figure 5 shows a bottom plan view of the deformation made in the inner tube to provide a stop which prevents the bottom end of the inner tube from exiting through the orifice of the baseplate of the outer tube.

Figure 6 shows a plan view of the arrangement of the lower end of the inner tube on the orifice of the baseplate of the outer tube.

PREFERRED EMBODIMENT OF THE INVENTION

[0016] As shown in the drawings, the stanchion of the invention comprises, as conventionally, two tubes (1) and (2) coupled telescopically to each other, with tube (1) being the outer one and tube (2) the inner one. Outer tube (1), as conventionally, comprises two joined segments (3) and (3'), joined by a weld seam (4), with segment (3') threaded in order to assemble on it the corresponding stanchion adjustment head, so that with the head mounted on the threaded segment (3') the inner tube (2) can be raised and lowered with respect to the inner tube (1), with the latter provided with the conventional groove (5) for passage of the height adjustment pins of the inner tube (2).

[0017] Additionally, the outer tube (3) is provided on its bottom end with the conventional baseplate (6) which has an orifice (7) for insertion of the inner tube (2), which in turn has the conventional orifices (8), a perimeter and upper flange (9) and a pair of openings (10) with a preferably quadrangular shape, without prejudice of any other suitable configuration, placed diametrically opposite.

[0018] The assembly is performed by inserting the inner tube (2) through the top part of the outer tube (3'), until the bottom end of the former exits through the orifice (7) of the baseplate (6) of the outer tube (3), as shown in Figure 2, at which time is inserted a pin (11) through the orifices (10) of the inner tube (2), with said pin (11)

having a greater diameter than tube (2) and extending beyond its sides.

[0019] Based on the situation shown in Figure 2, the inner tube (2) moves upwards until fully inserting in the outer tube (1) for which the baseplate (6) of the outer tube (3) has an orifice (7) with a size similar to that of the inner tube (2) but having diametrically opposite expansions (13) which allow the passage of the pin (11) through the orifice (7).

[0020] After the inner tube (2) is fully inserted in the outer tube (3) a deformation is made by means of a suitable tool in the bottom end of the inner tube (2) forming a widening (12) which prevents the inner tube (2) from exiting through the orifice (7) of the baseplate (6) of the outer tube (3), as shown clearly in Figure (5).

[0021] The upwards displacement of the tube (2) in the tube (1) is limited by the pin (11), which stops against the lower edge (14) defined under a drawing (15) of the bottom end of the threaded segment (3') of the outer tube (1), which edge (14) is placed inside the segment (3) of said outer tube (1).

[0022] That is, the deformation (12) of the bottom part of the inner tube (2) forms a stop against the baseplate (6) of the outer tube (1), preventing the extraction of the tube (2) through the bottom part of the stanchion, while the pin (11) provided near the bottom end of the inner tube (2) is the upper stop against the edge (14) placed under the drawing (15), thereby preventing the extraction of the tube (2) through the top of the stanchion.

Claims

1. Construction stanchion with safety system, comprising two tubes (1) telescopically coupled to each other, such that the outer tube (1) comprises two segments (3) and (3') welded together, where mounted on segment (3') is the corresponding driving head for adjusting the displacement of the inner tube (2) and therefore the length of the stanchion, so that it is suitably fitted between the surfaces to be supported, with the outer tube (1) being provided with a baseplate (6) with an orifice (7), **characterised in that** in correspondence with the weld (4) between the segments (3) and (3') of the outer tube (1) is provided a protrusion (15) beneath which is defined an edge (14) located on the inside and next to the top part of segment (3) of said outer tube (1), constituting a stop for the upwards displacement of the inner tube (2), for which said inner tube (2) is provided near its bottom end with a pair of diametrically opposite orifices (10), in which is housed a pin (11) of a length greater than the diameter of the inner tube (2), such that as the inner tube (2) moves upwards in the outer tube (1), the pin (11) meets the protrusion (15), thus preventing its separation; and furthermore, after inserting the tube (2) in the outer tube (1) the bottom end of said inner tube (2) is widened.

ened by means of a suitable expansion tool, forming a widening (12) which prevents the extraction of the inner tube (2) out of the orifice (7) on the base (6) of the outer tube (3) of the stanchion.

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2. Construction stanchion with safety system, as claimed in claim 1, **characterised in that** the base-plate (6) of the outer tube (1) is provided with an orifice (7) having diametrically opposite widenings (13), which allow the pin (11) to pass inside the outer tube (1) after said pin (11) is placed inside the opposing orifices (10) of the inner tube (2), but through which cannot pass the deformed end (12) of the inner tube (2).

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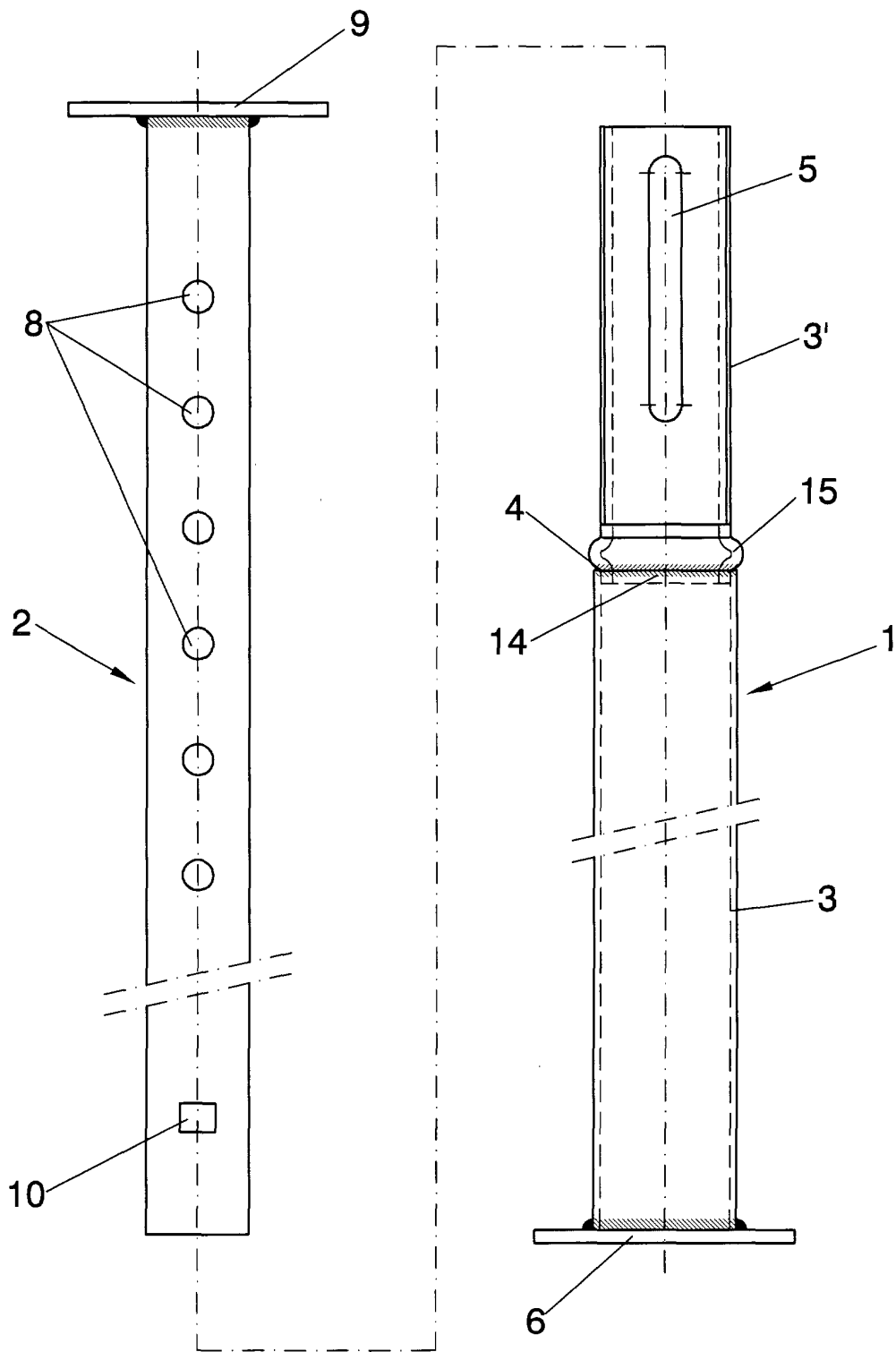


FIG.1

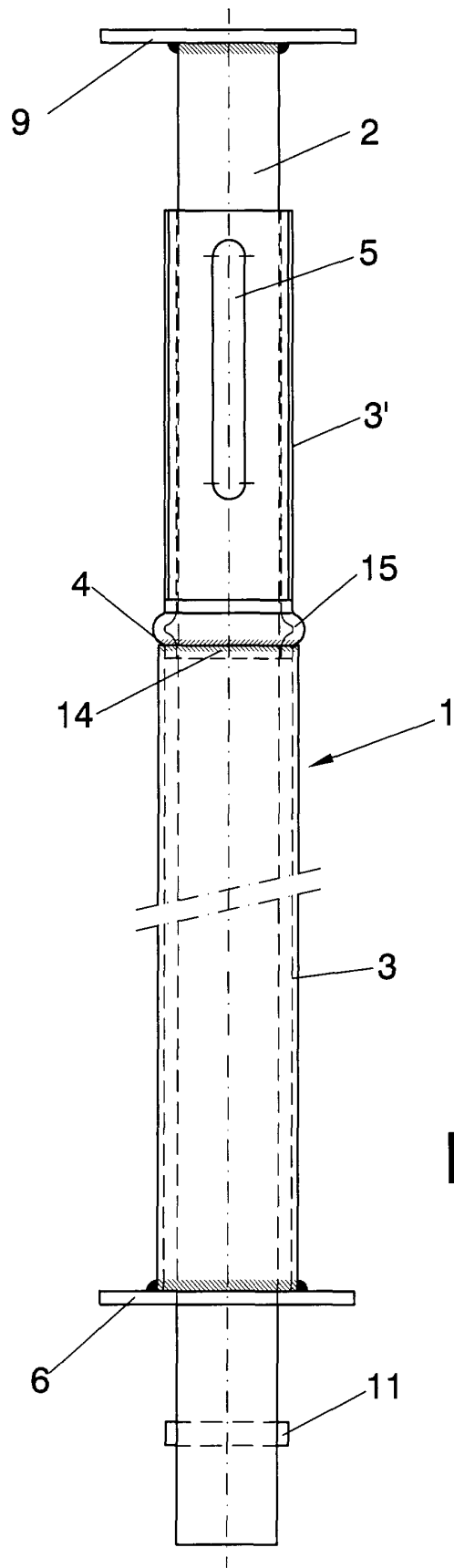


FIG.2

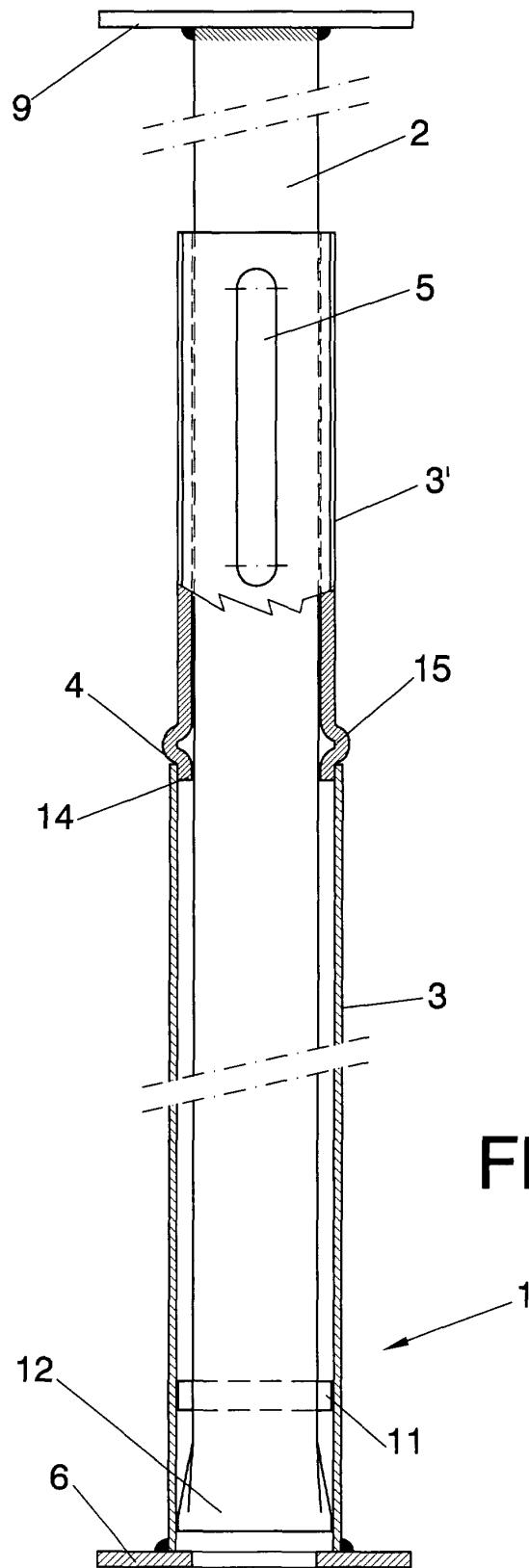


FIG.3

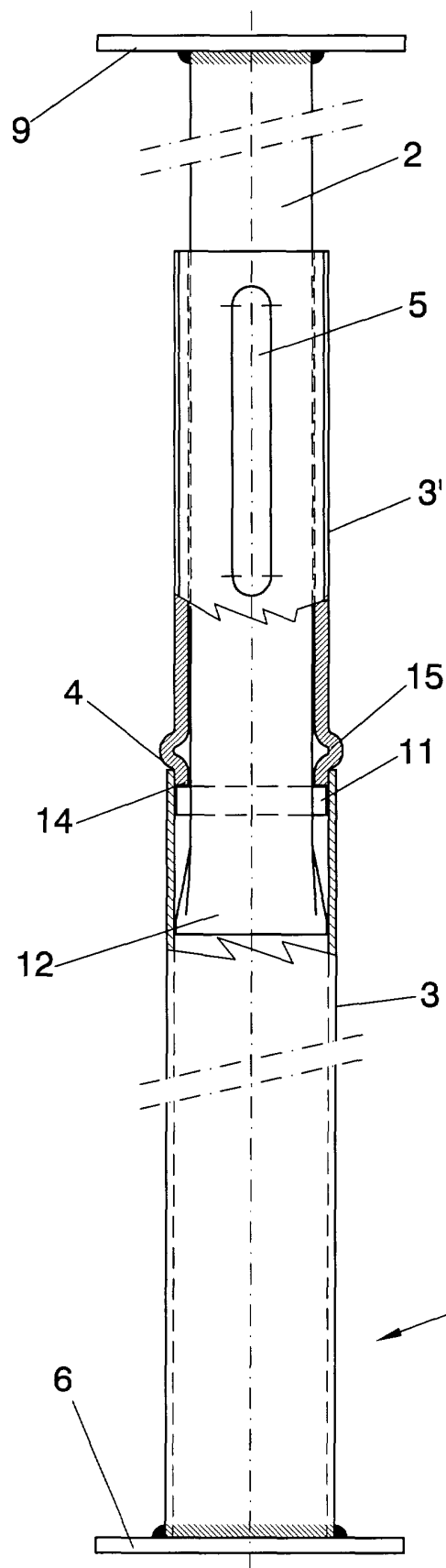


FIG.4

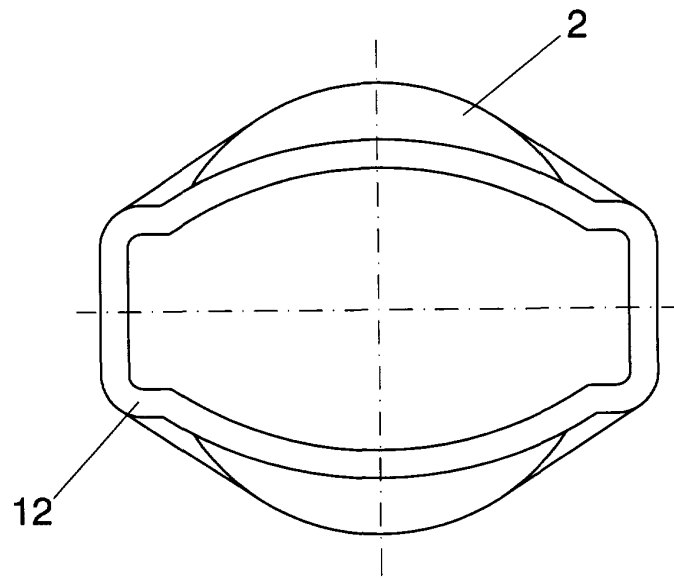


FIG. 5

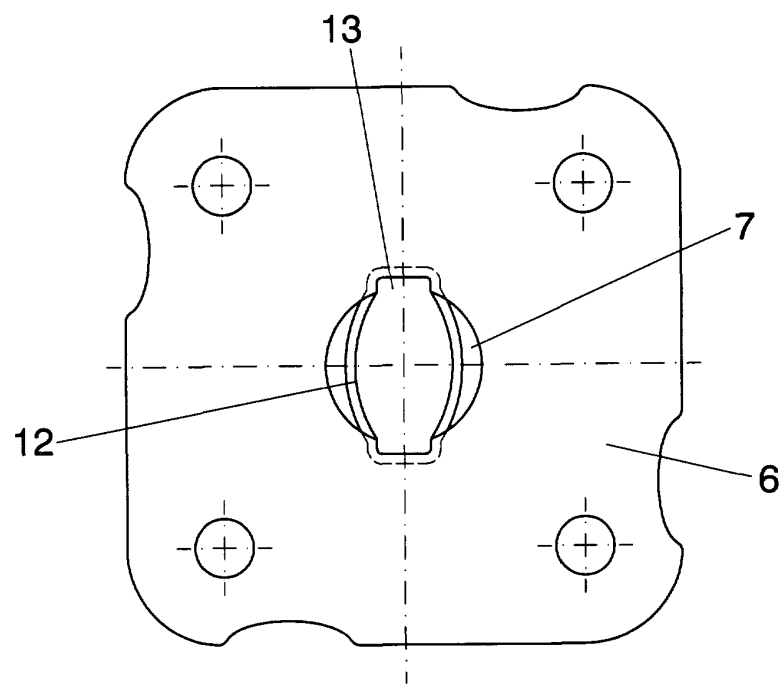


FIG. 6