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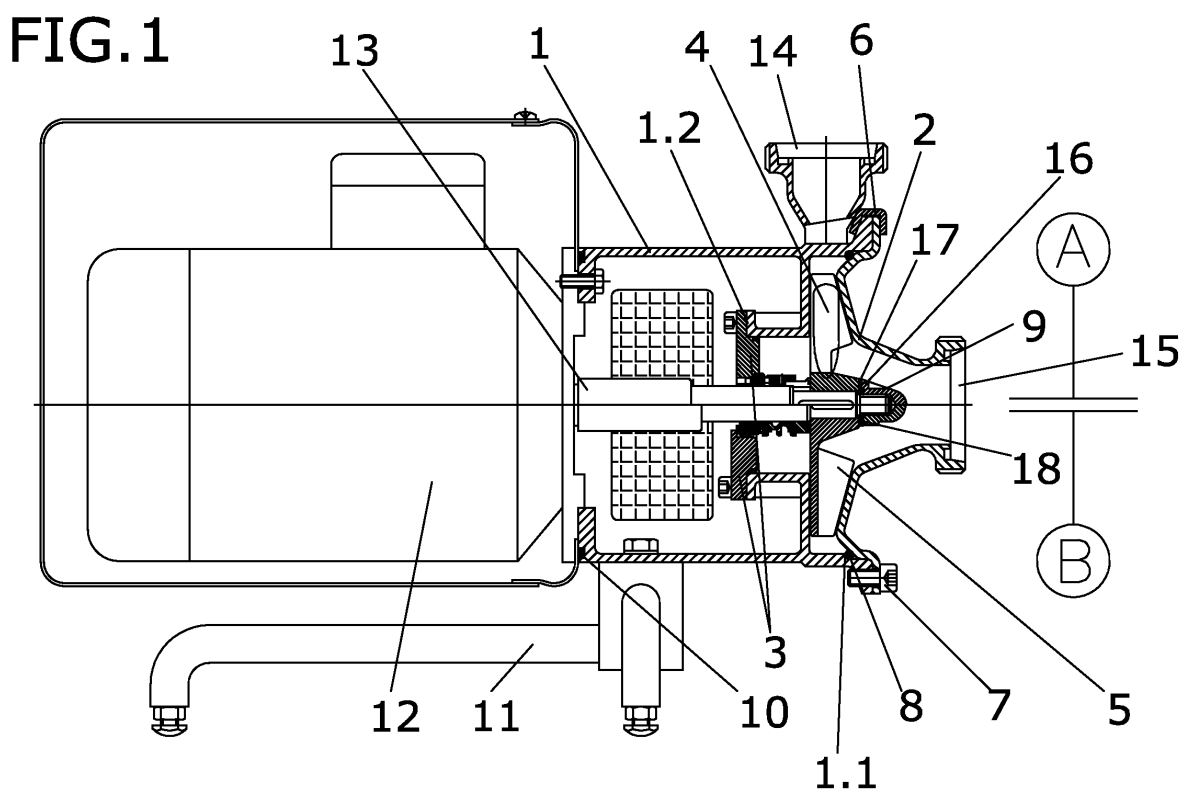
Remarks:

The appcation is published incomplete as filed (Article 93 (2) EPC).The applicant filed a text to bring the translation into conformity with the original text.

(54) **Centrifugal pump**

(57) The object of the present invention is a simplified modular system for manufacturing centrifugal pumps which, by its configuration, provides a greater sturdiness of the pump assembly while preventing vibrations and

offsetting, due to uniting in a single piece the flange adjacent to the motor and the intermediate plate with an orifice for passage of the motor shaft, so that the performance of the pump is increased and it is possible to use it in both plumbing and industrial type pumps.



Description

OBJECT OF THE INVENTION

[0001] The object of the present invention is a simplified modular system for manufacturing centrifugal pumps, which due to its configuration, provides a greater sturdiness of the pump assembly while preventing vibrations and offsetting.

[0002] In addition, the assembly of this system is very simple due to the union in a single part of the flange adjacent to the motor and the intermediate plate with an orifice to allow passage of the motor shaft, with the subsequent reduction of costs.

[0003] Due to the configuration of the modular system, the performance of the pump increases as well as allowing its use in both plumbing and industrial pumps.

BACKGROUND OF THE INVENTION

[0004] Centrifugal pumps are well known in the state of the art in which the elements constituting the casing and containing the rotor are made of cast iron, which results in a high cost.

[0005] A second known configuration of centrifugal pumps described in Utility Models with application numbers U286465 and U9101925 has a case constituted from stamped parts.

[0006] In addition in the aforementioned configurations is subordinated to the shape of the intermediate plate and the distance between it and the turbine or wheel.

[0007] All of these drawbacks are overcome by the invention described in what follows.

DESCRIPTION OF THE INVENTION

[0008] The present invention relates to a simplified modular system for the construction of centrifugal pumps constituted by a body-flange in a single piece, which acts as a union to the motor casing, the wheel shaft and the part meant for impelling the pump.

[0009] In addition, the casing is completed by the cover, to which the pump intake is welded.

[0010] This body-flange is made of cast iron or by microfusion, whereas the cover is made by stamping, the pump intake placed in its opening.

[0011] In addition, a finishing and polishing operation may be performed of the inner surface through which the fluid travels, ensuring the hygiene of the pump when it is used with food or pharmaceuticals.

[0012] Due to its inner configuration the body-flange presents a cover that allows to couple different types of mechanical closures such as spacers, springs, retainers, nuts, etc.

[0013] The functionality of the modular system resides in its adaptability to both plumbing and industrial application pumps, where the wheel, open on the former and semi-open in the latter, is completely adjusted to the

body-flange and the cover, so that their performance is greater.

[0014] In plumbing application pumps the body-flange and the cover are joined by a clamp, while in industrial application pumps they are joined by screws.

[0015] In turn, in plumbing applications the blind nut placed on the end of the wheel shaft has an inner pressure washer and an O-ring for sealing the shaft, while in the industrial application it has a standard washer.

[0016] When the modular system is used for application as a plumbing pump, an O-ring is disposed between the motor casing and the body-flange to prevent the entry of cleaning liquids in the motor.

[0017] As seen in the description, the simplified modular system for manufacturing centrifugal pumps provides a great versatility and applicability to both types of pump described, due to its configuration.

DESCRIPTION OF THE DRAWINGS

[0018] The present descriptive memory is completed by a set of drawings that illustrate the preferred example of the invention and in no way limit it.

[0019] Figure 1 represents a cross section of an embodiment of the invention showing the modular system in which the half-section A refers to a plumbing type centrifugal pump and the half-section B refers to an industrial type centrifugal pump.

PREFERRED EMBODIMENT OF THE INVENTION

[0020] In view of the above, the present invention relates to a simplified modular system for manufacturing centrifugal pumps constituted by a body-flange (1) joined to the casing of a motor (12) and which allows passage of the shaft (13) of the open wheel (4) in sanitary application pumps and the semi-open wheel (5) in industrial application pumps, and also includes the part intended for the pump impulsion (14).

[0021] The pump casing is completed by a cover (2), to which the pump intake (15) is welded.

[0022] The seal of the body-flange (1) and the cover (2) is achieved by an O-ring (8), located on the peripheral seat (1.1) of the body-flange (1).

[0023] The body-flange (1) has an inner seat (1.2) on which rests a cover-closure (3) that allows to couple different types of mechanical closures between this cover-closure (3) and the wheel (4, 5).

[0024] Due to the functionality of the modular system, when it is applied to plumbing pumps the body-flange (1) and the cover (2) are joined by a clamp (6), while a blind nut (9) is inserted on the end of the shaft (13) of the wheel (4), preferably including an inner pressure washer (16) and an O-ring (17) to seal the shaft (13).

[0025] In industrial application pumps, the body-flange (1) and the cover (2) are joined by screws (7) while the blind nut (9) preferably includes a standard washer (18).

[0026] If the modular system is used for application as

a plumbing pump, an O-ring (10) is provided between the motor casing (12) and the body flange (1) to prevent the entry of cleaning liquids in the motor.

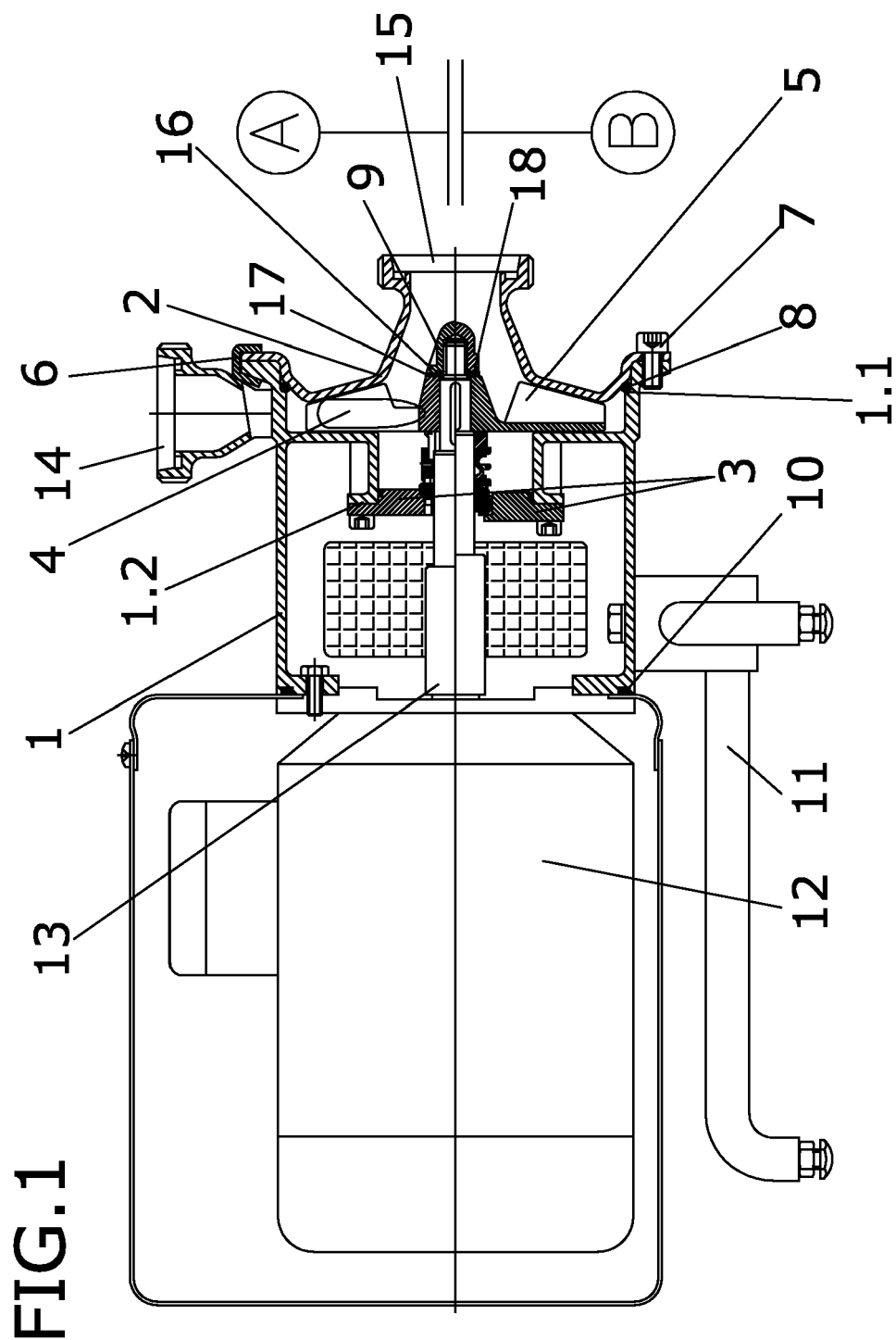
[0027] The essence of this invention is not affected by variations in the materials, shape and size of the component elements, described in a non-limiting manner that should allow its reproduction by an expert.

Claims

1. Simplified modular system for manufacturing centrifugal pumps among those in which the seal between the parts conforming the casing in contact with the fluid is provided by an O-ring (8), **characterised in that** the pump casing is formed by a first piece, the body-flange (1), which is joined to the casing of a motor (12) allowing passage of the shaft (13) of the wheel (4, 5) and includes the part meant for the pump impulsion (14) and a second piece, the cover (2), to which the pump intake (15) is welded, wherein the body-flange (1) presents an inner seat (1.2) on which rests a cover-closure (3) that allows to couple several types of mechanical closures between said cover-closure (3) and the wheel (4, 5). 5 10 15 20 25
2. Simplified modular system for manufacturing centrifugal pumps according to claim 1, **characterised in that** the body-flange (1) and the cover (2) are joined by a clamp (6) when the system is applied to plumbing pumps. 30
3. Simplified modular system for manufacturing centrifugal pumps according to claim 1, **characterised in that** the body-flange (1) and the cover (2) are joined by screws (7) when the system is applied to industrial pumps. 35
4. Simplified modular system for manufacturing centrifugal pumps according to claim 1, **characterised in that** a blind nut (9) is inserted in the end of the shaft (13) of the wheel (4), preferably including an inner pressure washer (16) and an O-ring (17) for sealing the shaft (13) when the system is applied to plumbing pumps. 40 45
5. Simplified modular system for manufacturing centrifugal pumps according to claim 1, **characterised in that** a blind nut (9) is inserted in the end of the shaft (13) of the wheel (5), preferably including a standard washer (18) when the system is applied to plumbing pumps. 50
6. Simplified modular system for manufacturing centrifugal pumps according to claim 1, **characterised in that** between the casing of the motor (12) and the body-flange (1) there is an O-ring (10) to prevent the entry of cleaning liquids into the motor, when the 55

system is applied to plumbing pumps.

7. Simplified modular system for manufacturing centrifugal pumps according to claim 1, **characterised in that** the wheel (4) is open in plumbing application pumps.
8. Simplified modular system for manufacturing centrifugal pumps according to claim 1, **characterised in that** the wheel (5) is semi-open in industrial application pumps.



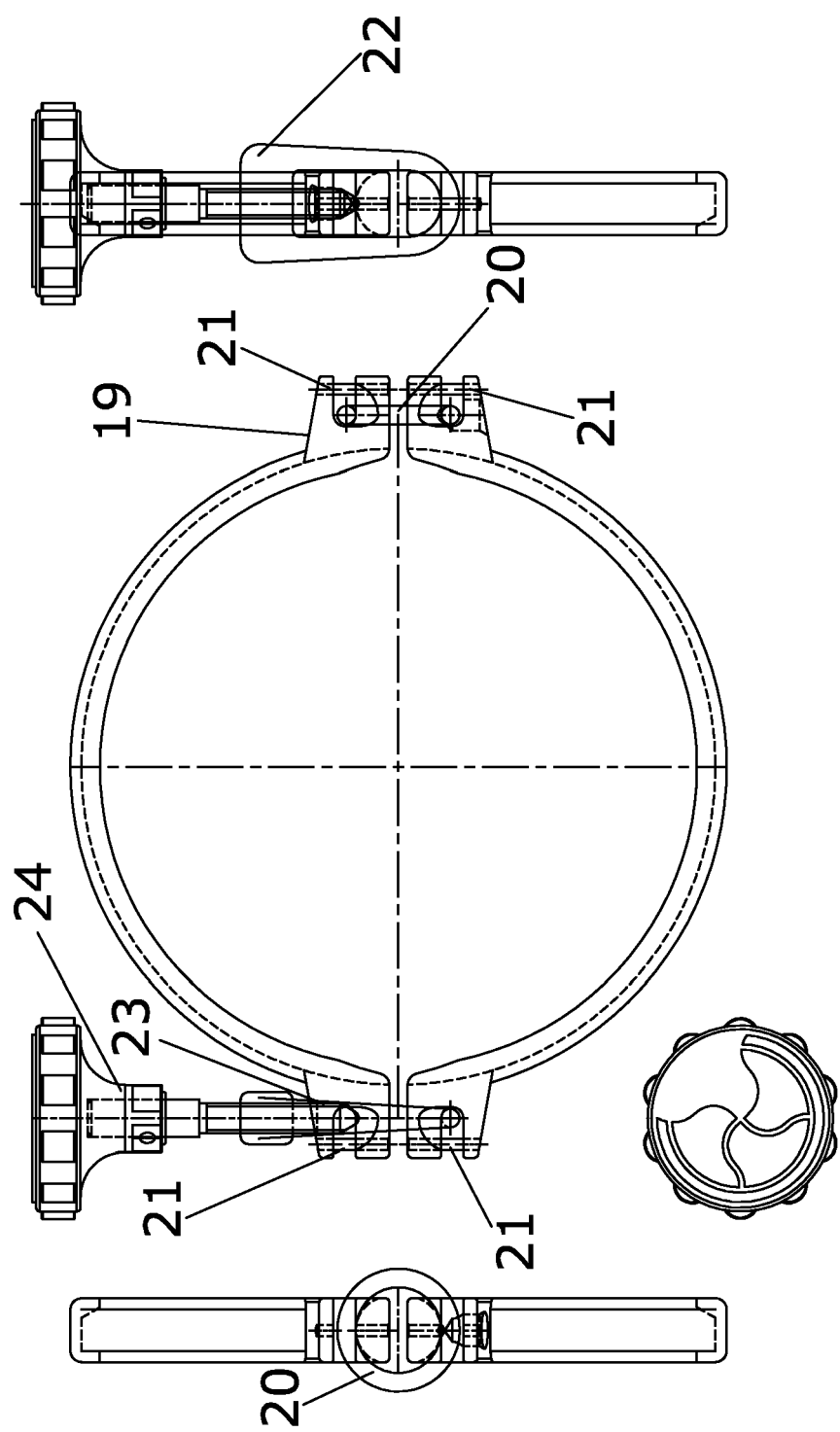


FIG.2

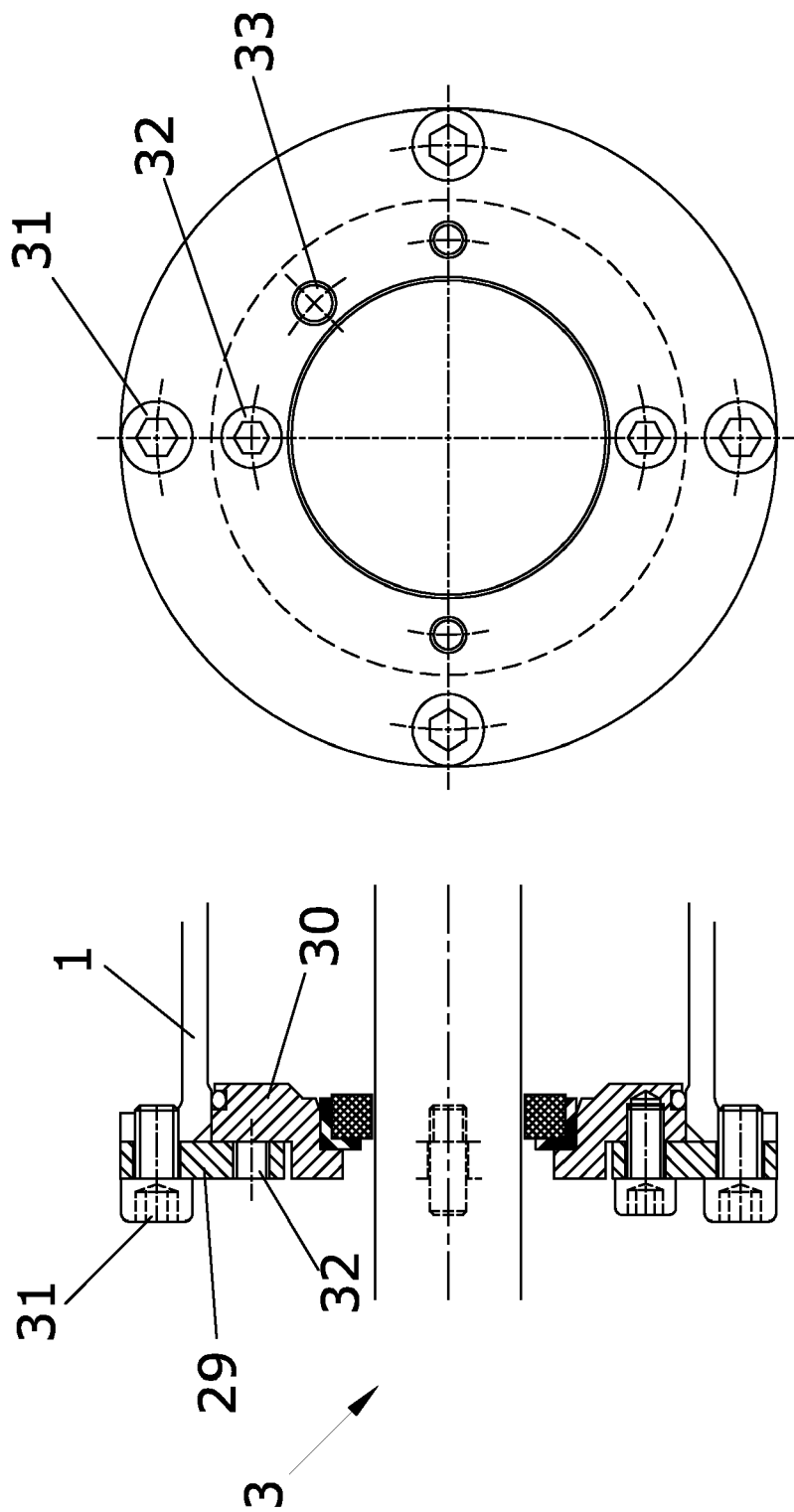


FIG.3

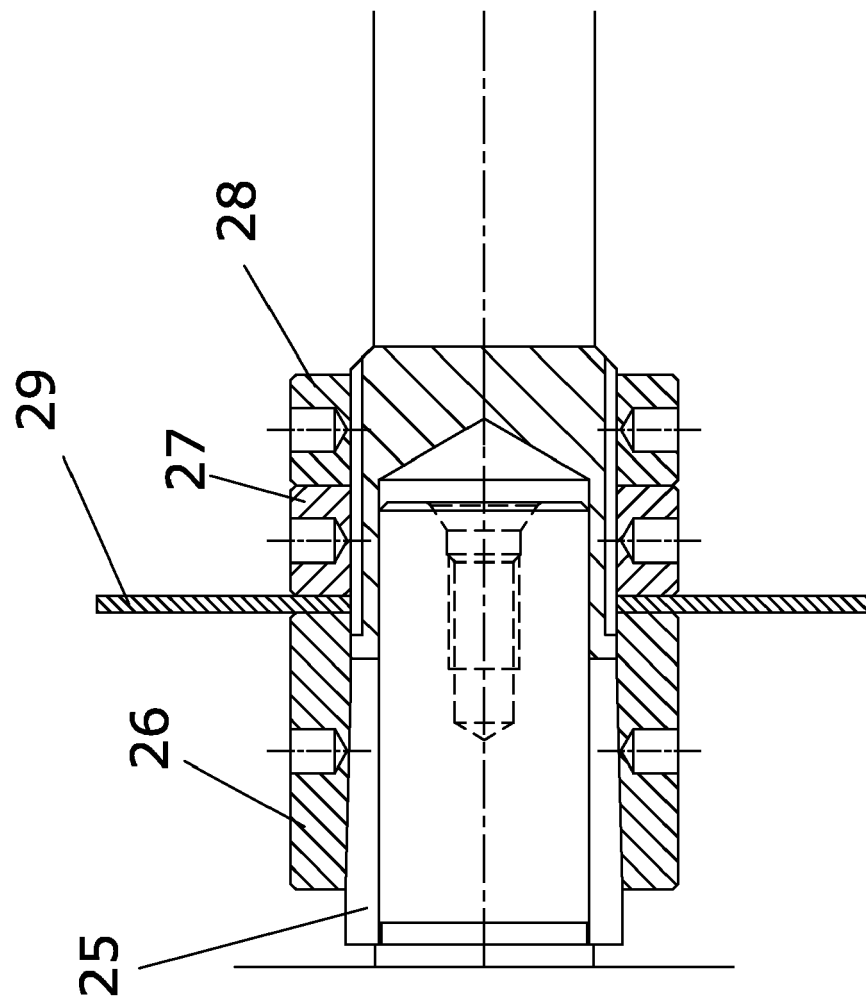


FIG.4



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 05 38 1050

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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 24 January 2006	Examiner Giorgini, G
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	

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 05 38 1050

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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