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(54) Hinge for frames, or items of furniture, having at least two hinging elements

(57) Hinge (10) for frames, or items of furniture, comprising at least two hinging elements (12, 14) able to be hinged to each other. The two hinging elements (12, 14) are identical to each other.

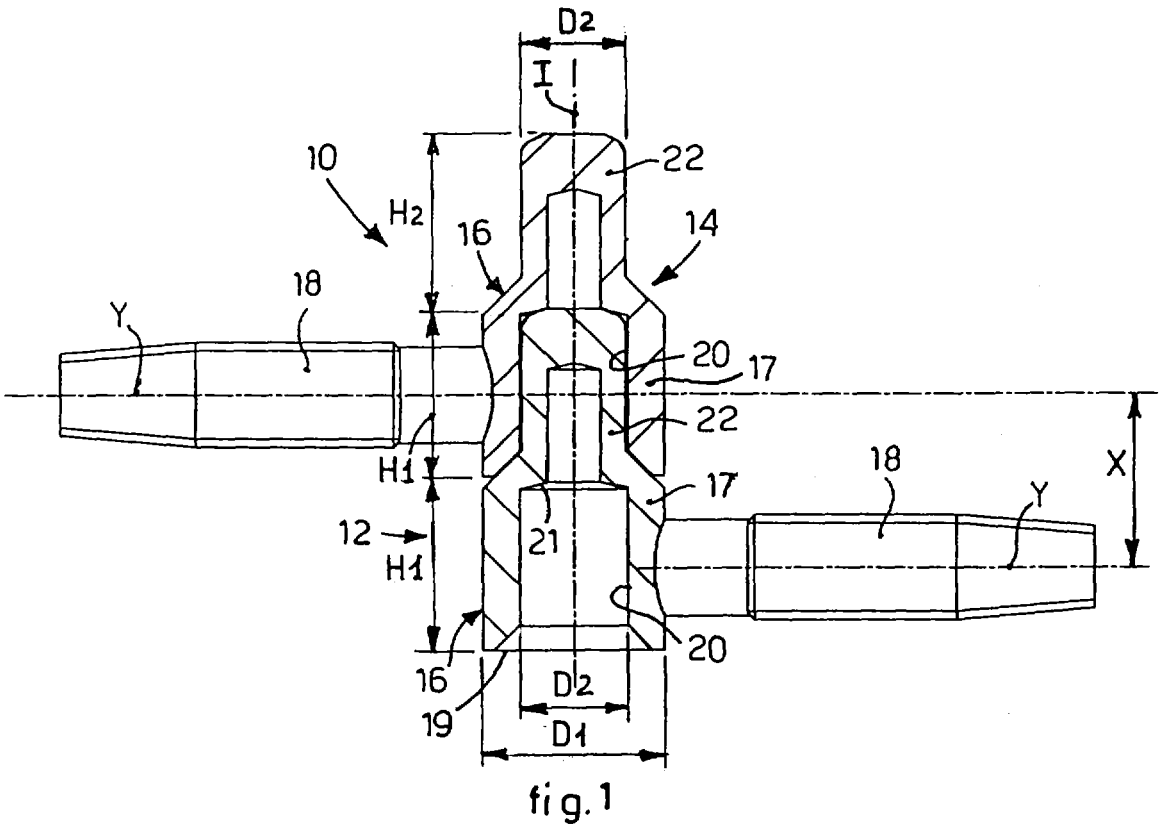

fig. 1

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Description

FIELD OF THE INVENTION

[0001] The present invention concerns a hinge for frames, or items of furniture, with at least two hinging elements, identical to each other and able to be hinged one onto the other so as to articulate a mobile structure, for example the panel of a frame, with respect to a fixed structure of the frame.

BACKGROUND OF THE INVENTION

[0002] In the field of frames, hinges are known, to articulate the panel of a frame or of a piece of furniture, with respect to a fixed structure, comprising two elements, respectively a male one and a female one.

[0003] The male element is normally fixed to the fixed structure and is provided with a pin, while the female element is normally fixed to the panel and is provided with a seating of shape and sizes mating with those of the pin.

[0004] During normal use, the pin is inserted into the seating allowing the hinging of the two elements.

[0005] The two elements of known hinges therefore consist of two different pieces, which can be made only using different production lines with different molds and treatments and therefore with high costs of production, cataloging and storage.

[0006] From the French patent FR-A-1.580.417 a hinge is known, consisting of two hinging elements, identical to each other and each comprising a peg, which functions as the male part, and a bushing, which functions as the female part. The peg and the bushing are distanced from each other, they have the same hinging axis in common and are connected to each other by an attachment plate. Said elements of the known hinge, however, are complex and costly to make.

[0007] Purpose of the present invention is to achieve a hinge for frames, or items of furniture, with at least two hinging elements identical to each other and able to be hinged one onto the other, which can be achieved much more cheaply than known hinges, advantageously by means of a single production line and with one type of mold, reducing cataloging and storage costs and also facilitating installment operations.

[0008] The Applicant has devised, tested and embodied the present invention to overcome the shortcomings of the state of the art and to obtain these and other purposes and advantages.

SUMMARY OF THE INVENTION

[0009] The present invention is set forth and characterized in the independent claims, while the dependent claims describe other characteristics of the invention or variants to the main inventive idea.

[0010] In accordance with the above purpose, a hinge according to the present invention comprises at least two hinging elements, identical to each other so that, in order to produce them, it is sufficient to set up a single production line and prepare a single mold, thus reducing not only the production costs, but also the costs of cataloging and storage. The two hinging elements, identical to each other, are able to be hinged one onto the other on a first hinging axis (I).

[0011] In particular, each of the two hinging elements comprises a body, substantially coaxial with said first axis (I), and an attachment shank having a second axis (Y), substantially perpendicular to said first axis (I), so that, when they are hinged together, the two hinging elements define a determinate inter-axis (X) between the two second axes (Y) of the corresponding attachment shanks. Moreover, according to a characteristic feature of the present invention, the body of each hinging element comprises a first part having an internal cavity, coaxial with said first axis (I), which functions as the female part, and a second part, also coaxial with said first axis (I) and having a smaller cross section than that of said first part, which functions as the male part and which has shape and sizes mating with those of said internal cavity, so as to be coupled with the corresponding internal cavity of another of said hinging elements. In particular, the height (H1) of the first part of said body is substantially equal to said inter-axis (X).

[0012] The present invention also conerns each of the two hinging elements of the hinge.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] These and other characteristics of the present invention will become apparent from the following description of a preferential form of embodiment, given as a non-restrictive example with reference to the attached drawings wherein:

- fig. 1 is a longitudinal section of a hinge according to the present invention;
- fig. 2 is a lateral exploded view of the hinge in fig. 1;
- fig. 3 is a plane view of the hinge in fig. 1;
- fig. 4 is a longitudinal section of a first variant of the hinge in fig. 1;
- fig. 5 is a longitudinal section of a second variant of the hinge in fig. 1;
- fig. 6 is a longitudinal section of a third variant of the hinge in fig. 1.

DETAILED DESCRIPTION OF SOME PREFERENTIAL FORMS OF EMBODIMENT

[0014] With reference to fig. 1, a hinge 10 according to the present invention comprises two hinging elements, a lower one 12 and an upper one 14, identical to each other, which have a hinging axis I.

[0015] Each hinging element 12 and 14 (figs. 1 and 2) comprises a base body 16, substantially coaxial with the

hinging axis I, and a threaded shank 18, solid with the body 16 and having a longitudinal axis Y, substantially orthogonal to the hinging axis I. Each threaded shank 18 (figs. 1, 2 and 3) allows to fix the corresponding hinging element 12 or 14 to a panel or to a frame of any frame structure or item of furniture whatsoever, not shown in the drawings.

[0016] It is clear that, as an alternative or in addition to the threaded shanks 18, plates, or platelets, can be present, which allow to fix the hinging element 12 or 14 to the panel and the fixed structure.

[0017] The base body 16 in turn comprises a first part 17, for example cylindrical, or shaped like a truncated cone, and having a determinate diameter D1 (figs. 1 and 3), and a second part or pin 22, cylindrical, or shaped like a truncated cone, and having a determinate diameter D2, which is inferior to the diameter D1, so that the cross section of the second part 22 is smaller than that of the first part 17.

[0018] An internal cavity 20 is made in the first part 17 of each hinging element 12 and 14, which functions as the female part, while the pin 22 functions as the male part.

[0019] The pin 22 and the internal cavity 20 have mating shape and sizes, in particular, in this case, the pin 22 has an at least partly cylindrical shape.

[0020] The pin 22 of the lower hinging element 12 is able to be inserted in a rotating manner into the internal cavity 20 of the upper hinging element 14 so that the two hinging elements 12 and 14 are pivoted with respect to each other coaxially to the hinging axis I (fig. 2).

[0021] The height H1 of the first part 17 of the body 16 is substantially the same as the distance X, or inter-axis, between the two longitudinal axes Y of the two threaded shanks 18, when the two hinging elements 12 and 14 are pivoted to each other. The inter-axis X normally has a standardized value in the market of hinges for frames or furniture.

[0022] Moreover, the height H2 of the second part 22 of the body 16 is substantially equal to, or less than, the height H1 of the first part 17.

[0023] In this way, the hinge 10 according to the present invention can be mounted using templates, or other standard equipment, and is therefore interchangeable with those of a known type.

[0024] In addition, advantageously, the longitudinal axis Y of each attachment shank 18 is substantially equidistant from an external shoulder 19 of the first part of the body 16 and from an internal shoulder 21 of the internal cavity 20.

[0025] According to a first variant shown in fig. 4, each hinging element 12, 14 also comprises a ball 24, or similar contact element, inserted at the end of the pin 22 and able to be disposed in contact with the bottom of the internal cavity 20 of another hinging element 12, 14, so as to improve the coupling of the pin-internal cavity.

[0026] According to this first variant, each pin 22 and each internal cavity 20 have a conical shape, in order to allow an easier insertion of the two hinging elements 12 and 14.

[0027] According to a second variant, shown in fig. 5, each hinging element 12, 14 also comprises a ball 26, or similar contact element, inserted inside the respective cavity 20 and able to be disposed in contact with the end of the pin 22 of another hinging element 12, 14, in order to improve the coupling of the pin-internal cavity.

[0028] According to a third variant, shown in fig. 6, the external shoulder 19 of each hinging element 12, 14 is disposed at the upper end of the first part 17, where the pin 22 starts, whereas the internal shoulder 21 of the internal cavity 20 is made inside the same.

[0029] It is clear that modifications and/or additions of parts may be made to the hinge 10 as described heretofore, without departing from the scope of the present invention.

[0030] It is also clear that, although the present invention has been described with reference to some specific examples, a person of skill in the art shall certainly be able to achieve many other equivalent forms of hinge for frames, or items of furniture, with at least two hinging elements, having the characteristics as set forth in the claims and hence all coming within the scope of protection defined thereby.

Claims

1. Hinge for frames, or items of furniture, comprising at least two hinging elements (12, 14), identical to each other and able to be hinged one onto the other on a first hinging axis (I), wherein each of said hinging elements (12, 14) comprises a body (16), substantially coaxial with said first axis (I), and an attachment shank (18) having a second axis (Y) substantially perpendicular to said first axis (I), wherein, when said two hinging elements (12, 14) are hinged together they define a determinate inter-axis (X) between the two second axes (Y) of the corresponding attachment shanks (18), **characterized in that** said body (16) comprises a first part (17) having an internal cavity (20), coaxial with said first axis (I), which functions as the female part, and a second part (22), also coaxial with said first axis (I) and with a smaller cross section than that of said first part (17), which functions as the male part and which has shape and sizes mating with those of said internal cavity (20), so as to be coupled with the corresponding internal cavity (20) of another of said hinging elements (12, 14), and **in that** the height (H1) of the first part (17) of said body (16) is substantially equal to said inter-axis (X).

2. Hinge as in claim 1, **characterized in that** the height (H2) of said second part (22) of said body (16) is substantially equal to, or less than, the height (H1) of said first part (17) of said body (16).

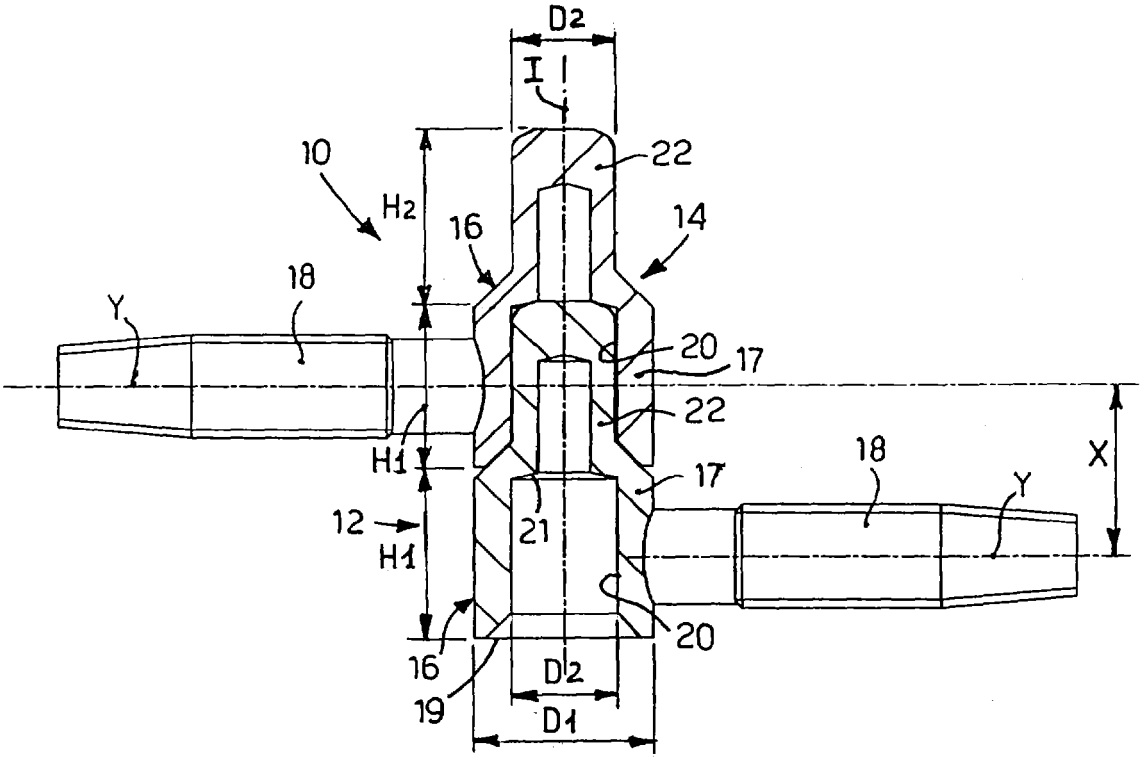
3. Hinge as in claim 1 or 2, **characterized in that** said second axis (Y) of the attachment shank (18) is substantially equidistant from an external shoulder (19) of said first part (17) of said body (16) and from an internal shoulder (21) of said internal cavity (20).

4. Hinge as in claim 1, 2 or 3, **characterized in that** said second part (22) of said body (16) is at least partly cylindrical or conical in shape.

5. Hinge as in any claim from 1 to 4, **characterized in that** it also comprises a contact element (24), at least partly curved or spherical, disposed on the top of said second part (22) of said body (16) and able to contact the internal end of said internal cavity (20) of the corresponding hinging element (12, 14).

6. Hinge as in any claim from 1 to 4, **characterized in that** it also comprises a contact element (26), at least partly curved or spherical, inserted into said internal cavity (20) and able to contact the top of said second part (22) of said body (16) of the corresponding hinging element (12, 14).

7. Hinging element (12, 14) for a hinge for frames, or items of furniture, able to be hinged onto another hinging element (14, 12), identical to it, along a first hinging axis (I), wherein said hinging element (12, 14) comprises a body (16), substantially coaxial with said first axis (I), and an attachment shank (18) having a second axis (Y) substantially perpendicular to said first axis (I), wherein, when two hinging elements (12, 14) are hinged together they define a determinate inter-axis (X) between the two second axes (Y) of the corresponding attachment shanks (18), **characterized in that** said body (16) comprises a first part (17) having an internal cavity (20), coaxial with said first axis (I), which functions as the female part, and a second part (22), also coaxial with said first axis (I) and with a smaller cross section than that of said first part (17), which functions as the male part and which has shape and sizes mating with those of said internal cavity (20), so as to be coupled with the corresponding internal cavity (20) of another of said hinging elements (12 14), and **in that** the height (H1) of the first part (17) of said body (16) is substantially equal to said inter-axis (X).


D2
I
10
H2
16
14
22
18
Y
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H1
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Y
X
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12
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D2
19
D1

fig. 1

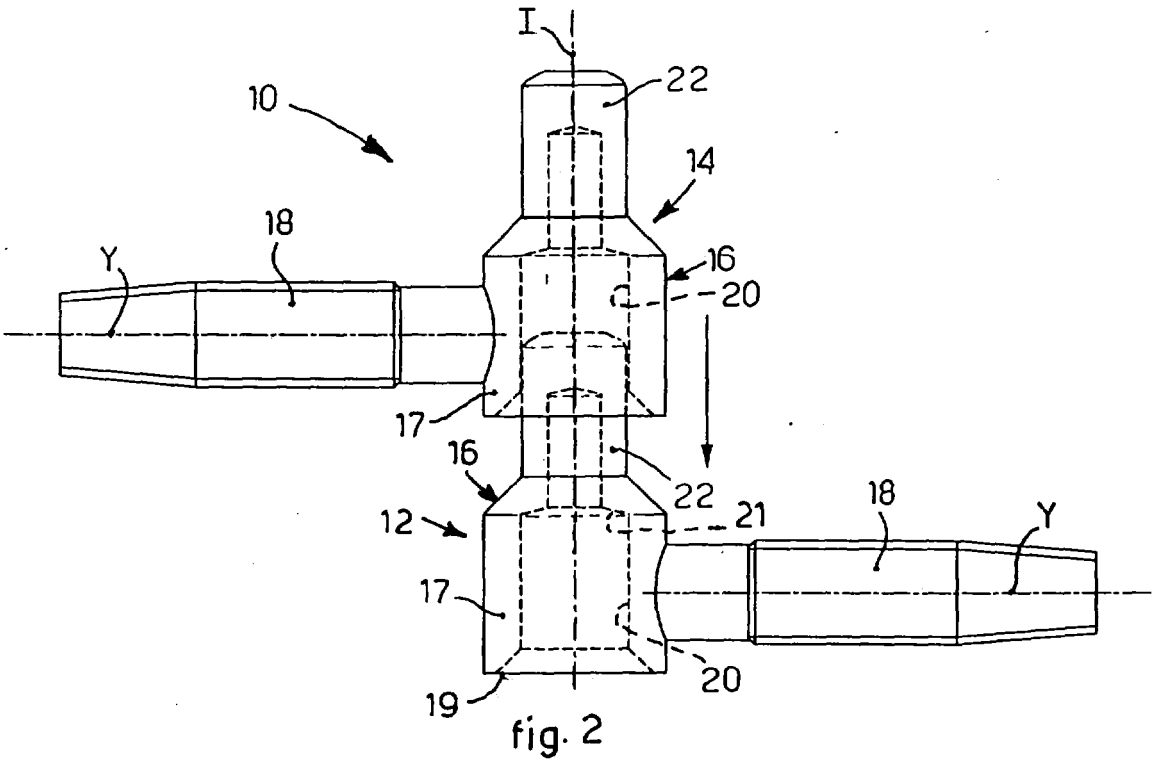
I
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fig. 2

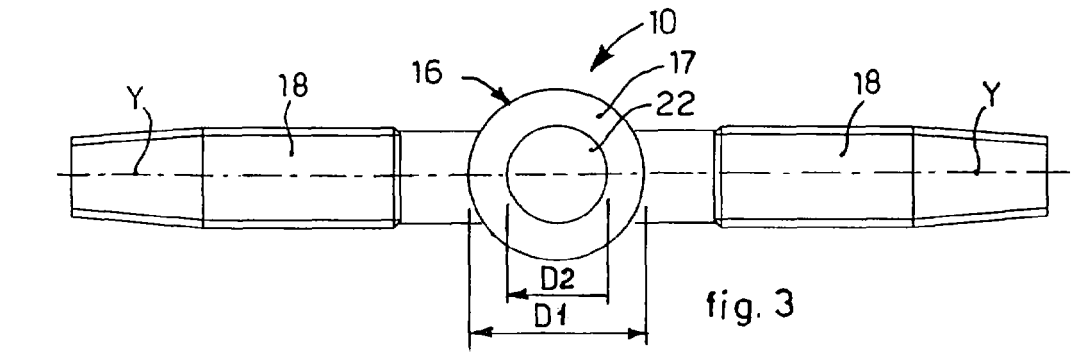

fig. 3

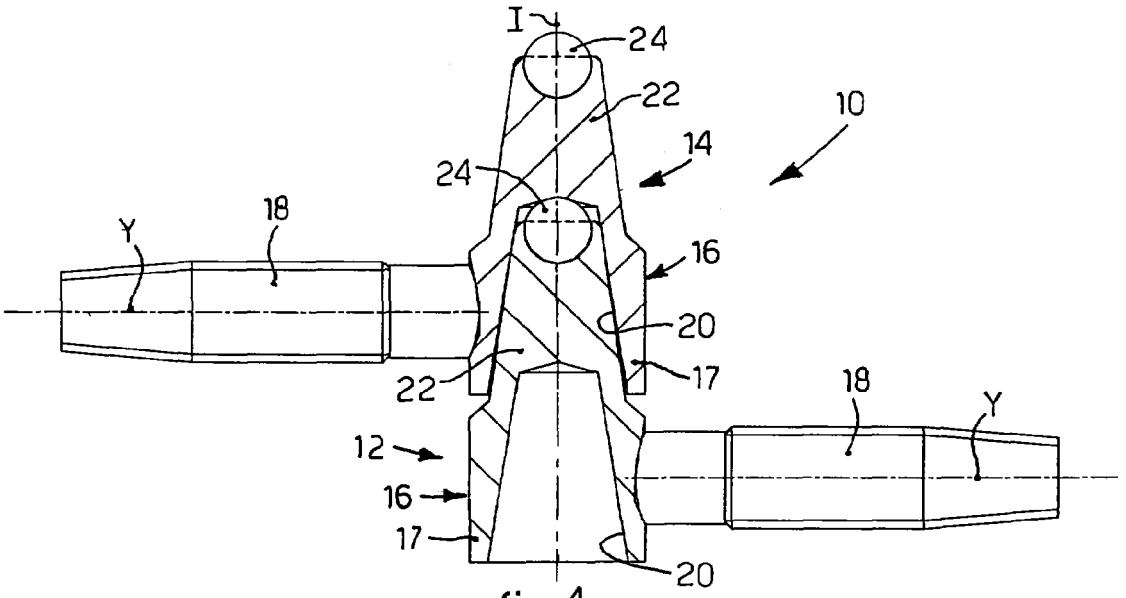

fig. 4

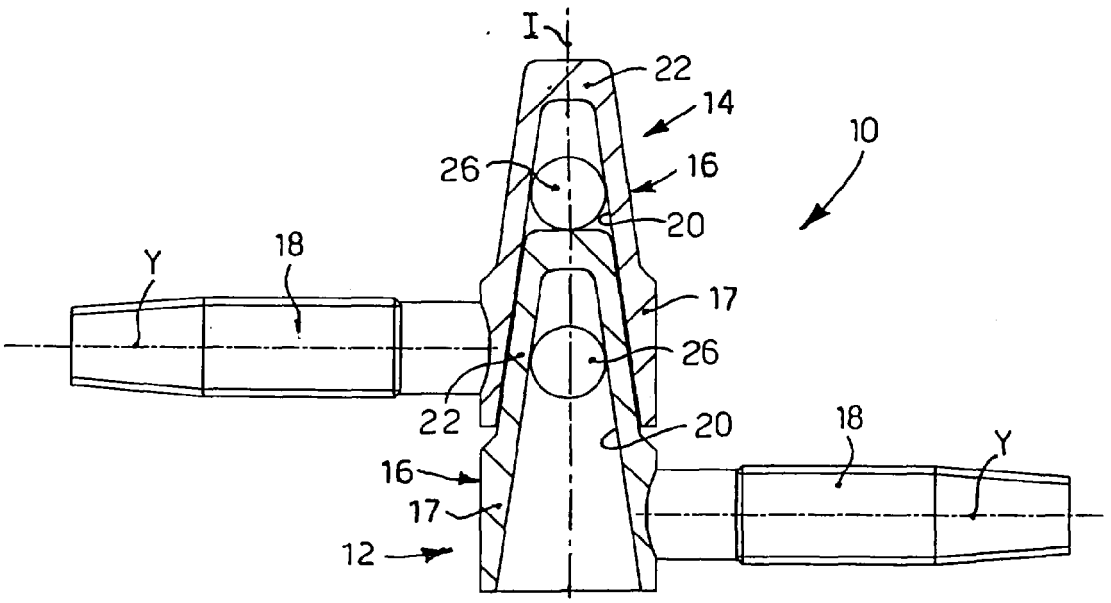

fig. 5

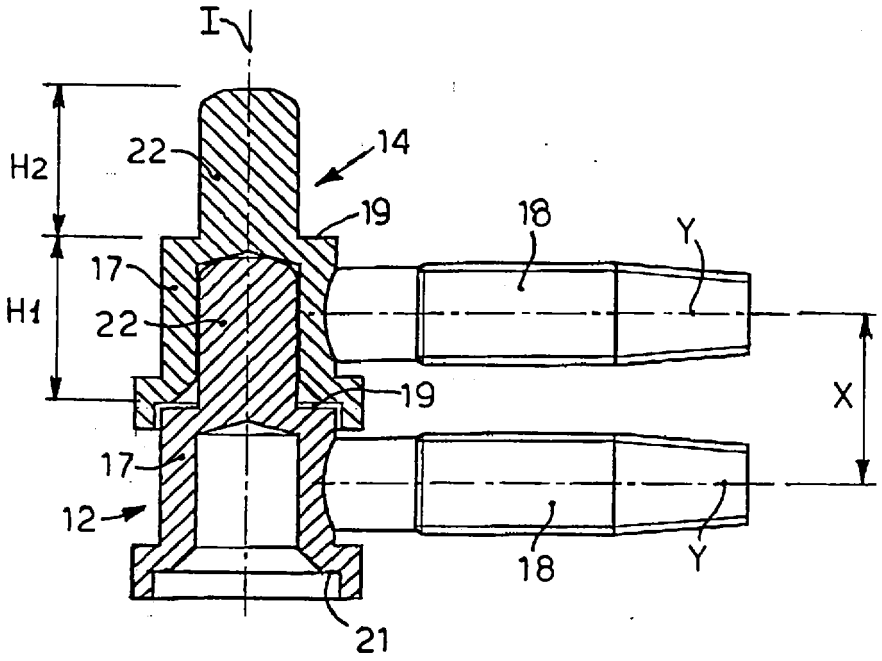

fig. 6

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EUROPEAN SEARCH REPORT

Application Number
EP 07 11 9006

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	FR 936 399 A (AGTERBERG G A) 19 July 1948 (1948-07-19)	1,2,4-7	INV. E05D3/02
A	* page 2, column 1, lines 11-17; figures 1,2,5 *	3	E05D5/14 E05D11/04

A	BE 532 063 A (PFAFFLI W.) 15 October 1954 (1954-10-15) * figure 1 *	1,3	

TECHNICAL FIELDS SEARCHED (IPC)

E05D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	10 December 2007	WITASSE-MOREAU, C

CATEGORY OF CITED DOCUMENTS

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10-12-2007

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR 936399 A	19-07-1948	NONE	
BE 532063 A		NONE	

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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