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(54) Mounting aid for the frame member of a sliding pocket door

(57) A method and a system for mounting a door of the type comprising a counter-frame (10) are described, inside which at least one panel is mounted so that the panel can assume a closing position, in which it is brought near, along one of its lateral edges, to an abutment frame (12), and an opening position. The abutment frame (12) is configured so as to be fixed to a corresponding wall or shoulder (14) of the counter-frame (10). The method comprises the steps of: laying a sliding guide (18), having at least one through hole (20), at a predetermined position on the shoulder (14) of the counter-frame (10); marking the position of the centre of each through hole (20) on the shoulder (14) of the counter-frame (10); making

a blind hole (22) on the shoulder (14) of the counter-frame (10) and at the centre of each through hole (20), so as to allow the insertion of corresponding centring tips (24); laying and operatively positioning the abutment frame (12) with respect to the shoulder (14) of the counter-frame (10) so as to obtain, by using as a reference the position of each centring tip (24), a plurality of cut points (34) forming the signs for the application of fastening means (36) able to constrain, on the rear wall of the abutment frame (12), one or more of the sliding guides (18); running each sliding guide (18) in circumferential grooves (30) provided in each centring tip (24) so as to mount the abutment frame (12) on the shoulder (14) of the counter-frame (10).

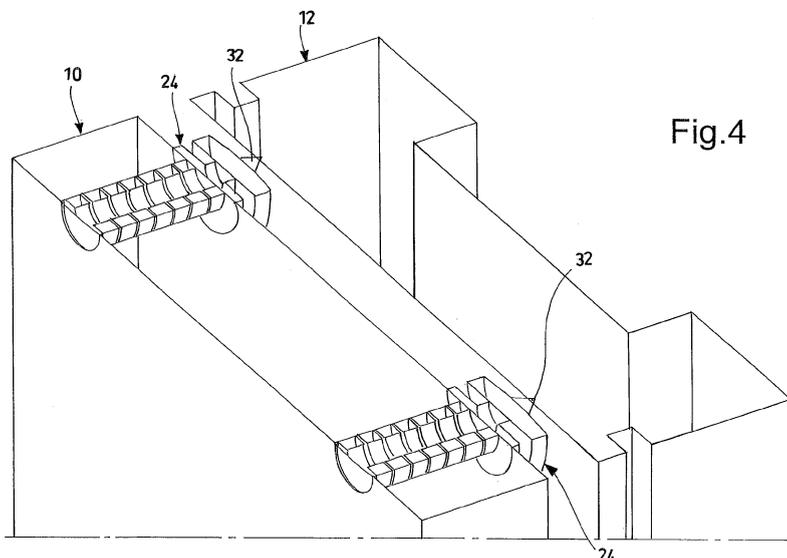


Fig.4

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Description

[0001] The present invention refers to a method and to a system for mounting doors, in particular but not exclusively sliding pocket doors.

[0002] As it is well known, a sliding pocket door is a type of door that is widely used both in building new buildings, and in renovating existing buildings, thanks to its capability of using in a rational manner all the space available.

[0003] Sliding pocket doors generally comprise a counter-frame formed by a box, made from metal, an upper sliding cross member and an abutment frame of a panel, coupled with such an upper sliding cross member. In turn, the panel is slidably coupled with the upper sliding cross member by means of suitable trolleys, so as to be able to assume a closing position, in which it is brought near, along one of its lateral edges, to the abutment frame, and an opening position, in which it is at least partially inserted in the box-shaped counter-frame.

[0004] The box-shaped counter-frame can be installed so as to replace, with its own bulk, a corresponding wall portion. Once the counter-frame has been installed in the desired wall portion, its lateral surfaces are plastered with conventional cement, or with cement mortar, before the final finishing.

[0005] When mounting sliding pocket doors it is time-consuming and difficult to adjust the abutment frame of the panel with respect to the box-shaped counter-frame. In order to obtain a good mounting, such an abutment frame, also called "shoulder", must be positioned perfectly plumb both lengthwise, and frontally with reference to the position of the panel. It is thus necessary for the workers to be considerably skilful and it is necessary to use a large number of specific equipment and tools.

[0006] Methods and systems of the known type for mounting doors, windows and the relative frames and counter-frames are described, for example, in documents EP 1 191 180 A1, DE 69 41 980 U, DE 37 41 123 A1, DE 27 04 056 A1, DE 44 23 426 A1 and DE 195 05 141 A1.

[0007] The purpose of the present invention is therefore that of providing a method and a system for mounting doors, in particular but not exclusively sliding pocket doors, which is capable of solving the aforementioned drawbacks of the prior art in an extremely simple, cost-effective and particularly functional manner.

[0008] In detail, one purpose of the present invention is that of obtaining a method and a system for mounting sliding pocket doors which is capable of facilitating and speeding up, in the mounting phase, the adjustment of the shoulder of the frame with respect to the box-shaped counter-frame.

[0009] Another purpose of the invention is that of devising a method and a system for mounting sliding pocket doors that limits the amount of equipment and tools necessary to complete the mounting steps.

[0010] A further purpose of the invention is that of de-

vising a method and a system for mounting sliding pocket doors which can be applied even by workers that are not particularly specialised, being easier therefore for people keen on "DIY".

5 **[0011]** These purposes according to the present invention are achieved by devising a method and a system for mounting doors, in particular but not exclusively sliding pocket doors, as outlined in the independent claims.

10 **[0012]** Further characteristics of the invention are highlighted from the dependent claims, which are an integrating part of the present description.

15 **[0013]** The characteristics and the advantages of a method and of a system for mounting doors, in particular but not exclusively sliding pocket doors, according to the present invention shall become clearer from the following description, given as an example and not for limiting purposes, with reference to the attached schematic drawings, in which:

20 figure 1 is a schematic view illustrating a first step of the method for mounting sliding doors according to the present invention;

25 figure 2 is a schematic view illustrating a second step of the method for mounting sliding doors according to the present invention, as well as a component of the relative mounting system;

30 figure 3 is a schematic view illustrating a third step of the method for mounting sliding doors according to the present invention, as well as further components of the relative mounting system;

35 figure 4 is a schematic view illustrating a fourth step of the method for mounting sliding doors according to the present invention;

40 figure 5 is a schematic view illustrating a fifth step of the method for mounting sliding doors according to the present invention;

45 figure 6 illustrates some components of the system for mounting sliding doors according to the present invention; and

50 figure 7 is a schematic view illustrating a final step of the method for mounting sliding doors according to the present invention.

[0014] With reference to the figures, a method and a system for mounting a door are shown, in particular but not exclusively a sliding pocket door, according to the present invention. If it is of the sliding type, the door comprises a box-shaped counter-frame 10, inside which at least one panel (not shown) is sliding mounted so that said panel can assume a closing position, in which it is brought near, along one of its lateral edges, to an abutment frame 12, and an opening position, in which it is at least partially inserted in the box-shaped counter-frame 10. The abutment frame 12 is configured so as to be fixed to a corresponding wall or shoulder 14 of the box-shaped counter-frame 10.

[0015] The panel can be slidably coupled to an upper sliding cross member, which is fixed to the box-shaped

counter-frame 10, by means of suitable trolleys. Alternatively, the panel can be slidingly inserted inside the box-shaped counter-frame 10 in any manner known at the state of the art, without for this reason departing from the scope of protection of the present invention.

[0016] The mounting method according to the present invention foresees a first step that consists in marking, on the shoulder 14 of the box-shaped counter-frame 10, at least one horizontal line 16 (figure 1). The horizontal line 16 can be marked in a conventional manner, like for example by using a set square and a pencil. Preferably, the aforementioned step foresees marking on the shoulder 14 three horizontal lines parallel to one another, that is to say a first upper horizontal line, located at around 200 mm from the upper edge of the shoulder 14, a second lower horizontal line, located at around 200 mm from the lower edge of the shoulder 14, and a third central line, equally distant from both the first upper horizontal line, and from the second lower horizontal line.

[0017] The mounting method according to the present invention thus foresees a step consisting of laying, on the shoulder 14 of the box-shaped counter-frame 10 and at each horizontal line 16, a sliding guide 18 having at least one through hole 20, so that each horizontal line 16 is visible at the centre of each through hole 20 (figure 2). Then, on the shoulder 14 of the box-shaped counter-frame 10 and at the horizontal line 16, the position of the centre of each through hole 20 is marked. The sliding guide 18 is a component that must be subsequently fixed to the abutment frame 12.

[0018] Once the position of the centre of each through hole 20 of the sliding guide 18 has been obtained and marked, corresponding blind holes 22 are then made on the shoulder 14 of the box-shaped counter-frame 10, so that said blind holes 22 are obtained at the centres of each through hole 20 and are aligned along each horizontal line 16 (figure 3). The blind holes 22 preferably have a depth of at least 20 mm and can be obtained by means of a self-centring bit for a drill with a suitable diameter, for example 10 mm. The blind holes 22 must in any case have an inner diameter such as to allow the insertion therein of corresponding centring tips 24.

[0019] In detail, each centring tip 24 is provided with a stem 26, configured so as to be press-fitted in a corresponding blind hole 22, and with a head 28, provided with a circumferential groove 30 configured to be shape-coupled with the sliding guide 18, as shall be specified in greater detail in the rest of the description. In a preferred configuration of the method and of the system for mounting sliding doors according to the present invention, it is foreseen to apply six centring tips 24 on the shoulder 14 of the box-shaped counter-frame 10, that is to say two centring tips 24 for each of the three horizontal lines 16 marked on the shoulder 14 itself.

[0020] Each centring tip 24 is preferably provided, on its own head 28, with a removable pointed end 32, that can be used for cutting the rear wall of the abutment frame 12 in the subsequent mounting step. More pre-

cisely, once the centring tips 24 have been inserted in the respective blind holes 22, it is provided to lay and to put the abutment frame 12 in the operative position with respect to the shoulder 14 of the box-shaped counter-frame 10 (figure 4). By manually applying pressure on the abutment frame 12, a cutting of the rear wall of such an abutment frame 12 is obtained by the pointed ends 32.

[0021] The cut points 34, one of which is visible in figure 5, form the signs for the application of fastening means 36 (like for example screws) suitable for constraining, on the rear wall of the abutment frame 12, one or more of the sliding guides 18, preferably applied in a number equal to the number of horizontal lines 16 marked on the shoulder 14.

[0022] Alternatively to the removable pointed ends 32, applied on the centring tips 24, and to the first step of marking a horizontal line 16 on the shoulder 14 with special set squares and pencils, it is possible for the workers in charge of installing the sliding door to use other systems in order to obtain the cut points 34 on the rear wall of the abutment frame 12 and on the shoulder 14 of the box-shaped counter-frame 10. For example, by using as a reference the position of the centring tips 24 applied to the shoulder 14 of the box-shaped counter-frame 10, a template can be used, of the type commonly in use in carpentry, so as to obtain the cut points 34 on the rear wall of the abutment frame 12 and on the shoulder 14 of the counter-frame 10. In this case, the centring tips 24 can be without the relative pointed ends 32.

[0023] If present, the pointed ends 32 must be removed from the corresponding centring tips 24 (figure 6) before the actual step of applying the abutment frame 12 on the shoulder 14 of the box-shaped counter-frame 10. The removal of the pointed ends 32 can be facilitated thanks to a notch 42 made at the base of each pointed end 32: the introduction of a suitable tool in such a notch 42 indeed makes it possible to obtain an easy and immediate detachment of the relative pointed end 32.

[0024] As shown in figure 7, the actual step of applying the abutment frame 12 on the shoulder 14 of the box-shaped counter-frame 10 is carried out by making each sliding guide 18, fixed to the shoulder 14, slide into the circumferential grooves 30 of the respective centring tips 24. The two fins 38 and 40 of the sliding guide 18 are slightly bent with respect to a plane parallel to the rear wall of the abutment frame 12 or, in other words, they have an inclination such as to generate a friction coefficient between the sliding guide 18 and centring tips 24 sufficient to keep the abutment frame 12 in the desired position with respect to the shoulder 14 of the box-shaped counter-frame 10.

[0025] The method and the system for mounting doors described to this point may also be used for mounting conventional doors, otherwise known as "leaf" doors. In this case a template can be used so as to obtain the cut points 34 on the rear wall of the abutment frame 12 and on one of the shoulders 14 of the counter-frame 10 which, in the case of leaf doors, are not of the box-shaped type.

The counter-frame 10 of leaf doors normally comprises a right shoulder and a left shoulder which face one another.

[0026] The method and system so far described can also be used for mounting the so-called "passage frame". A passage frame refers to a frame identical to that used for mounting a leaf door, with the difference that such a passage frame is devoid of counterlock, traditional hinges or "anuba" hinges for the application of the door. In practice, a passage frame only serves as a frame for covering a passage drilled in a doorless wall. The method for mounting a passage frame is in any case identical to that previously described for mounting the frame of a leaf door.

[0027] It has thus been seen that the method and the system for mounting doors, in particular but not exclusively sliding pocket doors, according to the present invention achieve the purposes previously highlighted.

[0028] The method and the system for mounting doors of the present invention thus conceived can in any case undergo numerous modifications and variants, all covered by the same inventive concept; moreover, all the details can be replaced by technically equivalent elements.

[0029] The scope of protection of the invention is thus defined by the attached claims.

Claims

1. Method for mounting a door of the type comprising a counter-frame (10), inside which at least one panel is mounted so that said panel can assume a closing position, in which it is brought near along one of its lateral edges to an abutment frame (12), and an opening position, said abutment frame (12) being configured so as to be fixed to a corresponding wall or shoulder (14) of the counter-frame (10), said method being **characterized in that** it comprises the steps of:
 - laying a sliding guide (18), having at least one through hole (20), at a predetermined position on the shoulder (14) of the counter-frame (10);
 - marking the position of the centre of each through hole (20) on the shoulder (14) of the counter-frame (10);
 - making a blind hole (22) on the shoulder (14) of the counter-frame (10) and at the centre of each through hole (20), so that each of said blind holes (22) has such an internal diameter to allow the insertion therein of a corresponding centering tip (24);
 - laying and operatively positioning the abutment frame (12) with respect to the shoulder (14) of the counter-frame (10) so as to obtain, by using as a reference the position of each centering tip (24), a plurality of cut points (34) on the rear wall of said abutment frame (12), said cut points (34) forming the signs for the application of fastening means (36) able to constrain, on the rear wall of said abutment frame (12), one or more of said sliding guides (18); and
 - running each sliding guide (18), integral with the shoulder (14) of the counter-frame (10), in circumferential grooves (30) provided in each centering tip (24) so as to mount the abutment frame (12) on the shoulder (14) of the counter-frame (10).
2. Method according to claim 1, **characterized in that** the step of laying a sliding guide (18) at a predetermined position on the shoulder (14) of the counter-frame (10) comprises the steps of:
 - marking at least one horizontal line (16) on the shoulder (14) of the counter-frame (10);
 - laying the sliding guide (18) at said at least one horizontal line (16), so that said at least one horizontal line (16) is visible at the centre of each through hole (20); and
 - marking the position of the centre of each through hole (20) at said at least one horizontal line (16).
3. Method according to claim 2, **characterized in that** the step of marking at least one horizontal line (16) on the shoulder (14) of the counter-frame (10) comprises the steps of:
 - marking a first upper horizontal line at a predetermined distance from the upper edge of the shoulder (14);
 - marking a second lower horizontal line at a predetermined distance from the lower edge of the shoulder (14); and
 - marking a third central line, equally distant from both the first upper horizontal line and the second lower horizontal line.
4. Method according to claim 3, further comprising the step of applying to the shoulder (14) of the counter-frame (10) a number of sliding guides (18) equal to the number of horizontal lines (16) marked on said shoulder (14) of the counter-frame (10).
5. Method according to any of the claims from 1 to 4, **characterized in that** the step of laying and operatively positioning the abutment frame (12) with respect to the shoulder (14) of the counter-frame (10) comprises the step of cutting the rear wall of the abutment frame (12) by means of a removable pointed end (32) provided on the head (28) of each centering tip (24), the pointed ends (32) forming said plurality of cut points (34) on the rear wall of the abutment frame (12).

6. Method according to claim 5, **characterized in that** it comprises one step of removing the pointed ends (32) from the corresponding centering tips (24) before the step of mounting the abutment frame (12) on the shoulder (14) of the counter-frame (10). 5
7. Method according to any of the claims from 1 to 4, **characterized in that** the step of laying and operatively positioning the abutment frame (12) with respect to the shoulder (14) of the counter-frame (10) comprise the step of obtaining by means of a template said plurality of cut points (34) on the rear wall of the abutment frame (12). 10
8. Method according to any of the claims from 1 to 7, **characterized in that** the door is a sliding door of the type comprising a box-shaped counter-frame (10), inside which at least one panel is sliding mounted, so that said panel can assume a closing position, in which it is brought near along one of its own lateral edges to the abutment frame (12), and an opening position, in which it is at least partially inserted in the box-shaped counter-frame (10). 20
9. Method according to any of the claims from 1 to 7, **characterized in that** the door is a leaf door whose counter-frame (10) comprises a right shoulder and a left shoulder facing together. 25
10. System for mounting a door of the type comprising a counter-frame (10), inside which at least one panel is mounted so that said panel can assume a closing position, in which it is brought near along one of its lateral edges to a abutment frame (12), and an opening position, said abutment frame (12) being configured so as to be fixed to a corresponding wall or shoulder (14) of the counter-frame (10), the system comprising: 30
- at least one sliding guide (18) fixable to the rear wall of the abutment frame (12); and 40
 - a plurality of centering tips (24) fixable to the shoulder (14) of the counter-frame (10) and in a shape-coupling engagement with the sliding guide (18) in order to obtain the application of the abutment frame (12) on the shoulder (14) of the counter-frame (10). 45
11. System according to claim 10, **characterized in that** each centering tip (24) is provided with a stem (26), configured to be press-fitted in a corresponding blind hole (22) obtained on the shoulder (14) of the counter-frame (10), and with a head (28), provided with a circumferential groove (30) configured to be shape-coupled with the sliding guide (18). 50 55
12. System according to claim 11, **characterized in that** each centering tip (24) is provided, on its own head (28), with a removable pointed end (32) that can be used for cutting the rear wall of the abutment frame (12) in the mounting phase of said abutment frame (12).
13. System according to claim 12, **characterized in that** each pointed end (32) is provided with a notch (42) made at the base of said pointed end (32), the introduction of a suitable tool in said notch (42) allowing to remove said pointed end (32) from the corresponding centering tip (24).
14. System according to any of the claims from 11 to 13, **characterized in that** the sliding guide (18) is provided with two fins (38, 40) having such an inclination to generate a friction coefficient between the sliding guide (18) and centering tips (24) sufficient to keep the abutment frame (12) fixed to the shoulder (14) of the counter-frame (10).

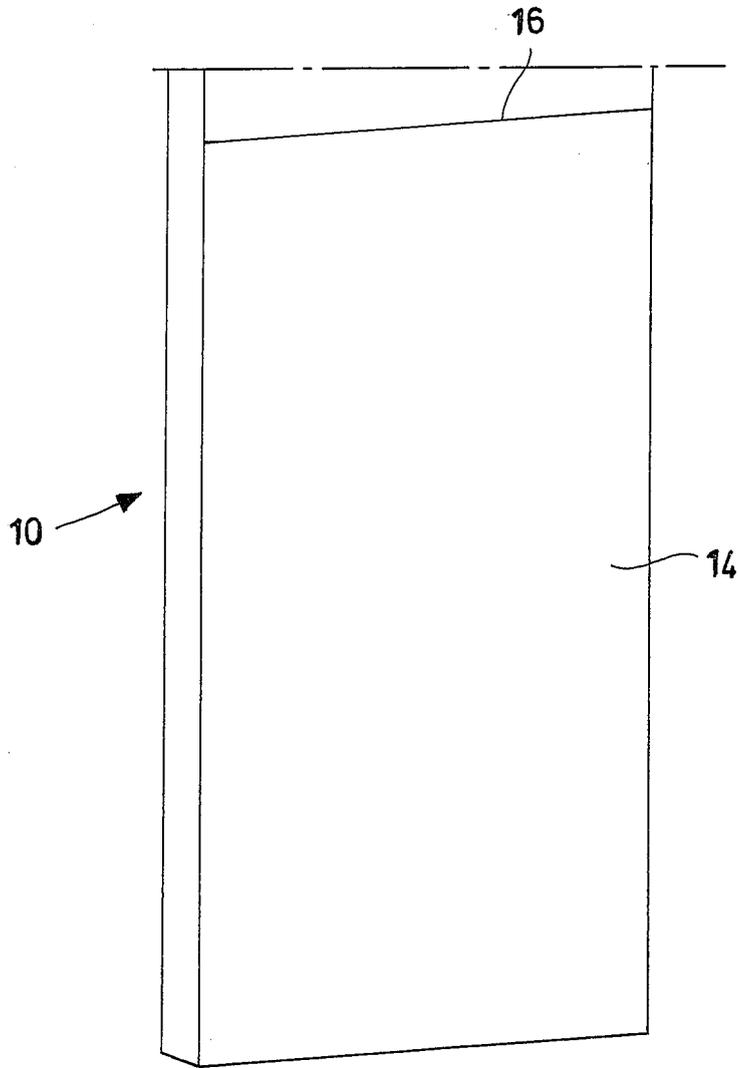


Fig.1

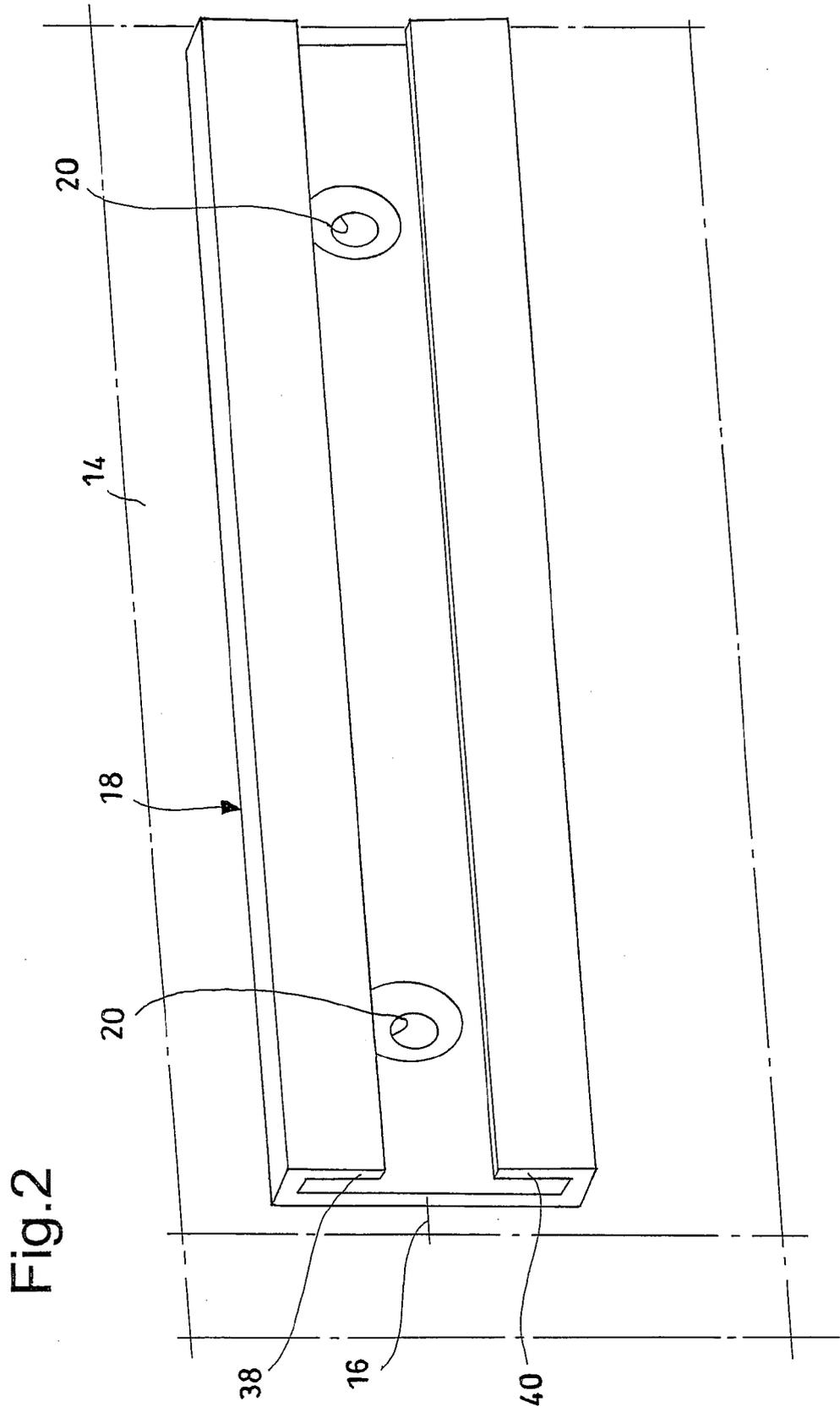


Fig. 2

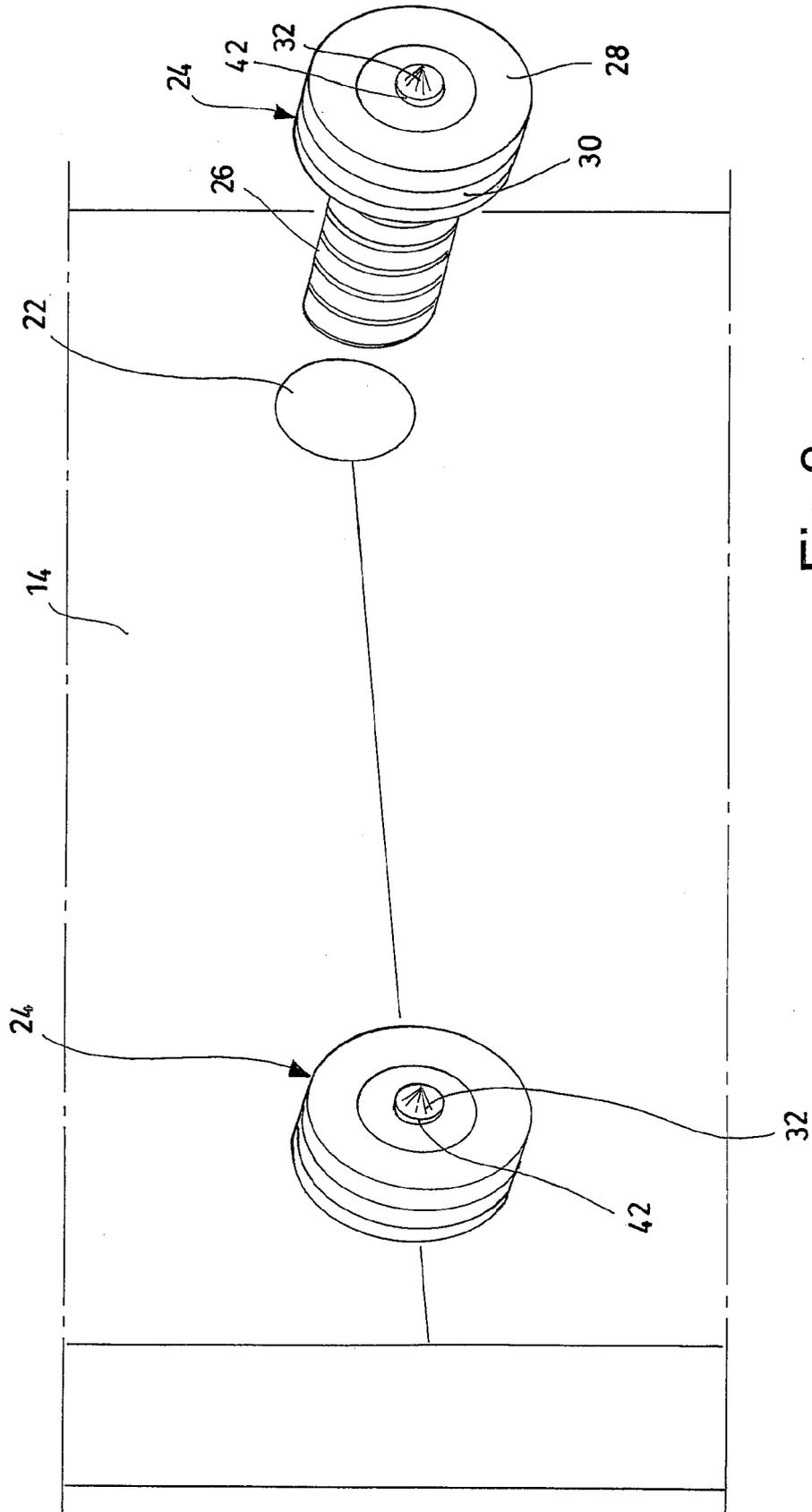


Fig.3

Fig.4

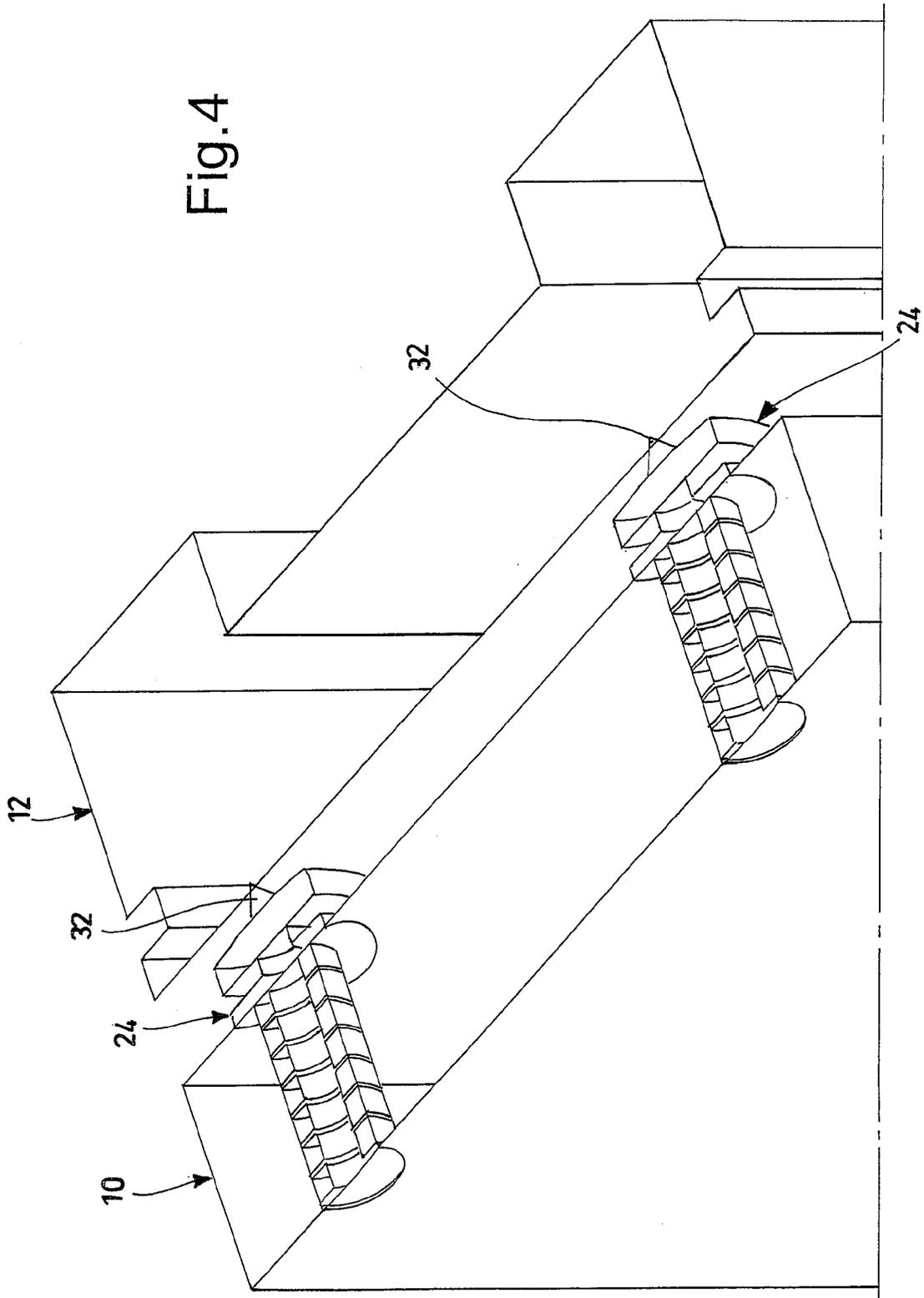
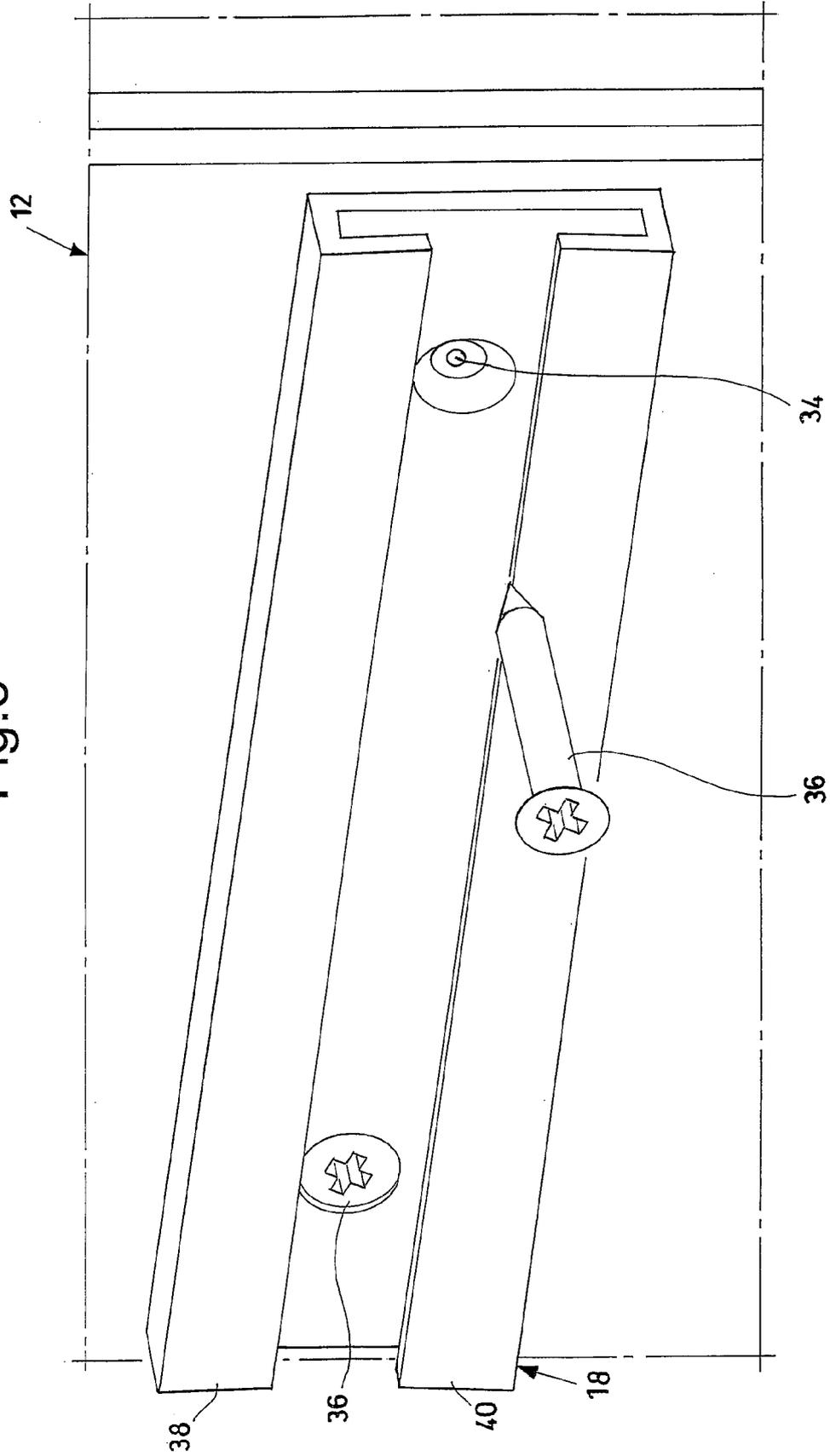


Fig.5



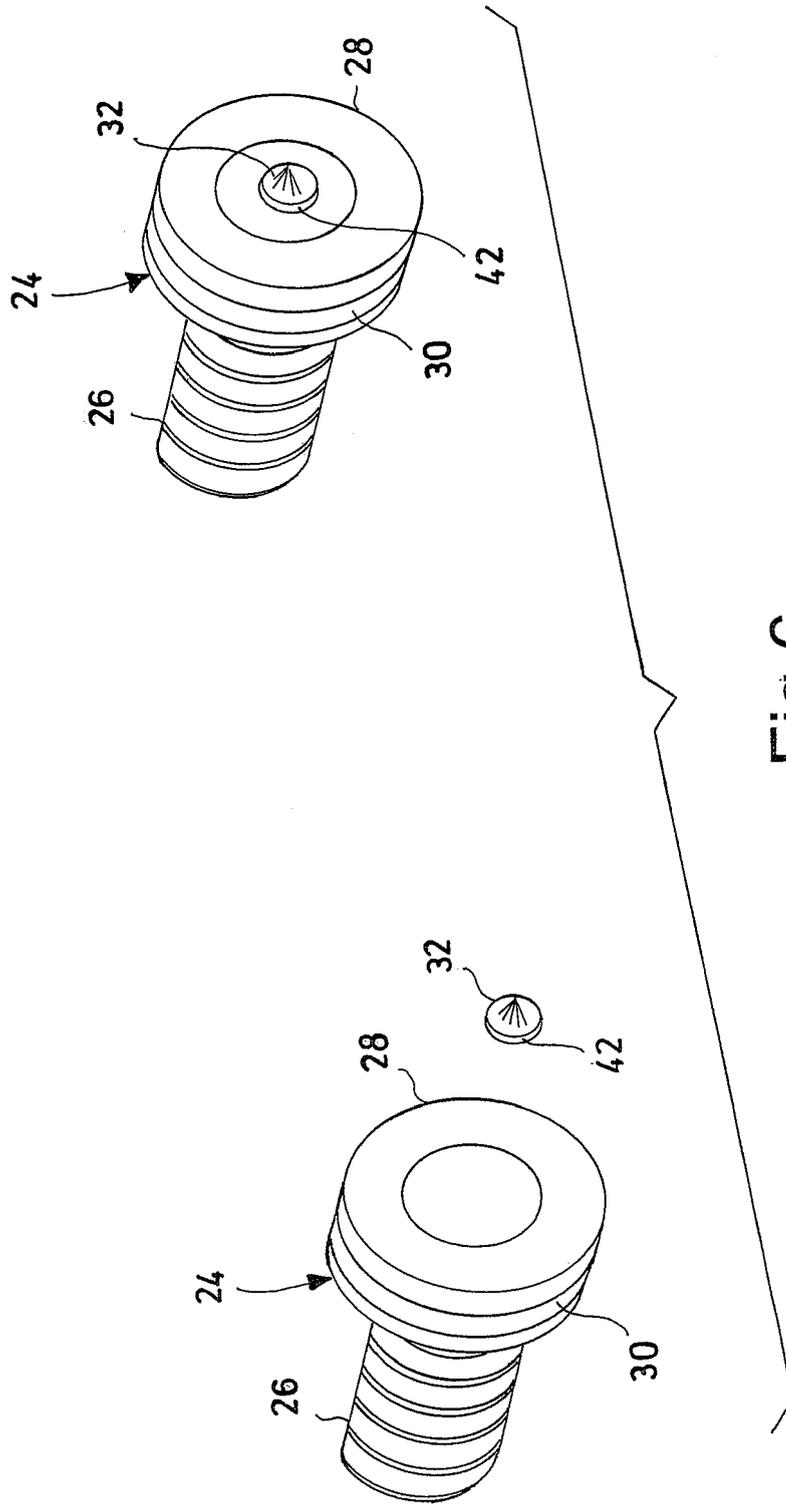
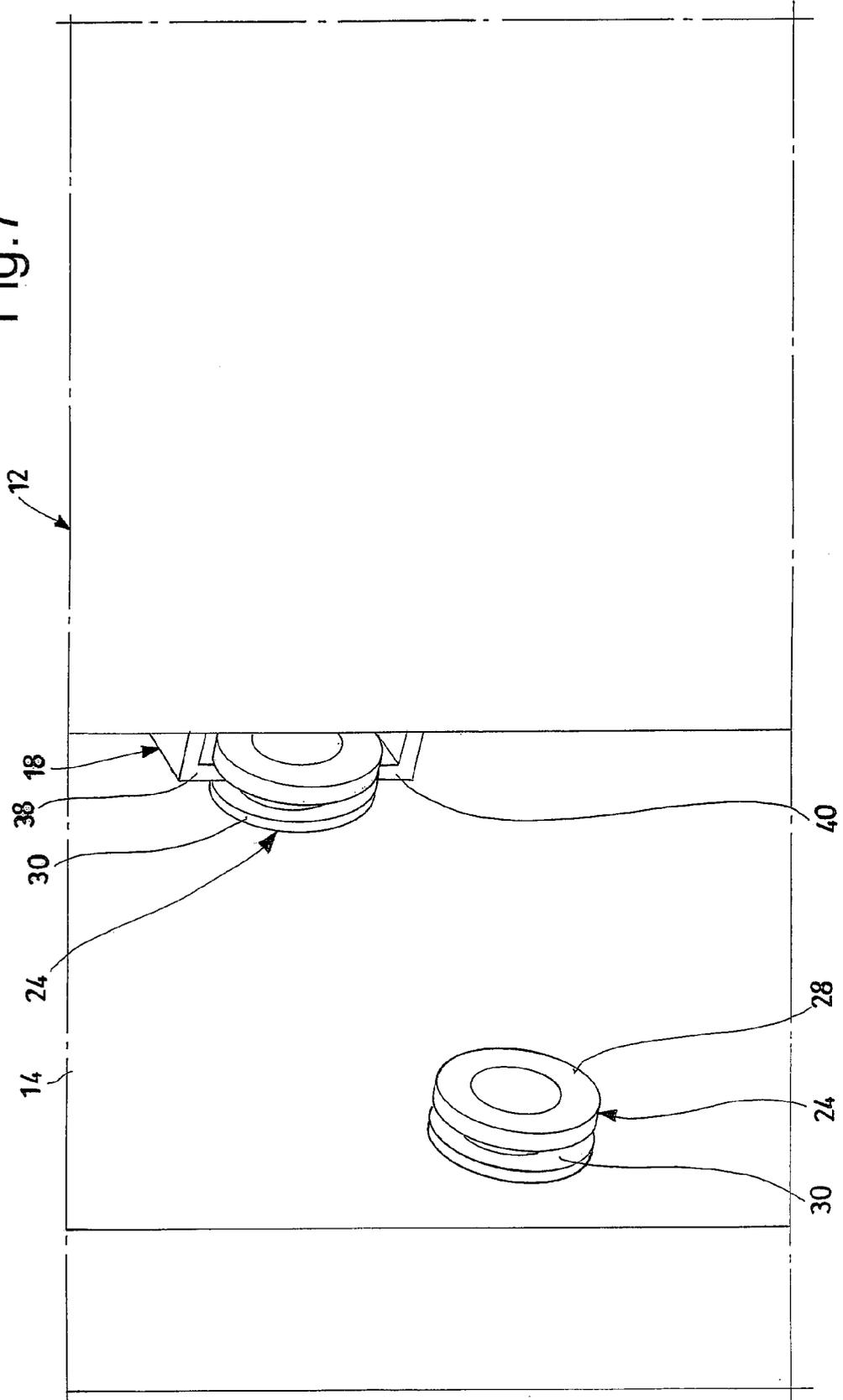


Fig.6

Fig.7





EUROPEAN SEARCH REPORT

Application Number
EP 12 16 4806

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2 The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 23 July 2012	Examiner Schwertfeger, C
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