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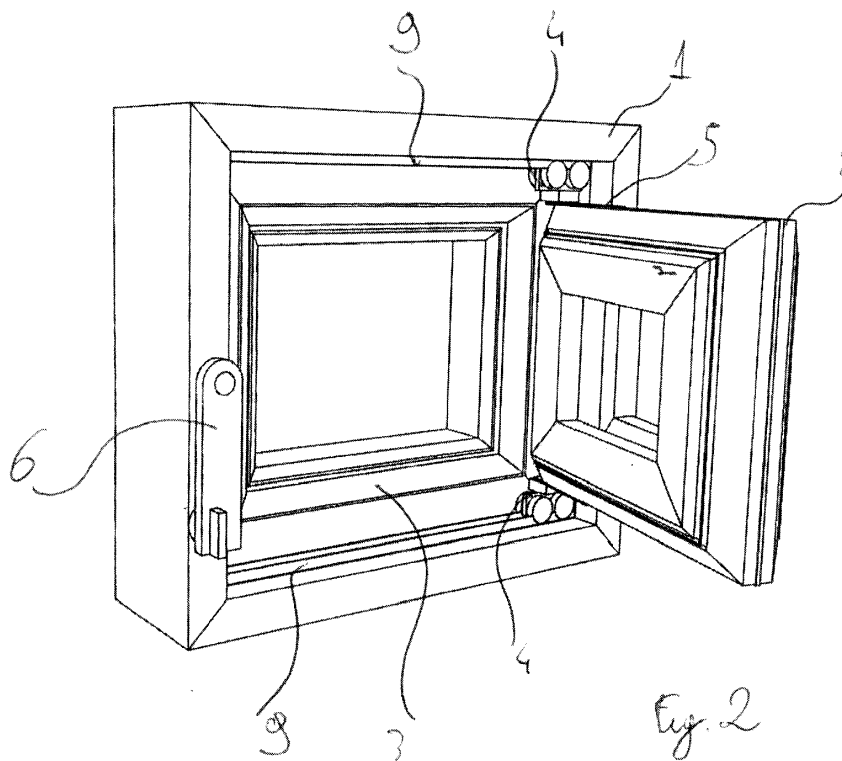
(54) **WINDOW UNIT WITH GLASS REVERSAL IN THE POSITION AND LOCKING IN TWO WAYS**

(57) This invention relates to a window with reversible glazing in position and in the closure according to two verses having two carriages that allow the complete rotation and scrolling of the internal moveable part of the window.

More precisely a window able to be totally reversed by two angular elements that turn with a pivot (one for angular element) inside a ball bearing inside the carriage

fixed on the end of the right or of the left of the moveable frame of the window.

The carriages move on rails to allow the opening of the moveable part of the window and then to scroll it to allow the overturning of the window, in this way the outside glass come inside and the inside one goes out with an overturning of 180° to close it in both verses by a pressure closure.



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Description

BACKGROUND OF THE INVENTION

[0001] In line with recent studies, with the objective to improve the energy saving and to reduce the warm pollution, a window need two glasses positionable : one able to reflect, one more filtering. In line with the necessity of the day, of the season, the reflecting one will be positioned on the rails by a carriage; the rotary shaft is guided by two racks.

DESCRIPTION OF THE DRAWINGS

[0002]

Fig.1: Vertical section that represents the outer frame 1, the inside frame 2, the gasket 3, the angular element 5, the carriages 4 and the rail 9.

Fig.2: Axonometric prospective of the window presented opened about 85°.

Fig. 3: Axonometric prospective of the element 6 ending with an element 7 that communicates with the element 6 with spring piston.

Fig. 4: Overhead view of the closure pressure system of the window.

Fig. 5: Side view of the angular element 5.

Fig. 6: Exploded side view that represents the angular element 5, the roll bearing 10 hosted in the carriage 4 that run in the rails 9.

Fig.7: Overhead view of the two elements that compose the carriage 4.

Fig. 8: Front side view of the carriage 4 with the roll bearing 10.

Fig. 9: Views a, b, c, d, e, f: overhead views of the window that represent the rotation principle in different phases.

Fig.10: Exploded section of the magnetic carriage and the magnetic rails.

Fig.11: Section of the magnetic carriage and magnetic rails.

Fig. 12: Other section of the magnetic carriage and magnetic rails.

Fig.13: "lateral section" of the magnetic carriage.

DESCRIPTION

[0003] The present invention consists in a and infix with reversible glasses in the position and in the closure in both verses, constituted by an outer frame 1 and a smaller inside frame 2, the frames are tapered able to create a stable penetration for a good thermal resistance, amplified by the presence of a gasket 3 for an hermetic closure; the smaller frame 2 communicates with the outer frame 1 by two angular elements 5 associated to the smaller frame 2; upon the surface of the angular elements 5 is located a pivot 13 hosted in a ball bearing 10, hosted in the carriage 4 that by four wheels runs on a conic binary 9. In the figure 7 we could note that the portion of the carriage that hosts that ball bearing is composed by two parts 4 welded by screws to rend the carriage one piece only.

[0004] The carriage is enreach by a rotary arm 6, associated to the frame 1 that ends with a spring piston 8 on which envelops a portion of sphere 7 that, turned the arm, finds position on the smaller frame 2.

[0005] The figure 9 views a, b, c, d, e, f show the overturning moment in six phases.

OTHER MODALITY OF REALIZATION

[0006] As first other modality of realization about the closure is adoptable a lever closure or pressure closure.

[0007] As second other modality of realization about the cariage is adoptable a magnetic carriage 11 that run in magnetic rail 12 hosting a ball bearing 10 that host a pivot 13 placed on the surface of the angular element 5.

Claims

1. Window unit with glass reversal in the position and locking in two ways including:

- a fixed frame (1), **characterized by** the fact that it presents a profile capable to permit, when overlapping with the door leaf (2), a stable interpenetration with the said door leaf (2) and to allow the drainage of the liquids penetrating between the said fixed frame (1) and the said door leaf (2) by means of a hollow portion of the profile of fixed frame (1);
- A single door leaf (2) that slides horizontally and vertically rotates in opening and closing in regard to the said fixed frame (1), **characterized by** the fact that it presents a profile fitted to allow, in overlapping position with the fixed frame (1), a stable interpenetration with the said fixed frame (1) and to drain liquids, penetrating between the said fixed frame (1) and the said door leaf (2), via the hollow portion of the said fixed frame (1) by means of two grooves arranged on the oblique surface of the profile of the door leaf

(2) in the proximity of the hollow zone of the fixed frame (1);

- A gasket (3) positioned between the fixed frame (1) and the door leaf (2), associated to the oblique surface of the profile of the fixed frame (1) and located on the two uprights and the two crosspieces of the fixed frame (1), to guarantee a thermal seal in the closed position;

- Two fixed rigid elements (9), horizontally positioned in respect to the fixed frame (1) and positioned on the inner surface of the top and bottom of the fixed frame (1), **characterized by** the fact that they have a double-cone profile adapted to allow the horizontal sliding of the rigid element (4), a rigid element (4) for each of the rigid elements (9), by means of the wheels presenting a negative conical outline in comparison with the conical outline of the fixed rigid elements (9);

- Two rigid elements (4) sliding horizontally, having a form adapted to house a ball bearing (10), wrapping the fixed rigid element (13) associated to the lower surface of the rigid angled element (5) act to support, to slide and to rotate the door leaf (2);

- Two rigid angled elements (5), on which are present ribs, adapt to support the lower and upper part of the door leaf (2), associated, one rigid element (5) by corner, to the corners formed by the right or left upright of the upper crosspiece and the lower crosspiece of the door leaf (2).

- A rigid horizontally rotating element (6), repeatable n times, but at least repeated twice, associated to the uprights of fixed frame (1) presenting a spring-loaded piston (8) housing a portion of a sphere (7) to which exert a continuous force (7), associated, posthumous rotation, to the uprights of the door leaf (2) so to exercise a continuous force on the door leaf (2) allowing locking.

2. Window unit with glass reversal in the position and locking in two ways according to claim 1, **characterized by** the fact that the closure is realized by means of the adoption of a mechanism able to exercise a continuous pressure on the uprights of the door leaf (2).

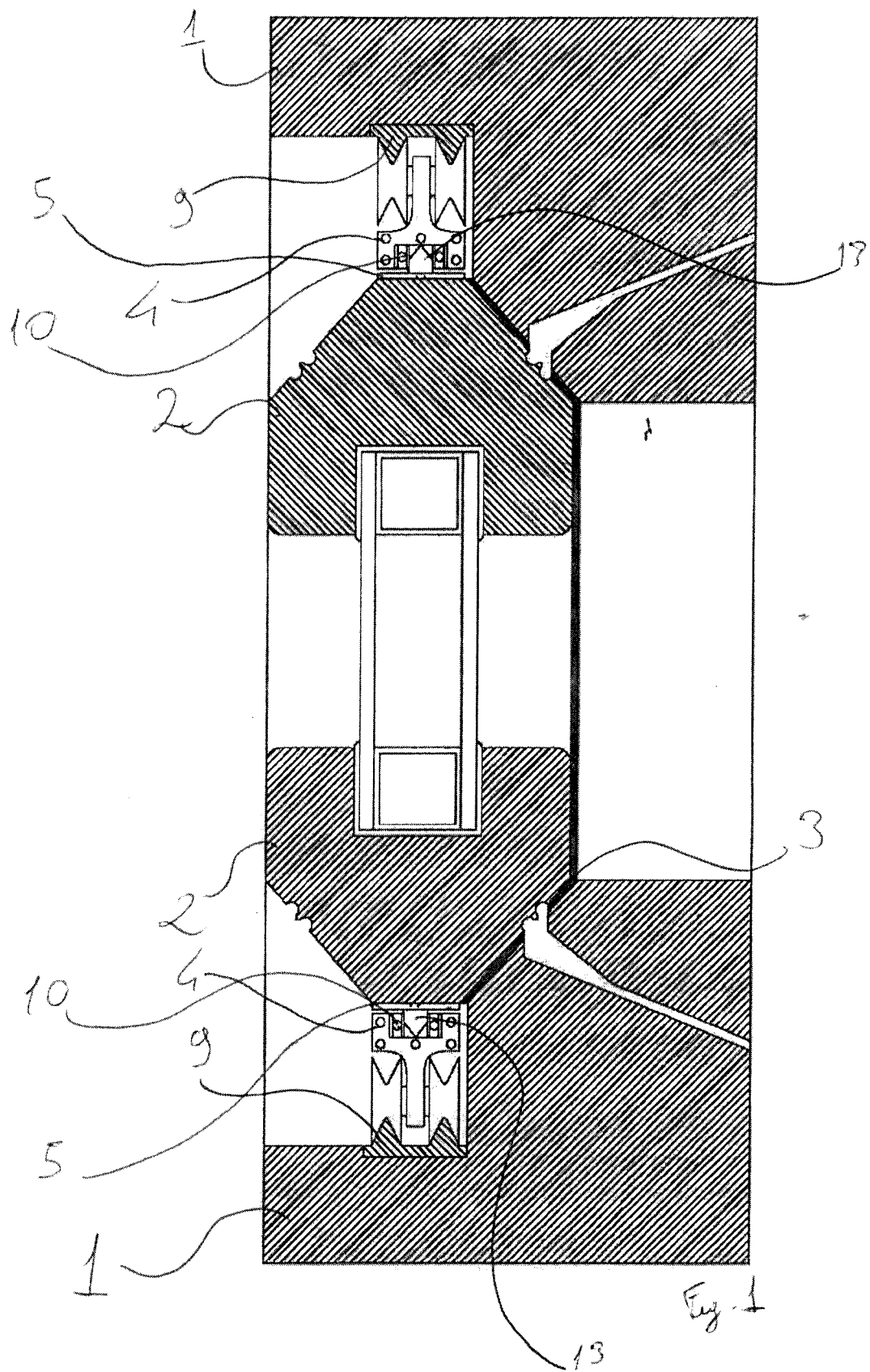
3. Window unit with glass reversal in the position and locking in two ways according to claim 1, **characterized by** the fact that the rigid element (4) is feasible by adopting a magnetic rigid element (11) sliding horizontally, with polarity arranged so to float and move horizontally in the rigid element element (12) fixed and cable, presenting a form capable to house a ball bearing (10) that wraps the rigid element (13) of the angled rigid element (5) (figures 10, 11, 12, 13).

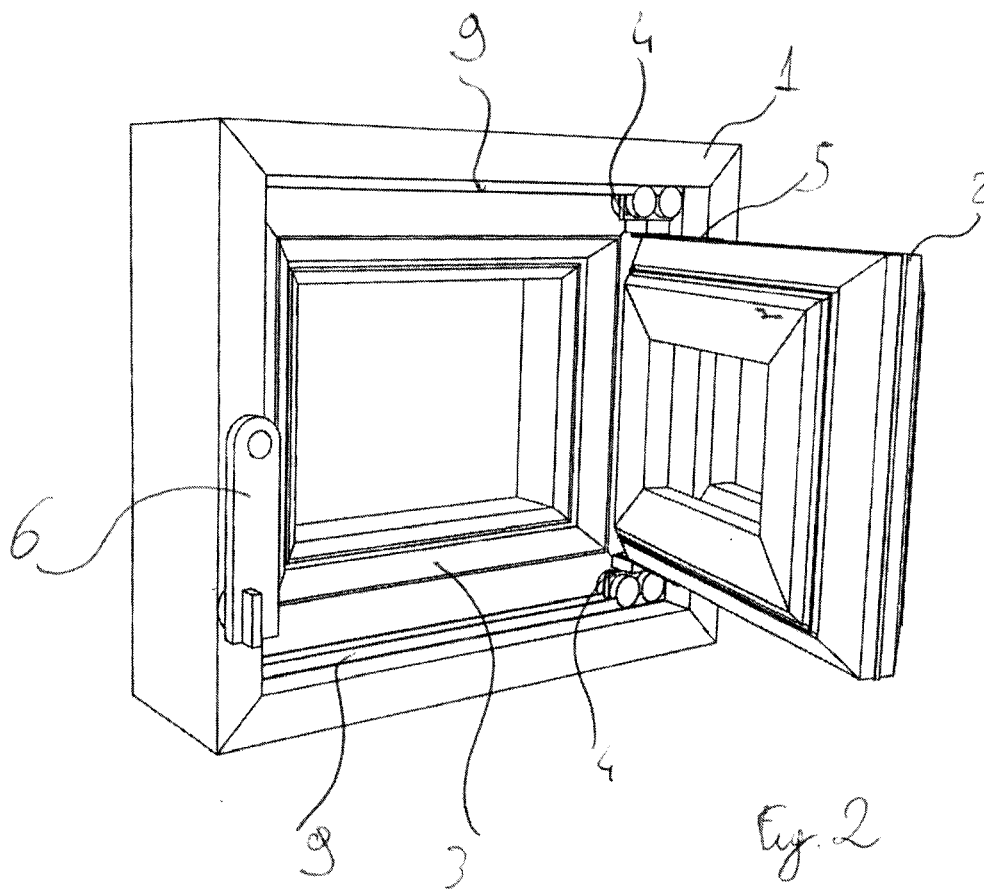
4. Window unit with glass reversal in the position and

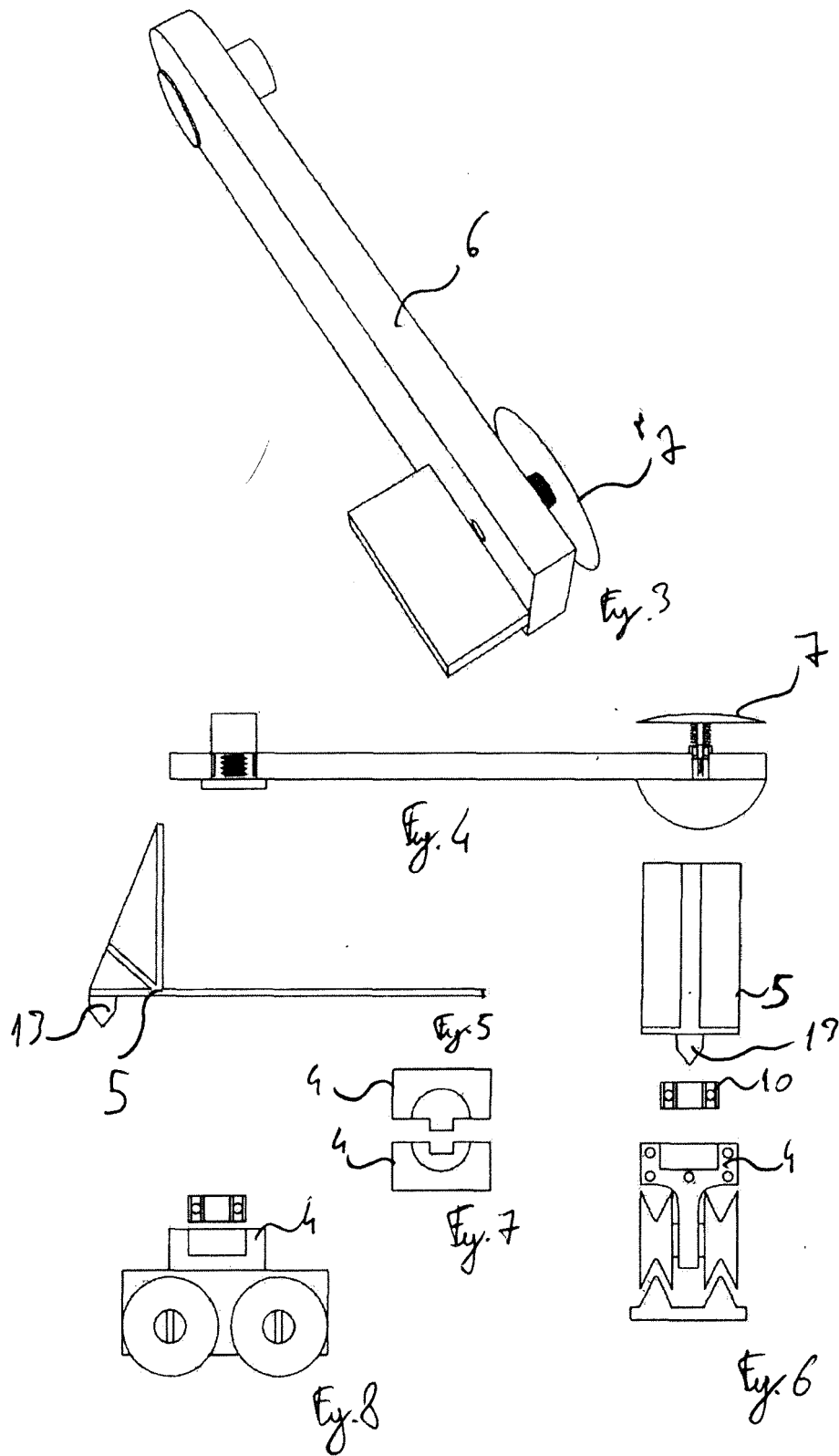
locking in two ways according to claim 1, **characterized by** the fact that the process of horizontal sliding and vertical rotation of the door leaf (2), is implemented through the use of two rigid elements (4) that slide horizontally and rotate vertically the said door leaf (2) in respect to the said frame (1), so that the rigid elements (4) slide on a fixed rigid element (9) by supporting, at the base and at the top, the door leaf (2) by means of rigid angled elements (5) whose pivot (13) is wrapped by a ball bearing (10) hosted by the rigid element (4) having a shape capable of fulfilling that function.

5. Window unit with glass reversal in the position and locking in two ways according to claim 1, **characterized by** the fact that the contours of the profiles in section of the said frame (1) and the said door leaf (2) have oblique sides adapted to allow a stable interpenetration in position of overlap between said frame (1) fixed and the said wing (2).

6. Window unit with glass reversal in the position and locking in two ways according to claims 1 and 2, **characterized by** the fact that the rigid element (4) can be replaced by a magnetic system composed of only one element (13), associated to the rigid element (5) prior prolongation and enlargement of the same rigid element (13) such as to slide and rotate in the fixed magnetized element (12) without need for any rigid element (4) and of any ball bearing (10) reaching the same degree of freedom of movement.







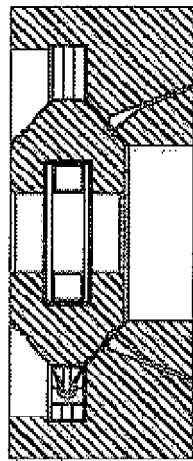


Fig. 9a

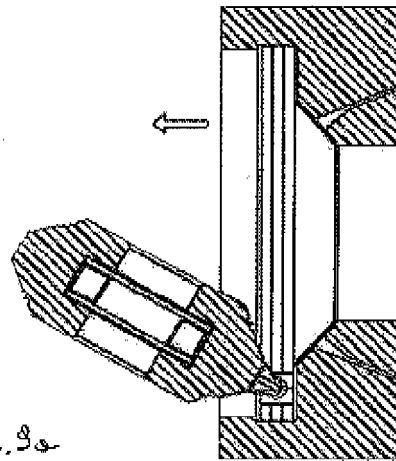


Fig. 9b

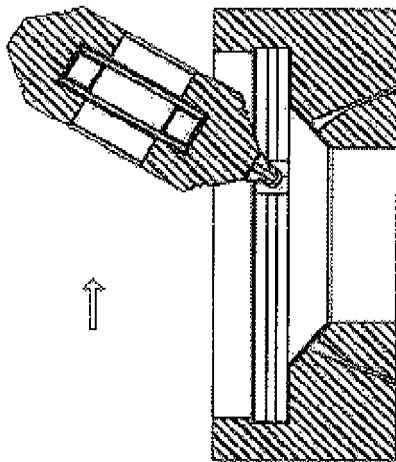


Fig. 9c

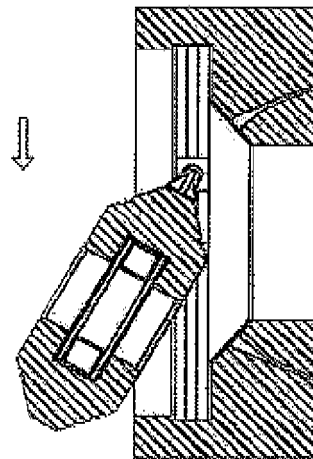


Fig. 9d

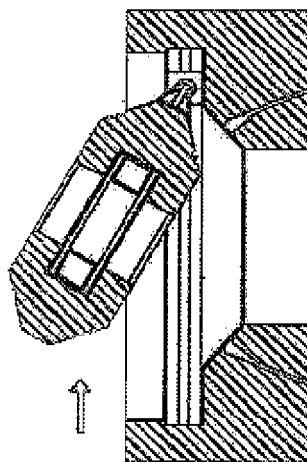


Fig. 9e

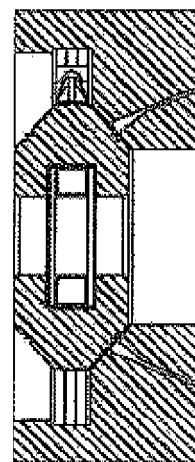
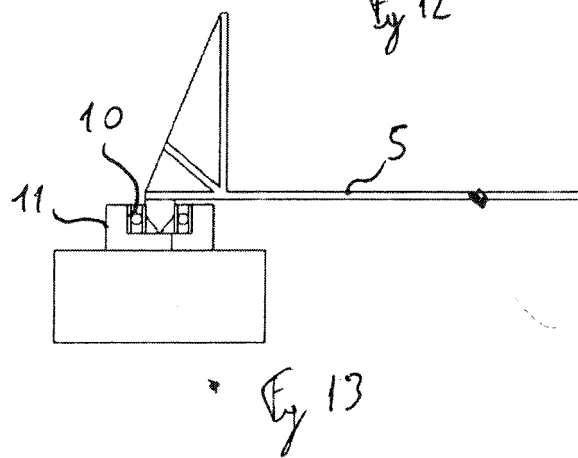
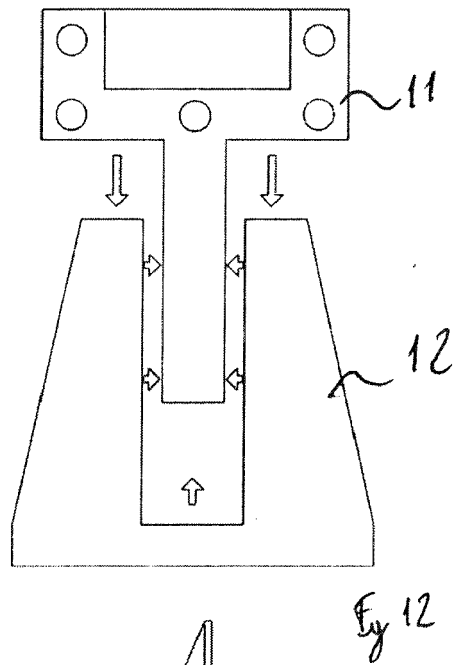
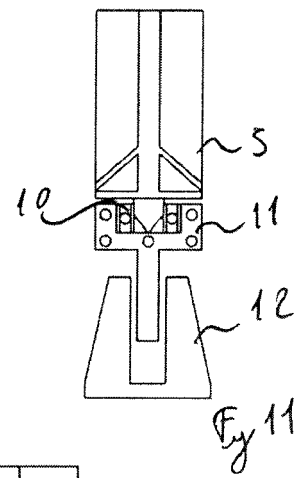
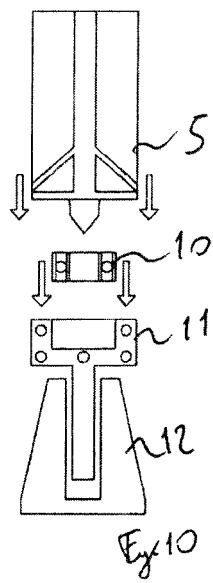


Fig. 9f





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Application Number
EP 16 42 5022

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			TECHNICAL FIELDS SEARCHED (IPC)
			E06B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 8 July 2016	Examiner Verdonck, Benoit
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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**ANNEX TO THE EUROPEAN SEARCH REPORT
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