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(71) Applicant: **Casali A.V. s.r.l.**
47042 Loc. Villalta di Cesenatico (FC) (IT)

(72) Inventor: **Casali, Roberto**
47042 Loc. Villalta di Cesenatico (FC) (IT)

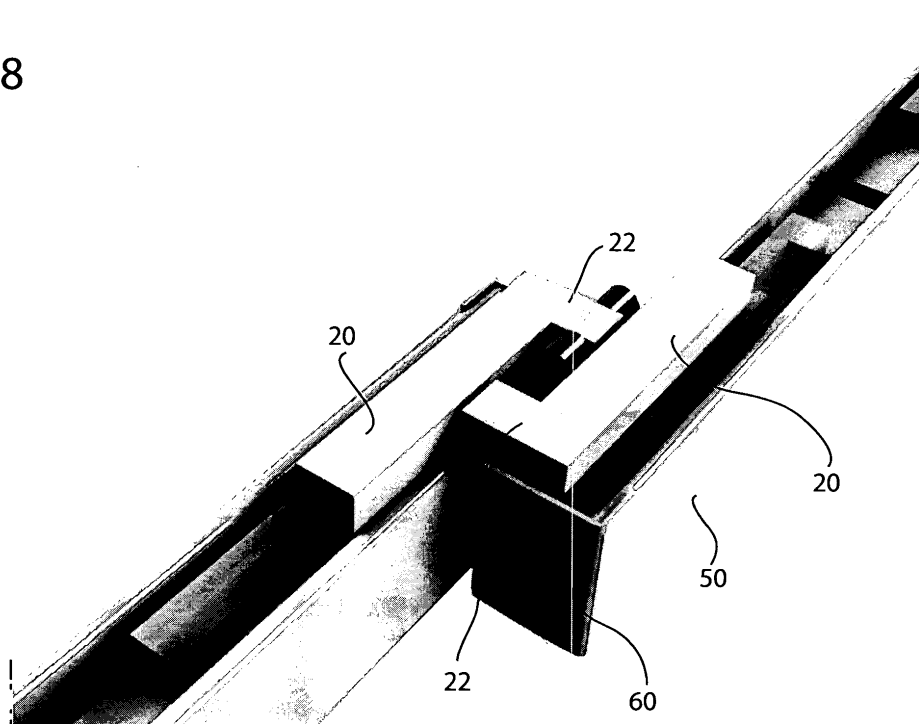
(74) Representative: **Iannone, Carlo Luigi et al**
Barzanò & Zanardo Roma S.p.A.
Via Piemonte 26
00187 Roma (IT)

(54) **Kit for mounting two sliding wings made up of glass or of another material on a disappearing door system**

(57) The present invention relates to a kit for mounting two sliding wings (100) made up of glass or of another material on a disappearing door system, said wings being one dragged wing (100') and one dragging wing (100''), said kit comprising pliers means (10), that can be mounted beforehand on each wing (100), and that can be coupled with upper sliding means (101) for said wings (100),

within the mounting box, first dragging means (20), that can be coupled above each wing (100) and which are provided with means for interaction with the relevant dragging means (20) on the other wing (100), second dragging means (30), that can be coupled above one of said wings (100), and lower toe means (40), for the lower guide of the sliding of said dragging wing (100'') with respect to said dragged wing (100').

Fig. 8



Description

[0001] The present invention relates to a kit for mounting two sliding wings made up of glass or of another material on a disappearing door system.

[0002] More specifically, the invention relates to a kit of the above kind permitting mounting panels made up of glass or other thin material, obtaining dragging movement of two wings of a sliding door.

[0003] In the following the whole specification will be mainly referred to the use of the kit according to the invention for glass panels or wings, but it is well evident that the same can be used with any kind of panel or wing made up of a thin material.

[0004] Terms "wing" and "panel" will be used interchangeableness.

[0005] A remarkable development of solutions for permitting mounting of doors with two parallel sliding wings occurred in the recent years.

[0006] Mainly, they are doors with wings made up of wood or of similar material, sliding in sequence. In other words, sliding of the first wing during the opening, when completed, causes sliding of the following wing, and vice versa (i.e. during the closure, once finished the run of the first wing, the second one starts closing).

[0007] Said sliding wing doors have a thickness mainly comprised of the thickness of the two wings made up of wood or other similar material.

[0008] In order to mount these wood wing doors (that can have each one a thickness of about 40 - 45 mm), it has been necessary realising a suitable box that must be mounted within a wall wide at least 170 mm.

[0009] Usually, sliding doors are mounted within walls wide 105 mm.

[0010] The same kind of door has also been realised with thin walls, mainly made up of glass or of similar material.

[0011] Mounting glass panels on a support and sliding structure designed for panels made up of wood or like, it is well evident that, just in view of the different thickness of the single panels (much lower for glass panels), there will be a large space between the two panels, which is absolutely not acceptable both under the aesthetic and functional point of view.

[0012] Furthermore, just in view of the reduced thickness of the glass panels, the solution providing glass sliding wings could be also applied to standard walls wide 105 mm, with the relevant advantages.

[0013] In view of the above, the Applicant has realised a technical solution permitting mounting two wings made up of glass, or of another similar material, with a dragging movement, both in case they are used with boxes having larger dimensions, and mainly in case of mounting on standard boxes, e.g. walls wide 105 mm.

[0014] It is therefore specific object of the present invention an invisible kit without any obstacle on the ground that could be an obstacle for passage, said kit being useful for mounting two sliding wings made up of glass or of

another material on a disappearing door system, said wings being one dragged wing and one dragging wing, said kit comprising pliers means, that can be mounted beforehand on each wing, and that can be coupled with upper sliding means for said wings, within the mounting box, first dragging means, that can be coupled above each wing and which are provided with means for interaction with the relevant dragging means on the other wing, second dragging means, that can be coupled above one of said wings, and lower toe means, for the lower guide of the sliding of said dragging wing with respect to said dragged wing.

[0015] Preferably, according to the invention, said kit further comprises an upper finishing section bar and front and rear closure plugs.

[0016] Particularly, according to the invention, said pliers means provide a threaded clamp, a first gasket, preferably comprised of nylon or of PVC, two thickness elements, a second gasket, preferably comprised of nylon, and a holed counter - clamp, the whole to be fixed by countersunk screws after having placed the wing in its proper position.

[0017] Preferably, two pliers means are provided on each wing.

[0018] Furthermore, according to the invention, first right hand dragging means and first left hand dragging means are provided, each one provided with a slot for coupling with said pliers, and with a shoulder, permitting its mounting on said wings.

[0019] Still according to the invention, second right hand dragging means and second left hand dragging means are provided, each one provided with means for coupling with said wings, and with means for abutment with said first dragging means.

[0020] Always according to the invention, said toe means provide a central block, pivoted on a pin, adjusting which, by a grain, it is possible fixing the same toe at the outer end of the dragged wing, so that dragged wing can freely slide, and when wing dragged during the closure (or opening) run drags also the toe, which is integral with the same dragged wing.

[0021] Present invention will be now described for illustrative and not limitative purposes according to its preferred embodiment, with particular reference to the figures of the enclosed drawings, wherein:

figures 1a, 1b, 1c and 1d respectively are a front view, a lateral view, a perspective view and an exploded view of a plier of the kit according to the invention;

figure 2 is a perspective view of a first dragging element of the kit according to the invention in a right hand and in a left hand arrangement;

figure 3 is a perspective view of a second dragging element of the kit according to the invention in a right hand and in a left hand arrangement, with the further provision of a plastic material anti-vibration element that can be easily seen

in figure 8, which is an axonometric view;
 figure 4 is an exploded view of the toe dragged by the kit according to the invention;
 figure 5 is an exploded view of the carter of the kit according to the invention;
 figure 6 is a perspective view of a first plug of the kit according to the invention;
 figure 7 is a perspective view of a second plug of the kit according to the invention;
 figure 8 is a perspective view of a particular of the interaction between two dragging elements on two sliding wings from which it is well evident the function of the anti-vibration function;
 figure 9 is a schematic top view of a sliding door with a flush finishing providing the kit according to the invention;
 figure 10 is a top schematic view of a sliding door with flush finishing providing the kit according to the invention; and
 figure 11 schematically shows the mounting steps of a sliding door with two wings, according to the invention.

[0022] Observing first figure 1, it is shown a pliers, generically indicated by reference number 10, to be mounted beforehand on the wings in order to permit their coupling with the sliding system.

[0023] Each pliers 10 (two of them will be provided on each wing) provides a threaded clamp 1, a first gasket 2, made up of nylon or PVC, two thickness elements 3, a second gasket 4 and a second holed counter-clamp 5, the whole assembly to be fixed by the countersunk screws 6, after having position the wing.

[0024] Observing now figure 2, by reference number 20 it is indicated a first dragging element. Both first right hand dragging element and left hand dragging element are shown in the figure, said elements being substantially equal each other but for orientation of the shoulder.

[0025] Each first dragging element 20 is provided with a slot 21 for coupling with said pliers 10, and with a shoulder 22, provided with anti-vibration element, so as to be mounted on the wings. According to the direction from which said wings are mounted, it will be used a first dragging element right hand or left hand

[0026] Said first dragging element 20 will be mounted frontally on the dragged wing, and on the rear portion on the dragging wing.

[0027] A second dragging element 30 is shown in figure 3.

[0028] In this case too in the figure there are shown both the second right hand dragging element 3 and the left hand dragging element, which are substantially equal each other, but for orientation of the shoulder 22'.

[0029] Said second dragging element 30 is mounted on the rear with respect to the dragging element 20 mounted on the dragged wing, so that it can act on the dragging element 20 of the dragging wing during the closure.

[0030] In order to obtain the "no obstacle" on the ground passage feature, kit according to the invention provides a toe 40, schematically shown in figure 4, providing a central block 41, pivoted on pin 42, adjusting which, by grain 43, it is possible fixing the same toe at the outer end of the dragged wing, so that dragging wing freely slides, and when it drags the dragged wing during its closure (or opening) run, also drags toe 40, which is integral with the same dragged wing.

[0031] In figures 5, 6 and 7 there are respectively shown finishing profiles 50, a first end closure plug 60 and a second closure plug 70.

[0032] In figure 8 it is shown mounting of two first dragging elements 20 on relevant pliers 10, mounted beforehand on dragged wing 100' and on dragging wing 100".

[0033] it is possible observing two T shaped heads 22, of each first dragging element respectively during the coupling and dragging steps.

[0034] It is also possible observing the finishing profiles 50.

[0035] Observing now figures 9 and 10, wherein the substantial difference is represented by the fact that kit according to the invention is provided on a sliding door with finishing by a doorpost, or with a flush finishing, it is possible observing the two wings 100' and 100", respectively dragged wing and dragging wing, with the relevant dragging elements 20 and 30, and the mounting pliers 10.

[0036] Coming now to observe figure 11 of the enclosed drawings, it can be observed the mounting mode of the two sliding wings 100 by using the kit according to the invention.

[0037] After having mounted support carriages 101 within the sliding guides 102, prepared on box 103, stops 104 are inserted, and are adjusted by screw 105 (figures 11 a and 11 b).

[0038] After having mounted the compensator 106 on dragged wing 100' (figure 11c), dragged wing 100' is hooked to the carriages 101 by clamps mounted on wing 100' and described in greater detail in the above (figure 11d).

[0039] Then, a guide toe 107 is positioned (figure 11e), and then the other wing 100" (dragging) is mounted, as already described with reference to dragged wing 100', always by pliers 10 already provided (figure 11f).

[0040] Both wings will be adjusted acting on screws 108 and nuts 109 (figure 11g).

[0041] Now, it will be mounted intermediate sliding toe 110, bringing block 41 in abutment with dragged wing 100' by adjusting grain 143. There are provided also gaskets and felts (figure 11h).

[0042] Then, door wall finishing is completed (also with doorposts) on the basis of the chosen arrangement, and handles are mounted on wings 100. These steps are not described in greater detail, not being relevant for understanding of the inventive solution.

[0043] The present invention has been described for illustrative but not limitative purposes according to its preferred embodiments, but it is understood that modifica-

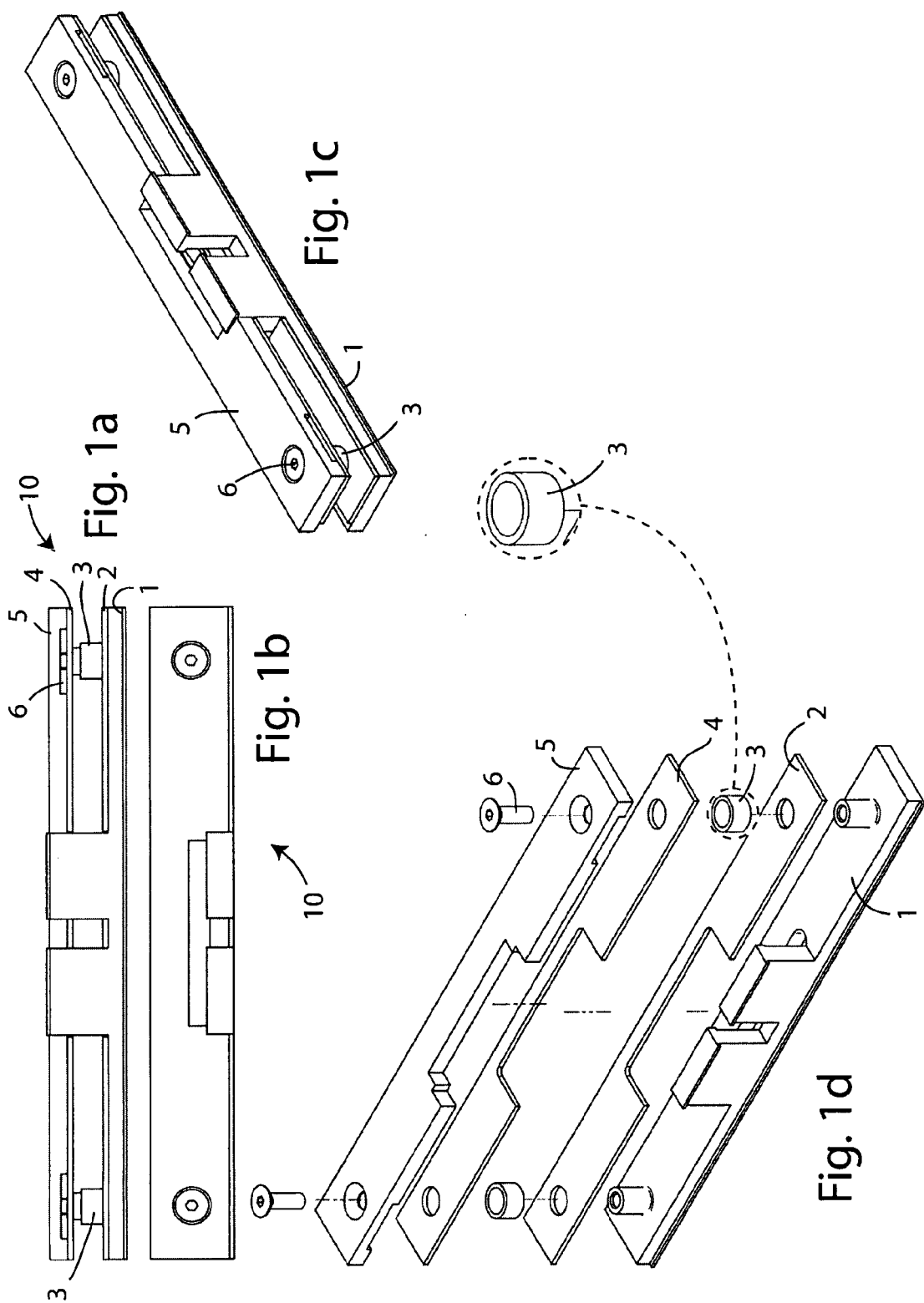
tions and/or variations can be introduced from those skilled in the art without departing from the scope as defined in the enclosed claims.

slide, and when wing dragged during the closure (or opening) run drags also the toe, which is integral with the same dragged wing.

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Claims

1. Kit for mounting two sliding wings made up of glass or of another material on a disappearing door system, said wings being one dragged wing and one dragging wing, said kit being **characterised in that** it comprises pliers means, that can be mounted beforehand on each wing, and that can be coupled with upper sliding means for said wings, within the mounting box, first dragging means, that can be coupled above each wing and which are provided with means for interaction with the relevant dragging means on the other wing, second dragging means, that can be coupled above one of said wings, and lower toe means, for the lower guide of the sliding of said dragging wing with respect to said dragged wing. 10 15 20
2. Kit according to claim 1, **characterised in that** it further comprises an upper finishing section bar and front and rear closure plugs. 25
3. Kit according to one of the preceding claims, **characterised in that** said pliers means provide a threaded clamp, a first gasket, preferably comprised of nylon or of PVC, two thickness elements, a second gasket, preferably comprised of nylon, and a holed counter - clamp, the whole to be fixed by countersunk screws after having placed the wing in its proper position. 30 35
4. Kit according to one of the preceding claims, **characterised in that** two pliers means are provided on each wing. 40
5. Kit according to one of the preceding claims, **characterised in that** first right hand dragging means and first left hand dragging means are provided, each one provided with a slot for coupling with said pliers, and with a shoulder, permitting its mounting on said wings. 45
6. Kit according to one of the preceding claims, **characterised in that** second right hand dragging means and second left hand dragging means are provided, each one provided with means for coupling with said wings, and with means for abutment with said first dragging means. 50
7. Kit according to one of the preceding claims, **characterised in that** said toe means provide a central block, pivoted on a pin, adjusting which, by a grain, it is possible fixing the same toe at the outer end of the dragged wing, so that dragged wing can freely 55



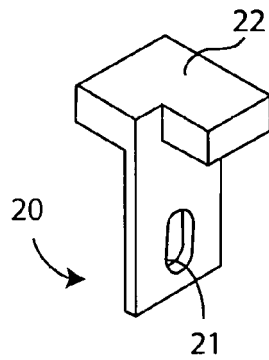


Fig. 2

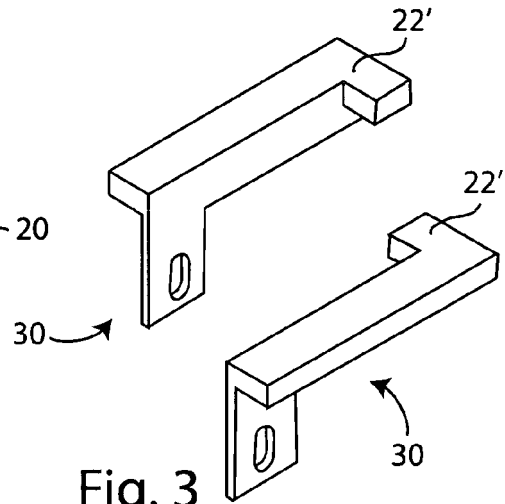
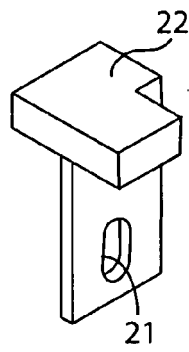


Fig. 3

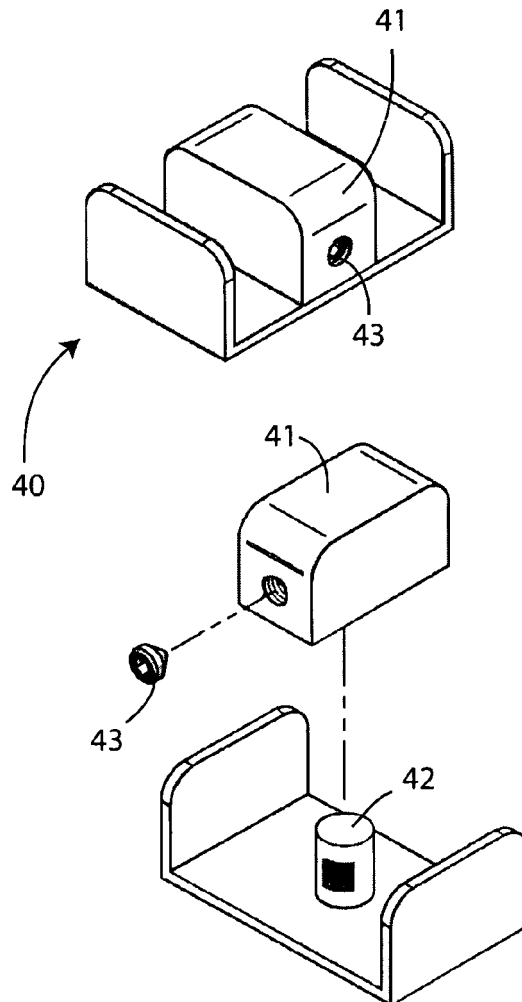
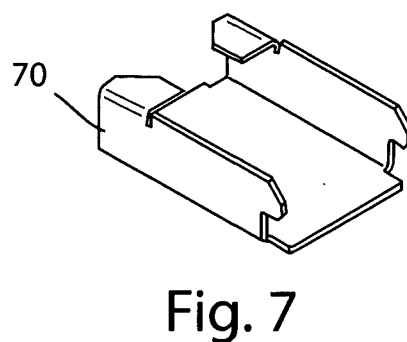
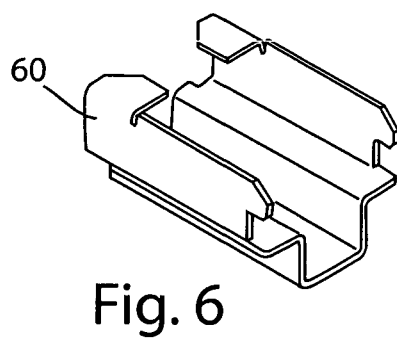
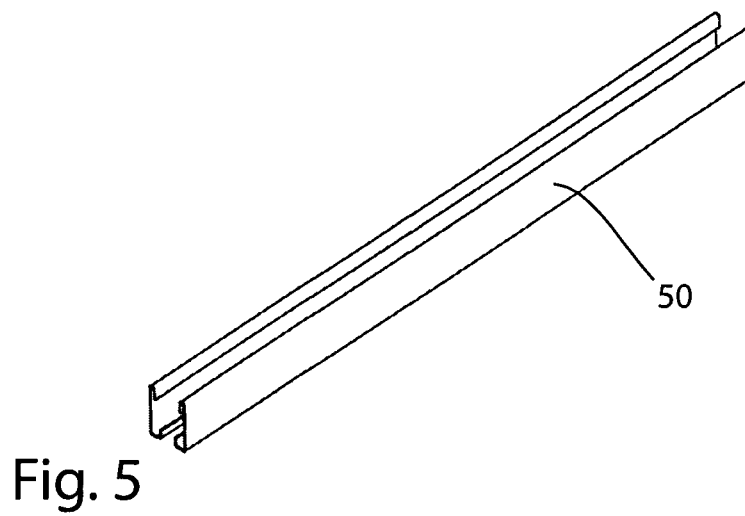


Fig. 4



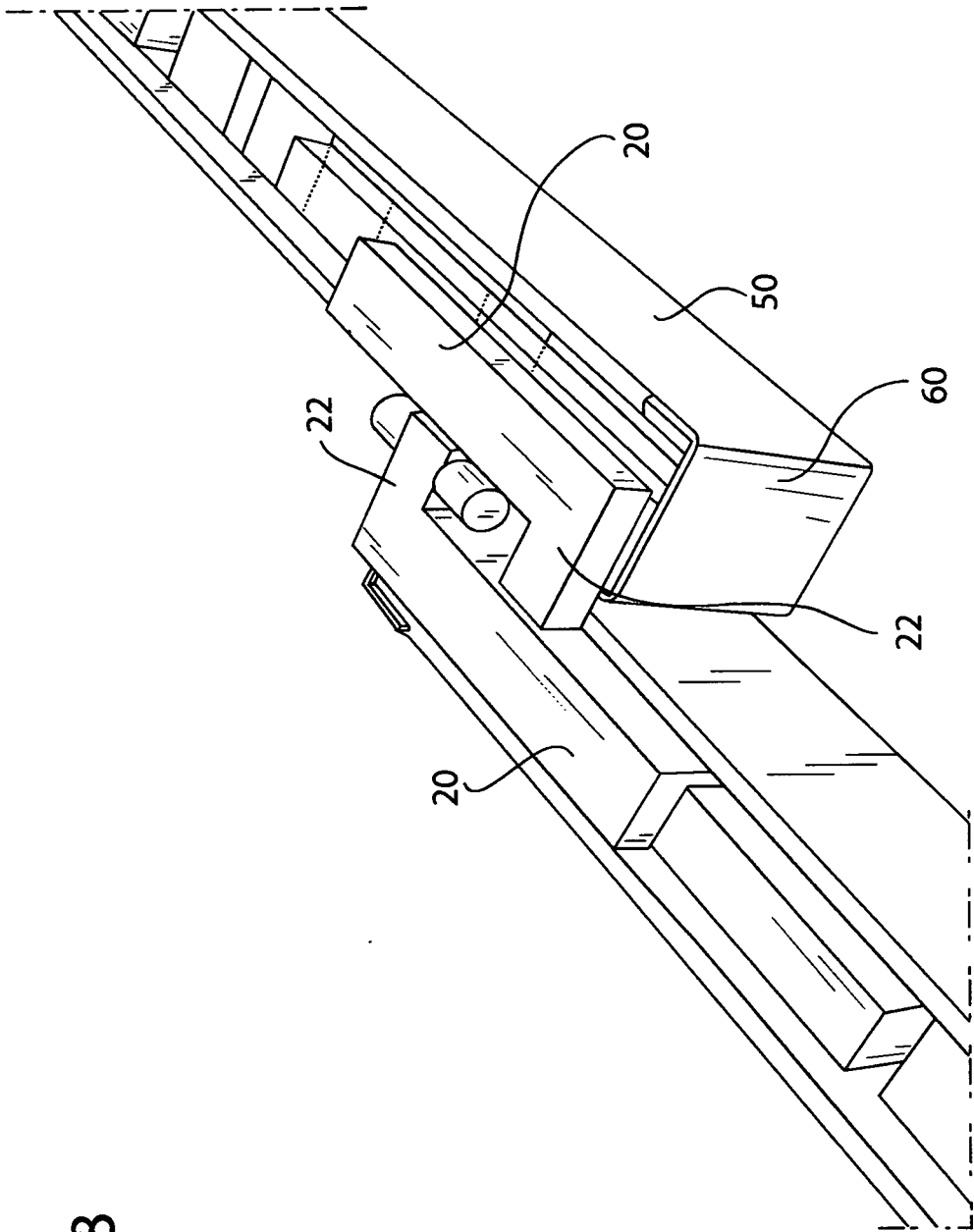


Fig. 8

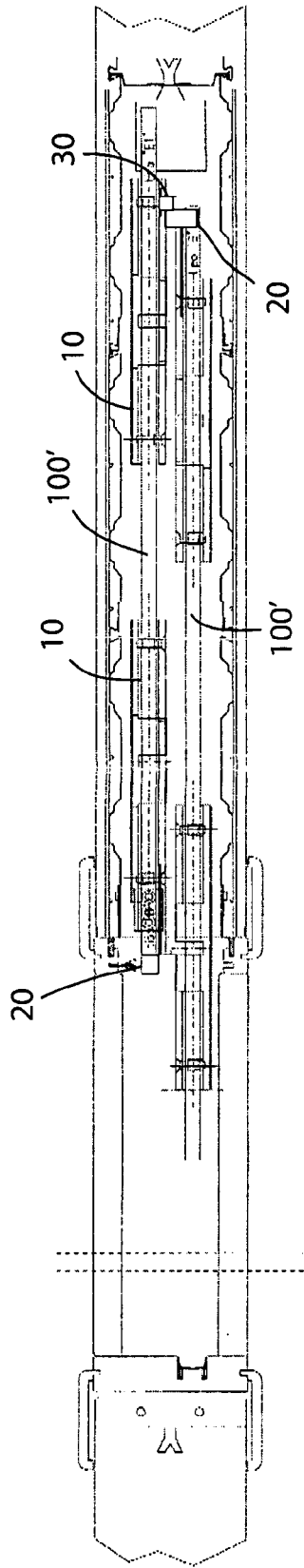


Fig. 9

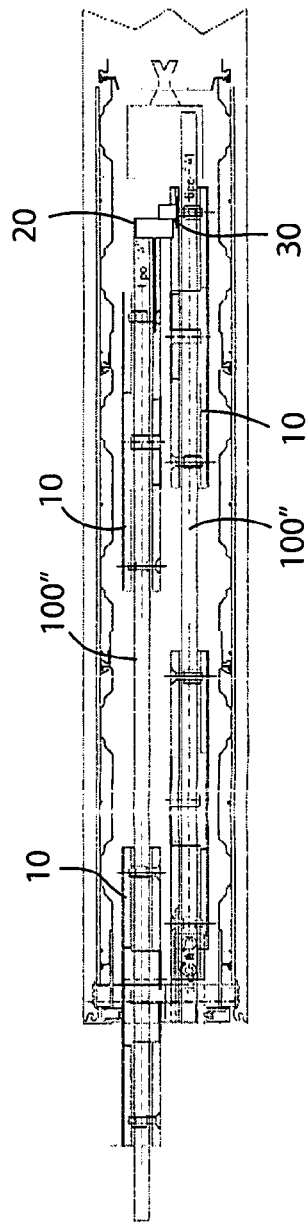


Fig. 10

