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(54) **Equipment for the partial and temporary extraction of a corner furniture chariot**

Vorrichtung für das teilweise und vorübergehende Herausziehen eines Eckmöbelwagens

Équipement pour l'extraction partielle et temporaire d'un chariot de mobilier d'angle

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## Description

**[0001]** The present invention relates to an equipment for the partial and temporary extraction of a corner furniture chariot.

**[0002]** More in particular, the present invention relates to an equipment for the temporary extraction, with partly projecting exposure, of a chariot provided with one or more shelves or containment spaces from a corner piece of furniture whereto it is movably constrained, by way of an example and not critically, by a kitchen corner piece of furniture.

**[0003]** As is known, the use of modular furniture that develops along one or more walls is widespread for interior furnishing. With particular but non-exclusive reference to household kitchen rooms, the arrangement of furniture developed along two contiguous walls, orthogonal to one another, either on the floor or suspended, is frequent. In these cases, in order to suitably use the corner zone, special container modules are arranged, with trapezoidal plan, which may be provided with exposed shelves or closing door angularly oriented at 45° relative to those of the adjacent container furniture. Corner modules with closing door are typically arranged on the floor and are sometimes internally provided with superimposed pull-out baskets, individually hinged to one of the walls of the modules themselves.

**[0004]** This is to facilitate the user when he/she must take or put items in one of the baskets. However, this solution exhibits considerable drawbacks. In the first place, the space capacity is not much used as the deepest part of the furniture is not usable. Moreover, the baskets are constrained and pivoted at one point only inside the furniture, and therefore they can withstand limited loads, considering the projection during the exposure.

**[0005]** Moreover this solution, which envisages an angular element with door arranged at 45° relative to the others, interrupts the linearity and the orthogonality of the furniture-kitchen as a whole and is not appreciated by everybody under the aesthetical profile. Other known solutions involve the use of two parallelepiped elements, orthogonally arranged relative to each other, see for example EP 1 050 246 A. In this case, one of the sides of one element is placed in contact with a part of the front zone of the other not occupied by the door, which can therefore be opened like that of the other adjacent element. Respective extractable chariots are arranged inside the two elements or container furniture, generally consisting of two superimposed shelves connected to each other; the lower shelf abuts the inner furniture base through guides. Complex sliding and rotation mechanisms are used to extract the chariots, which are made to rotate and move to orthogonal position relative to the original one partly coming out of the furniture; moreover, such devices require difficult operations inside the furniture to install the multiple components required. In any case, also these solutions do not allow achieving an optimum use of the capacity available in the space and the

dynamic projecting capacity that can be withstood by the shelves of each chariot remains limited.

**[0006]** The object of the present invention is to obviate the disadvantages mentioned hereinabove.

**[0007]** More in particular, the object of the present invention is to provide an equipment for the partial and temporary extraction of a corner furniture chariot, formed by the combination of two parallelepiped elements, orthogonal to one another, wherein each element is internally provided with said extractable chariot sized so as to optimize the use of the room available inside the space. A further object of the invention is to provide an equipment as defined above suitable for quickly and easily moving the chariot connected thereto for temporarily extracting it from the space wherein it is arranged and for replacing it into the space itself.

**[0008]** Last but not least, another object of the invention is to provide an equipment for the partial and temporary extraction of said chariot, which is suitable for withstanding considerable loads also in the condition in which it is projecting relative to the means supporting and guiding it.

**[0009]** A further object of the invention is to provide the users with an equipment for the partial and temporary extraction of a corner furniture chariot suitable for ensuring a high level of resistance and reliability over time, also such as to be easily and inexpensively constructed.

**[0010]** These and yet other objects are achieved by an equipment according to claim 1.

**[0011]** The construction and functional features of the equipment for the partial and temporary extraction of a corner furniture chariot of the present invention will be better shown in the following detailed description, wherein reference is made to the annexed drawing tables showing a preferred and non-limiting embodiment thereof, wherein:

figure 1 schematically shows a perspective view of a portion of a corner piece of furniture wherein a chariot is arranged, for example with two superimposed shelves, provided with the equipment for its partial and temporary extraction according to the invention; figure 2 schematically shows a perspective view of the same portion of corner piece of furniture wherein the chariot, moved by means of the equipment of the present invention, is in partial exposure condition; figure 3 schematically shows a perspective view, from the internal front, of the base of said portion of corner piece of furniture, provided with the equipment of the invention combined with the lower shelf of the chariot in hidden position; figure 4 schematically shows a perspective top view of the same base of corner piece of furniture and said lower shelf of the chariot moved and integral to the equipment of the invention and in not completely exposed position; figure 5 schematically shows the same components as figure 4 with lower shelf of the chariot totally ex-

posed;

figure 6 schematically shows the equipment of the present invention arranged and oriented in the condition illustrated in figure 4;

figure 7 schematically shows a perspective view of a portion of the equipment of the present invention suitable for being fixed to the internal front of the furniture base;

figure 8 schematically shows a perspective view of a portion of the equipment of the present invention, wherein the upper plate-like element is suitable for being connected to the lower shelf of the chariot;

figures 9 and 10 show a device suitable for guiding the chariot movement during the step of extraction and return into the furniture.

**[0012]** With reference to the above figures, the equipment for the partial and temporary extraction of a corner furniture chariot of the present invention is indicated with reference numeral 10 in figure 7, which shows a portion thereof suitable for being fixed to the internal front of the base of the same corner furniture, having a parallelepiped shape. Said portion of equipment 10 comprises two opposite and parallel first sliding guides, for example consisting of respective "C" sections 12 and connected to each other cross-wise, by known means, by two or more crossbeams 14 placed underneath the sections themselves. The assembly consisting of the pair of sections 12 and of the connecting crossbeams 14 defines a framework that is fixed to the internal front of the rectangular base 16 of the furniture by screws or equivalent retain members; sections 12 extend parallel to the longer sides of base 16. A frame, globally indicated with reference numeral 20 in figure 7, is slidably arranged along said framework, consisting of a pair of longitudinal beams 18 provided with rollers or bearings 22 sliding in the seats defined by sections 12. Further crossbeams 14' connect sections 12 and form as many stop barriers to the extension range of frame 20.

**[0013]** The longitudinal beams are connected by a pair of cross beams 18', wherein between a hub 24 is arranged and stabilized. Hub 24 is positioned at the centre of frame 20, trapped between crossbeams 18' along the longitudinal axis of the frame itself and in general, of equipment 10. Hub 24 may also be fixed by screws that allow the movement thereof and a different positioning between cross beams 18' according to the specific requirements. An idle rotation spindle 26, which develops in orthogonal direction relative to cross beams 18', protrudes from the upper front of said 24 hub. The rotation of spindle 26 in hub 24 may be facilitated by the presence of one or more conical ball, roller or equivalent bearings 28 in the hub itself. A plate-like element 30, for example consisting of a box with rectangular section and development, open or closed along the opposite heads, is fitted on the idle rotation spindle 26 that protrudes from hub 24; the plate-like element 30 is fitted on spindle 26 in the proximity of one of the ends thereof and in off-centre po-

sition relative to its longitudinal axis, so as to rotate and move to a condition almost orthogonal relative to sections 12.

**[0014]** The plate-like element 30 constitutes the support whereto a chariot, globally indicated with reference numeral 32 in figures 1 and 2, is connected; said chariot, by way of an example, consists of two lower or base 34 and upper 36 superimposed and parallel shelves, connected between them by two or more racks 38 with vertical development. The base shelf 34 of chariot 32 is provided, on the lower side facing base 16 of the furniture, with a pair of parallel second guides 40, 42 extending longitudinally in the central portion of the shelf itself. Guides 40, 42, preferably consisting of "C" sections, are opposite each other and spaced by a distance compatible with the width of the rectangular plate-like element 30, which along the longer sides is provided with rollers or bearings 44 suitable for sliding along the seats defined by said guides. Said latter are provided with conventional anti-extraction stops (not shown) of shelf 34, thus of chariot 32 as a whole, from the plate-like element 30. Chariot 32 can therefore slide relative to the plate-like element 30 thanks to the pair of second guides 40, 42, fixed to the lower front of the base shelf 34, while the same plate-like element can slide along sections 12 thanks to frame 20 whereto it is connected by spindle 26; moreover, said plate-like element 30 can freely rotate on the same spindle 26, thus moving chariot 32 angularly.

**[0015]** The upper 36 and/or lower 34 shelves, preferably at least the latter, are delimited by a perimeter frame 46 defined for example by a shaped strap, protruding upwards and of small height; the rear portion of said frame close to the open area or to the opening of the corner furniture space, indicated with reference numeral 50 in figures 1, 2 and 6, consists of an arch circle band 48. The perimeter frame 46, at least in the zone defined by the arch circle 48, is guided, during the movement of chariot 32 during the extraction step of furniture 50, by two near-by rollers 52 fixed to an oscillating head 56 arranged at the end of one of sections 12; head 56 is further provided with one or more rollers 58 that support the perimeter frame 46 during the extraction of chariot 32.

**[0016]** In fact, said frame 46 is constantly delimited by the two rollers 52 that cause the angular movement of chariot 32 in cooperation with the perimeter frame 46.

**[0017]** In order to pull chariot 32 out of furniture 50, the open or openable portion whereof is defined by the lowered zone 54 according to figures 1, 3, 4 and 6, it is sufficient to exert a pulling force outwards starting from one of shelves 34 or 36; such force determines the advance of chariot 20 along sections 12 at the same time as the rotation of the plate-like element 30 on spindle 26 of hub 24, a forced rotation due to the path of the shape of frame 46 guided between the two rollers 52. Once chariot 32 has partly been pulled out of furniture 50, the plate-like element 30 slides forward on second guides 40, 42 and thus moves the chariot itself to the maximum exposure position.

[0018] On the contrary, pushing the exposed chariot 32, positioned according to what shown in figure 5, inside furniture 50, there will be the preliminary retraction of second guides 40, 42 along the plate-like element 30, the subsequent rotation of the latter that progressively returns in a position parallel to sections 12 and the concurrent retraction of frame 20 along the sections themselves.

[0019] The extraction operation and the opposite one, of return, of chariot 32 are facilitated by the presence of an exchange device, suitable for preventing the two movements relating to the rotation of the chariot itself and the advance thereof from being concurrent. Such exchange device, globally indicated with reference numeral 60 in figures 9 and 10, comprises a horizontally pivoted disk 62 fixed to a support 64 in turn constrained to the external side of guide 42. Disk 62 interacts with an adjustable plate 66, fixed through runners 68 in a slit 70 obtained along the upper front of crossbeam 14'.

[0020] Plate 66 is equipped by a passing opening of rectangular shape, wherein a lower portion of disk 62 inserts when the disk itself pivots and lowers; this occurs by the effect of the movement imposed by a fixed end stop 74, constrained to the same guide 42. When disk 62 is engaged in opening, second guides 40 and 42 can only advance in rectilinear direction; the second extraction step of chariot 32 is thus carried out in this way and accurately, whereas the first rotation step is carried out with as much accuracy thanks to the guide of rollers 52.

[0021] On the contrary, the release of the horizontally pivoted disk 62 from opening is obtained in the step of retraction of chariot 32, for example when the same disk meets the rear end of the rectangular opening. Elastic means may be provided, of the type with helical springs and the like, for facilitating the movements of the horizontally pivoted disk 62.

[0022] Chariot 32, in particular shelves 34 and 36 that make it up, are considerably extended compared to the capacity of the space of furniture 50, as they are considerably rounded only at two vertices, especially along the rear portion intended for exposing; another zone not usable of said shelves is equally little extended and corresponds to a front recess 56' suitable for facilitating the rotation of said chariot 32 along the shoulder of zone 54 that forms the stop in alignment of the door of furniture 50. Said door, indicated with reference numeral 60 in figures 2 and 4, can be directly constrained to chariot 32. According to the invention, therefore, two pieces of furniture 50 arranged at an angle relative to each other may advantageously be provided with internal chariots alternately extractable in an easy and almost complete manner; the extension of the shelves of said chariots, moreover, is such as to guarantee the optimum use of the capacity of the spaces of the same furniture 50, whereas the structure of the chariots themselves is such as to allow loading said shelves without problems.

[0023] Even if the invention has been described hereinbefore with particular reference to an embodiment

thereof made by way of a non-limiting example, several changes and variations will appear clearly to a man skilled in the art in the light of the above description. This invention therefore is intended to include any changes and variations thereof falling within the scope of protection of the following claims. In particular, equipment of the present invention may also be used for wall cupboards or columns, as well as wardrobes installed in rooms other than kitchens.

## Claims

1. An equipment (10) for the partial and temporary extraction of a corner furniture chariot (32) comprising two or more superimposed and parallel shelves (34, 36) connected between them by racks (38), from one of two kitchen corner furniture (50) of a parallelepiped shape and arranged orthogonally, each of said corner furniture (50) comprising a base (16) and an open area, said equipment (10) comprising a plate-like element (30) coupleable to the lower one (34) of said shelves and rotatably connected to a frame (20) slidable along a pair of first guides (12) fixed to, and longitudinally extending in, the central zone of said base (16), said plate-like element (30) being further slidably connected by means of rollers (44) to a pair of second guides (40-42) fixable to the lower surface of said lower shelf (34), at least said lower shelf (34) of said chariot (32) being delimited by an upwardly protruding perimeter Frame (46) shaped like an arch circle structure (48) near said open area of said corner furniture (50), **characterised in that** one or more couple of rollers (52) are fixed to an oscillating head (56) at the end of one of said first guides (12) for delimiting and guiding said perimeter frame (46) at least in the area defined by said arch circle structure (48) during the extraction of said chariot (32), and **in that** said oscillating head (56) is equipped with one or more rollers (58) for supporting said perimeter frame (46).
2. The equipment according to claim 1, **characterised in that** said first (12) and second (40-42) guides are constituted by "C" sections, said first guides (12) being connected by crossbeams (14) and (14'), said second (40-42) guides forming opposed stop barriers to the motion of said frame (20).
3. The equipment according to claim 1, **characterised in that** said frame (20) comprises opposed longitudinal beams (18) connected by cross beam (18') and equipped with rollers or bearings (22) sliding along said first guides (12).

4. The equipment according to claim 3, **characterised in that** said plate-like element (30) is fitted on an idle spindle (26) protruding from a hub (24) fixed centrally between the said cross beams (18'), said spindle (26) being coupled to one or more conical ball bearings (28). 5
5. The equipment according to claim 4, **characterised in that** said shelves (34, 36) are equipped with a curvature (56'). 10
6. The equipment according to claim 5, **characterised in that** said plate-like element (30) is engaged on said spindle (26) of the hub (24) near one of its ends and in an off-set position. 15
7. The equipment according to claims 1 or 2, **characterised in that** it comprises an exchange device (60) with a horizontally pivoted disk (62), fixed to a support (64) constrained at the external side by said first guide (42), interacting with an adjustable plate (66) fixed through runners (68) in a slot (70) of said cross-beam (14'), said plate (66) being equipped by an opening which receives temporarily the lower part or a lower part of the horizontally pivoted disk (62) moved by a fixed end stop (74). 20 25
8. The equipment according to claim 7, **characterised in that** said horizontally pivoted disk (62) is connected to elastic means for its movement. 30

#### Patentansprüche

1. Einrichtung (10) zum teilweisen oder vorübergehenden Herausziehen eines Eckfaches (32) eines Möbels mit zwei oder mehr übereinander und parallel angeordneten Einlegeböden (34, 36), die zwischen Schienen (38) miteinander verbunden sind, von einem von zwei Kücheneckmöbeln (50) von parallel-epipedischer Form (50) und orthogonaler Anordnung, wobei jedes dieser Eckmöbel (50) eine Basis (16) und einen offenen Bereich umfasst, wobei diese Einrichtung (10) ein plattenförmiges Element (30) umfasst, das mit dem unteren (34) von diesen Einlegeböden verbindbar und verdrehbar mit einem Rahmen (20) verbunden ist, der längs eines Paares von ersten Schienen (12) verschiebbar ist, die im Mittelbereich der Basis (16) angebracht sind und sich in Längsrichtung in dieser erstrecken, wobei das plattenförmige Element (30) weiterhin mittels Rollen (44) verschiebbar mit einem Paar von zweiten Schienen (40-42) verbunden ist, die an der unteren Seite des unteren Einlegefaches (34) befestigbar sind, und wenigstens dieser untere Einlegeboden (34) des Faches (32) durch einen aufwärts ragenden Rahmen (46) begrenzt wird, der wie ein bogenförmiger Aufbau (48) geformt ist nahe dem of-

fenen Bereich dieses Eckmöbels (50), **dadurch gekennzeichnet,**

**dass** ein Paar oder mehrere Paare von Rollen (52) an einem Schwingkopf (56) am Ende einer der ersten Schienen (12) zum Begrenzen und Führen des umlaufenden Rahmens (46) wenigstens in dem Bereich befestigt ist bzw. sind, der durch diesen bogenförmigen Aufbau (48) während des Herausziehens des Faches (32) bestimmt wird, und **dass** dieser Schwingkopf (56) mit einer oder mehreren Rollen (58) ausgestattet ist zum Abstützen des umlaufenden Rahmens (46).

2. Einrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** diese ersten (12) und zweiten (40-42) Schienen durch "C"-Abschnitte gebildet sind, wobei die ersten Schienen (12) durch Querstreben (14) und (14') verbunden sind und die zweiten (40-42) Schienen gegenüberliegende Stoppbarrieren bilden gegenüber einer Bewegung des Rahmens (20).

3. Einrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** der Rahmen (20) gegenüberliegende Längsstreben (18) umfasst, die durch Querstreben (18') verbunden sind und mit Rollen oder Lagern (22) ausgestattet sind, zum Gleiten längs der ersten Schienen (12).

4. Einrichtung nach Anspruch 3, **dadurch gekennzeichnet, dass** das plattenförmige Element (30) an einer Leerlaufspindel (26) angebracht ist, die von einer Nabe (24) vorsteht, die zentral zwischen den Querstreben (18') angebracht ist, wobei die Spindel (26) mit einem oder mehreren konischen Kugellagern (28) versehen ist.

5. Einrichtung nach Anspruch 4, **dadurch gekennzeichnet, dass** die Einlegeböden (34, 36) mit einer Krümmung (56') ausgestattet sind.

6. Einrichtung nach Anspruch 5, **dadurch gekennzeichnet, dass** das plattenförmige Element (30) mit dieser Spindel (26) der Nabe (24) nahe einem ihrer Enden und in einer versetzten Position in Eingriff steht.

7. Einrichtung nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** sie eine Austauschrichtung (60) mit einer horizontal angelenkten Scheibe (62) umfasst, die an einen Träger (64) befestigt ist, der sich auf der Außenseite dieser ersten Schiene (42) erstreckt und mit einer einstellbaren Platte (66) zusammenwirkt, die über Führungselemente (68) in einem Schlitz (70) der Querstrebe (14') angebracht ist, wobei diese Platte (66) mit einer Öffnung versehen ist, die zeitweise den unteren Teil oder einen unteren Teil der horizontal angelenkten Scheibe (62)

aufnimmt, die durch einen festen Endanschlag (74) bewegt wird.

8. Einrichtung nach Anspruch 7, **dadurch gekennzeichnet, dass** die horizontal angelenkte verdrehbare Scheibe (62) für ihre Bewegung mit einer elastischen Einrichtung verbunden ist.

#### Revendications

1. Equipement (10) d'extraction partielle et temporaire d'un chariot (32) de mobilier d'angle, comprenant deux étagères superposées et parallèles (34, 36) ou davantage connectées entre elles par des crémaillères (38), hors d'un ou deux mobiliers d'angle (50) de cuisine de forme parallélépipédique disposés orthogonalement, chacun desdits mobiliers d'angle (50) comprenant une base (16) et une région ouverte, ledit équipement (10) comprenant un élément (30) en forme de plaque qui peut être accouplé à l'étagère inférieure (34) et connecté à rotation à un cadre (20) pouvant coulisser le long d'une paire de premiers guides (12) qui sont fixés à la zone centrale de ladite base (16) et s'y étendent longitudinalement, ledit élément (30) en forme de plaque étant en outre connecté à coulisement au moyen de rouleaux (44) à une paire de deuxièmes guides (40 - 42) fixables à la surface inférieure de ladite étagère inférieure (34),

au moins ladite étagère inférieure (34) dudit chariot (32) étant délimitée par un cadre périphérique (46) en saillie vers le haut, configuré selon une structure (48) en arc de cercle près de ladite région ouverte dudit mobilier d'angle (50),

#### **caractérisé en ce que**

une ou plusieurs paires de rouleaux (52) sont fixées à une tête oscillante (56) à l'extrémité de l'un desdits premiers guides (12) pour délimiter et guider le cadre périphérique (46) au moins dans la région définie par ladite structure (48) en arc de cercle pendant l'extraction dudit chariot (32) et **en ce que** ladite tête oscillante (56) est équipée d'un ou plusieurs rouleaux (58) pour supporter ledit cadre périphérique (46).

2. Equipement selon la revendication 1, **caractérisé en ce que** lesdits premiers (12) et deuxièmes (40 - 42) guides sont constitués de profilés en "C", lesdits premiers guides (12) étant connectés par des traverses (14) et (14'), lesdits deuxièmes guides (40 - 42) formant des barrières d'arrêt opposées au mouvement dudit cadre (20).

3. Equipement selon la revendication 1, **caractérisé en ce que** ledit cadre (20) comprend des poutres longitudinales opposées (18), connectées par des traverses (18') et équipées de rouleaux ou de paliers

(22) coulisant le long desdits premiers guides (12).

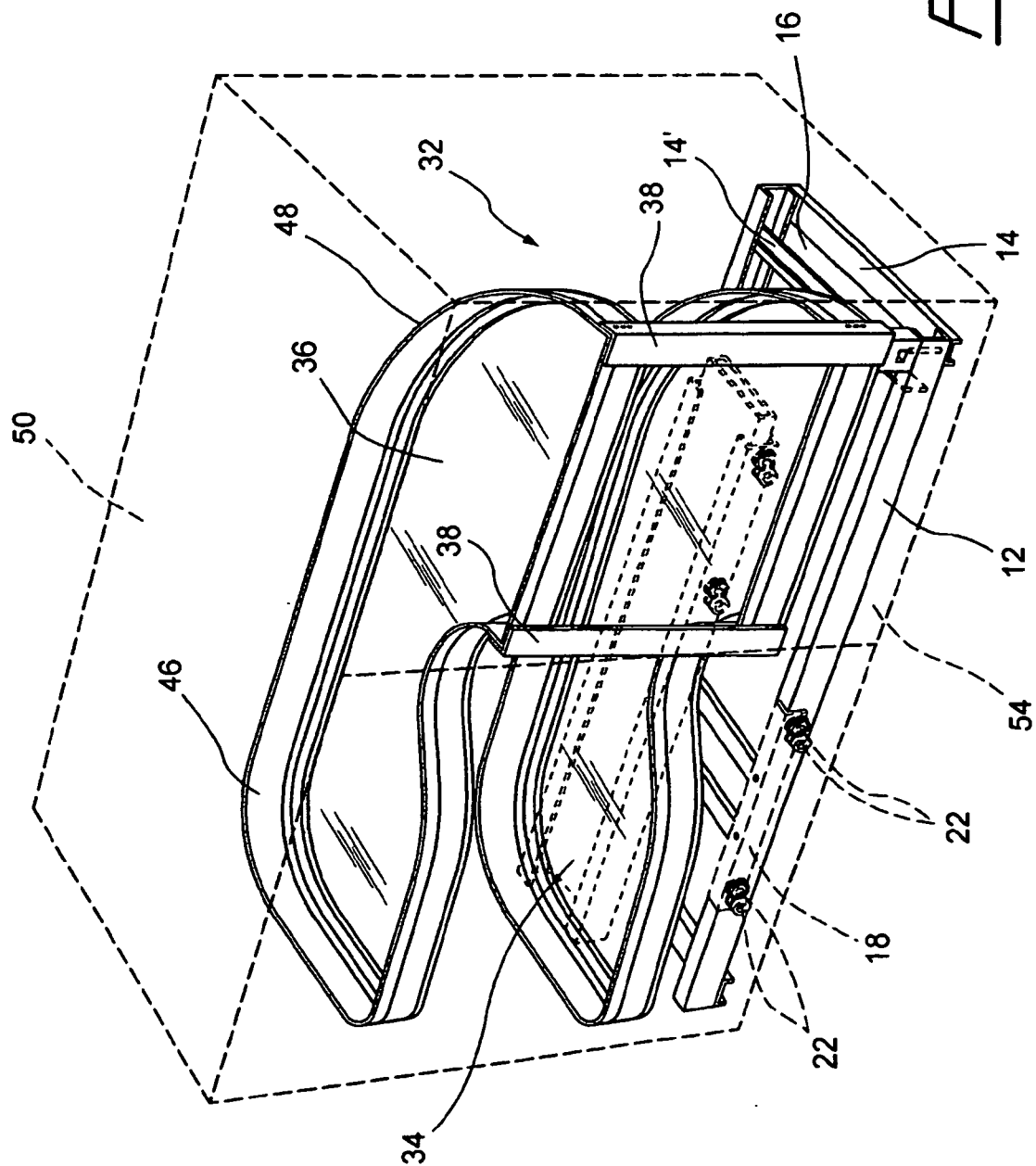
4. Equipement selon la revendication 3, **caractérisé en ce que** ledit élément (30) en forme de plaque est monté sur une broche folle (26) en saillie à partir d'un moyeu (24) fixé centralement entre lesdites traverses (18'), ladite broche (26) étant accouplée à un ou plusieurs paliers coniques (28) à billes.

5. Equipement selon la revendication 4, **caractérisé en ce que** lesdites étagères (34, 36) comportent une partie incurvée (56').

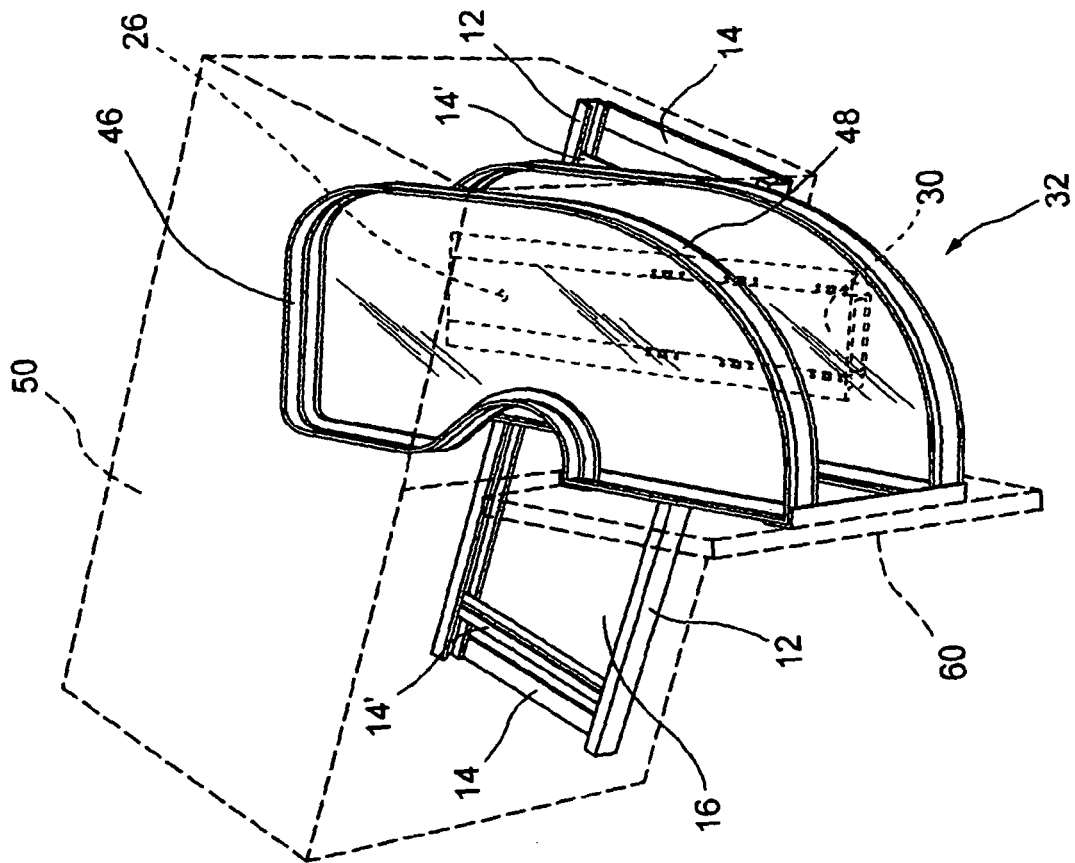
6. Equipement selon la revendication 5, **caractérisé en ce que** ledit élément (30) en forme de plaque est en prise sur ladite broche (26) du moyeu (24) près de l'une de ses extrémités et dans une position déportée.

7. Equipement selon la revendication 1 ou 2, **caractérisé en ce qu'il** comprend un dispositif d'échange (60) avec un disque pivotant horizontalement (62), fixé à un support (64) retenu au côté externe d'un premier (42) desdits deuxièmes guides, interagissant avec une plaque réglable (66) fixée au moyen de curseurs (68) dans une fente (70) de ladite traverse (14'), ladite plaque (66) comportant une ouverture qui reçoit temporairement la partie inférieure d'une partie inférieure du disque pivotant horizontalement (62) déplacé par un arrêt d'extrémité fixe (74).

8. Equipement selon la revendication 7, **caractérisé en ce que** ledit disque pivotant horizontalement (62) est connecté pour son déplacement à un moyen élastique.



*Fig. 2*



*Fig. 3*

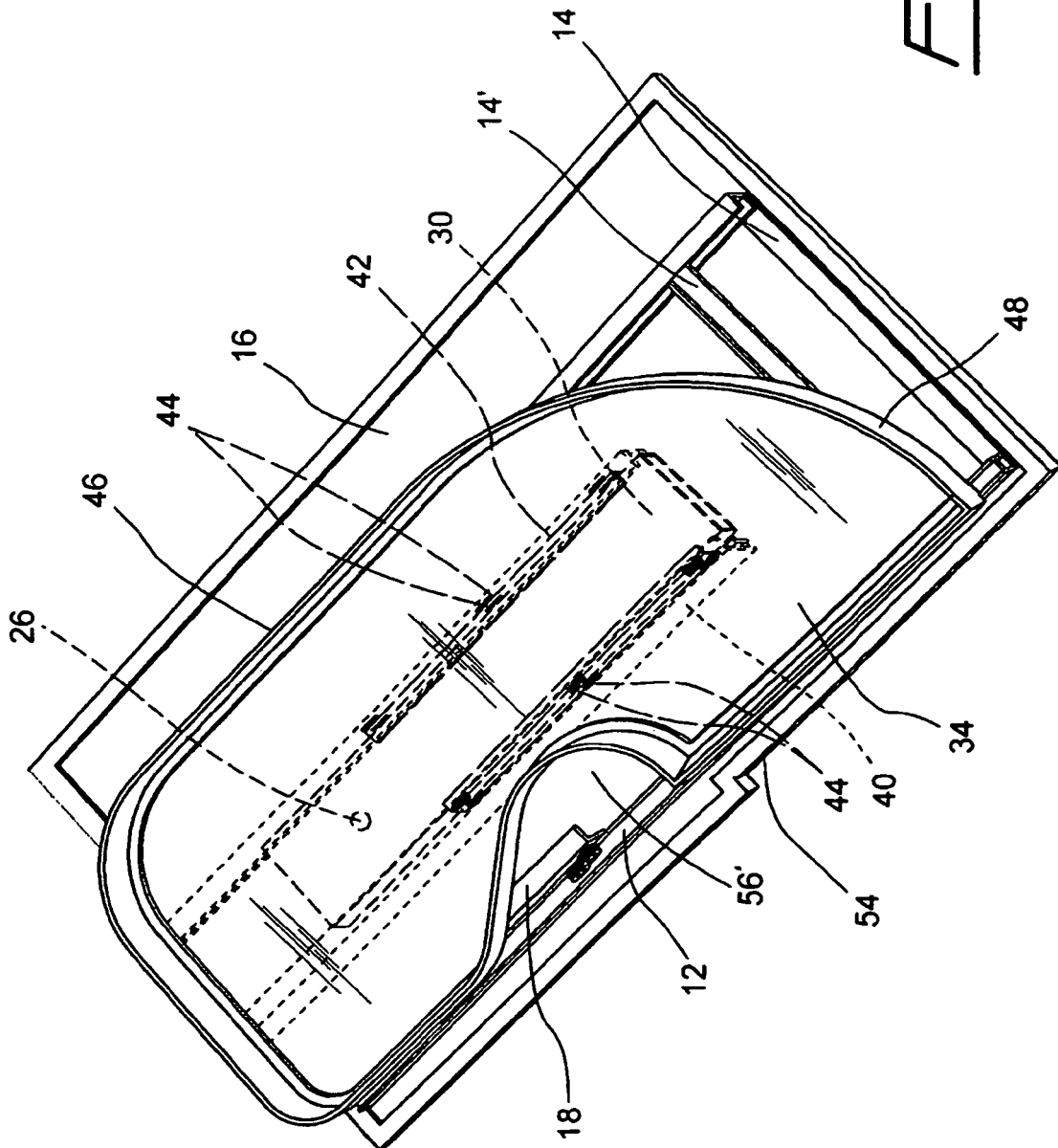


Fig. 4

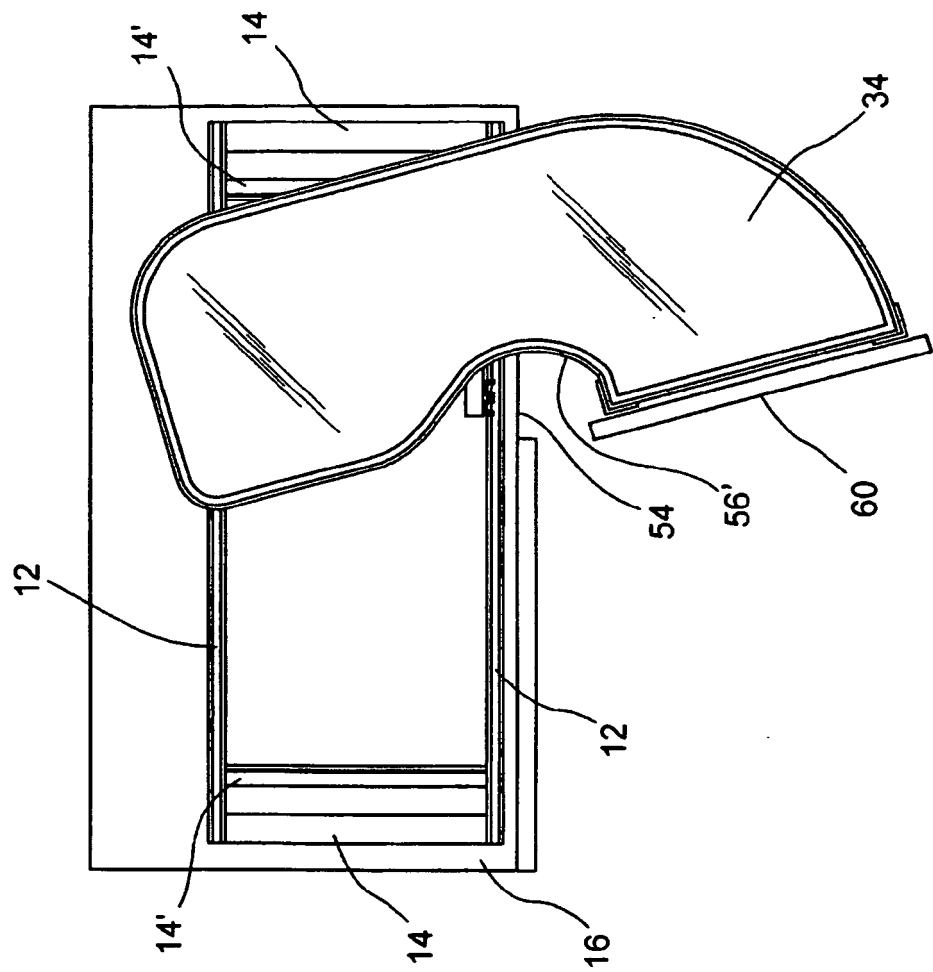


Fig. 5

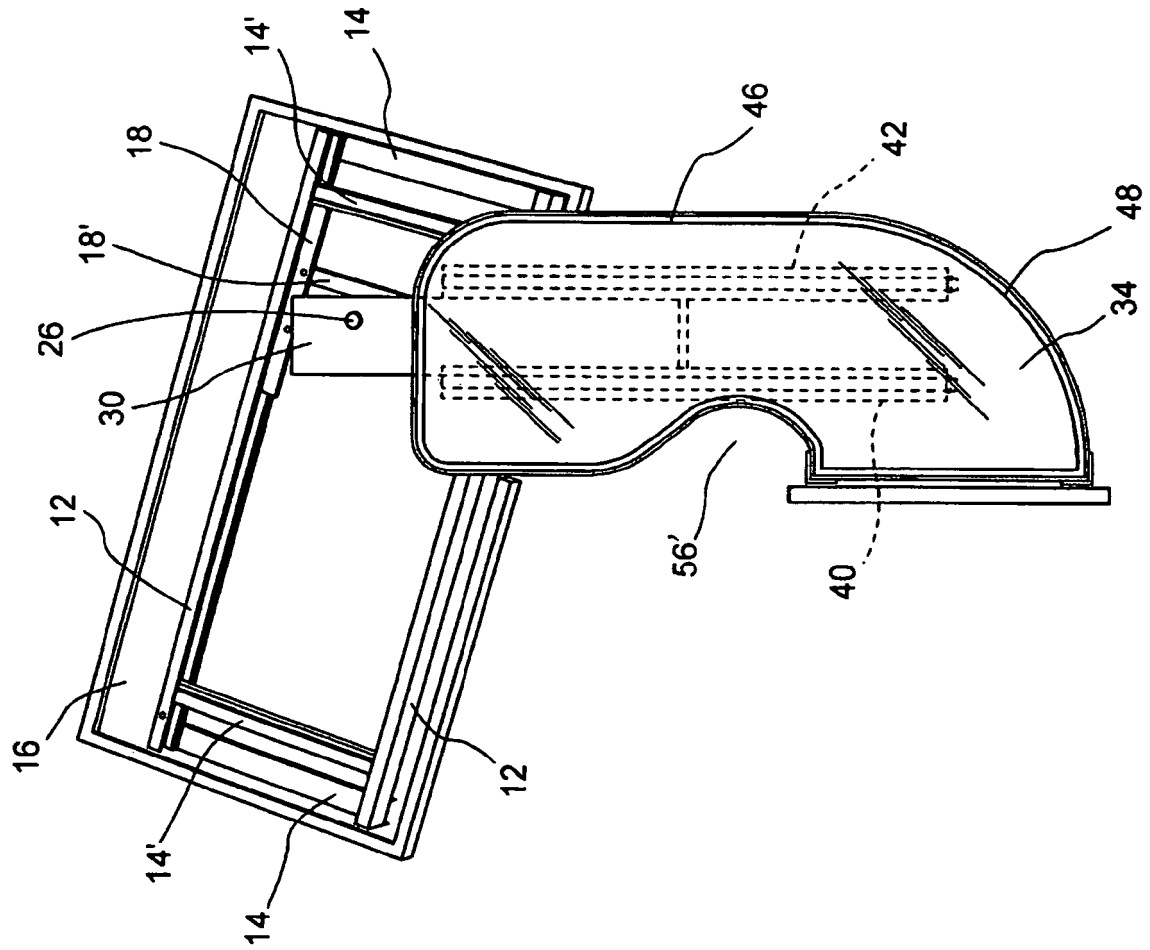
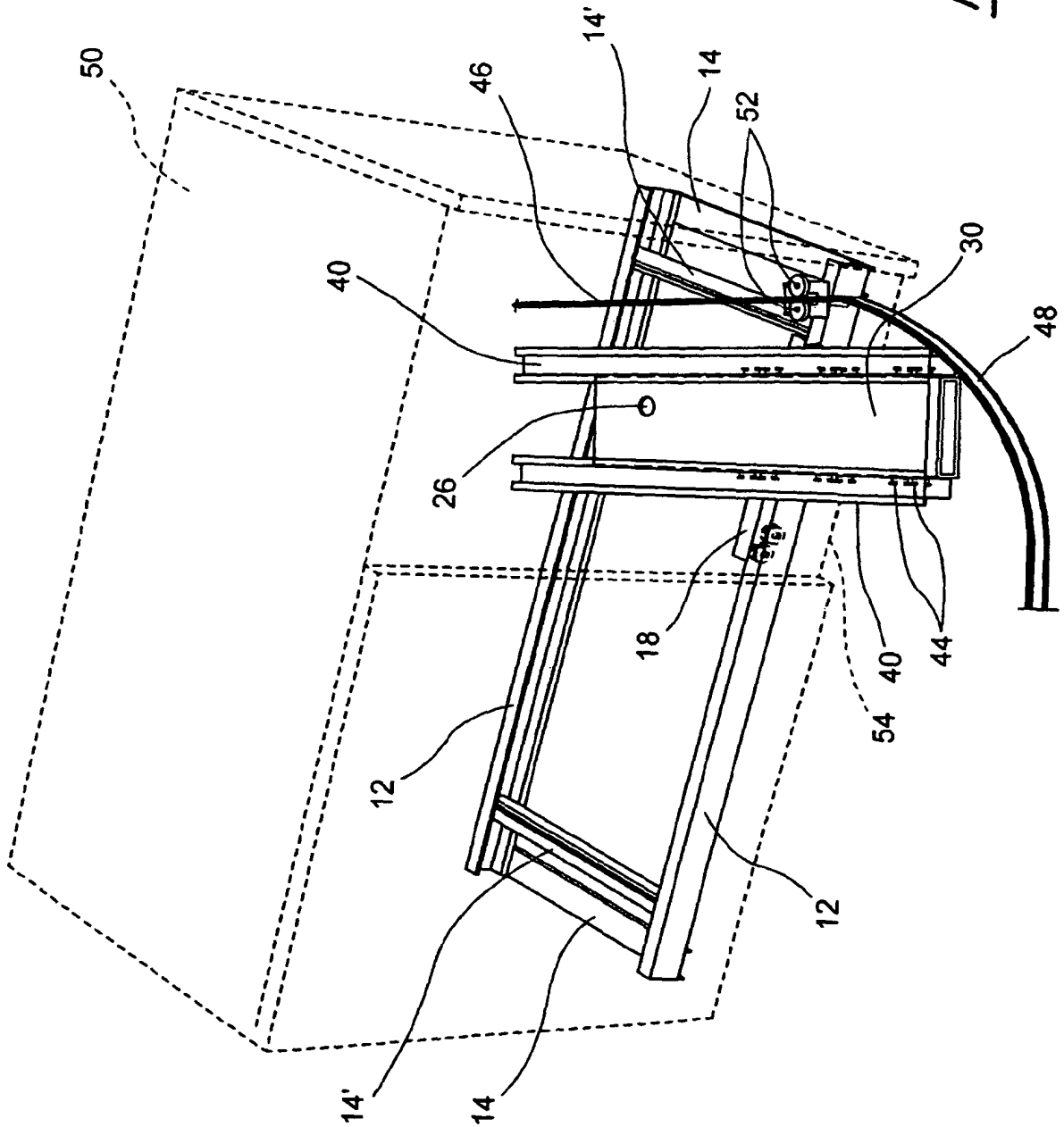


Fig. 6



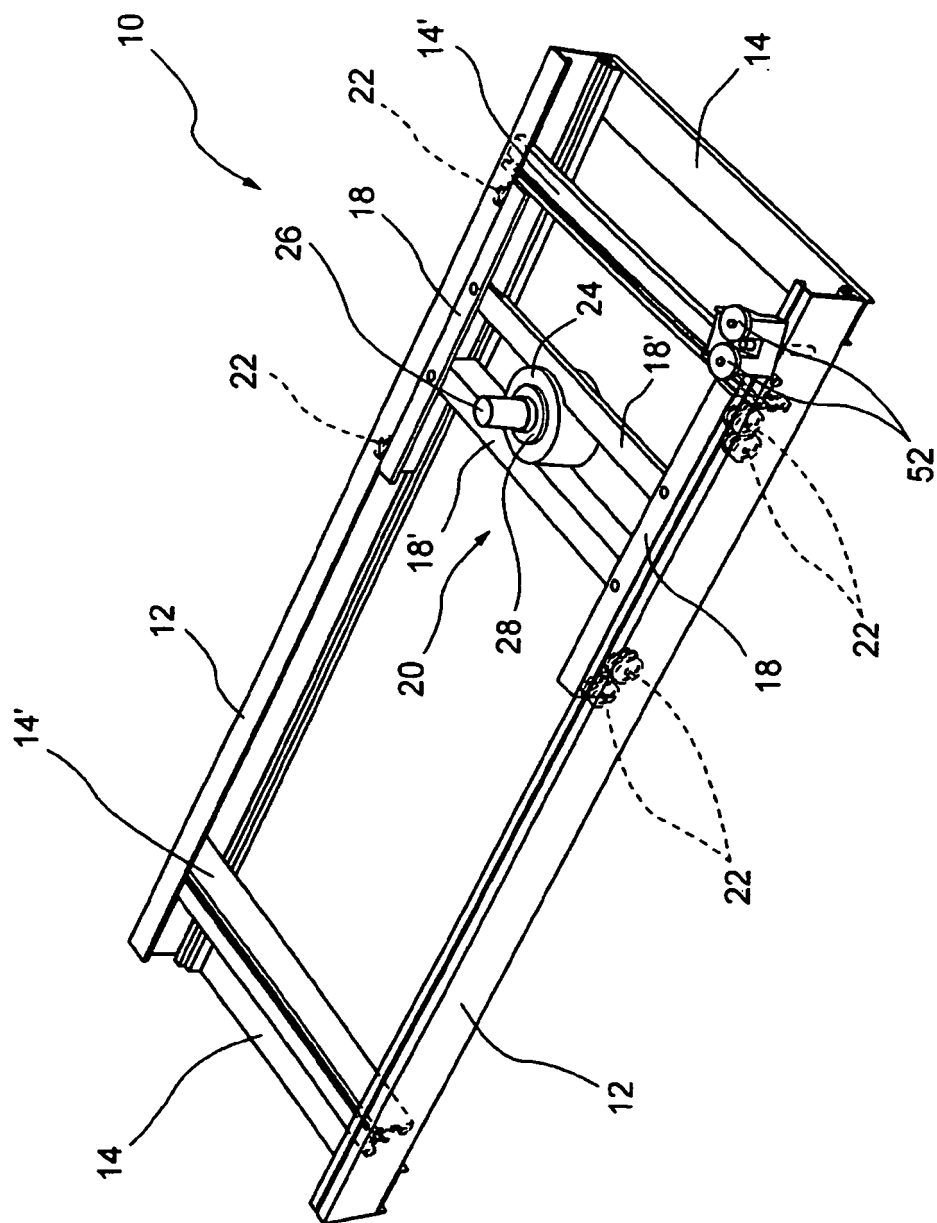


Fig. 1

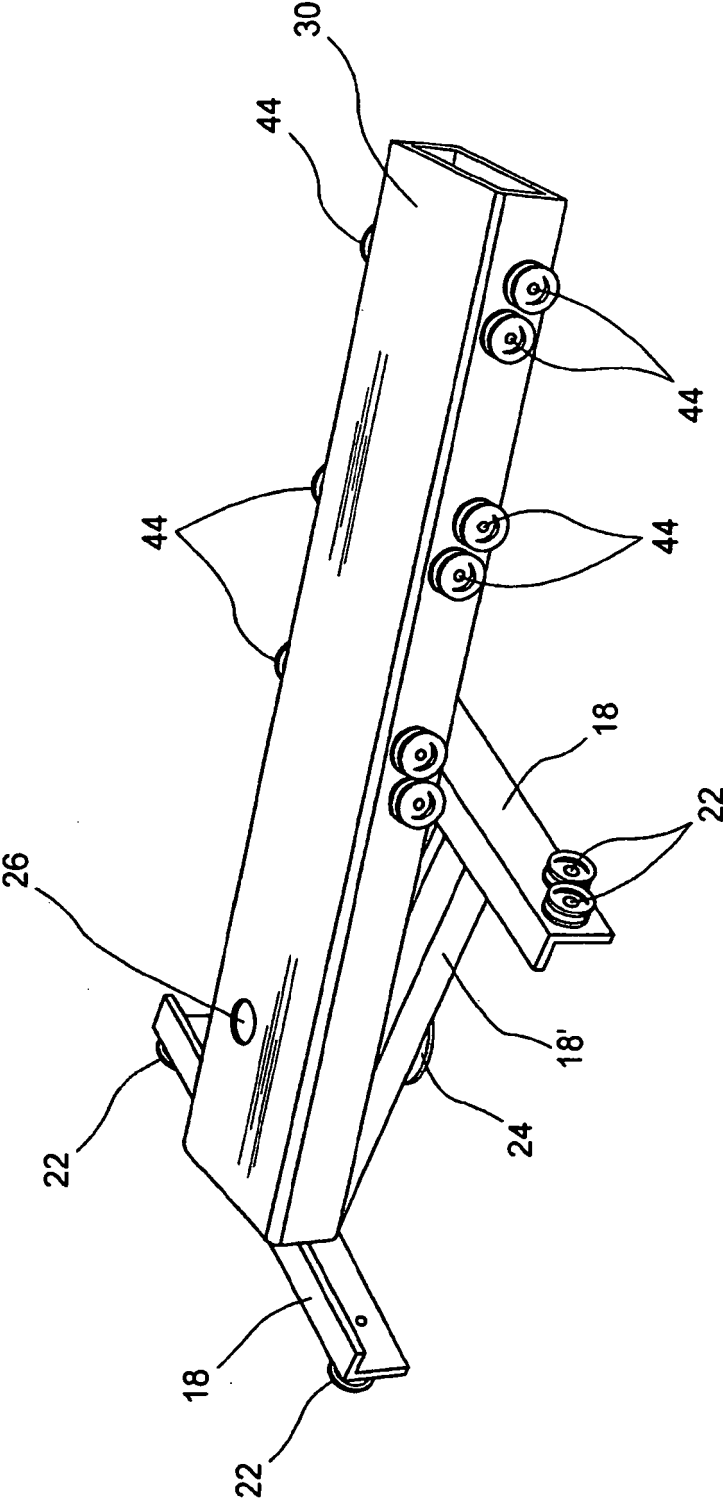


Fig. 8

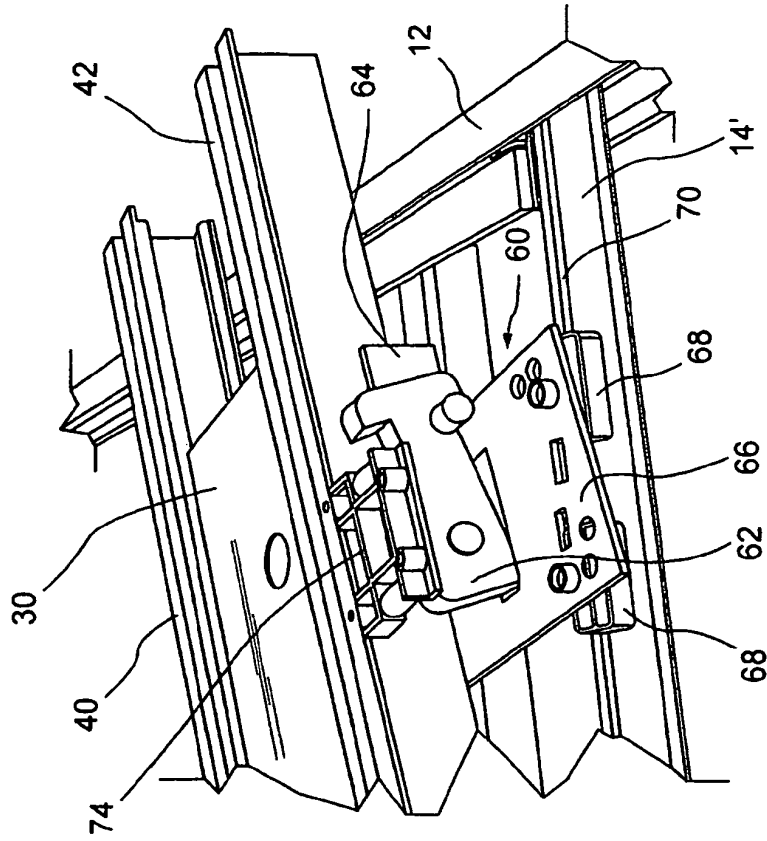


Fig. 10

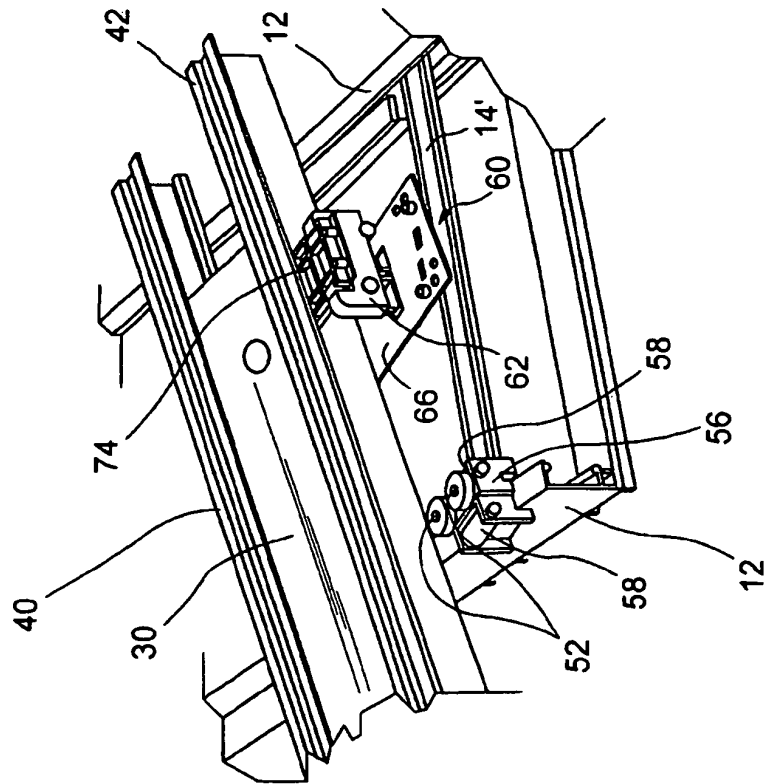


Fig. 9

**REFERENCES CITED IN THE DESCRIPTION**

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