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54 **Divan-bed with back-head.**

57 Divan-bed with back-head, which comprises a first net (12) and a second net (13), the latter net (13) being able to be slid sideways in relation to the former net (12) so as to form a sitting or a reclining surface, a back (14) being included which is made to rotate until it takes up the position of a bed head (114).

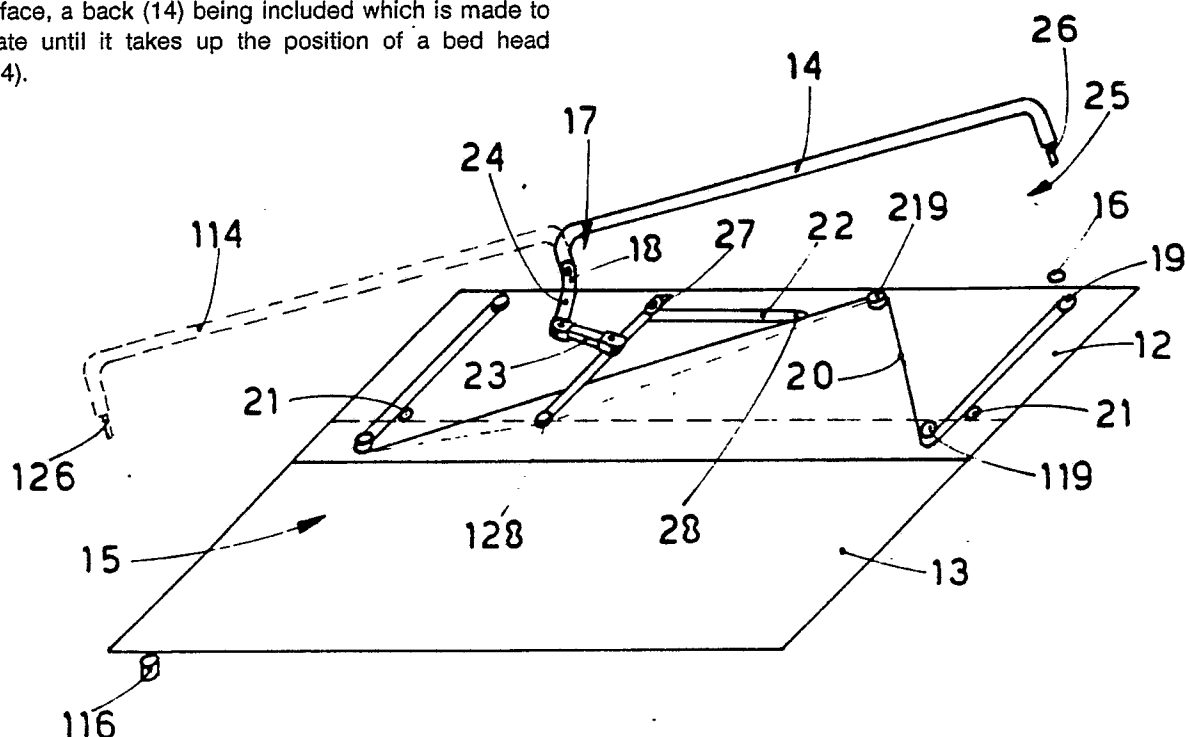


fig.1

## "DIVAN-BED WITH BACK-HEAD"

This invention concerns a convertible divan-bed that comprises a back able to rotate so as to become the head of the bed.

Divan-beds are known which can be converted into single or double beds.

Divan-beds are also known which enable the second bed of a double bed to be extracted, when in its position of use, at the same height as the first bed.

Divan-beds are also known which, when converted into a bed, have the side of a reclining user positioned substantially parallel to the back of the divan, or to the head of the bed.

It is also known that such divan-beds entail usage problems because the person sleeping next to the head of the bed is in difficulty when he has to get out of bed.

Moreover, it is known that in divan-beds having one bed parallel to the head of the bed the second bed is normally drawn sideways from the first bed.

To obviate the problem caused by the difficulty in getting out of bed owing to the presence of the head of the bed, and also to avoid the problem of extraction of the second bed, and, furthermore, to position a head for the bed thus embodied and to fix the two nets of the bed together, the present applicant has designed, tested and embodied this invention.

According to the invention, in a divan-bed convertible into a double bed by frontal extraction of one of the two nets of the bed the back of the divan-bed is made capable of being rotated by about 180°.

We shall describe hereinafter the embodiment of a divan-bed convertible into a double-bed, since all other embodiments entail application of parts of the invention even if such parts have to be adapted.

A system for extraction and re-insertion of the second net is combined with rotation of the back of the divan by about 180°.

An exact reciprocal positioning of the two nets is also obtained with the positioning of the back so as to act as the head of the bed.

The invention is therefore embodied with a divan-bed with back-head, which comprises a first net and a second net, the latter net being able to be slid sideways in relation to the former net so as to form a sitting or a reclining surface, a back being inclined, the divan-bed being characterized in that the back is made to rotate until it takes up the position of a bed head.

The attached figures, which are given as a non-restrictive example, show as follows:-

Fig.1 shows a device according to the invention in a three-dimensional diagram;

Fig.2 shows from above a divan-bed which employs the device of Fig.1;

Fig.3 gives a side view of the divan of Fig.2;

Fig.4 gives a front view of the divan of Fig.2;

Fig.5 shows a plan view of the mechanism;

Fig.6 shows a variant;

Fig.7 shows the mechanism of Fig.6.

We shall describe hereinafter with reference to the figures the case of a divan-bed which can be converted into a double bed.

A divan 10 with a primary net 12 and secondary net 13 has the latter able to slide frontally to the divan 10 so as to form a support surface 15.

The divan 10 comprises a back 14 which is rotatable (but could slide axially) on a rotary pivot 18 and has a terminal portion 26 inserted into a positioner sleeve 16 included in the primary net 12.

When the back 14 is raised (see Fig.1), it can be rotated on the pivot 18 in the direction of the arrow 25 so as to be displaced to 114 and to form the head of the bed.

When the back 14 is lowered, its terminal portion 126 can be introduced firmly into a sleeve 116 comprised in the secondary net 13 and be positioned with the secondary net 13 drawn out to take up a stable position of a bed.

When the back 14 is rotated towards 114 and viceversa, the pivot 18, to which a transmission lever 24 is solidly fixed, is also rotated (Figs.1, 5 and 7).

The transmission lever 24 acts on a connecting rod 23, which in turn acts on an arm 322 of an actuation lever 22, which is connected terminally to a cable 20 at 28.

The cable 20 is an endless cable and runs on pulleys 19, 119 and 219, the positions of these pulleys being immovable on the primary net 12.

In its two segments between 19 and 119 the cable has a substantially parallel development in the direction of extraction and re-insertion of the secondary net 13.

The cable 20 is connected to the secondary net 13 at 21 in its two segments between 19 and 119.

When the cable 20 is moved by being made to run, the connection points 21 are both displaced at the same time in one direction or the other.

The movement of the cable 20, which is secured to the terminal part of the actuation lever 22, is caused by rotation of the actuation lever 22 at 27.

Rotation of the actuation lever 22 is obtained

through a transmission linkage 24-23-322 by rotation of the divan back 14 by means of the rotary pivot 18, to which the back 14 is connected with an articulating joint 17.

The length and conformation of the back 14 is such that, when it is rotated, it takes up the conformation of the head 114 of a bed.

Figs.6 and 7 show a variant, which provides one or more levers 22 able to act directly on the movable secondary net 13 instead of the endless cables 20.

The system employed in the variant shown is as follows. When the back is rotated from 14 to 114, the pivot 18 is set in rotation and sets in rotation the transmission lever 24 solidly fixed to the pivot 18. The transmission lever 24 acts on the connecting rod 23, which moves the connecting arm 322 solidly fixed to the actuation lever 22 pivoted at 27.

If there is a plurality of actuation levers 22, a connection shaft 29 will be provided.

The actuation lever 22 is slidably connected at 28 to the movable secondary net 13. When the actuation lever 22 is rotated, the movable secondary net 13 is displaced backwards or forwards.

The connection stud 28 can slide in an appropriate guide, so that when the actuation lever 22 is rotated, the stud 28 is caused to slide in that guide and moves to 128 and viceversa.

## Claims

1 - Divan-bed with back-head, which comprises a first net (12) and a second net (13), the latter net (13) being able to be slid sideways in relation to the former net (12) so as to form a sitting or a reclining surface, a back (14) being included, the divan-bed being characterized in that the back (14) is made to rotate until it takes up the position of a bed head (114).

2 - Divan-bed as claimed in Claim 1, in which the length of the back (14) is substantially equal to the width of the bed.

3 - Divan-bed as claimed in Claim 1 or 2, in which a terminal portion (26) of the back (14-114) cooperates with a positioner sleeve (16-116).

4 - Divan-bed as claimed in any claim hereinbefore, in which the back (14) is raised for movement to its position as a bed head (114).

5 - Divan-bed as claimed in any claim hereinbefore, in which the two nets (12-13) capable of being displaced sideways in relation to each other are connected by an endless cable transmission (20) able to run on pulleys (19-119-219) positioned reciprocally immovably on the first net (12).

6 - Divan-bed as claimed in any claim hereinbefore, in which two pairs of pulleys (19-119) determine two parallel segments of cable extending in the direction of extraction or re-insertion of the second net (13).

7 - Divan-bed as claimed in any claim hereinbefore, in which in the two parallel segments of its path the cable (20) is connected at (21) to the second net (13), the movement of such two connection points (21) coinciding as regards direction and orientation.

8 - Divan-bed as claimed in any claim hereinbefore, in which the cable (20) is connected rigidly to a terminal portion of an actuation lever (22) connected to a rotary pivot (18) through a transmission linkage (322-23-24).

9 - Divan-bed as claimed in any claim hereinbefore, in which the rotary pivot (18) is connected to the back (14).

10 - Divan-bed as claimed in any of Claims 1 to 4 inclusive, in which the two nets (12-13) displaceable in a lateral direction in relation to each other are connected together by at least one actuation lever (22).

11 - Divan-bed as claimed in Claims 1 and 10, in which the actuation lever (22) comprises terminally a connection stud (28) able to slide in a guide located on the second net (13).

12 - Divan-bed as claimed in Claims 1 and 10 or 11, in which the actuation lever (22) is operated by the back (14) through the rotary pivot (18).

13 - Divan-bed as claimed in Claims 1 and 10 or 11 or 12, in which the actuation lever (22) cooperates with a connection shaft (29).

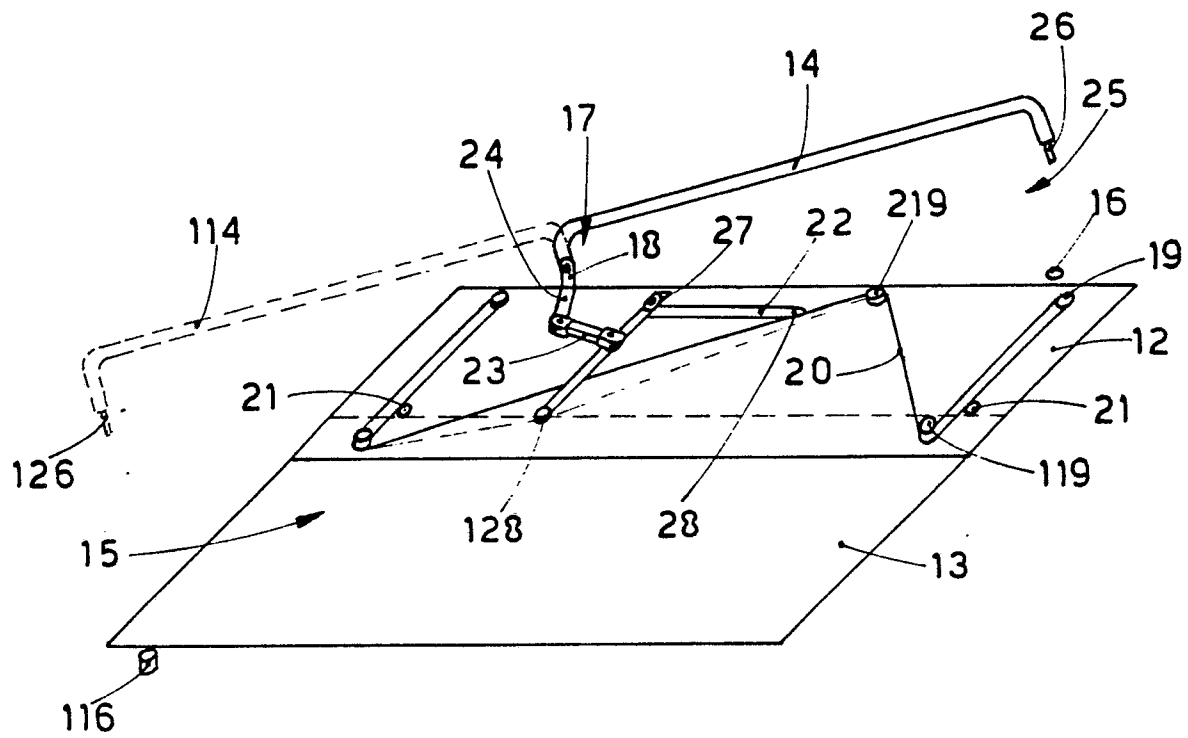


fig.1

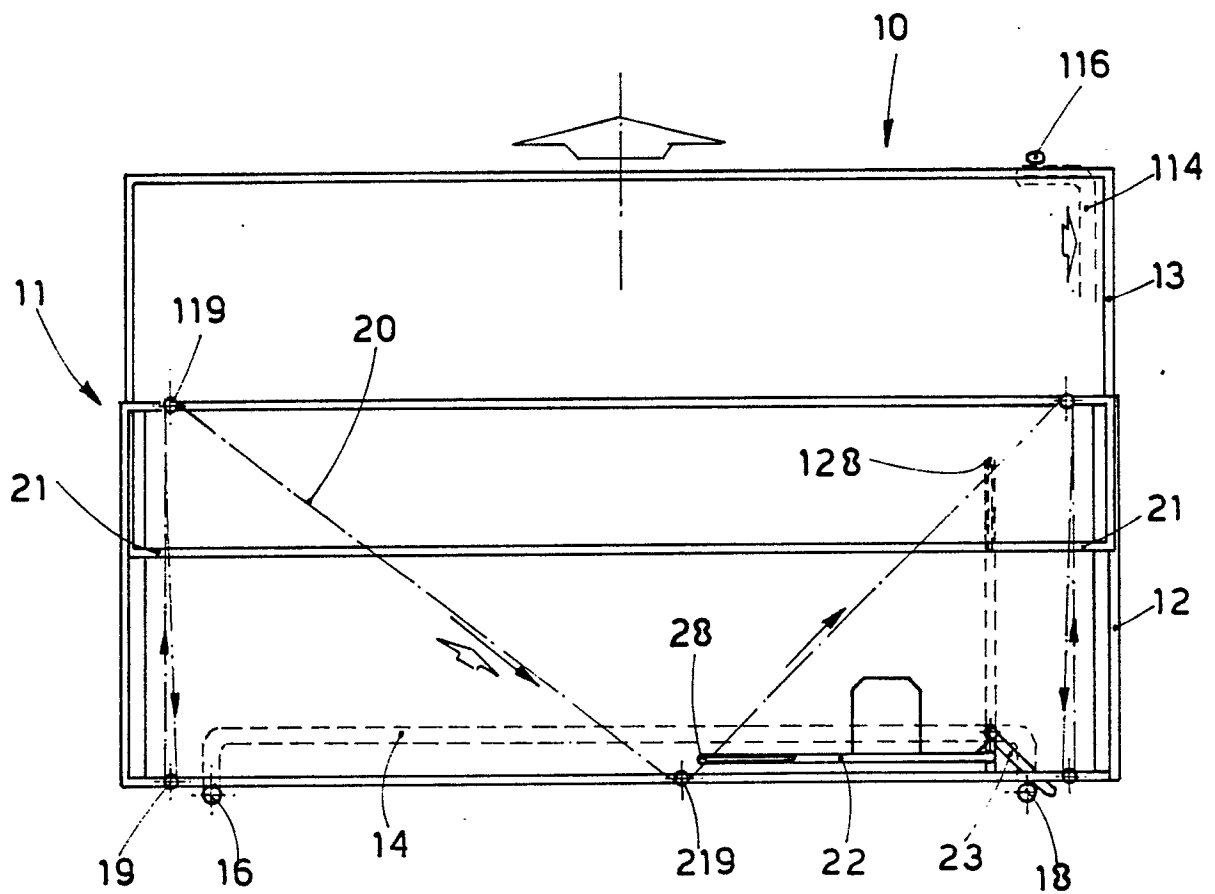
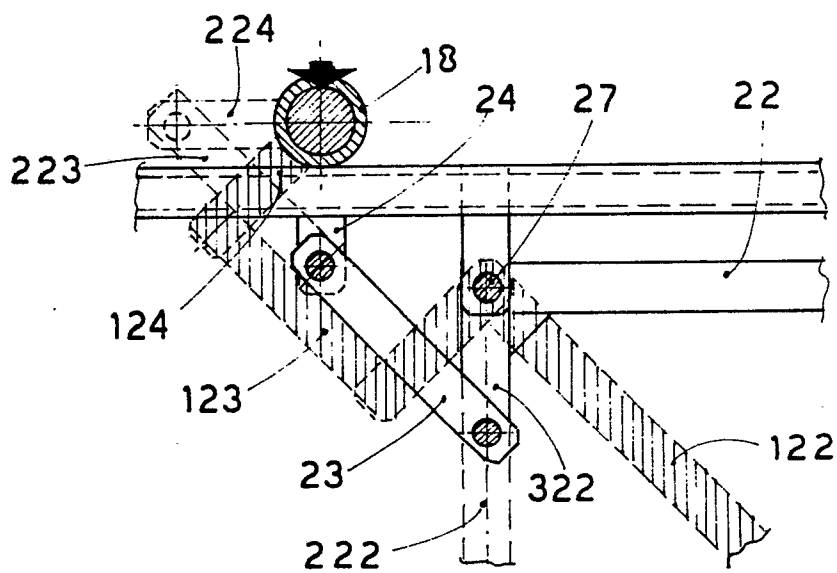
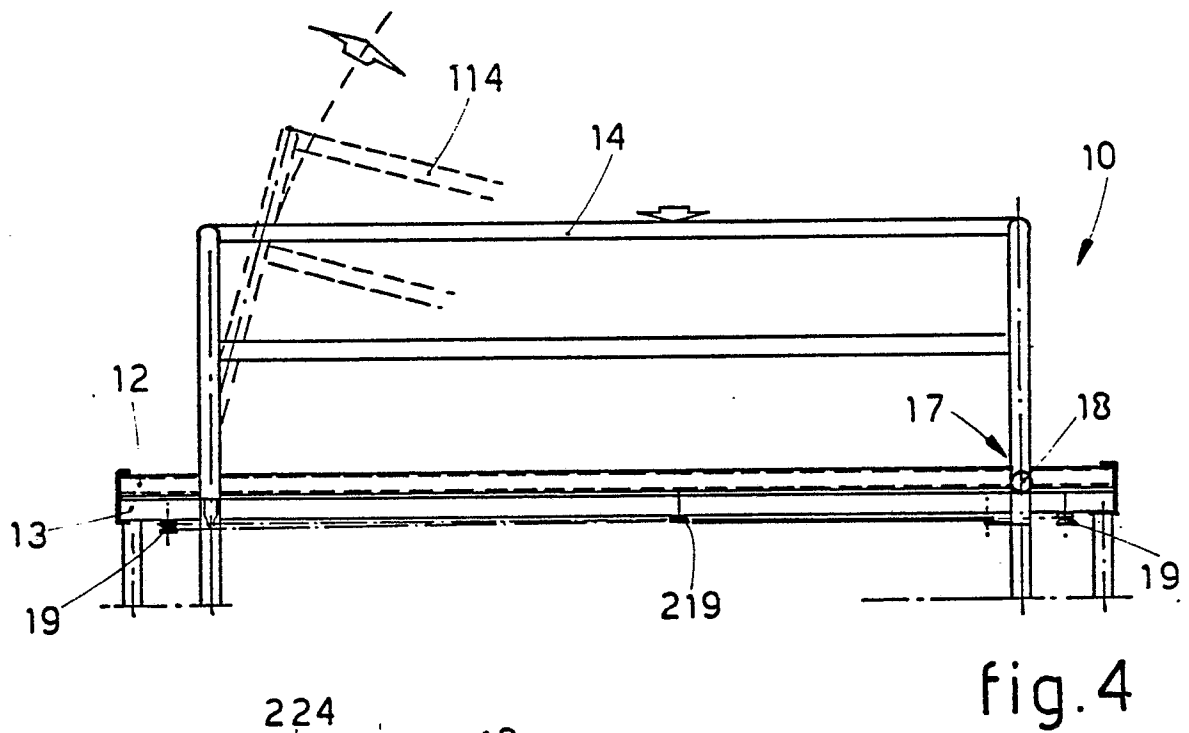
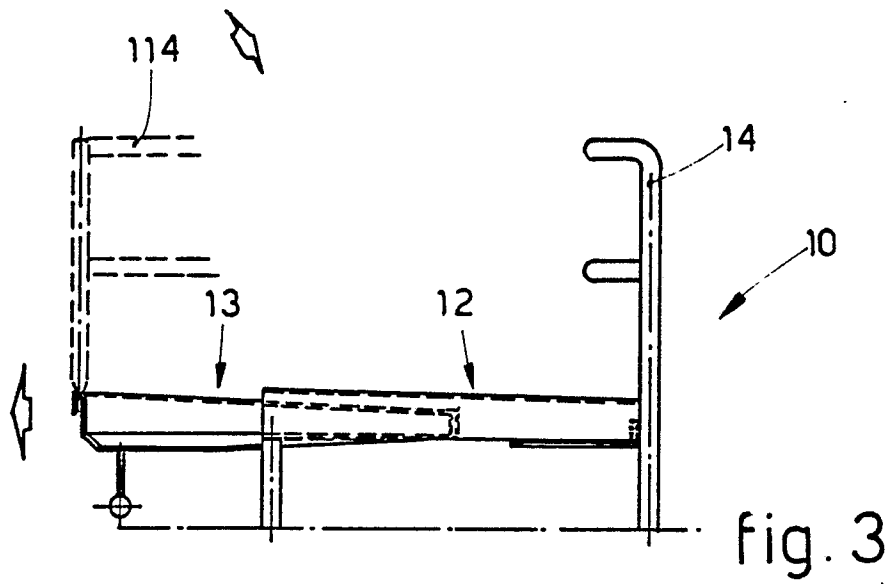


fig. 2





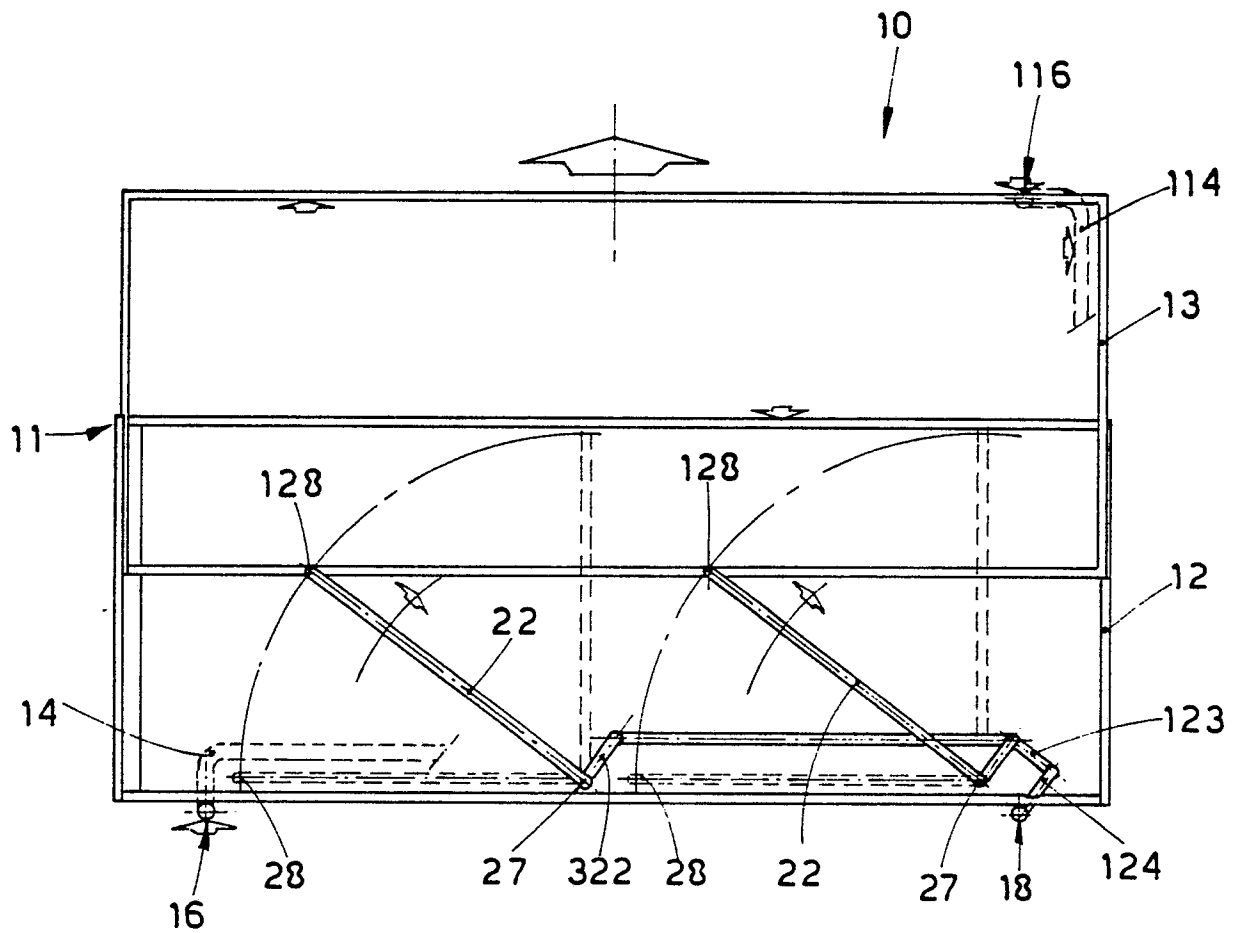


fig.6

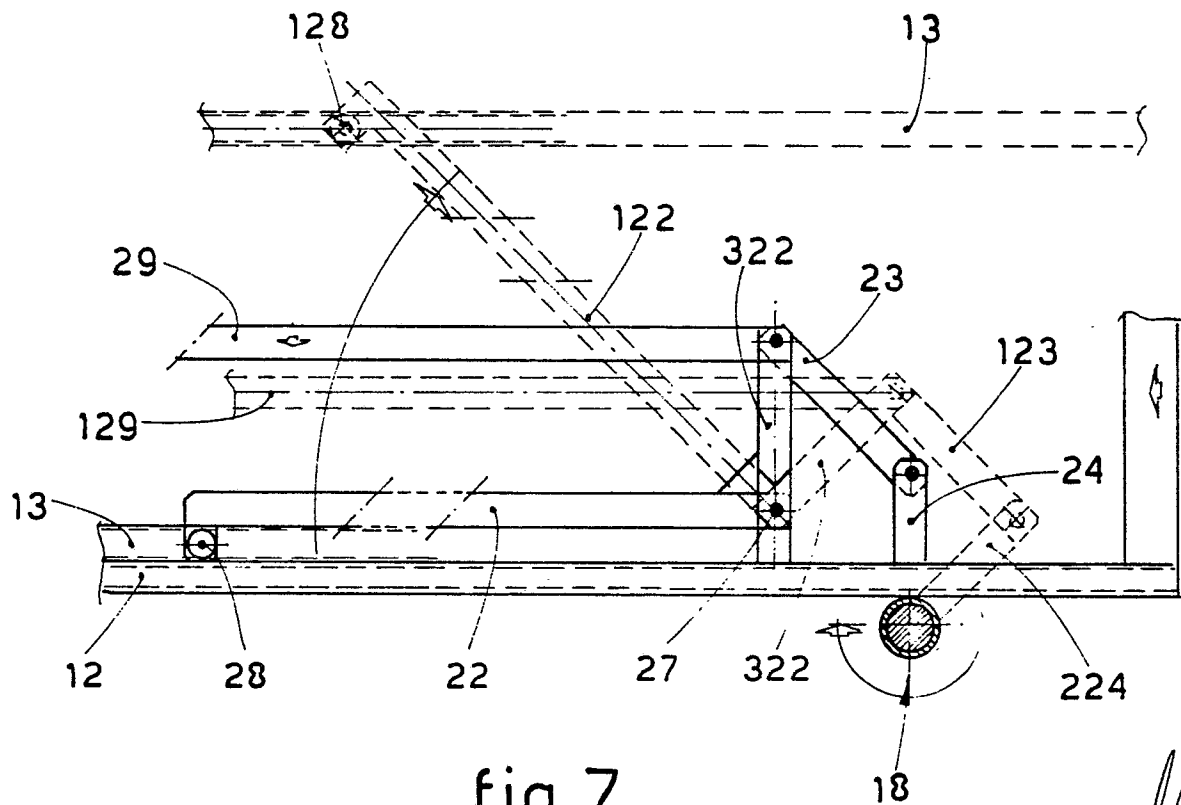


fig.7

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
A	EP-A-0 041 080 (SEDAC) * Figures 6,7; claim 4 * ---	1,5-8, 10	A 47 C 17/13
A	BE-A- 477 111 (ROZSA) * Figure 3 * -----	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			A 47 C
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 21-04-1988	Examiner MYSLIWETZ W.P.
<b>CATEGORY OF CITED DOCUMENTS</b>			
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			