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(54) Collapsible airer

(57) This invention relates to a collapsible airer, and in particular to a free-standing collapsible airer comprising a column, a number of arms and at least three legs. The legs are movable relative to the column between a collapsed position in which they are substantially parallel to the column and an extended position in which they are at an angle to the column and can together support the column. The arms are movable relative to the column between a collapsed position in which they are substantially parallel to the column and an extended position in which they are at an angle to the column and can support articles being aired. The arms move towards the legs as the arms are collapsed so as to reduce the volume occupied by the airer in its collapsed state.

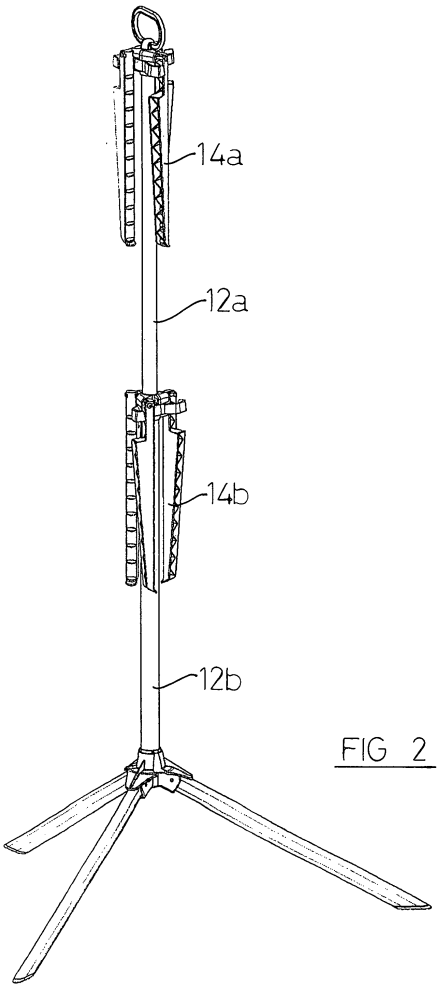

FIG 2

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Description

FIELD OF THE INVENTION

[0001] This invention relates to a collapsible airer, and in particular to a free-standing collapsible airer.

BACKGROUND OF THE INVENTION

[0002] Airers are known for the temporary storage of clothing and other articles during the laundering process. Typically, an article will be placed upon the airer to dry the article after it has been washed. Whilst an airer can be used outdoors, it will typically be used indoors as an indoor equivalent of a washing line. An airer will usually be used for articles which are sufficiently dry that they do not drip, but they can be used over a bath or other receptacle, the bath catching any dripping water. Another typical use for an airer is the temporary storage of an article after ironing, i.e. a shirt for example can be ironed and placed upon a coat hanger, the coat hanger being placed upon the airer whilst more ironing is undertaken, and prior to removal of the ironed shirt to a cupboard.

[0003] Since they are not in continuous use, and since they occupy a relatively large volume in use, an airer will typically be collapsible, i.e. comprise parts which can be moved relative to one another between an extended position suitable for use, and a collapsed position suitable for storage. Ideally, the airer will occupy a relatively small volume when collapsed, so as to facilitate ease of storage, and also to reduce the volume occupied during transportation from the manufacturing location to the customer.

[0004] Also, most airers are free-standing, in that they can be extended at any chosen position without requiring the presence of a separate supporting surface or structure.

[0005] Many different types of collapsible airers are known. A first type is the "gate" style, which comprises two or three interconnected panels, each panel comprising two upright members and a number of cross-bars lying between the upright members. The panels are pivotably interconnected and can be collapsed to a position in which all of the panels overlie one another and the airer occupies a volume not much greater than that of a single panel. When it is desired to use the airer the panels are moved relative to one another so that they lie at an angle relative to one another. The angular arrangement allows each panel to support its neighbour (or neighbours) so that the airer is free-standing. Articles to be aired can be hung upon chosen cross-bars of each panel.

[0006] Another type of airer is the "concertina" style, in which a number of substantially flat panels are interconnected together in the manner of a number of overlying crosses, the panels being movable in concertina fashion between a collapsed condition in which all of the panels are substantially parallel, and an extended condition in which adjacent panels lie substantially at right angles to one another. Each panel comprises a pair of side members between which are located a number of cross-bars, the cross-bars providing supports for the articles to be aired in the extended condition.

[0007] Another type of free-standing collapsible airer comprises a central column with three arms located at the top of the column. The arms can pivot upwardly to a collapsed position in which they lie substantially parallel with the column, and can pivot downwardly to lie substantially perpendicular to the column, in which position they can be used to carry clothes hangers or the like upon which clothing and other articles are aired, or are temporarily stored during ironing. A known airer of this type includes a telescoping column so that the overall length of the collapsed airer is reduced. The column is mounted upon three legs which in their extended position lie at an angle to the column and are spaced around the column, the legs being pivotable to a collapsed position in which they lie substantially parallel to one another and to the column. When viewed in plan in the extended position, the legs and arms are around 120° apart, the legs providing a stable base for the airer and the arms separating the articles which are supported thereby.

[0008] Despite its advantage in occupying a generally smaller volume when collapsed than the gate-type or concertina-type of airers described above, the inventors have realised that the column-type airer described above has a number of disadvantages. The first disadvantage is that the upward pivoting of the arms increases the length of the airer when collapsed, and therefore increases the volume occupied by the airer when collapsed. The second disadvantage is that the number of articles which can be supported by the airer is less than typically required, and in particular is considerably less than can be stored upon a gate or concertina airer.

SUMMARY OF THE INVENTION

[0009] The inventors have sought to provide a free-standing collapsible airer which shares the advantage of the column-type airer in occupying a minimum volume when collapsed, and yet which addresses the disadvantages of that type of airer.

[0010] According to the invention there is provided an airer comprising a column, a number of arms and at least three legs, the legs being movable relative to the column between a collapsed position in which they are substantially parallel to the column and an extended position in which they are at an angle to the column and can together support the column, the arms being movable relative to the column between a collapsed position in which they are substantially parallel to the column and an extended position in which they are at an angle to the column and can support articles being aired, the arms moving towards the legs as the arms are collapsed.

[0011] In practice, with the airer mounted upon the floor, the arms will move downwardly towards the legs during collapsing, as compared to the prior art design in

which the arms moved upwardly. This has the advantage that the arms lie alongside the column in the collapsed position and the volume occupied by the arms when collapsed is not much greater than the volume of the column. The length of the collapsed airer can be made significantly shorter than the prior art design.

[0012] Preferably, during movement to their collapsed position the legs move towards the arms. In practice, with the airer mounted upon the floor, the legs will move upwardly towards the arms. This has the advantage that the legs lie alongside the column in the collapsed position and the volume occupied by the legs when collapsed is not much greater than the volume of the column.

[0013] When both the arms and legs are collapsed it can be arranged that parts of the arms lie between parts of the legs (and vice versa).

[0014] Desirably the arms and legs are pivotably mounted upon the column, and movement of the arms and legs between their respective collapsed and extended positions is by way of a pivoting movement.

[0015] Preferably there are at least two sets of arms, mounted at different positions upon the column. In the extended airer this provides arms at two heights, and it is possible to provide three arms in each set so that there are three arms at one height and three arms at another height. This doubles the number of arms over the prior art column-type airer, and effectively doubles the number of articles which can be supported thereupon.

[0016] Desirably the arms in each set are arranged approximately 120° apart around the column, and preferably the arms in one set are offset from the arms in the (or each) other set, i.e. in the extended condition the arms of one set do not overlie the arms of the set below.

[0017] Preferably the column is collapsible, and is desirably telescopic. Preferably the column comprises two column parts, the first part carrying a first set of arms and the second part carrying a second set of arms and the legs, the first part being a telescoping fit into the second part.

[0018] Desirably the arms are pivotably mounted on a carrier, and the carrier is located adjacent to a driver, movement of the carrier relative to the driver causing pivoting movement of the arms between their collapsed and extended positions.

[0019] Preferably the driver has a ramp for each of the arms, engagement of the arm with its respective ramp causing pivoting movement of the arm.

[0020] Desirably, the carrier is rotatable relative to the driver, so that relative rotation of the carrier and driver cause the arms to move between their extended and collapsed positions.

BRIEF DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0021] The invention will now be described in more detail, by way of example, with reference to the accompanying drawings, in which:

Fig.1 shows the airer according to the invention in its extended condition;

Fig.2 shows the airer of Fig.1 with the arms collapsed;

Fig.3 shows the airer of Fig.1 with the arms collapsed and the column collapsed;

Fig.4 shows the airer of Fig.1 in its fully collapsed condition;

Fig.5 shows an exploded view of the components of the airer of Fig.1;

Fig.6 shows an exploded view of the lower arms and their connection to the column; and

Figs. 7-9 show detailed views of the lower arms during in their collapsed, partially extended and fully extended positions.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0022] The airer 10 comprises a column 12 upon which are mounted a number of arms 14 and three legs 16. In this embodiment there are six arms 14, arranged in two rows of three, i.e. there are three arms 14a arranged at one height and three arms 14b arranged at another height. When viewed from above, the arms 14 in each set, and the legs 16, are arranged at an angle of approximately 120° to each other, and the arms 14a are offset from the respective arms 14b by approximately 60°.

[0023] The column 12 is in this embodiment collapsible, and comprises a first part 12a and a second part 12b, the first and second parts being tubular and the first part 12a being a telescoping fit within the second part 12b. The arms 14a are carried by the column first part 12a and the arms 14b and legs 16 are carried by the column second part 12b. In this embodiment the arms 14a are identical in form and length to the arms 14b, but this is not necessarily the case.

[0024] As shown in Figs. 2-4, the arms 14 may be pivoted downwardly from their extended condition to lie against their respective column part, the column part 12a may be telescoped into the column first part 12b, and the legs 16 may be collapsed (upwardly) against the column first part part 12b, so that in the fully collapsed condition shown in Fig.4 the airer occupies a relatively small volume suitable for transportation and storage.

[0025] It will be noted that in this embodiment the column second part 12b is slightly shorter than the combined length of the arms 14b and the legs 16, so that in the fully collapsed condition parts of these components overlap. If space allows it can be arranged that in other embodiments the overlap is greater, and in yet other embodiments it can be arranged that there is no overlap, as desired.

[0026] As better seen in Figs. 5 and 6, the arms 14b are pivotably mounted upon the column part 12b by way of respective pivot pins 20 which secure the arms 14b to a carrier 22. The carrier 22 includes a tubular sleeve 24 which can fit inside the column second part 12b, and which can slidingly accommodate the column first part 12a. The mounting of the arms 14a upon the column first part 12a is similar, and although the carrier 26 shown in Fig.5 is tubular so as to accommodate a further column part (perhaps for a third tier of arms, if desired), the embodiment shown does not have a further column part so that the carrier 26 is closed by a plug 28 which mounts a handle 30.

[0027] Mounted underneath the carrier 22 is a driver 32 which has three arms 34, each of which incorporates a ramp part 36 which can engage a respective arm 14b. The driver 32 has an annular boss 40 which can fit over the end of the column second part 12b, the boss being internally stepped so that the driver sits upon the top of the column second part 12b.

[0028] The carrier 22 is fitted with its sleeve 24 inside the boss 40 and inside the top of the column second part 12b, and rests upon the top of the driver 32.

[0029] In this preferred embodiment the driver 32 is non-rotatably fixed upon the column part 12b, and the carrier 22 can rotate relative to the column part 12b and to the driver 32. As shown in Figs. 7-9, rotation of the carrier 22 relative to the driver 32 causes the arms 14b to be moved from their collapsed position shown in Fig. 7 (and Fig.2) to their extended position shown in Fig.9 (and Fig.1), and vice versa. In their extended condition the arms 14b rest upon respective arms 34 of the driver 32, the arms 14b and driver 32 being constructed so that in the fully extended position a downward force upon the arms 14b (as by the weight of articles supported thereupon) does not induce rotation relative to the driver 32.

[0030] The sleeve 24 of the carrier 22 includes a pair of outwardly-directed resilient fingers 42 (only one of which is visible in Fig.6), which locate under the step within the boss 40 and so secure the carrier 22 and driver 32 together, whilst permitting relative rotation of these components.

[0031] Though not shown in these drawings, in preferred embodiments of the design the driver and/or carrier carry cooperating formations to provide a detent or other retention means by which the driver and carrier would be secured in their relative positions with the arms extended. Thus, to move the carrier 22 relative to the driver 32 to collapse the arms would require a force greater than that necessary to overcome the sliding friction between the carrier and driver, so that the arms 14b are effectively "locked" in their extended positions.

[0032] The bottom end of the column first part 12a carries a plug 44 with two outwardly-directed pegs 46 (only one of which can be seen in Fig.6). The sleeve 24 of the carrier 22 has a channel 50 for accommodating a respective peg 46. Accordingly, to secure the column first part 12a in its extended position relative to the column part 12b it is first pulled out to its greatest extent and then rotated so that the pegs 46 enter their respective channels 50. Once again, though not shown in these drawings, the channels 50 will preferably include a detent or the like requiring force (perhaps an extending force) to be applied in order to allow relative rotation and subsequent collapse of the column parts.

[0033] The arms 14a are mounted to the column first part 12a in a similar way to that described for the arms 14a, and in particular by way of a driver 52 which is similar to the driver 32 and which is non-rotatably fixed to the column first part 12a, and a carrier 26 which is similar to the carrier 22 and which can rotate relative to the driver 52 and to the column first part 12a.

[0034] The legs 16 are each pivotably mounted to the column second part 12b by way of respective pivot pins 54 which secure the legs to a housing 56 which is secured to the bottom end of the column second part 12b. Mounted upon the housing 56 is a retainer 60, the retainer being mounted to rotate relative to the housing, but being held against movement in the longitudinal direction of the column part 12b. The retainer 60 has three arms 62 and may be rotated between a position in which an arm 62 overlies a respective leg 16 (in which position the leg is held in its extended position) and a position in which an arm does not overlie a leg 16 (in which position the legs 16 may be pivoted relative to the housing 56 to (and from) their collapsed positions.

[0035] In order to extend the airer from its fully collapsed condition shown in Fig.4 to its fully extended position shown in Fig.1, the following steps are undertaken (not necessarily in this order). The legs 16 are pivoted to their extended positions, and the retainer 60 is rotated so as to retain the legs 16. The column part 12a is telescoped out of the column part 12b, and when fully extended the column part 12a is rotated so as to drive the pegs 46 into their respective channels 50. It will be understood that the column part 12a is most suitably extended and rotated by way of the handle 30. Further rotation of the handle 30 causes the carrier 26 to rotate relative to the driver 52, and also causes the first part 12a to rotate which in turn causes the carrier 22 to rotate relative to the driver 32, causing all of the arms 14a, b to move to their extended positions.

[0036] Accordingly, it is arranged that rotation of the handle 30 in a chosen direction (in this embodiment clockwise when viewed from above) is required to: {i} engage the pegs 46 with their respective channels 50 so as to secure the column in its extended position, {ii} rotate the carrier 26 relative to the column part 12a and the driver 52 so as to extend the first set of arms 14a, and {iii} rotate the column part 12a and the carrier 22 relative to the column part 12b and the driver 32 so as to extend the second set of arms 14b. Such relative rotation can be achieved by the user gripping the handle 30 with one hand and the legs (or bottom of the column part 12b) with the other hand.

[0037] Collapsing of the airer is effected by rotating the

handle 30 in the opposite direction which allows the arms 14a,b and column 12 to be collapsed, and by moving the retainer to allow collapsing of the legs 16.

Claims

1. An airer comprising a column, a number of arms and at least three legs, the legs being movable relative to the column between a collapsed position in which they are substantially parallel to the column and an extended position in which they are at an angle to the column and can together support the column, the arms being movable relative to the column between a collapsed position in which they are substantially parallel to the column and an extended position in which they are at an angle to the column and can support articles being aired, **characterised in that** the arms move towards the legs as the arms are collapsed.

2. An airer according to claim 1 in which the legs move towards the arms as the legs are collapsed.

3. An airer according to claim 1 or claim 2 in which the arms and legs are pivotably mounted upon the column, and in which movement of the arms and legs between their respective collapsed and extended positions is by way of a pivoting movement.

4. An airer according to any one of claims 1-3 in which there are at least two sets of arms, each set being mounted at a different position upon the column.

5. An airer according to claim 6 in which the arms in one set are offset from the arms in each other set.

6. An airer according to any one of claims 1-5 in which the column is collapsible.

7. An airer according to claim 6 in which the column comprises two column parts, the first part carrying a first set of arms and the second part carrying a second set of arms and the legs.

8. An airer according to any one of claims 1-7 in which the arms are pivotably mounted on a carrier, and in which the carrier is located adjacent to a driver, movement of the carrier relative to the driver causing pivoting movement of the arms between their collapsed and extended positions.

9. An airer according to claim 8 in which the carrier is rotatable relative to the driver, and in which relative rotation of the carrier and driver causes the arms to move between their extended and collapsed positions.

10. An airer according to any one of claims 1-9 having a first set of arms and a second set of arms, the column comprising a first column part and a second column part, the column parts being relatively telescopically movable between an extended position and a collapsed position, the first column part being rotatable relative to the second column part, the column having detent means by which the column parts can be retained in their extended position, the first set of arms being mounted upon the first column part and the second set of arms being mounted upon the second column part, the first column part having a handle, relative rotation of the handle relative to the second column part causing {i} the first set of arms to move to their extended position, {ii} the second set of arms to move to their extended position, and {iii} engagement of the detent means to retain the column parts in their extended position.

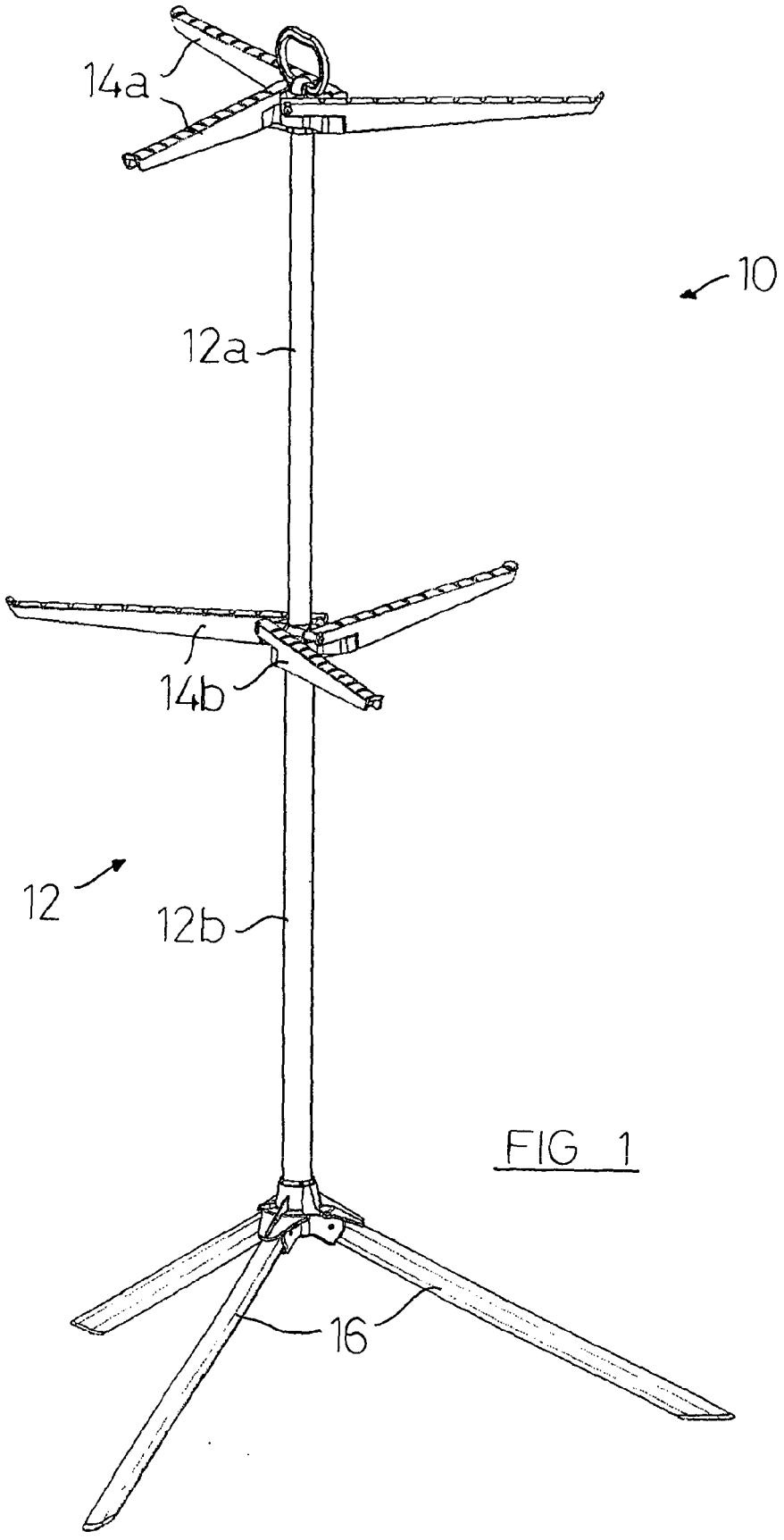


FIG 1

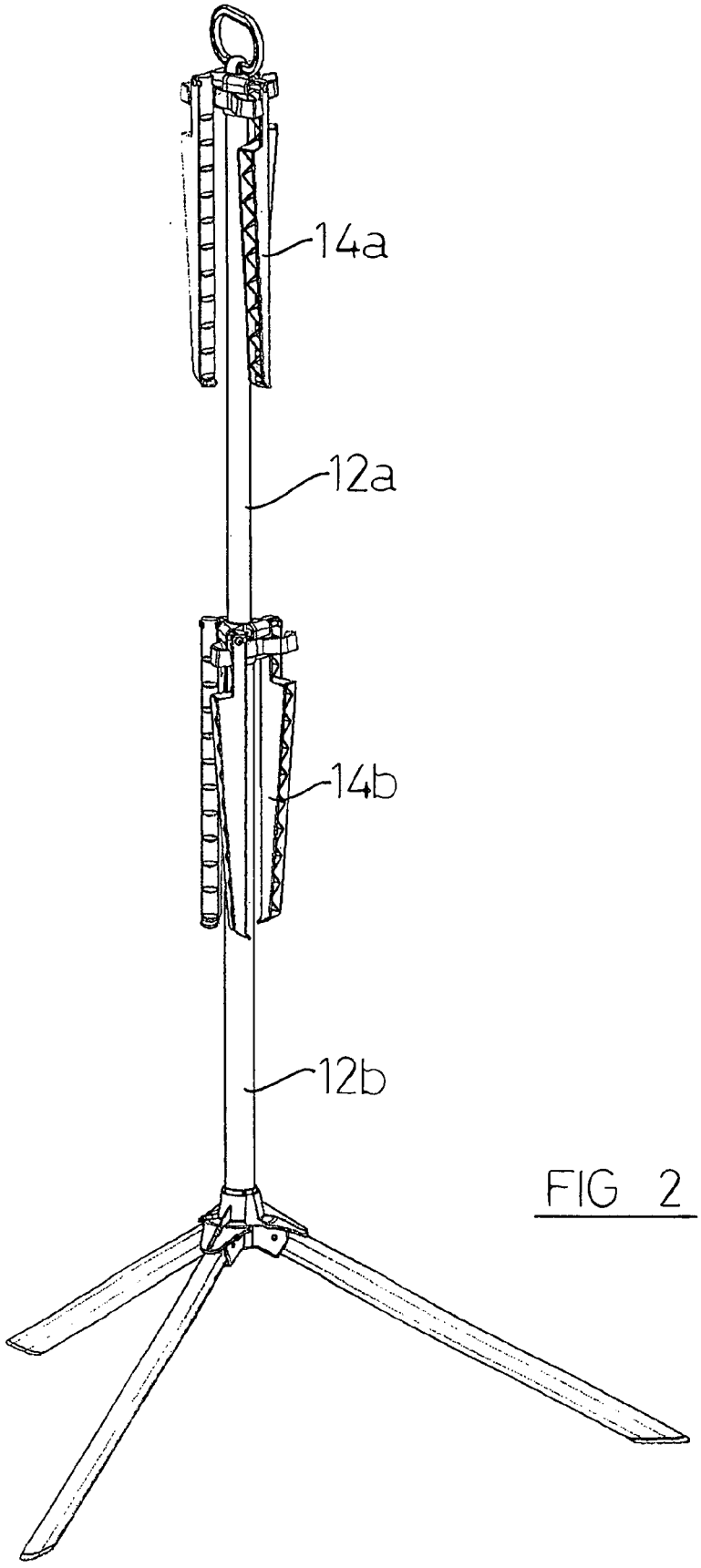


FIG 2

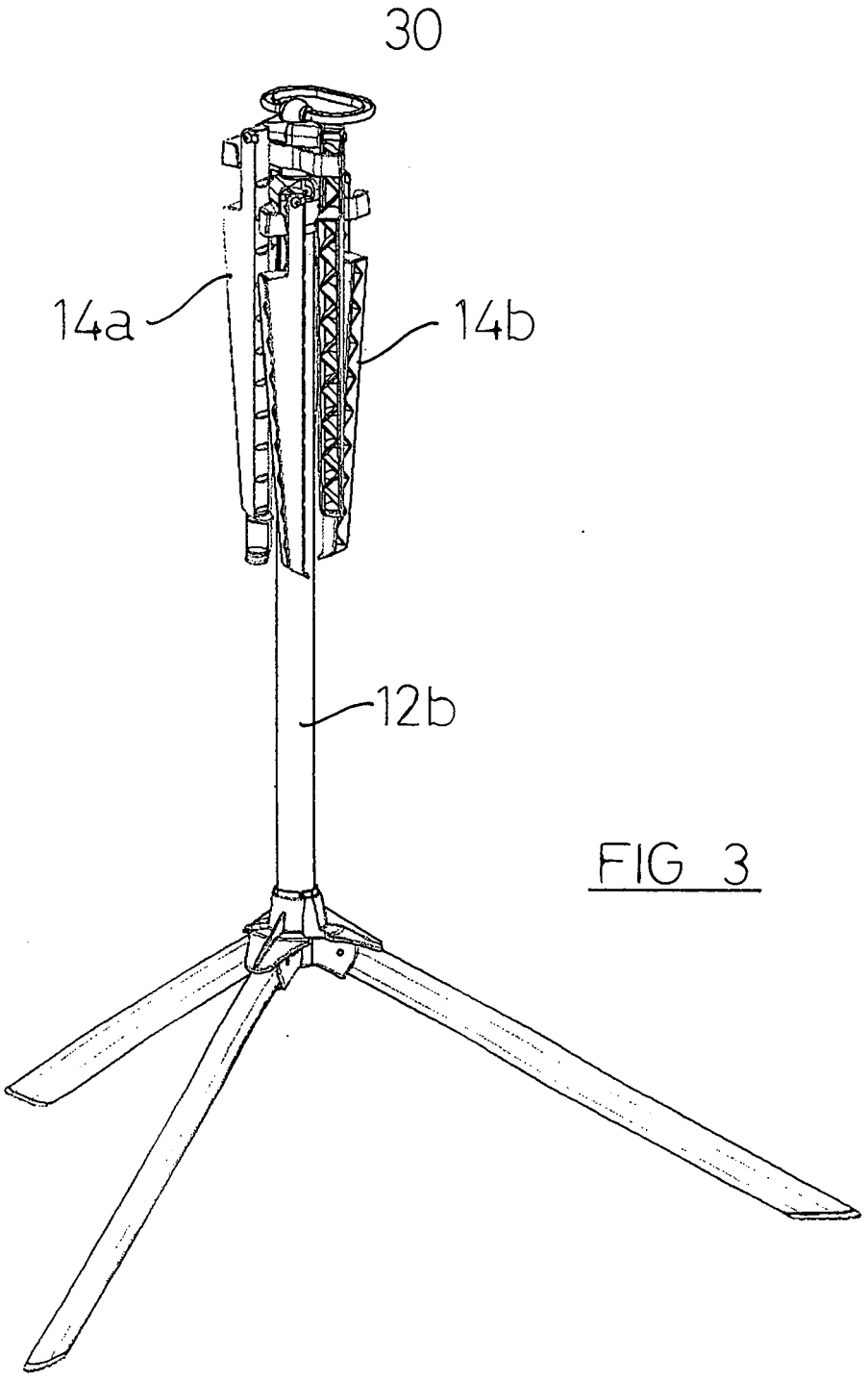


FIG 3

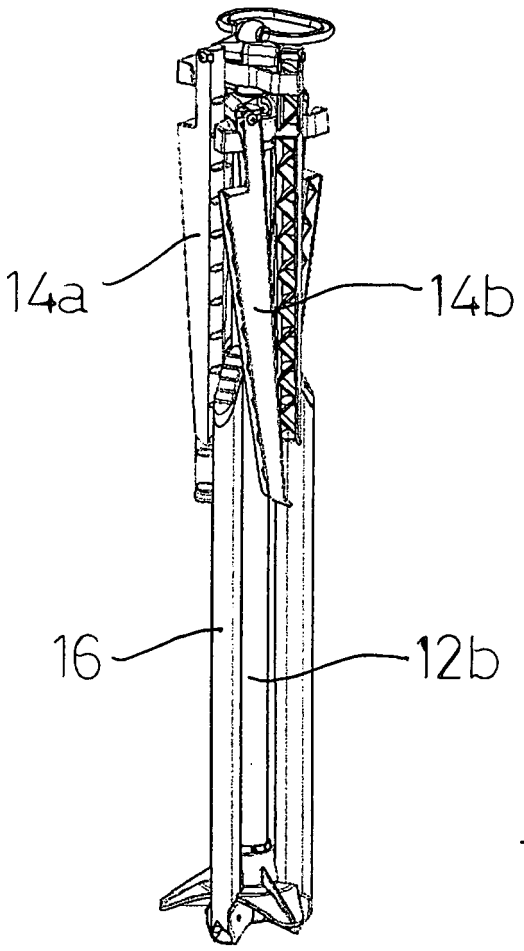


FIG 4

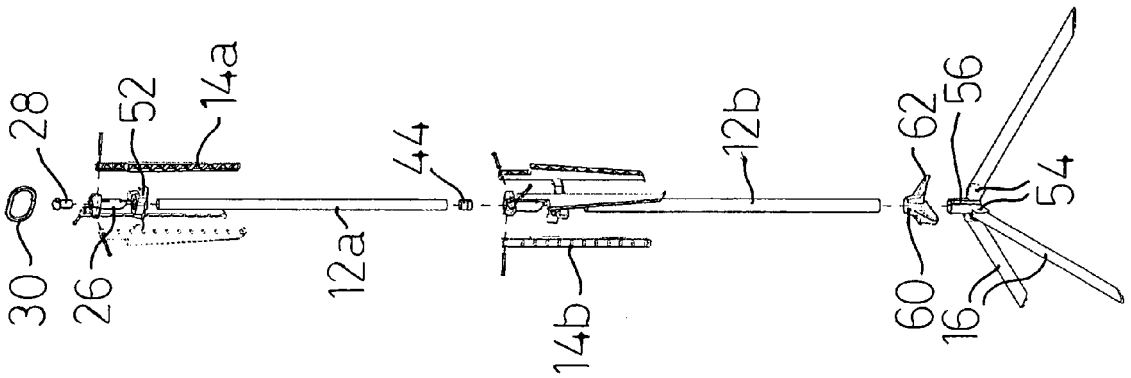


FIG 5

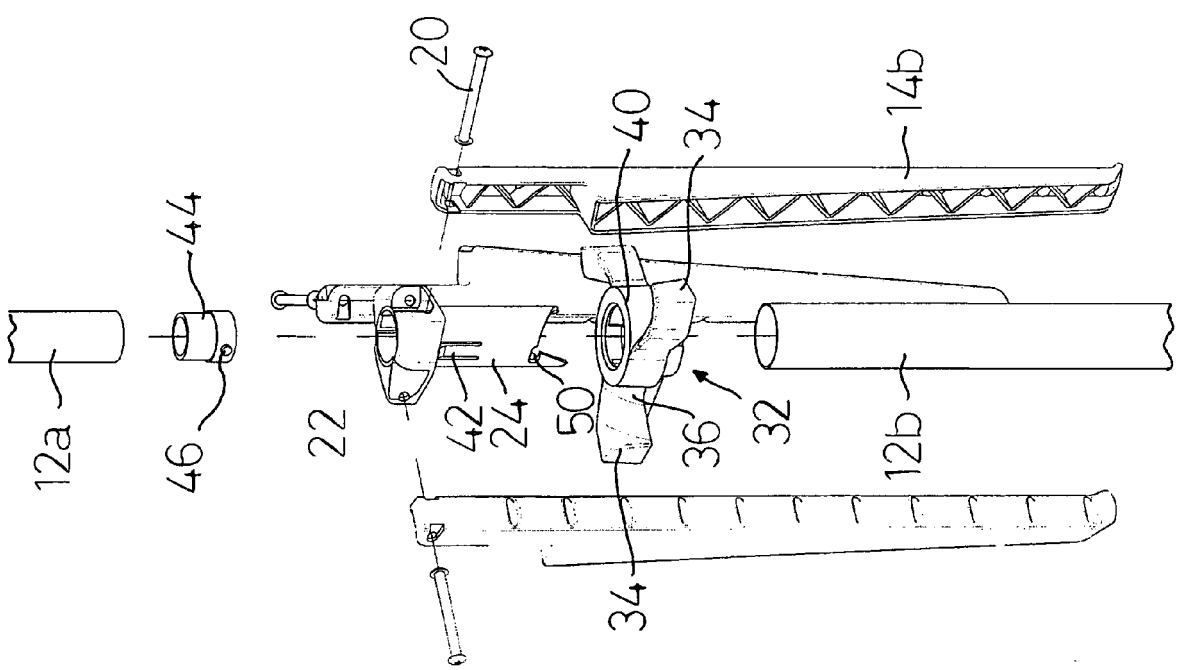


FIG 6

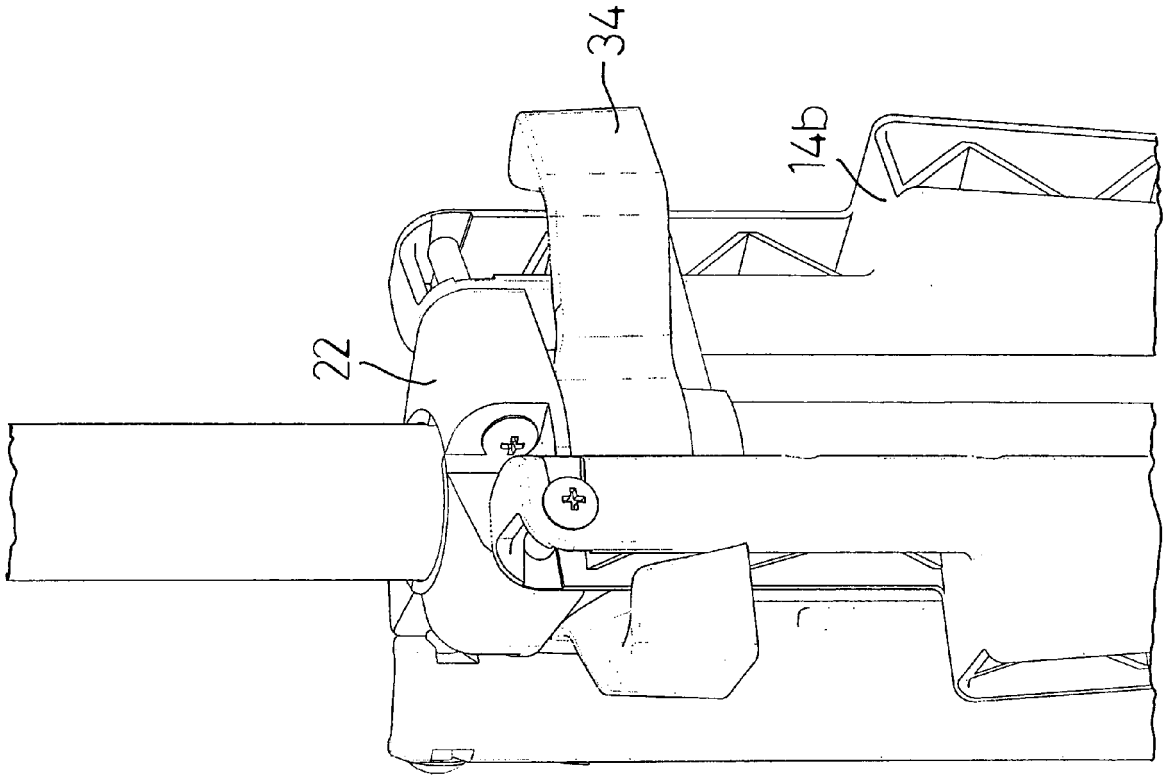


FIG 7

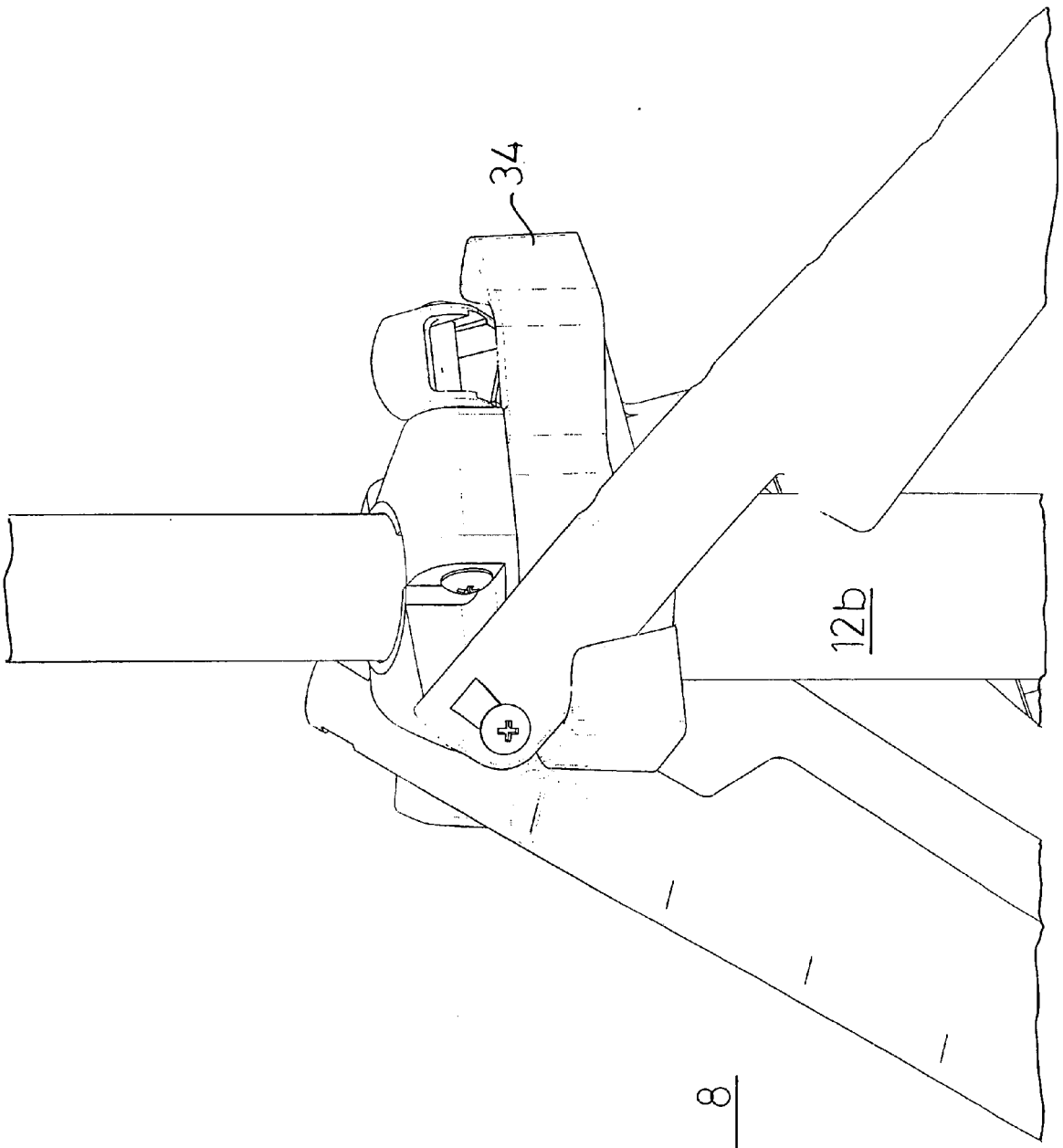
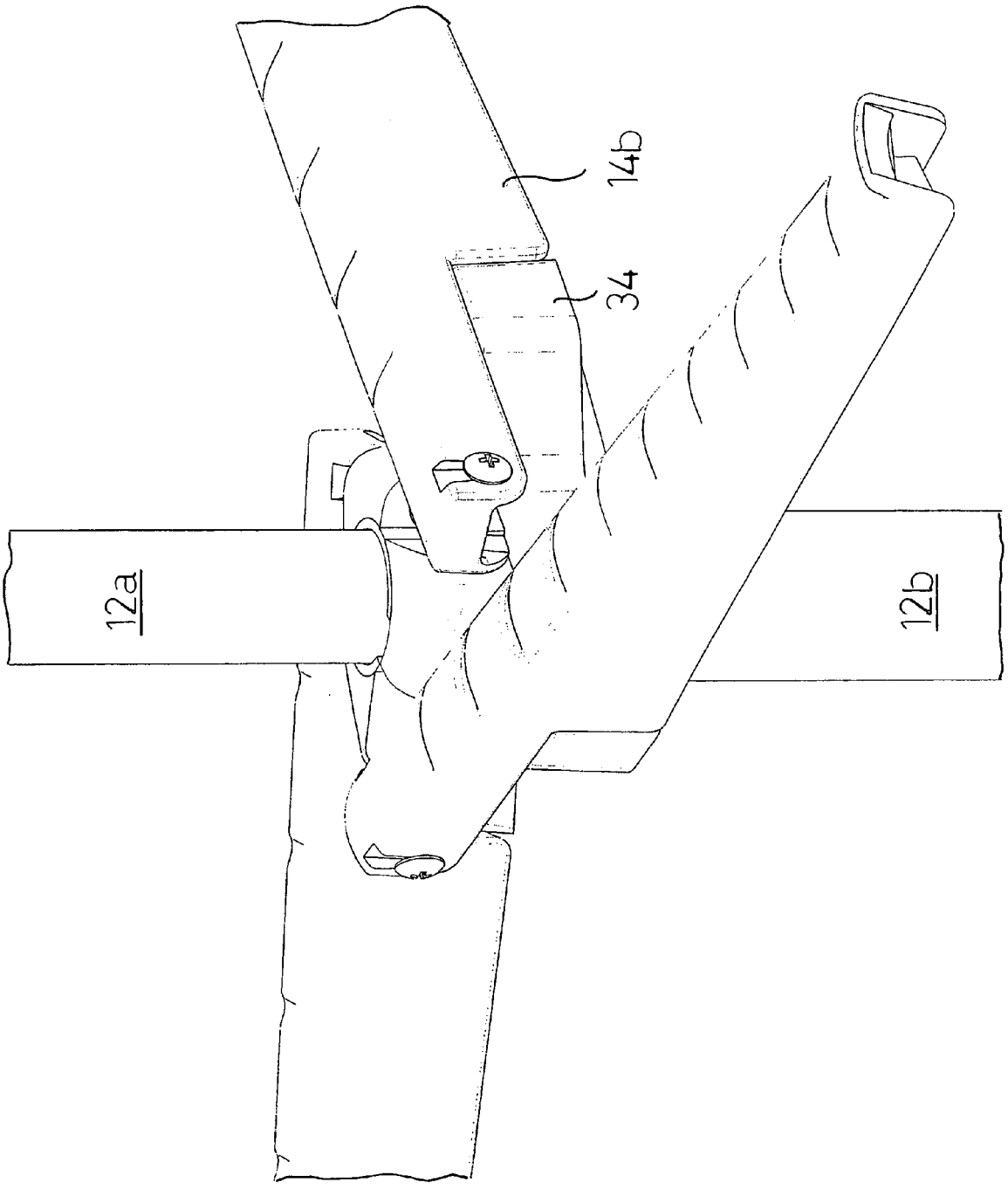


FIG 8


14b
34
12a
12b

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EUROPEAN SEARCH REPORT

Application Number
EP 06 25 5750

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	GB 683 288 A (FRANK DAVID GALLOWAY) 26 November 1952 (1952-11-26) * the whole document *	1-4,7	INV. D06F57/04
X	US 5 458 249 A (SHANG-LU TSAI [TW]) 17 October 1995 (1995-10-17) * the whole document *	1,4,6-8	
X	GB 765 611 A (A D APPLIANCES LTD) 9 January 1957 (1957-01-09) * page 1, lines 50-75; figure *	1,3-6	
X	JP 01 145395 U (-) 5 October 1989 (1989-10-05) * figures *	1-3,8	
X	US 3 069 021 A (GRAY RUTH C) 18 December 1962 (1962-12-18) * the whole document *	1-3,8	
X	US 2003/164348 A1 (SENG SWEI-ING [TW]) 4 September 2003 (2003-09-04) * the whole document *	1-3,6	TECHNICAL FIELDS SEARCHED (IPC) D06F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	9 February 2007	Prosig, Christina

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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09-02-2007

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 683288 A	26-11-1952	NONE	
US 5458249 A	17-10-1995	GB 2290956 A	17-01-1996
GB 765611 A	09-01-1957	NONE	
JP 1145395 U	05-10-1989	NONE	
US 3069021 A	18-12-1962	NONE	
US 2003164348 A1	04-09-2003	NONE	

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