

(12) **UK Patent Application** (19) **GB** (11) **2 323 274** (13) **A**

(43) Date of A Publication 23.09.1998

(21) Application No **9804754.1**

(22) Date of Filing **07.03.1998**

(30) Priority Data

(31) **9705576** (32) **18.03.1997** (33) **GB**

(71) Applicant(s)

Philip Nixon
33 Greengage Rise, Melbourn, ROYSTON,
Hertfordshire, SG8 6DS, United Kingdom

(72) Inventor(s)

Philip Nixon

(74) Agent and/or Address for Service

Keith W Nash & Co
90-92 Regent Street, CAMBRIDGE, CB2 1DP,
United Kingdom

(51) INT CL⁶
A47B 91/12

(52) UK CL (Edition P)
A4L LABG LDE L107 L114

(56) Documents Cited
GB 2221612 A GB 2122483 A GB 1461588 A

(58) Field of Search
UK CL (Edition P) **A4L LABG LDC LDE**
INT CL⁶ **A47B 91/00 91/02 91/12**
Online: WPI

(54) Abstract Title

Chair or bed raiser

(57) A chair or bed raiser, which raises the height of a chair or bed to facilitate use by the elderly or handicapped, comprises two end supports 1 interconnected by two relatively adjustable tubes 2,3. The tubes impart torsional rigidity to the raiser and can be clamped at an adjusted position by a clamping bolt 4. Each end support has a formation, such as a cup 12, to support or engage a castor or leg end of a chair or bed. At its lower end, each end support has a floor-engaging foot 7 which extends laterally on both sides of the tubes 2,3, in order to impart stability to the raiser. In other embodiments, the raiser may have double cups to support the centre of a double bed, or the cups may not be height adjustable.

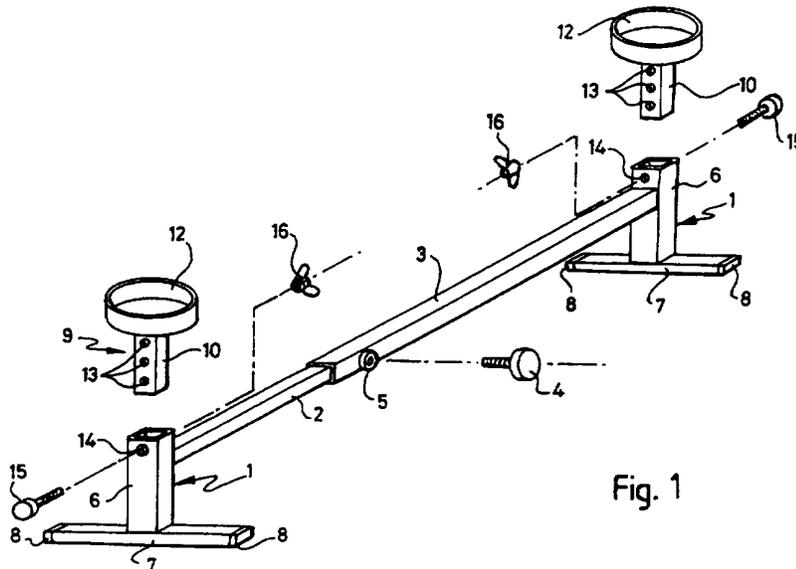


Fig. 1

GB 2 323 274 A

1/4

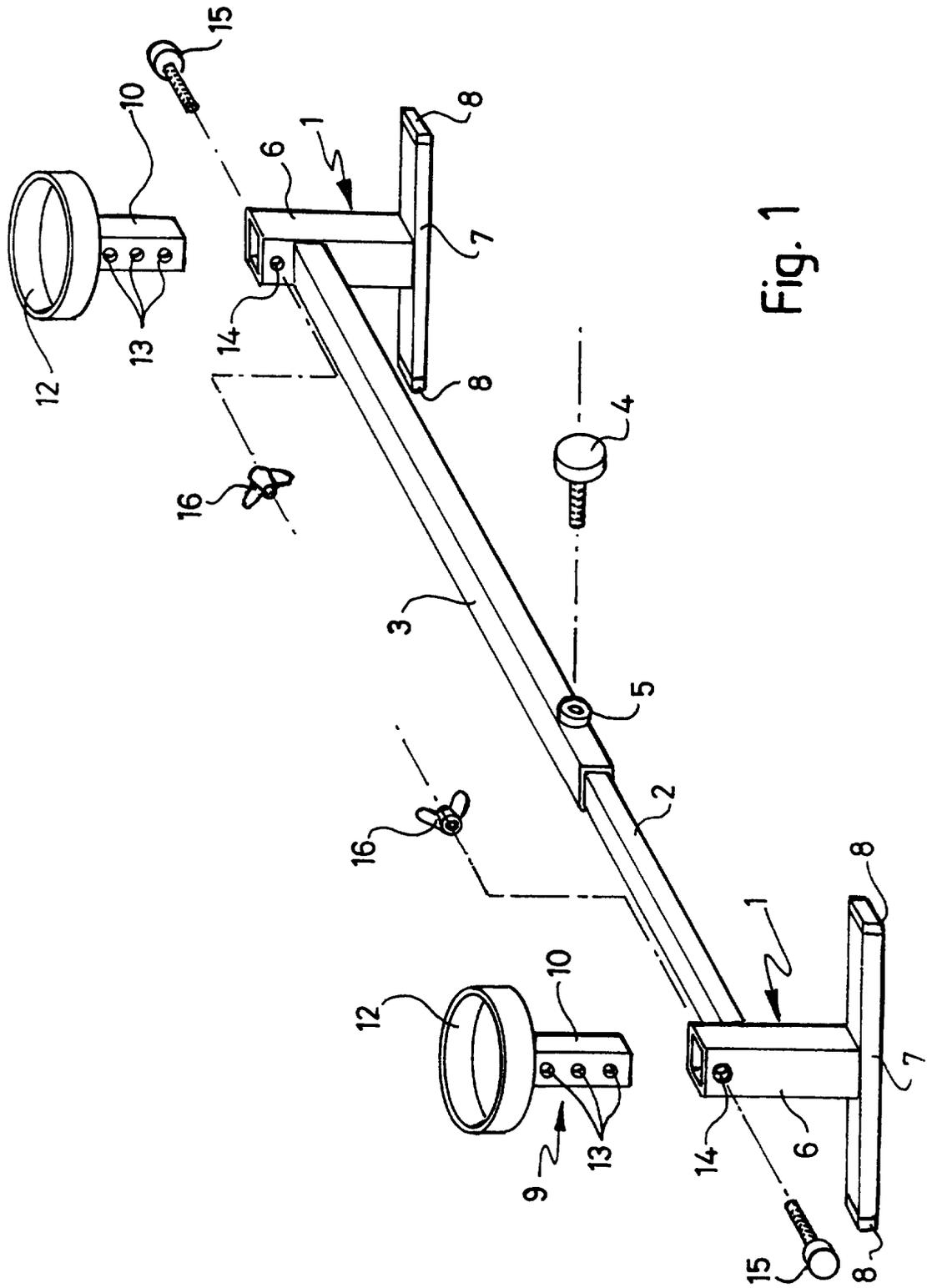


Fig. 1

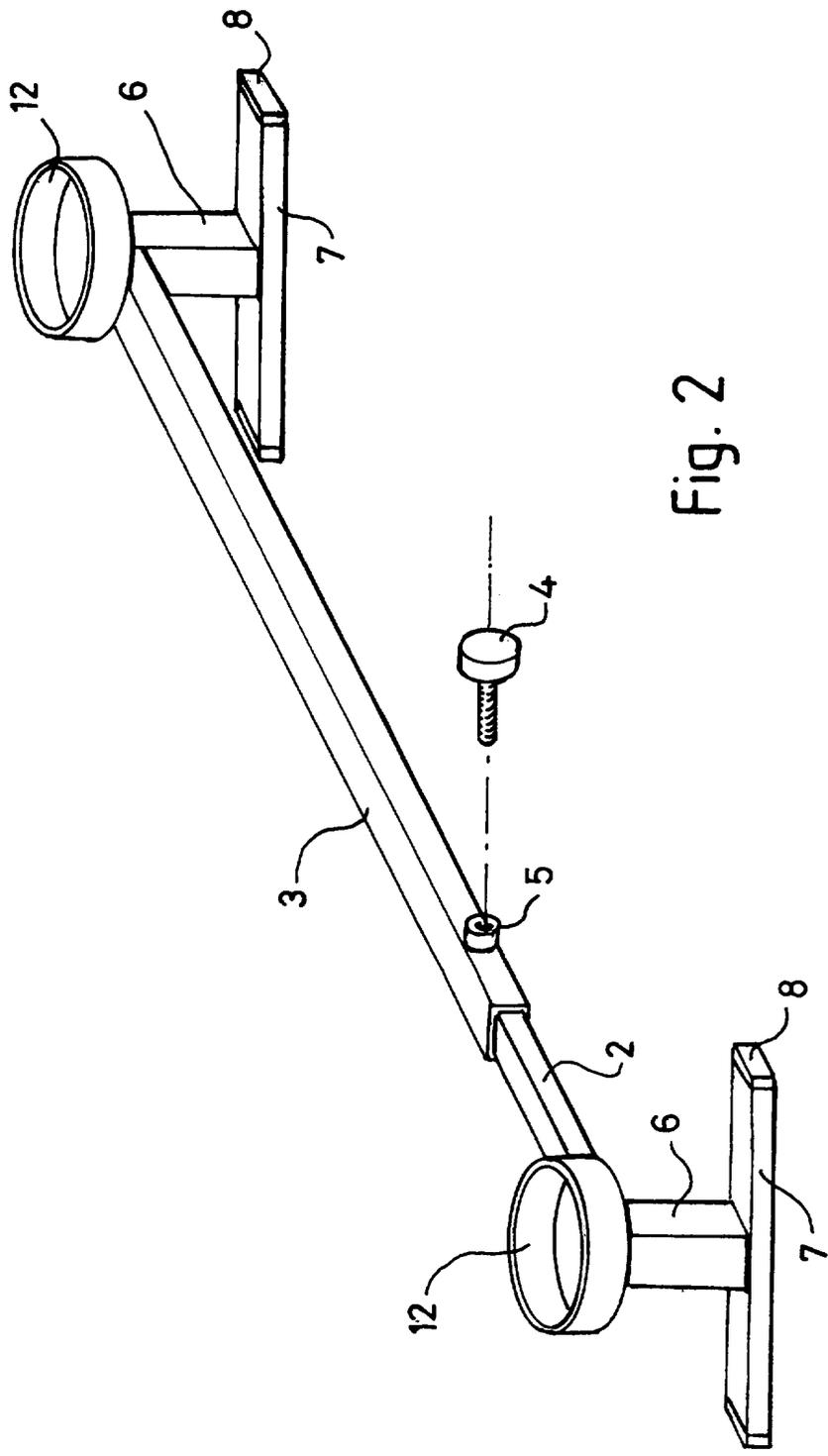


Fig. 2

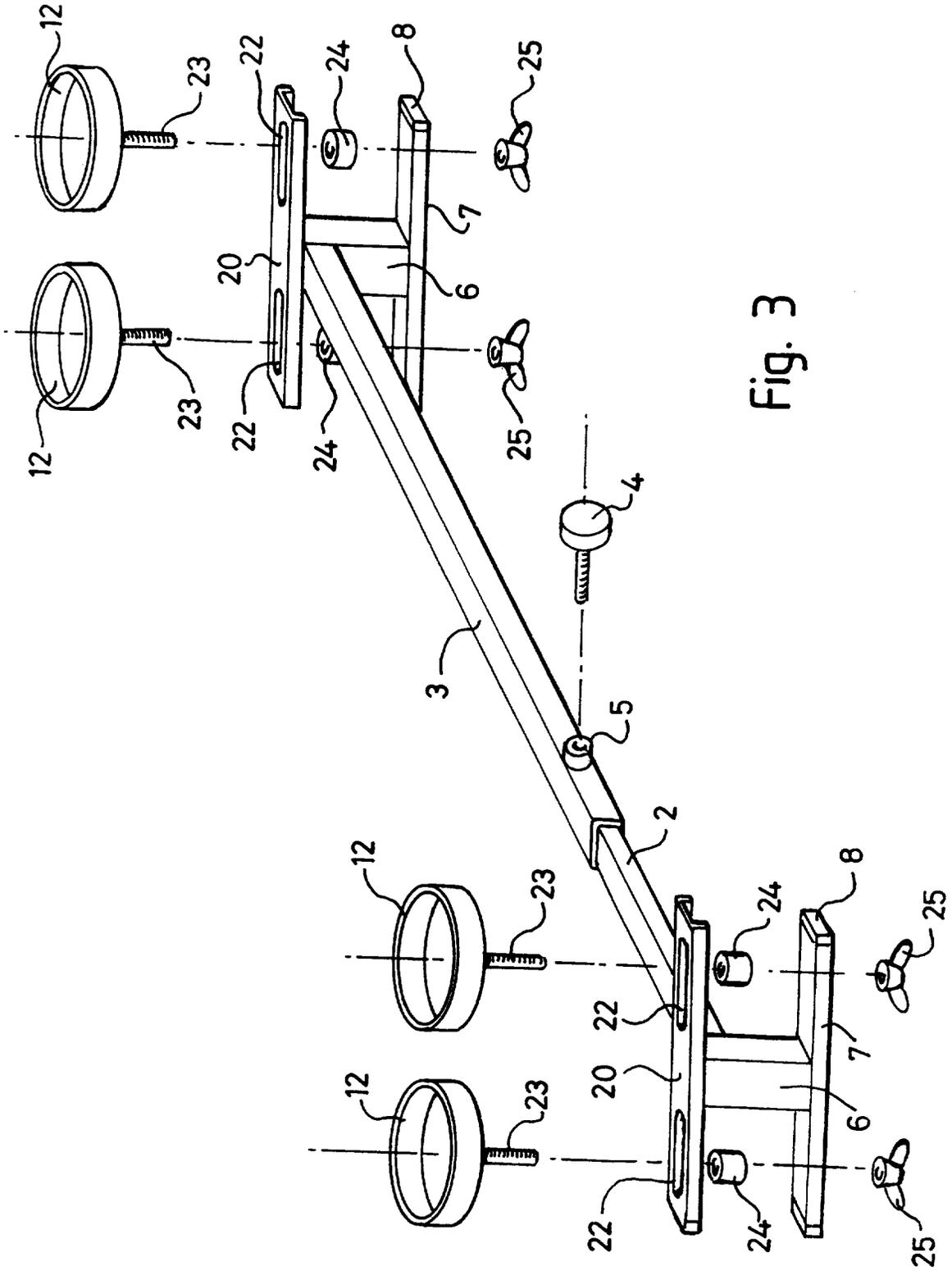


Fig. 3

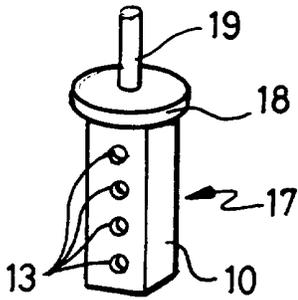


Fig. 4

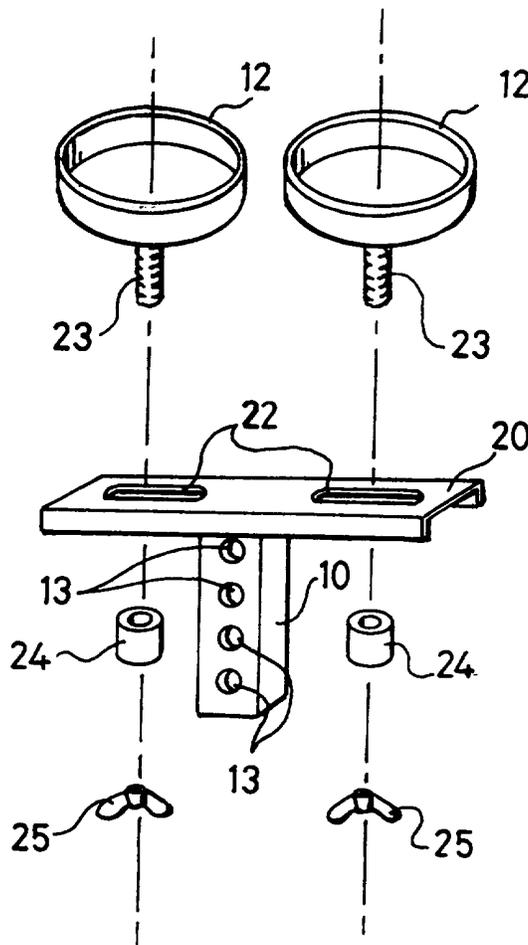


Fig. 5

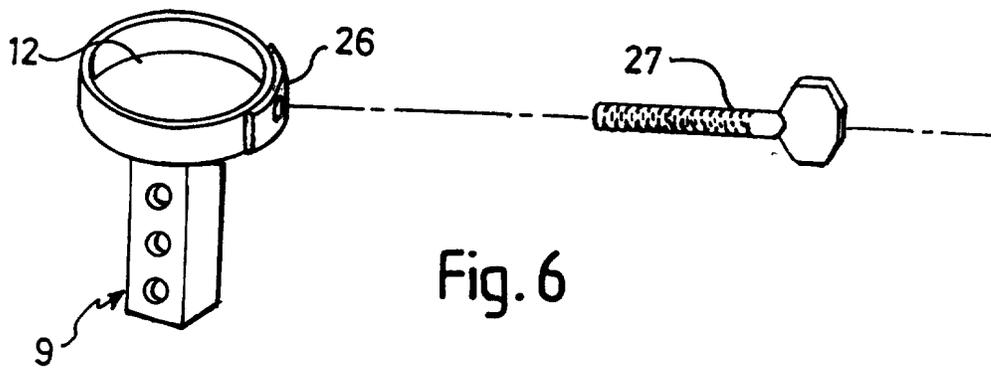


Fig. 6

TITLE: CHAIR OR BED RAISER

This invention relates to a chair or bed raiser which is a device to raise the height of an easy chair or divan bed to facilitate use by the elderly or handicapped. Such devices may also be used to raise the height of other articles of furniture, such as settees, couches or tables. The invention will hereinafter be referred to as a chair or bed raiser but it will be appreciated that it may be used with these other articles of furniture.

According to the invention a chair or bed raiser comprises two end supports interconnected by a link which is capable of imparting rigidity to the two end supports in the sense of resisting relative torsional movement about an axis generally aligned with the link, the link being adjustable in length and being capable of being rendered substantially rigid at a selected adjusted length so that the spacing between the end supports can be varied, each end support having at its upper end a formation shaped to support or engage a portion of the chair or bed and having at its lower end a floor-engaging foot which extends laterally on both sides of the longitudinal axis defined by the link, in order to impart stability to the raiser in use.

The link is preferably formed by two relatively telescopic link members of non-circular cross-sectional shape, to provide the rigidity and length variability, and clamping means, for example a clamping bolt, may be provided to clamp the telescopic link members at a selected adjusted length. Preferably, the two link members are made of square-section steel tube and are a close sliding fit one within the other.

Each end support preferably comprises a vertical leg to the lower end of which is rigidly attached the corresponding foot which is conveniently of steel tube, bar or strip and which projects on both sides of the leg at right angles to the general direction of elongation of the link.

Said formation may be an upwardly open recess to receive the lower end of the leg of a chair or bed, or a castor attached thereto, or may be an upwardly projecting pin to fit into a castor socket in the chair or bed.

The chair or bed raiser may be of fixed height, to impart a non-variable increase in height to a chair or bed under which the raiser is placed. Alternatively, a chair or bed raiser according to the invention may be adjustable in height, and this is conveniently achieved by incorporating the formation in a separate component which is engageable with the corresponding leg and retainable with respect to the leg in a chosen position imparting a desired height to the formation.

Preferred embodiments of the invention will now be described, by way of example, with reference to the accompanying drawings, in which:-

Figure 1 is an isometric view of a first chair or bed raiser with height adjustment,

Figure 2 is an isometric view of a second chair or bed raiser of fixed height,

Figure 3 is an isometric view of a third chair or bed raiser of fixed height, for supporting the centre of a double bed, and

Figures 4, 5 and 6 are isometric views of alternative components for use in the raiser of Figure 1.

The chair or bed raiser illustrated in Figure 1 comprises two identical end supports 1 interconnected by a link in the form of two relatively telescopic square-section steel tubes 2, 3 capable of being clamped at an adjusted position by a clamping bolt 4 the shank of which is threaded into a threaded nut 5 welded on the outer tube 3. Each end support 1 comprises a square-section tubular steel leg 6 the lower end of which is welded to a foot 7 in the form of a rectangular-section steel tube the ends of which are closed by plastics bungs 8. One of the legs 6 is welded to an end of the tube 2 and the other one of the legs 6 is welded to an end of the tube 3.

The upper end of each leg 6 is open and receives, with a close sliding fit, a separate bearer component 9 comprising a vertical stem 10 (of square-section tubular steel) to the upper end of which is welded a steel cup 12 presenting an upwardly open circular recess. The stem 10 has a series of four holes 13 each of which passes horizontally through a pair of opposed walls of the stem 10, and adjacent its upper end the leg 6 has a through hole 14 to receive a threaded bolt 15 onto the shank of which a wing nut 16 can be threaded. The bolt 15 is passed through the hole 14 in the leg and through a selected one of the four holes 13 in the stem 10 and is secured by means of the wing nut 16, so enabling the component 9 to be secured in the top of the leg 6 in a selected one of four different positions corresponding to four different effective heights of the raiser. The increase in height imparted by the raiser is between 80mm and 127mm in three increments.

The tubes 2 and 3 are a close sliding fit one within the other and, when clamped by the clamping bolt 4, are rigid and impart to the raiser substantial torsional rigidity which resists any tendency for one end support to flex or turn with respect to the end other support, particularly about an axis generally aligned with the longitudinal direction of the link formed by the clamped tubes 2, 3.

Each foot 7 has portions which project laterally from the leg 6 on both sides of the longitudinal axis defined by the steel tubes 2, 3. In consequence, the feet 7 impart stability which prevents the raiser toppling over.

To raise a chair, two raisers of the form shown in Figure 1 are required. Each raiser, with the bearer components 9 clamped in position to impart the required height but with the bolt 4 loose, is placed under the chair so as to extend from the front to the back of the chair, not side-to-side. The two castors on one side of the chair are located in the respective cups 12 of one raiser, the end supports 1 are pushed towards one another and the clamping bolt 4 is then tightened. The second raiser is used to raise the other side of the chair.

In Figures 2 to 4 parts corresponding to those of Figure 1 bear the same reference numerals.

The components 9 of Figure 1 have shallow metal cups 12 with upwardly open recesses to receive castors on the lower ends of chairs or beds. Each cup has a circular base surrounded by an annular wall. It may sometimes be preferred to provide positive location by insertion into the base of a chair or bed, and in this case a pair of components 17 of the form illustrated in Figure 4 may be used instead of the pair of components 9 in the raiser of Figure 1. The component 17 in Figure 4 has a stem 10 equivalent to the stem 10 of the component 9. To the upper end of this stem is welded a metal disc 18 from which projects upwardly a pin 19 which is intended for insertion with a close fit into a castor socket in the base of the bed or chair. The stem 10 of the component 17 of Figure 4 is retained in the leg 6 at a chosen one of the four possible heights, as described in relation to Figure 1.

The raiser of Figure 2 can be regarded as a simplified version of Figure 1 in that the raiser of Figure 2 is of fixed height, each cup 12 being welded directly onto the upper end of the corresponding leg 6. Other details of construction and use correspond to Figure 1, but of course the raiser of Figure 2 raises the chair or bed by a fixed amount, eg 75mm.

When the raiser of Figure 1 or 2 is used to raise a single bed, the raiser spans the bed from side to side. For a single bed, a pair of raisers are necessary, and these could both correspond to Figure 1, both correspond to Figure 2, or one could correspond to Figure 1 and one to Figure 2, with a choice as to whether the adjustable height raiser is used at the head end or the foot end of the bed. In the case of the adjustable raiser of Figure 1 or 4, the chosen height of one end support 1 may differ from the chosen height at the other end support 1, for example where it is desired to compensate for an existing angle of tilt or impart an angle of tilt.

Instead of spanning a bed from side to side, a raiser according to the invention could be made of appropriate length to span a bed from end to end.

A pair of raisers is sufficient to raise a single bed, but double beds (or certain large settees or sofas) needs additional support at their mid-length. Most double beds are made in two portions which are joined along a transverse line extending across the width of the bed midway between the head end and the foot end. Each portion has four castors, so that at

the middle of the bed are two pairs of castors, with the two castors of each pair being closely spaced.

The raiser of Figure 3 is designed to support these two pairs of castors at the mid length of a double bed and is used in conjunction with a pair of raisers of the form shown in Figure 1 or Figure 2. In the raiser of Figure 3, a length of steel channel 20 is welded to the upper end of each leg 6 with the ends of the channel projecting laterally from the leg, generally above the projecting ends of the corresponding foot 7. Each channel 20 has two elongated slots 22 for clamping to the channel 20 a pair of cups 12. A threaded stud 23 is welded to the underside of each cup, at the middle thereof, the stud 23 being passed first through a corresponding slot 22 and then a spacer 24, after which it is tightened at a chosen position along the length of the slot 22 by a wing nut 25. The spacers 24 allow the wing nuts 25 to be tightened without fouling the depending flanges of the channel 20.

The raiser of Figure 3 is placed under the mid region of a double bed, spanning the bed from side to side. One pair of castors are located in the respective cups 12 supported by one leg 6 and the other pair of castors are located in the respective cups 12 supported by the other leg 6. The legs 6 are pushed towards one another and the clamping bolt 4 is tightened, and the two cups 12 of each pair are pushed towards one another and the wing nuts 25 tightened. The result is a very stable arrangement for the middle of a double bed.

Instead of spanning the bed from side to side, the raiser of Figure 3 could span the bed from end to end.

The raiser of Figure 3 is a fixed height. If an adjustable height raiser for the middle of a double bed is required, two sets of components each as shown in Figure 5 may be used instead of the pair of components 9 in Figure 1. One of the components of Figure 5 has a stem 10 which fits in the upper end of the corresponding leg 6 of the raiser of Figure 1, being capable of being retained at a chosen one of four different heights dependent on which of four holes 13 in the stem 10 is aligned with the hole 14 in the leg 6. Cups 12 are clampable with respect to a channel 20, as described for Figure 3.

The adjustment in link length provided by the relatively telescopic tubes 2, 3 gives an adjustment in length of the raiser of between 432mm and 788mm for chairs and settees and between 762mm and 1448mm for single and double beds.

For added stability, the feet 7 may have through holes for screwing the feet to the floor. The base of each cup 12 may be provided with an indentable material, like linoleum which in use takes on the shape of the engaging surface of the castor in the cup, to improve location of the castor within the cup.

Figure 6 illustrates a possible modification to the component 9 of Figure 1. The modification involves the welding, to the external curved wall of the cup 12, of a threaded nut 26 or similar member providing a threaded hole which continues through the wall of the cup 12. Alternatively, the cup wall itself can be drilled and tapped to provide a thread, avoiding the need for a separate nut 26. A thumbscrew 27 or the like is threaded into the nut 26 and is capable of engaging a castor or leg within the cup 12, so as to clamp the castor or leg in the cup to improve stability. It will be appreciated that the clamping arrangement shown in Figure 6 could be used in any or all of the cups 12 of Figures 2, 3 and 5.

CLAIMS

1. A chair or bed raiser comprising two end supports interconnected by a link which is capable of imparting rigidity to the two end supports in the sense of resisting relative torsional movement about an axis generally aligned with the link, the link being adjustable in length and being capable of being rendered substantially rigid at a selected adjusted length so that the spacing between the end supports can be varied, each end support having at its upper end a formation shaped to support or engage a portion of the chair or bed and having at its lower end a floor-engaging foot which extends laterally on both sides of the longitudinal axis defined by the link, in order to impart stability to the raiser in use.
2. A chair or bed raiser according to claim 1, wherein the link is formed by two relatively telescopic link members of non-circular cross-sectional shape, to provide the rigidity and length variability.
3. A chair or bed raiser according to claim 2, wherein the two link members are made of square-section steel tube and are a close sliding fit one within the other.
4. A chair or bed raiser according to claim 2 or 3, wherein clamping means are provided to clamp the telescopic link members at a selected adjusted length.
5. A chair or bed raiser according to any of the preceding claims, wherein each end support comprises a vertical leg to the lower end of which is rigidly attached the corresponding foot.
6. A chair or bed raiser according to claim 5, wherein each foot is of steel tube, bar or strip and projects on both sides of the corresponding leg at right angles to the general direction of elongation of the link.

7. A chair or bed raiser according to any of the preceding claims, wherein said formation is an upwardly open recess to receive the lower end of the leg of a chair or bed, or a castor attached thereto.

8. A chair or bed raiser according to claim 7, wherein a threaded member such as a thumbscrew extends through a threaded hole in the cup wall, the threaded member being operative to clamp said lower leg end or castor in the cup.

9. A chair or bed raiser according to any of claims 1 to 6, wherein said formation is an upwardly projecting pin to fit into a castor socket in the chair or bed.

10. A chair or bed raiser according to any of the preceding claims, wherein the chair or bed raiser is of fixed height, to impart a non-variable increase in height to a chair or bed under which the raiser is placed.

11. A chair or bed raiser according to any of claims 1 to 9, wherein the chair or bed raiser is adjustable in height.

12. A chair or bed raiser according to claim 11, wherein the formation is incorporated in a separate component which is engageable with the corresponding leg and retainable with respect to the leg in a chosen position, imparting a desired height to the formation.

13. A chair or bed raiser constructed and arranged substantially as herein particularly described with reference to any one of the embodiments illustrated in the accompanying drawings.



Application No: GB 9804754.1
Claims searched: 1-13

Examiner: Neil Franklin
Date of search: 28 May 1998

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.P): A4L(LABG, LDC, LDE)

Int Cl (Ed.6): A47B 91/00, 91/02, 91/12

Other: Online: WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2 221 612A (NIXON) See entire document	1-5,9,11
X	GB 2 122 483A (PIERCE) See entire document	1,5,7,10,11
X	GB 1 461 588 (LANGHAM) See entire document	1,7,10,11

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.