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**DE-B- 1 261 990**
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## Description

The present invention relates to a table stand intended for use preferably in caravans and motorhomes, wherein the stand supports at the top thereof a frame-like part on which a tabletop is intended to be placed and which can be adjusted vertically so as to position the table-top in different height positions as specified in the preamble of claim 1 and as disclosed, for example, in US-A-4 558 648.

The tables provided in caravans/motorhomes normally have the form of a tabletop which is fitted to the top of a stand. This type of table is normally intended for two different purposes. Firstly, the table is intended for use as a conventional dining table, from which food and coffee can be partaken in the caravan/motorhome. Secondly, the table shall be capable of being raised and lowered, so as to enable the tabletop to be lowered to a position in which it will function as part of a bed in the caravan/motorhome. Lowering and raising of the table has hitherto been a complicated process, and consequently time-consuming.

The object of the present invention is to eliminate this problem and to provide a tabletop stand which can be readily handled and manoeuvred when lowering and raising the same. This object has been achieved with a stand of the aforesaid kind which is characterized by the features specified in the characterizing portion of claim 1.

A preferred embodiment of the invention will now be described in more detail with reference to the accompanying drawings, in which Figure 1 shows the inventive stand in a raised position and provided with a lockable gas-spring and a spring operating or activating means; Figure 2 illustrates the stand of Figure 1 in a lowered position; Figure 3 and Figure 4 show the attachment of the gas-spring to the upper part of the stand, wherein Figure 4 shows the attachment from beneath; and Figure 5 illustrates the construction of the operating means.

Figures 1 and 2 illustrate the inventive stand. The stand includes a frame-like part 1 which is carried by two leg members 2, 3. Each leg member 2, 3 includes two substantially parallel rods or bars 4, 5; 6, 7, wherein the two bars of each pair of bars are spaced from one another and are connected together at both ends thereof by means of a respective transverse rod 8, 9; 10, 11, wherein the lowermost transverse rods 8; 10 function to support the stand against the underlying support surface and wherein the upper, transverse rods 9; 11 are intended to coact with the frame-like part 1. The two leg members 2, 3, i.e. the pairs of bars 4, 5; 6, 7 are mutually connected by means of a hinge means or pivot in the form of a transverse rod 12, which extends through the bars approximately midway therealong the rods, preferably at a location which is slightly above centre. This enables the two ends of respective pairs of bars 4, 5; 6, 7 to be moved towards and away from each other in a scissor-like fashion and therewith move the frame-like part 1 vertically.

The frame-like part 1 and bars of the illustrated embodiment are made of varnished or lacquered steel plate and the frame-like part includes four bars 13-16 disposed in the form of a rectangle. The stand may, of course, be made of some other material and the frame-like part 1 may have the form of a square. At least two of the frame bars, the longitudinally extending bars 14, 15 of the illustrated embodiment have a substantially U-shaped cross-section with the legs of the U facing inwards. The upper transferse rods 9, 11 of the two leg members 2, 3 are intended for coaction with the frame bars 14, 15. The one rod 9 is pivotally mounted in the bars 14, 15, whereas the other transverse rod 11 is provided at both ends with suitable means for sliding in the U-shaped part of the bars in order to achieve the aforesaid scissor-like movement of the leg members.

An essential feature of the invention is that a blockable gas-spring 17, or piston-cylinder device, is provided for enabling the position of the frame-like part 1 to be adjusted vertically in a smooth continuous fashion, both in an upward and in a downward direction. The gas-spring includes a bottom part 18 which is pivotally connected to the leg member 3 beneath the pivot rod 12, and an upper part 19 which is pivotally connected to the transverse frame-bar 15 on the same side of a vertical plane passing through the rod 12 as the lower part 18 (see also Figures 3, 4).

The gas-spring 17 is provided with a centrally positioned pin 20 which protrudes slightly from the upper part 19 of the gas-spring in an axial direction. This pin 20 is intended to activate a release valve provided within the gas-spring.

The pin 20 is intended to coact with a cylindrical bushing 21 which is pivotally connected to a holder means 23, by means of screws 22 or the like, said holder means being mounted on the inside of the frame bar 15. The pin 20 thus extends straight through the bushing 21 in its transverse direction and protrudes slightly beyond the bushing for coaction with an operating means or activator 24 (see also Figure 5). Because the bushing 21 is pivotally connected to the holder means 23 and because the bottom part 18 of the gas-spring 17 is pivotally connected to the leg member 3, the gas-spring will take different angular positions in relation to the frame-like part 1 of the stand and the leg member 3. According to this embodiment, the leg member 3 includes two parallel bars or rods 6,

7. The bottom part 18 of the gas-spring 17 is therewith pivotally connected to a transverse rod 25, which mutually connects the bars or rod 6, 7 and which is positioned beneath the hinge or pivot rod 12.

The operating means 24 has an elongated shape and has a handle 26 provided on the rear thereof and a part 27 which functions to engage the end of the pin 20 on the front thereof. The part 27 is provided with a hole 28 by means of which the operating means is pivotally conencted to the holder means 23 substantially immediately above the pivot 22 for attachment of the bushing 21. The position of the pivot 22 has been referenced x in Figure 5. The forward part 27 of the operating means 24 is also provided with a concave recess 29 which is intended to abut the end of the pin 20 and which includes substantially 90° of a circle. The radii R of the recess 29 are therewith essentially the same, taken from the x. One important advantage afforded hereby is that the force exerted on the pin 20 by the operating means will act substantially in the longitudinal direction of the pin, irrespective of the height position of the stand, i.e. irrespective of the angle between the operating means 24 and the longitudinal axis line of the pin 20. This fact enables the gas-spring 17 to be operated effectively. When the pin 20 is pressed inwardly by means of the operating means 24, the release valve in the gas-spring will open. The gas-spring is thereby compressed with a force which is greater than the resistance exerted by the gas-spring, which takes place when the stand is to be pressed down to a low level. If it is wished to maintain the stand at this low level, the pressure on the pin is removed, thereby causing the pin to return to its starting position. This closes the release valve in the gas-spring and the spring will thereby be blocked and function as a rigid rod. When wishing to raise the stand, the pin 20 is pressed-in by means of the operating means 24, thereby raising the frame part of the stand to the desired position, whereafter the pressure on the pin 20 is removed.

It will be understood that the invention is not restricted to the described embodiment and that modifications can be made within the scope of the following Claims. For instance, each leg member may consist of a single rod instead of two mutually connected rods, as illustrated in the described embodiment.

## Claims

1. A table stand preferably for use in caravans, motor homes and the like, comprising an upper frame-like part (1) on which a table top is intended to be placed, at least two leg members (2, 3) which are hinged or pivotally connected together by a hinge or pivot (12) so as to enable the parts of said leg members located on either side of the hinge or pivot to be moved towards and away from one another in a scissor-like fashion, thereby to adjust the height of the upper frame-like part (and the table top), a weight-equalizing means for compensating, among other things, the weight of the table top, and a locking means for locking the leg members in an angular position corresponding to the adjusted height, wherein said weight-equalizing means comprises a gas spring (17) which acts between one of the leg members and said upper frame-like part, **characterized** in that the locking means comprises a gas spring (17) which can be blocked by activation of a valve to a first position at an angular value of the leg members adjusted to a selected height position, so that the position of the upper frame-like part, and therewith the position of the table top, relative to an underlying support surface can be maintained, wherein the valve can be adjusted to a second position in which the gas spring is released for renewed adjustment of the height of the upper frame-like part (1); in that the valve can be switched between said first and said second positions by means of a pin (20) which extends through a bushing (21) connected to said gas spring and pivotally connected to a holder means (23) mounted in the upper frame-like part (1); and in that said pin (20) can be moved axially by means of an operating means (24) pivotally connected to the holder means (23) and having a concave recess (29) for actuable coaction with the pin (20).

2. A stand according to Claim 1, **characterized** in that the cylinder of the gas spring is attached to the upper frame-like part (1) through the intermediary of the bushing (21).

3. A stand according to Claim 1 or 2, **characterized** in that the gas spring cylinder (19) supports said centrally placed pin (20) which is intended to adjust the setting of the valve mounted within the gas spring to either the first valve setting or the second valve setting, in response to rotary movement generated by the operating means (24).

4. A stand according to Claim 1, **characterized** in that the gas spring (17) has an upper part (19) which is pivotally connected to the upper frame-like part (1) on one side of a vertical plane which passes through the pivot (12), and a lower part (18) which is pivotally connected

to the leg member (3) on the same side of said vertical plane as the upper part (19) and beneath the pivot (12).

**5.** A stand according to Claim 1, **characterized** in that a pivot for pivotal movement of the operating means (24) is mounted in the holder means (23) adjacent the bushing pivot (22).

**6.** A stand according to Claim 5, **characterized** in that the operating means (24) includes a rear part in the form of a handle (26) and a front part (27) which is intended for coaction with the pin (20) through the intermediary of the concave recess (29).

**7.** A stand according to Claim 1, **characterized** in that the recess (29) includes generally 90° of a circular arc.

**8.** A stand according to any one of the preceding Claims, **characterized** in that each of the two leg members (2, 3) includes two generally parallel bars (4, 5; 6, 7) which are mutually connected together at the bottoms thereof by a transverse first rod (8 or 10) and at the tops thereof by a transverse second bar (9 or 11), said second bars (9, 11) being intended to coact with the upper frame-like part (1).

**9.** A stand according to Claim 8, **characterized** in that the frame-like part (1) comprises four beams (13-16) which are arranged in the form of a rectangle or square, wherein two mutually opposite beams (14, 16) are intended to coact with the second bars (9, 11); and in that said two beams (14, 16) have a U-shaped cross-section, wherein the legs of the one beam are directed towards the legs of the other beam.

**10.** A stand according to Claim 9, **characterized** in that one of the second bars (9) is pivotally connected to said beams (14, 16) while the second bar (11) is provided with suitable means at its two ends to enable the U-shaped parts to slide in the two beams (14, 16).

**11.** A stand according to Claim 9, **characterized** in that a beam (15) is intended to connect parallel beams (14, 16) together at one of their two ends, so that the beam (15) extends generally perpendicular to these beams; and in that the holder means (23) is mounted generally opposite said beam (15) and has an extension which is directed inwardly towards the centre of the upper frame-like part.

**Patentansprüche**

**1.** Tischgestell, vorzugsweise zur Verwendung in Wohnwagen, Wohnmobilen und dergleichen, das folgendes umfaßt: ein oberes rahmenähnliches Teil (1), auf das eine Tischplatte plaziert werden soll, mindestens zwei Beinglieder (2, 3), die über ein Gelenk oder einen Drehzapfen (12) gelenkig oder schwenkbar miteinander verbunden sind, so daß sich die auf beiden Seiten des Gelenks oder Drehzapfens befindenden Teile der Beinglieder scherenartig aufeinander zu oder voneinander weg bewegen können, wodurch die Höhe des oberen rahmenartigen Teils (und der Tischplatte) eingestellt werden kann, ein Gewichtsausgleichsmittel zum Ausgleich u.a. des Gewichts der Tischplatte und ein Verriegelungsmittel zur Verriegelung der Beinglieder in einer der eingestellten Höhe entsprechenden Winkelposition, wobei das Gewichtsausgleichsmittel eine Gasdruckfeder (17) umfaßt, die zwischen einem der Beinglieder und dem oberen rahmenartigen Teil wirkt, dadurch gekennzeichnet, daß das Verriegelungsmittel eine Gasdruckfeder (17) umfaßt, die durch Betätigung eines Ventils in eine erste Position bei einem Winkelwert der auf eine ausgewählte Höhenposition eingestellten Beinglieder gesperrt werden kann, so daß die Position des oberen rahmenartigen Teils und damit die Position der Tischplatte gegenüber einer darunter liegenden Stützplatte aufrechterhalten werden kann, wobei das Ventil auf eine zweite Position eingestellt werden kann, in der die Gasdruckfeder zur erneuten Einstellung der Höhe des oberen rahmenartigen Teils (1) freigegeben wird; daß das Ventil über einen Stift (20), der sich durch eine mit der Gasdruckfeder verbundene und mit einem im oberen rahmenartigen Teil (1) angebrachten Haltemittel (23) schwenkbar verbundene Durchführung erstreckt, zwischen der ersten und der zweiten Position geschaltet werden kann; und daß der Stift (20) über ein schwenkbar mit dem Haltemittel (23) verbundenes Betätigungsmittel (24), das zur betätigbaren Zusammenwirkung mit dem Stift (20) eine konkave Ausnehmung (29) aufweist, in Längsrichtung bewegt werden kann.

**2.** Gestell nach Anspruch 1, dadurch gekennzeichnet, daß der Zylinder der Gasdruckfeder mittels der Durchführung (21) am oberen rahmenartigen Teil (1) befestigt ist.

**3.** Gestell nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß der Gasdruckfederzylinder (19) den mittig positionierten Stift (20) stützt,

der dazu bestimmt ist, das in der Gasdruckfeder angebrachte Ventil entweder auf die erste Ventileinstellung oder die zweite Ventileinstellung als Reaktion auf von dem Betätigungsmittel (24) erzeugte Drehbewegung zu verstellen.

**4.** Gestell nach Anspruch 1, dadurch gekennzeichnet, daß die Gasdruckfeder (17) ein oberes Teil (19), das auf einer Seite einer vertikalen Ebene, die durch den Drehzapfen (12) geht, schwenkbar mit dem oberen rahmenartigen Teil (1) verbunden ist, und ein unteres Teil (18), das auf der gleichen Seite der vertikalen Ebene wie das obere Teil (19) und unterhalb des Drehzapfens (12) schwenkbar mit dem Beinglied (3) verbunden ist, aufweist.

**5.** Gestell nach Anspruch 1, dadurch gekennzeichnet, daß ein Drehzapfen zur Schwenkbewegung des Betätigungsmittels (24) im Haltemittel (23) neben dem Durchführungsdrehzapfen (22) angebracht ist.

**6.** Gestell nach Anspruch 5, dadurch gekennzeichnet, daß das Betätigungsmittel (24) ein rückwärtiges Teil in Form eines Griffs (26) und ein vorderes Teil (27), das zur Zusammenwirkung mit dem Stift (20) über die konkave Ausnehmung (29) bestimmt ist, enthält.

**7.** Gestell nach Anspruch 1, dadurch gekennzeichnet, daß die Ausnehmung (29) allgemein 90 ° eines Kreisbogens einschließt.

**8.** Gestell nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß jedes der beiden Beinglieder (2, 3) zwei allgemein parallele Stäbe (4, 5; 6, 7) enthält, die beide an ihren unteren Teilen über eine erste Querstange (8 oder 10) und an ihren oberen Teilen über eine zweite Querstange (9 oder 11) miteinander verbunden sind, wobei die zweiten Stangen (9, 11) dazu bestimmt sind, mit dem oberen rahmenartigen Teil (1) zusammenzuwirken.

**9.** Gestell nach Anspruch 8, dadurch gekennzeichnet, daß das rahmenartige Teil (1) vier Balken (13 - 16) umfaßt, die in Form eines Rechtecks oder Quadrats angeordnet sind, wobei die einander gegenüberliegenden Balken (14, 16) dazu bestimmt sind, mit den zweiten Stangen (9, 11) zusammenzuwirken; und daß die beiden Balken (14, 16) einen U-förmigen Querschnitt aufweisen, wobei die Beine des einen Balkens zu den Beinen des anderen Balkens hin weisen.

**10.** Gestell nach Anspruch 9, dadurch gekennzeichnet, daß einer der zweiten Stäbe (9) schwenkbar mit den Balken (14, 16) verbunden ist, während der zweite Stab (11) an seinen beiden Enden mit einem geeigneten Mittel versehen ist, um zu ermöglichen, daß die U-förmigen Teile in den beiden Balken (14, 16) gleiten können.

**11.** Gestell nach Anspruch 9, dadurch gekennzeichnet, daß ein Balken (15) dazu bestimmt ist, parallele Balken (14, 16) an einem ihrer beiden Enden miteinander zu verbinden, so daß sich der Balken (15) allgemein senkrecht zu diesen Balken erstreckt; und daß das Haltemittel (23) allgemein gegenüber dem Balken (15) angebracht ist und eine Verlängerung aufweist, die nach innen zum Mittelpunkt des oberen rahmenartigen Teils weist.

**Revendications**

**1.** Support de table pour utilisation de préférence dans les caravanes, les camping-cars et similaire, comprenant une partie supérieure (1) en forme de cadre sur laquelle un dessus de table est destiné à être placé, au moins deux organes de pieds (2, 3) qui sont montés sur charnière ou reliés ensemble pour pivotement par une charnière ou un pivot (12) de manière à permettre aux parties desdits organes de pieds situées de part et d'autre de la charnière ou du pivot d'être approchées et éloignées l'une de l'autre à la manière de ciseaux, pour régler par ce moyen la hauteur de la partie supérieure en forme de cadre (et du dessus de table), un moyen d'égalisation de poids pour compenser, entre autres, le poids du dessus de table, et un moyen de verrouillage pour verrouiller les organes de pieds dans une position angulaire correspondant à la hauteur réglée, dans lequel ledit moyen d'égalisation de poids comprend un amortisseur à gaz (17) qui agit entre un des organes de pieds et ladite partie supérieure en forme de cadre, caractérisé en ce que le moyen de verrouillage comprend un amortisseur à gaz (17) qui peut être bloqué en actionnant un clapet dans une première position à une valeur angulaire des organes de pieds réglée pour une position de hauteur choisie, de sorte que la position de la partie supérieure en forme de cadre, et avec cette dernière la position du dessus de table, par rapport à une surface de support sous-jacente peut être conservée, où le clapet peut être réglé dans une deuxième position dans laquelle l'amortisseur à gaz est libéré pour un réglage renouvelé de la hauteur de la partie supérieure en

forme de cadre (1); en ce que le clapet peut avoir son réglage changé entre ladite première et ladite deuxième positions au moyen d'une goupille (20) qui s'étend à travers une bague (21) reliée audit amortisseur à gaz et reliée pour pivotement à un moyen de support (23) monté dans la partie supérieure en forme de cadre (1); et en ce que ladite goupille (20) peut être déplacée axialement au moyen d'un moyen de fonctionnement (24) relié pour pivotement au moyen de support (23) et comportant un évidement concave (29) pour action commune de mise en action avec la goupille (20).

**2.** Support selon la revendication 1, caractérisé en ce que le cylindre de l'amortisseur à gaz est fixé à la partie supérieure en forme de cadre (1) par l'intermédiaire de la bague (21).

**3.** Support selon la revendication 1 ou 2, caractérisé en ce que le cylindre (19) de l'amortisseur à gaz supporte ladite goupille (20) placée centralement qui est destinée à ajuster le réglage du clapet monté à l'intérieur de l'amortisseur à gaz sur le premier réglage du clapet ou le deuxième réglage du clapet, en réponse au mouvement rotatif engendré par le moyen de fonctionnement (24).

**4.** Support selon la revendication 1, caractérisé en ce que l'amortisseur à gaz (17) comporte une partie supérieure (19) qui est reliée pour pivotement à la partie supérieure en forme de cadre (1) d'un côté d'un plan vertical qui passe à travers le pivot (12), et une partie inférieure (18) qui est reliée pour pivotement à l'organe de pieds (3) du même côté dudit plan vertical que la partie supérieure (19) et en dessous du pivot (12).

**5.** Support selon la revendication 1, caractérisé en ce qu'un pivot pour le mouvement pivotant du moyen de fonctionnement (24) est monté dans le moyen de support (23) en position adjacente au pivot de bague (22).

**6.** Support selon la revendication 5, caractérisé en ce que le moyen de fonctionnement (24) inclut une partie arrière de la forme d'une poignée (26) et une partie avant (27) qui est destinée à agir en commun avec la goupille (20) par l'intermédiaire de l'évidement concave (29).

**7.** Support selon la revendication 1, caractérisé en ce que l'évidement (29) inclut généralement 90° d'un arc circulaire.

**8.** Support selon l'une quelconque des revendications précédentes, caractérisé en ce que chacun des deux organes de pieds (2, 3) inclut deux barres généralement parallèles (4, 5; 6, 7) qui sont reliées mutuellement ensemble à leurs parties inférieures par une première tige transversale (8 ou 10) et à leurs parties supérieures par une deuxième tige transversale (9 ou 11), lesdites deuxièmes tiges (9, 11) étant destinées à agir en commun avec la partie supérieure en forme de cadre (1).

**9.** Support selon la revendication 8, caractérisé en ce que la partie en forme de cadre (1) comprend quatre poutrelles (13-16) qui sont agencées sous la forme d'un rectangle ou d'un carré, dans lequel deux poutrelles mutuellement opposées (14, 16) sont destinées à agir en commun avec les deuxièmes tiges (9, 11); et en ce que lesdites deux poutrelles (14, 16) ont une coupe transversale en U, dans lequel les pieds d'une des poutrelles sont dirigés vers les pieds de l'autre poutrelle.

**10.** Support selon la revendication 9, caractérisé en ce que une des deuxièmes tiges (9) est reliée pour pivotement auxdites poutrelles (14, 16) alors que la deuxième tige (11) est fournie avec un moyen convenable à ses deux extrémités pour permettre aux parties en forme de U de coulisser dans les deux poutrelles (14, 16).

**11.** Support selon la revendication 9, caractérisé en ce que une poutrelle (15) est destinée à relier les poutrelles parallèles (14, 16) ensemble à l'une de leurs extrémités, de sorte que la poutrelle (15) s'étend généralement perpendiculairement à ces poutrelles; et en ce que le moyen de support (23) est monté généralement en vis-à-vis de ladite poutrelle (15) et comporte une extension qui est dirigée vers l'intérieur vers le centre de la partie supérieure en forme de cadre.

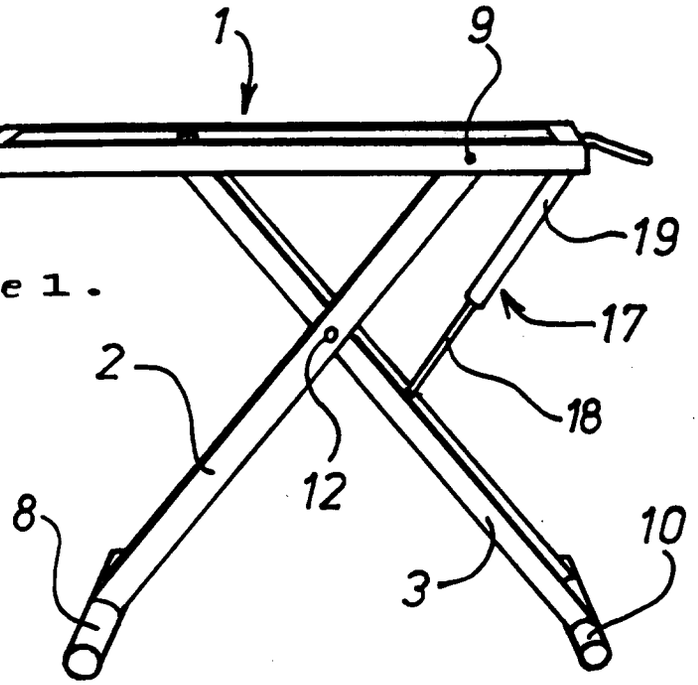
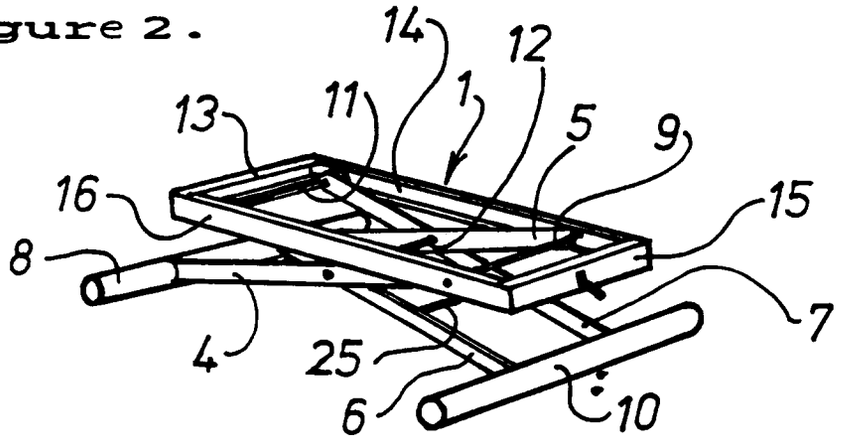



Figure 1.

Figure 2.



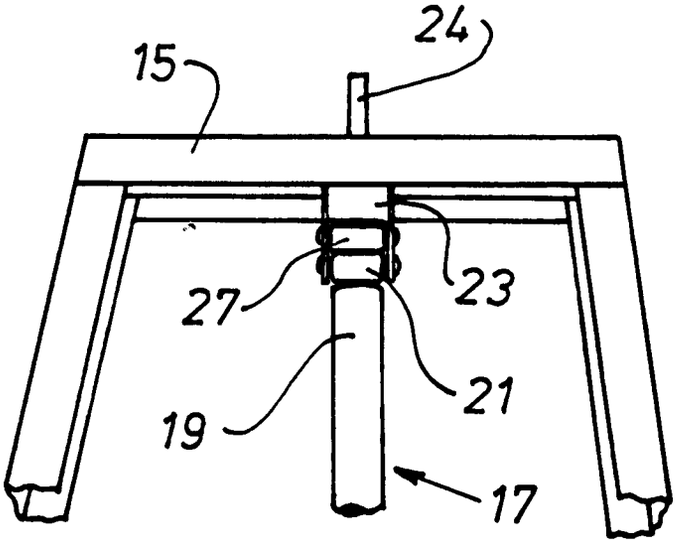
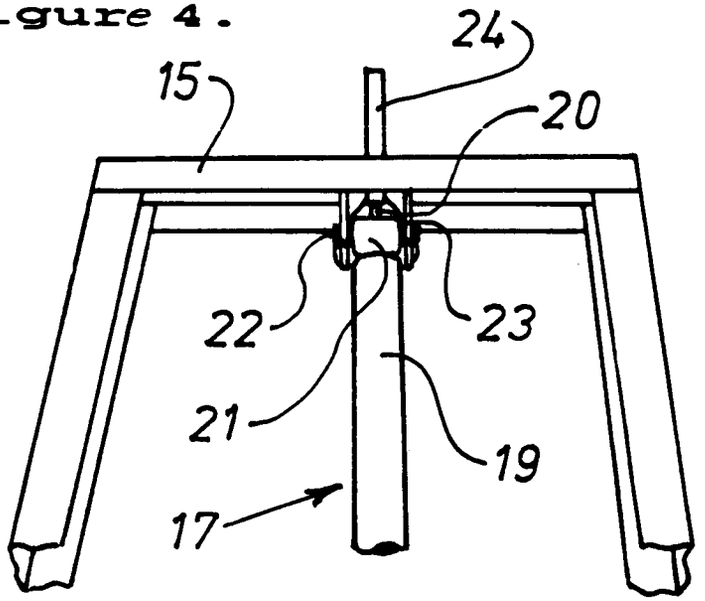



Figure 3.

Figure 4.



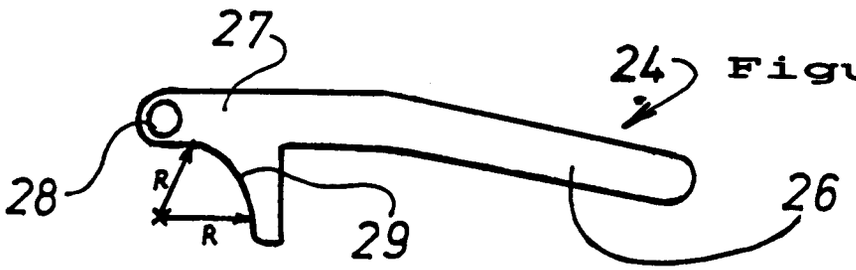




Figure 5.