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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 5 :		(11) International Publication Number:
B60P 3/36, A47B 9/16	A1	WO 91/17906
		(43) International Publication Date: 28 November 1991 (28.11.91)

(21) International Application Number: PCT/SE91/00364

(22) International Filing Date: 22 May 1991 (22.05.91)

(30) Priority data:
9001844-1 22 May 1990 (22.05.90) SE

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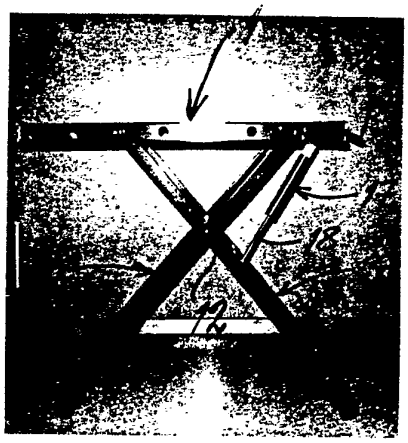
(81) Designated States: AT (European patent), BE (European patent), CH (European patent), DE (European patent), DK (European patent), ES (European patent), FI, FR (European patent), GB (European patent), GR (European patent), IT (European patent), LU (European patent), NL (European patent), NO, SE (European patent).

Published
With international search report.
In English translation (filed in Swedish).

(54) Title: STAND



(57) Abstract

The present invention relates to a table stand for use preferably in caravans and motorhomes, wherein the top of the stand is provided with a frame-like part on which a tabletop is intended to be placed and which is adjustable in the height direction so that the tabletop can be adjusted vertically to different positions. According to the invention, the inventive stand is characterized by the following combination of features: the stand includes at leat two leg members (2, 3) which are hinged or pivotally connected together such as to enable the parts of leg members located on mutually opposite sides of the hinge or pivot (12) to be moved towards and away from one another in a scissor-like fashion; each leg member (2, 3) has at each end thereof a transverse rod (8, 9; 10, 11), of which the lowermost rod (8; 10) functions to support the stand against an underlying supporting surface, whereas the upper rods (9; 11) coact with the frame-like part (1) in a manner such that the parts of the two leg members (2, 3) located on opposite sides of the pivot can be moved towards and away from each other so as to raise or lower the frame-like part (1) in relation to the underlying supporting surface; a gas-spring, or piston-cylinder device (17), so arranged in the stand as to enable the frame-like part (1) of said stand to be adjusted vertically, both downwardly and upwardly, wherein the gas-spring can be blocked in the set position so as to maintain the position of the frame-like part and therewith the position of the tabletop in relation to the underlying supporting surface.

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STAND

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 tabletop in different height positions.

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 following combination of features:

- The stand includes at least two leg members which are hinged or pivotally connected together such as to enable the parts of said leg members located on mutually opposite sides of the hinge or pivot to be moved towards and away from one another in a scissor-like fashion;

- Each leg member has at each end thereof a transverse rod, of which the lowermost rod functions to support the stand against an underlying supporting surface, whereas the upper rods coact with the frame-like part in a manner such that the parts of the two leg members located on opposite sides of the hinge or pivot can be moved towards and away from each other so as to raise or lower the frame-like part in relation to the underlying supporting surface;

- A gas-spring, or piston-cylinder device, so arranged in the stand as to enable the frame-like part of said stand to be adjusted vertically, both downwardly and upwardly, wherein the gas-spring can be blocked in its position, so as to maintain the position of the frame-like part and therewith the position of the tabletop in relation to the underlying supporting surface. This enables the frame-like part, and therewith the tabletop, to be adjusted continually to any selected vertical position, in which position the gas-spring is locked.

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 for use preferable in caravans and motorhomes, wherein the top of the stand is provided with a frame-like part on which a tabletop is intended to be placed and which is adjustable vertically so as to enable the tabletop to be adjusted to different vertical heights, c h a r a c t e r i z e d by the following combination of features;

- The stand includes at least two leg members (2, 3) which are hinged or pivotally connected together such as to enable the parts of said leg members located on mutually opposite sides of the hinge or pivot (12) to be moved towards and away from one another in a scissor-like fashion;

- Each leg member (2, 3) has at each end thereof a transverse rod (8, 9; 10, 11), of which the lowermost rod (8; 10) functions to support the stand against an underlying supporting surface, whereas the upper rods (9; 11) coact with the frame-like part (1) in a manner such that the parts of the two leg members (2, 3) located on opposite sides of the pivot can be moved towards and away from each other so as to raise or lower the frame-like part (1) in relation to the underlying supporting surface;

- A gas-spring, or piston-cylinder device (17), so arranged in the stand as to enable the frame-like part (1) of said stand to be adjusted vertically, both downwardly and upwardly, wherein the gas-spring can be blocked in a set position so as to maintain the position of the frame-like part and therewith the position of the tabletop in relation to the underlying

supporting surface.

2. A stand according to Claim 1, c h a r a c - t e r i z e d in that the gas-spring (17) has an upper part (19) which is pivotally connected to the 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).

3. A stand according to Claim 2, c h a r a c - t e r i z e d in that the gas-spring (17) is provided with a centrally located pin (20) which projects slightly beyond the upper part (19) of the gas-spring in its longitudinal direction and which is intended to activate a release valve located the gas-spring (17).

4. A stand according to Claim 3, c h a r a c - t e r i z e d in that the pin (20) passes transversely through a bushing (21) which is pivotally connected to a holder means (23) mounted in the frame-like part (1); and in that the pin (20) is intended to be activated by means of an operating means (24) which is pivotally connected to the holder means (23).

5. A stand according to Claim 4, c h a r a c - t e r i z e d in that the pivot for the operating means (24) in the holder means (23) is arranged substantially immediately above the pivot (22) for the bushing (21).

6. A stand according to Claim 5, c h a r a c - t e r i z e d 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); and in that said part is provided with a concave recess (29).

7. A stand accroding to Claim 6, c h a r a c - t e r i z e d in that the recess (29) includes substantially 90° of a circle; and in that the radii of the recess are substantially the same, taken from the pivot (22) referenced X.

8. A stand according to any one of the preceding Claims, c h a r a c t e r i z e d in that each leg member (2, 3) includes two substantially parallel bars (4, 5; 6, 7) which are mutually connected at the bottom thereof by the transverse rod (8; 10) and at the top thereof by the transverse rod (9; 11), said upper rods (9; 11) being intended for coaction with the frame-like part (1).

9. A stand according to Claim 8, c h a r a c - t e r i z e d in that the frame-like part (1) comprises four bars (13-16) which are disposed in the shape of a square or a rectangle, wherein two mutually opposite bars (14, 16) are intended for coaction with the upper rods (9; 11); and in that said two bars (14, 16) have a U-shaped cross-section, wherein the legs of the U of the one bar are directed towards the legs of the U on the other bar (16).

10. A stand according to Claim 9, c h a r a c - t e r i z e d in that the one (9) of said two upper rods is pivotally connected to the bars (14, 16), whereas the other (11) of said two upper rods is provided at both ends thereof with suitable means for

enabling sliding in the U-shaped part of the two bars (14, 16).

11. A stand according to Claim 10, in which the bar (15) connects the bars (14, 16) at one of their two ends and thus extend substantially at right angles to said bars, c h a r a c t e r i z e d in that the holder means (23) is disposed substantially opposite the bar (15) and has an extension inwardly towards the centre of the frame-like part.

Figure 1.

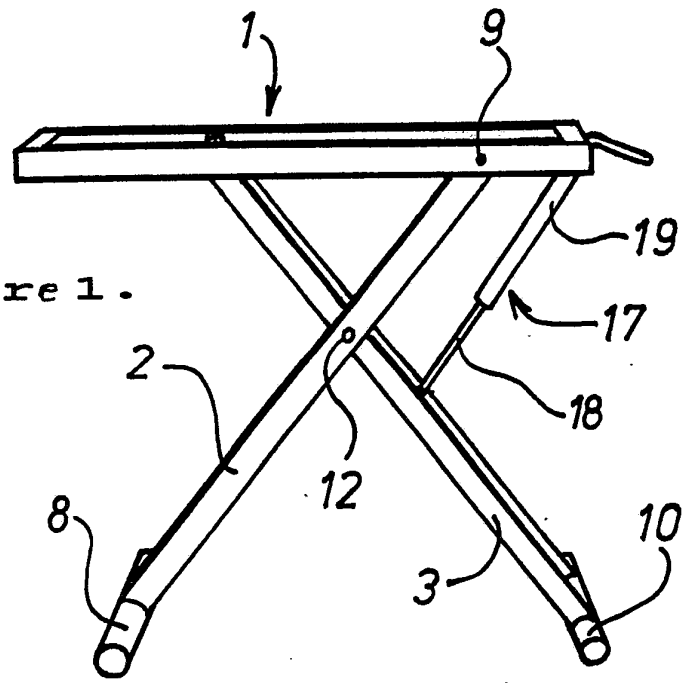
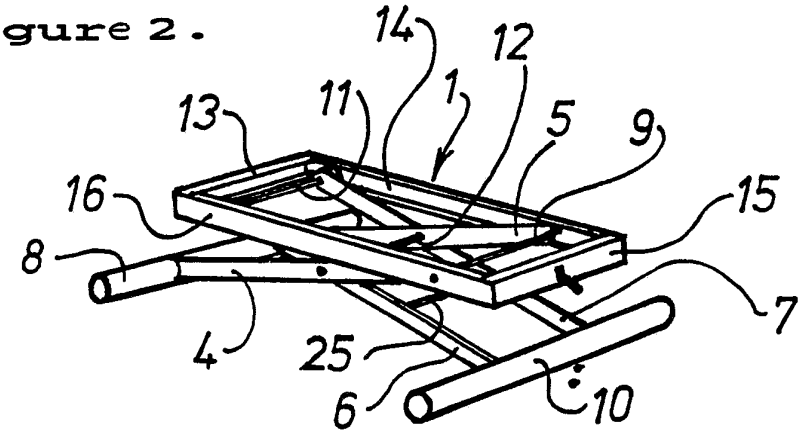


Figure 2.



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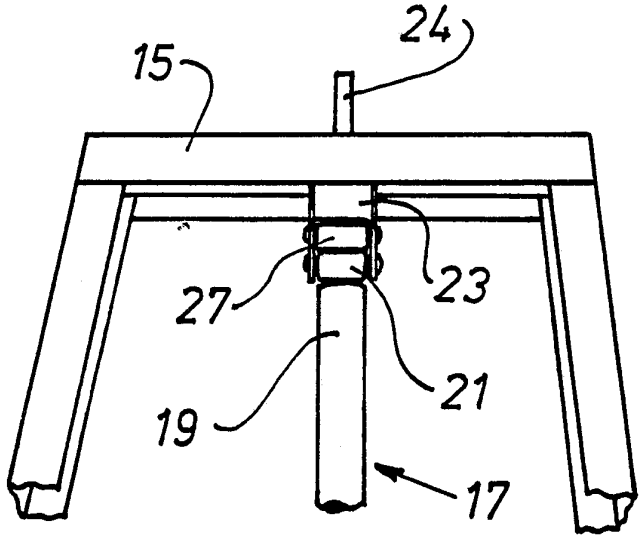
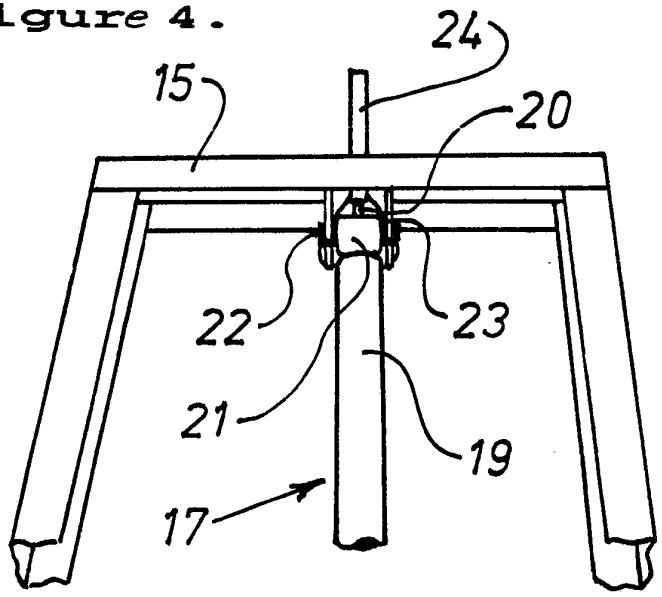


Figure 3.

Figure 4.



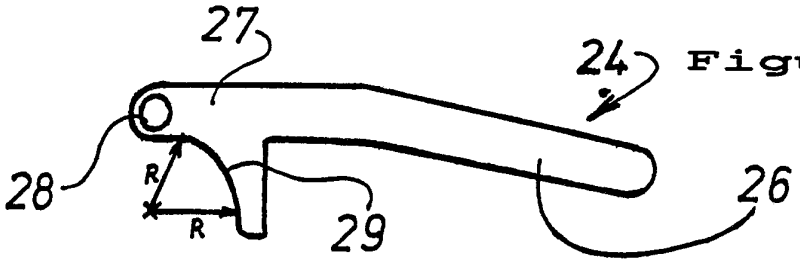


Figure 5.

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INTERNATIONAL SEARCH REPORT

International Application No PCT/SE 91/00364

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all)[6]

According to International Patent Classification (IPC) or to both National Classification and IPC

IPC5: B 60 P 3/36, A 47 B 9/16

II. FIELDS SEARCHED

Minimum Documentation Searched[7]

Classification System	Classification Symbols
IPC5	B 60 P; A 47 B

Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in Fields Searched[8]

SE,DK,FI,NO classes as above

III. DOCUMENTS CONSIDERED TO BE RELEVANT[9]

Category *	Citation of Document,[11] with indication, where appropriate, of the relevant passages[12]	Relevant to Claim No.[13]
Y	DE, A1, 3104182 (ROSSINI, GIOVANNI, MOZZANICA & CAPETTI, AUGUSTO, CARAVAGGIO) 24 December 198 , see the whole document --	1-6,8-11
Y	DE, B, 1261990 (OLGA EMILIE EGGER ET AL) 29 February 1968, see the whole document --	1-6,8-11
Y	DE, A1, 3439422 (BRUNN, OSWALD) 30 April 1986, see the whole document --	1-6,8-11
Y	EP, A2, 0133523 (FRITZ BAUER + SÖHNE OHG) 27 February 1985, see the whole document --	1-6,8-11

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IV. CERTIFICATION

Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report
14th August 1991	1991 -08- 19
International Searching Authority	**Signature of Authorized Officer**
SWEDISH PATENT OFFICE	Hans Nordström

Form PCT/ISA/210 (second sheet) (January 1985)

III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)

Category *	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No
Y	US, A, 4558648 (FRANKLIN ET AL.) 17 December 1985, see the whole document -- --------	1-6,8- 11

ANNEX TO THE INTERNATIONAL SEARCH REPORT ON INTERNATIONAL PATENT APPLICATION NO.PCT/SE 91/00364

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report.
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Patent document cited in search report	Publication date	Patent family member(s)		Publication date
DE-A1- 3104182	81-12-24	NONE		
DE-B- 1261990	68-02-29	NONE		
DE-A1- 3439422	86-04-30	NONE		
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US-A- 4558648	85-12-17	CA-A-	1233461	88-03-01
		EP-A-	0142919	85-05-29
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