

(19)



(11)

EP 2 490 569 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention of the grant of the patent:
19.03.2014 Bulletin 2014/12

(51) Int Cl.:
A47B 17/03 ^(2006.01) **A47B 83/02** ^(2006.01)
A47B 96/18 ^(2006.01) **A47B 21/03** ^(2006.01)
A47B 23/02 ^(2006.01) **A47C 7/70** ^(2006.01)

(21) Application number: **10773167.1**

(86) International application number:
PCT/NO2010/000366

(22) Date of filing: **19.10.2010**

(87) International publication number:
WO 2011/049458 (28.04.2011 Gazette 2011/17)

(54) TELESCOPIC ARM FOR A PC TABLE

TELESKOPISCHER ARM FÜR EINEN PC-TISCH

BRAS TÉLÉSCOPIQUE POUR TABLETTE DE SUPPORT D'ORDINATEUR PERSONNEL

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

(72) Inventor: **JARNES, Webjørn**
N-6222 Ikornnes (NO)

(30) Priority: **19.10.2009 NO 20093169**

(74) Representative: **Oslo Patentkontor AS**
P.O. Box 7007M
0306 Oslo (NO)

(43) Date of publication of application:
29.08.2012 Bulletin 2012/35

(56) References cited:
WO-A1-00/65961 GB-A- 660 968
US-A- 5 865 124

(73) Proprietor: **Ekornes ASA**
6222 Ikornnes (NO)

EP 2 490 569 B1

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description**Technical field**

[0001] The present invention regards a rotatable telescopic column. The column has a general application, but is particularly suitable for use in furniture, and more specifically in the PC table.

Background

[0002] The applicant markets a PC table which includes a table top that can carry a computer, more specifically a laptop computer, often called a laptop. The PC table includes an arm that carries the table top itself. The arm is attached to a column that has adjustable height and is rotatable, and which in turn is attached to a piece of furniture. The arm must be swung in and out of the workspace of the user, so that it easily can be placed in the correct working position and can be swung away when not in use. The height adjustable column includes a clamp coupling that locks the column in the desired height and with an appropriate friction so that the arm can be rotated. The prior art column has a weakness in that the friction does not remain constant during use. Wear occurs in the clamp coupling, and it is easily loosened when the joint pivots back and forth an example of the prior art is seen in GB 660.968.

[0003] It is therefore a need for an improved telescopic bar that is more stable in use, where the friction can be easily adjusted, respectively, that can be locked, and where the settings are retained over time.

Summary

[0004] The present invention is intended to produce such a column. This is achieved with a telescopic column according to the present invention. The scope of the invention is shown in the following patent claims. Specifically, it is arranged a rotatable telescopic column that includes an outer sleeve, a telescopic sleeve which is located inside the outer sleeve, a locking clip mechanism attached to the outer sleeve and that grabs around the telescopic sleeve and is designed to lock the telescopic sleeve to the outer sleeve when the telescopic sleeve is in a selected position relative to the outer sleeve and a shaft located inside the telescopic sleeve and is rotatable in relation to this. It is thereby achieved that the functions for length adjustment and turning of the column are separated and do not affect each other. The column is therefore more stable in use. The clamping mechanism will not loosen during use, while the turning feature becomes very strong because of the continuous shaft.

Brief description of the drawings

[0005] An embodiment of the present invention will now be described in detail by reference to the enclosed

figures, where:

Figure 1 is a drawing of a PC table,

Figure 2 is a perspective sketch of a telescopic column according to the invention,

Figure 3 shows a cross sectional view through the telescopic column.

Detailed description

[0006] Figure 1 shows a PC table including a table top 1. The table top is attached to a swivel joint 2, which in turn is attached to an upper arm 3. The upper arm is attached to a swivel arm or a telescopic column 4, which in turn is attached to a lower arm 5 and a clamp attachment 6. The telescopic column 4 may be varied in length, and can rotate around the vertical axis with appropriate friction.

[0007] The telescopic column 4 includes an outer sleeve 7 which is attached to the lower arm 5, and a swivel and clamping mechanism which is located inside the outer sleeve 7. The inner mechanism is illustrated in Figure 2, as an exploded view. The mechanism includes a shaft 10 which is attached to the upper arm 3, for example with threads. The shaft 10 runs in a telescopic sleeve 11. The shaft is rotatable relative to the sleeve and the friction between the shaft and the sleeve is determined by the spring washers 12, which located between the screw head 13 on the shaft 10 and the end of the sleeve.

[0008] The telescopic sleeve 11 is in the form of a dual walled profile with an outer and an inner tube connected in the same hub and a number of longitudinal bridges. Furthermore the telescopic sleeve 11 is equipped with a number of longitudinal slots 15 that are designed to intervene in the corresponding cams inside the outer sleeve 7. The sleeves cannot thereby turn relative to each other. This means that all the turning movement occurs between the shaft 10 and the telescopic sleeve 11, while the longitudinal telescopic movement occurs between the outer sleeve 7 and the telescopic sleeve 11.

[0009] The telescoping column also includes a locking sleeve 16 which is arranged to be fastened in the outer sleeve 7. The locking sleeve can, for this purpose, include a knob designed to intervene in a recess, slot or opening in the outer sleeve 7. The locking sleeve 16 has a number of cams 17 on the inside designed to intervene in the tracks 15 on the telescopic sleeve, and also include a threaded section 18 on the outside, and locking knobs 19. Furthermore, there is a locking ring 20 that is oriented to be turned on the locking sleeve 16 and the clamp locking knobs 19 against the telescopic sleeve 11 when the telescopic column is locked in a particular length. The other details shown in the figure may include end caps 21, 22 which act as bearings for the rotary movement, as well as the bushings 23, 24, 25.

[0010] Figure 3 shows the mechanism in the mounted condition, ready to be put into the outer casing and locked to it.

[0011] In a simpler version of the PC table, it is conceivable, that the telescopic column is arranged directly between the clamp attachment 6 and attached to the table top 1.

[0012] The telescopic column according to the invention has been described applied to a PC table. However, it may find other applications, such as in a rotating mechanism for the seat on a chair, or other general applications outside the furniture industry.

Claims

1. Rotating telescopic column, comprising:

an outer sleeve (7),
 a telescopic sleeve (11) located inside the outer sleeve (7),
 a lockable clamp mechanism that is attached to the outer sleeve (7) and grips the telescopic sleeve (11) and is designed to lock the telescopic sleeve to the outer sleeve when the telescopic sleeve is in a selected position relative to the outer sleeve,
 a shaft (10) located inside the telescopic sleeve (11) and which is rotatable in relation to this,
characterized in that the outer sleeve has a number of internal cams, said telescopic sleeve has a corresponding number of outer slots (15), as the cams in the outer sleeve (7) are designed to intervene in the slots (15) in the telescopic sleeve (11) and thereby prevent the telescopic sleeve from turning relative to the outer sleeve.

2. Rotating telescopic column according to claim 1, where the lockable clamping mechanism includes a locking sleeve (16) with a number of locking knobs (19), as the locking sleeve (16) is attached to the outer sleeve (7), and a locking ring (20) arranged to clamp the locking tabs (19) against the telescopic sleeve (11).

3. Rotating telescopic column according to claim 1, as it further includes a number of spring washers (12) arranged between a screw head (13) on shaft (10) and one end of the telescopic sleeve (11), and which serves to determine the friction between the shaft and telescopic sleeve.

4. Rotating telescopic column according to claim 1, as it further includes first (21) and second (22) end caps mounted on the ends of the telescopic sleeve (11) and acts as bearings for the axle (10).

5. Rotating telescopic column according to claim 1,

where the telescopic sleeve consists of an outer and an inner tube connected by a number of longitudinal bridges.

6. PC table comprising a table top (1) and a fastening mechanism such as a clamp attachment (6), having a rotatable telescopic column according to one of claims 1 - 5 is arranged between the table top and the fastening mechanism.

Patentansprüche

1. Rotierende Teleskopsäule, die umfasst:

eine äußere Hülse (7),
 eine Teleskophülse (11), die innerhalb der äußeren Hülse (7) angeordnet ist,
 einen arretierbarer Klemmmechanismus, der an der äußeren Hülse (7) befestigt ist und die Teleskophülse (11) ergreift und dafür eingerichtet ist, die Teleskophülse an der äußeren Hülse zu arretieren, wenn sich die Teleskophülse in einer ausgewählten Position relativ zur äußeren Hülse befindet,
 einen Schaft (10), der innerhalb der Teleskophülse (11) angeordnet ist und ihr gegenüber rotierbar ist,

dadurch gekennzeichnet, dass die äußere Hülse eine Anzahl interner Nocken aufweist, die Teleskophülse eine entsprechende Anzahl von äußeren Aussparungen (15) aufweist, und die Nocken in der äußeren Hülse (7) dafür eingerichtet sind, in die Aussparungen (15) der Teleskophülse (11) einzugreifen und dadurch zu verhindern, dass sich die Teleskophülse relativ zur äußeren Hülse dreht.

2. Rotierende Teleskopsäule gemäß Anspruch 1, bei der der arretierbare Klemmmechanismus eine Arretierhülse (16) mit einer Anzahl von Arretiernoppen (19) aufweist, wobei die Arretierhülse (16) an der äußeren Hülse (7) befestigt ist, und einen Arretier ring (20), der dafür eingerichtet ist, die Arretiernoppen (19) gegen die Teleskophülse (11) zu klemmen.

3. Rotierende Teleskopsäule gemäß Anspruch 1, wobei sie außerdem eine Anzahl von Federringen (12) umfasst, die zwischen einem Schraubenkopf (13) am Schaft (10) und einem Ende der Teleskophülse (11) angeordnet sind, was dabei hilft, die Reibung zwischen dem Schaft und der Teleskophülse zu bestimmen.

4. Rotierende Teleskopsäule gemäß Anspruch 1, wobei sie außerdem erste (21) und zweite (22) Endkappen an den Enden der Teleskophülse (11) aufweist, die als Lager für die Achse (10) dienen.

5. Rotierende Teleskopsäule gemäß Anspruch 1, wobei die Teleskophülse aus einem äußeren und einem inneren Rohr besteht, die durch eine Anzahl von Längsstegen miteinander verbunden sind.
6. Tisch für einen Personalcomputer, der eine Tischfläche (1) und einen Befestigungsmechanismus, wie beispielsweise eine Klemmbefestigung (6), aufweist, mit einer rotierbaren Teleskopsäule gemäß den Ansprüchen 1 bis 5, die zwischen der Tischfläche und dem Befestigungsmechanismus angeordnet ist.

Revendications

1. Colonne télescopique rotative, comprenant :

un manchon extérieur (7),
 un manchon télescopique (11) situé à l'intérieur du manchon extérieur (7),
 un mécanisme de serrage verrouillable qui est attaché au manchon extérieur (7) et qui agrippe le manchon télescopique (11) et est conçu pour verrouiller le manchon télescopique sur le manchon extérieur lorsque le manchon télescopique est dans une position sélectionnée par rapport au manchon extérieur,
 un arbre (10) situé à l'intérieur du manchon télescopique (11) et qui peut tourner par rapport à celui-ci,
caractérisée en ce que le manchon extérieur comporte un nombre de cames internes, ledit manchon télescopique comporte un nombre correspondant de fentes extérieures (15), les cames dans le manchon extérieur (7) étant conçues pour entrer dans les fentes (15) du manchon télescopique (11) et empêcher de ce fait la rotation du manchon télescopique par rapport au manchon extérieur.

2. Colonne télescopique rotative selon la revendication 1, où le mécanisme de serrage verrouillable comprend un manchon de verrouillage (16) avec un nombre de molettes de verrouillage (19), le manchon de verrouillage (16) étant attaché au manchon extérieur (7), et une bague de verrouillage (20) étant agencée pour serrer les ergots de verrouillage (19) contre le manchon télescopique (11).

3. Colonne télescopique rotative selon la revendication 1, comprenant en outre un nombre de rondelles élastiques (12) agencées entre une tête de vis (13) sur l'arbre (10) et une extrémité du manchon télescopique (11), et servant à déterminer le frottement entre l'arbre et le manchon télescopique.

4. Colonne télescopique rotative selon la revendication

1, comprenant en outre un premier capuchon d'extrémité (21) et un deuxième capuchon d'extrémité (22) montés sur les extrémités du manchon télescopique (11) et servant de paliers pour l'arbre (10).

5. Colonne télescopique rotative selon la revendication 1, où le manchon télescopique se compose d'un tube extérieur et d'un tube intérieur reliés par un nombre de ponts longitudinaux.

6. Tablette de support d'ordinateur personnel comprenant un dessus de tablette (1) et un mécanisme de fixation comme un attachement de serrage (6), comportant une colonne télescopique rotative selon l'une quelconque des revendications 1 à 5 agencée entre le dessus de tablette et le mécanisme de fixation.

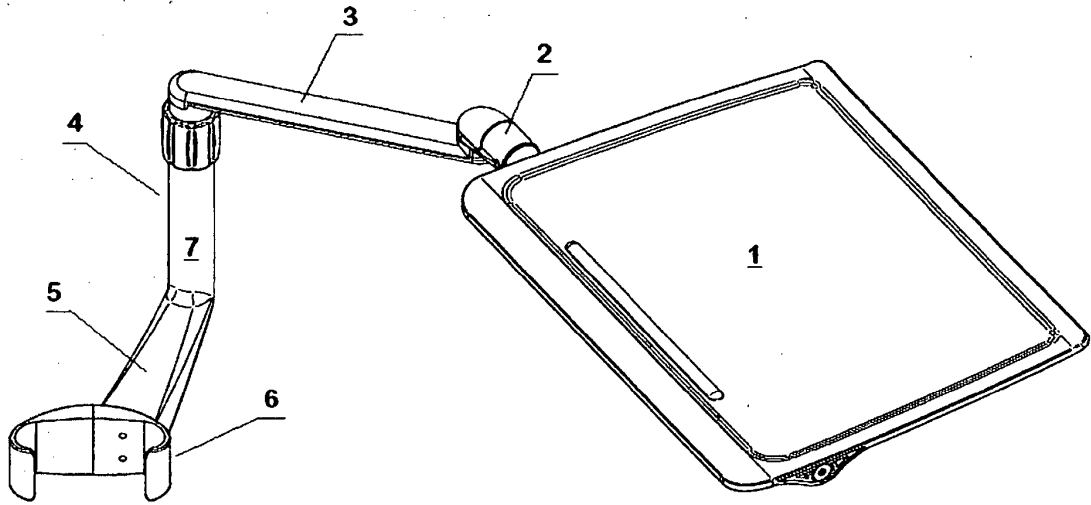


Fig. 1

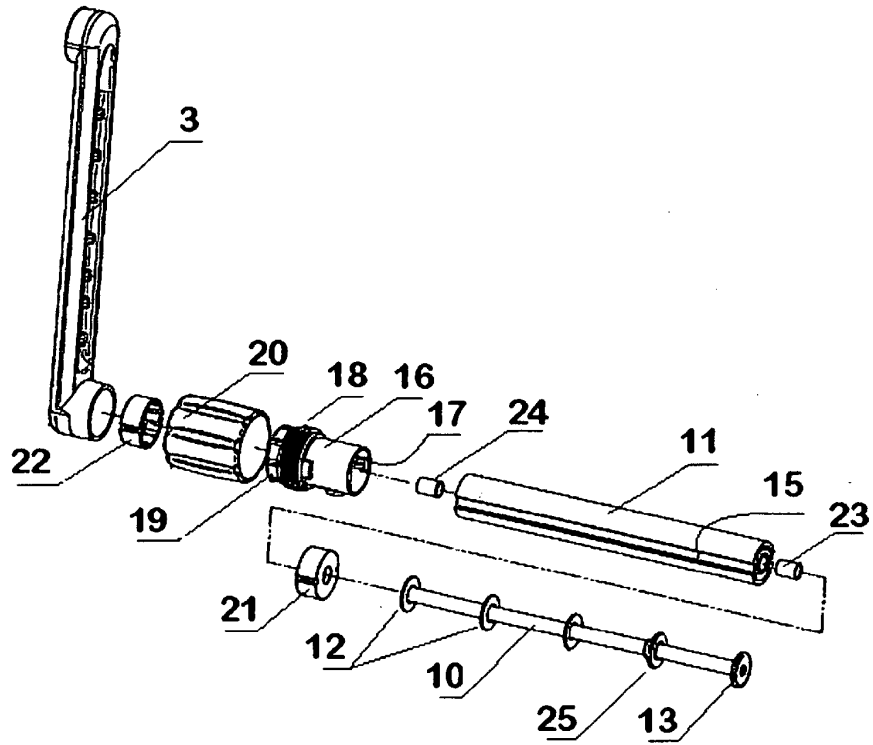


Fig. 2

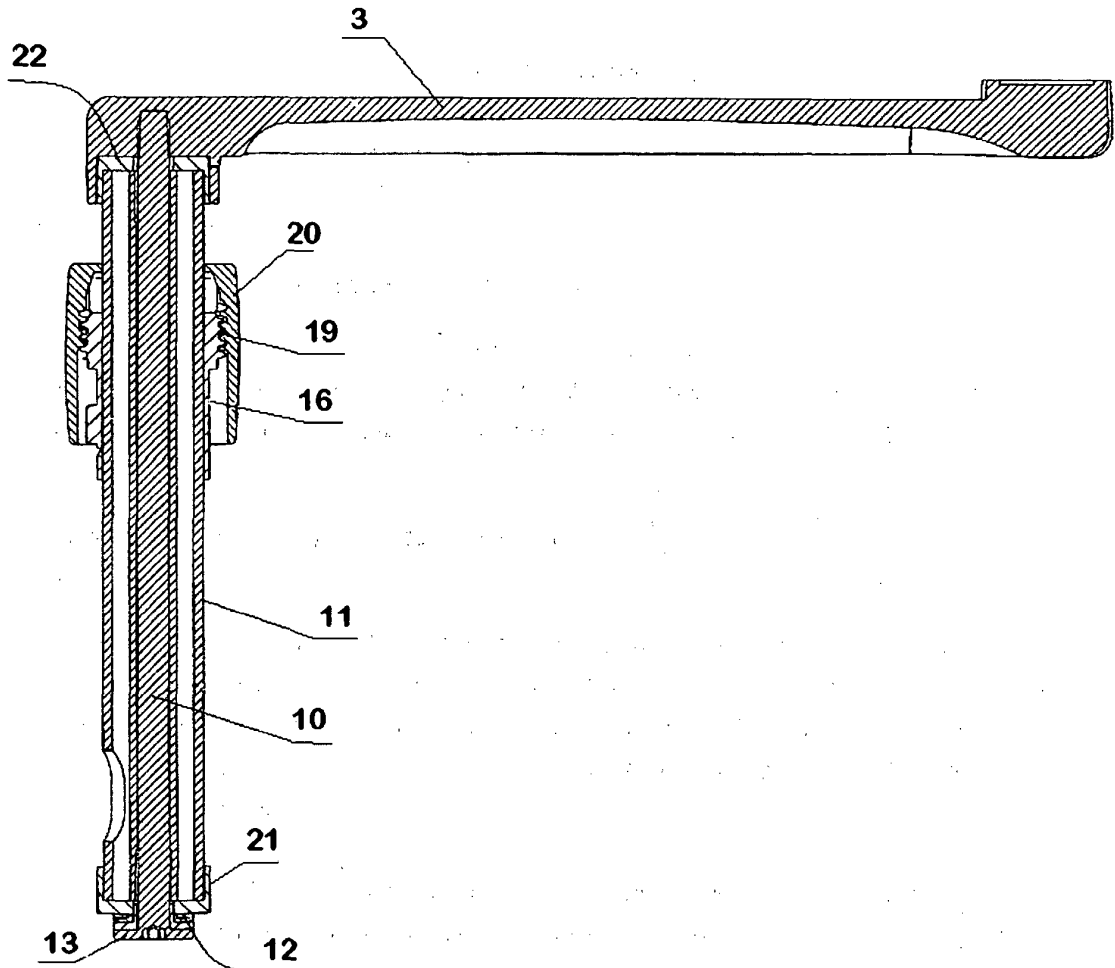


Fig. 3

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- GB 660968 A [0002]