(12) UK Patent Application (19) GB (11) 2 368 784 (13) A

(43) Date of A Publication 15.05.2002

(21) Application No 0125221.2

(22) Date of Filing 19.10.2001

(30) Priority Data
(31) 09709284 (32) 13.11.2000 (33) US

(71) Applicant(s)
Ta-Chiang Wang
No 25-1,1 Sec, Harng-Jou South Road, Taipei City, Taiwan

(72) Inventor(s)
Ta-Chiang Wang

(74) Agent and/or Address for Service
Prentice & Matthews
Chartered Patent Attorneys, Calvert's Buildings, 52B Borough High Street, LONDON, SE1 1XN, United Kingdom

(51) INT CL[7]
A47B 17/06 21/00 , F16M 13/00

(52) UK CL (Edition T)
A4L LCC LC15 L115 L130

(56) Documents Cited
GB 2298569 A
DE 004334574 A
US 6012694 A
US 4590866 A
EP 0721749 A
DE 003931574 A
US 5778799 A

(58) Field of Search
UK CL (Edition S) A4L LAAJ LBPB LCC L115 L130
INT CL[7] A47B 17/00 17/06 21/00 46/00 , F16M 13/00
Online: EPODOC, WPI, JAPIO

(54) Abstract Title
An inclination-adjustable monitor stand

(57) An inclination-adjustable arrangement for a monitor stand 8 comprises a screw shaft 2 which is turned by a screw cap 1 for driving a slide element 4 coupled with a toothed bar 41 and for controlling forwards and backwards movements of the slide element 4 in a slide groove 3. A toothed wheel 51 is driven by the movement of the toothed bar 41. The toothed wheel 51 is mounted on a transmission shaft 5 which is connected to one end of a transmission plate 6. The other end of the plate 6 is pivotally connected to one end of a coupling plate 7 the other end of which is pivotally connected to a connecting member 82 on the monitor stand 8 in order to drive and control the turning movement of the stand 8. Accordingly, the adjustment of the angle of the stand 8 can be reached by turning the screw cap 1 for adjusting the inclination of the monitor stand. A movable seat 81 may be mounted on the stand to adapt to monitors of different sizes and the monitor may be placed beneath a top surface having a transparent screen.

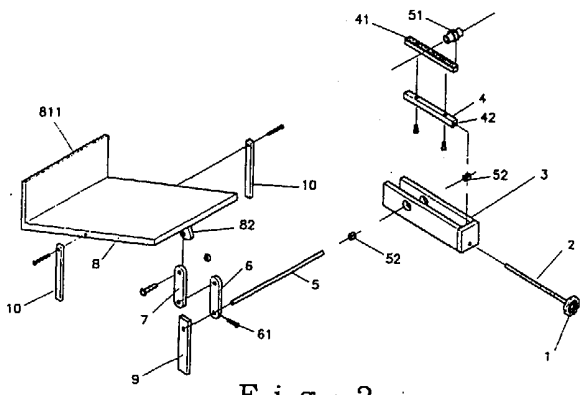


Fig · 3

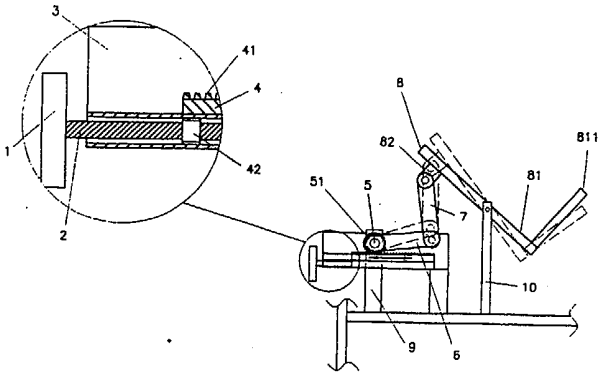


Fig · 4

GB 2 368 784 A

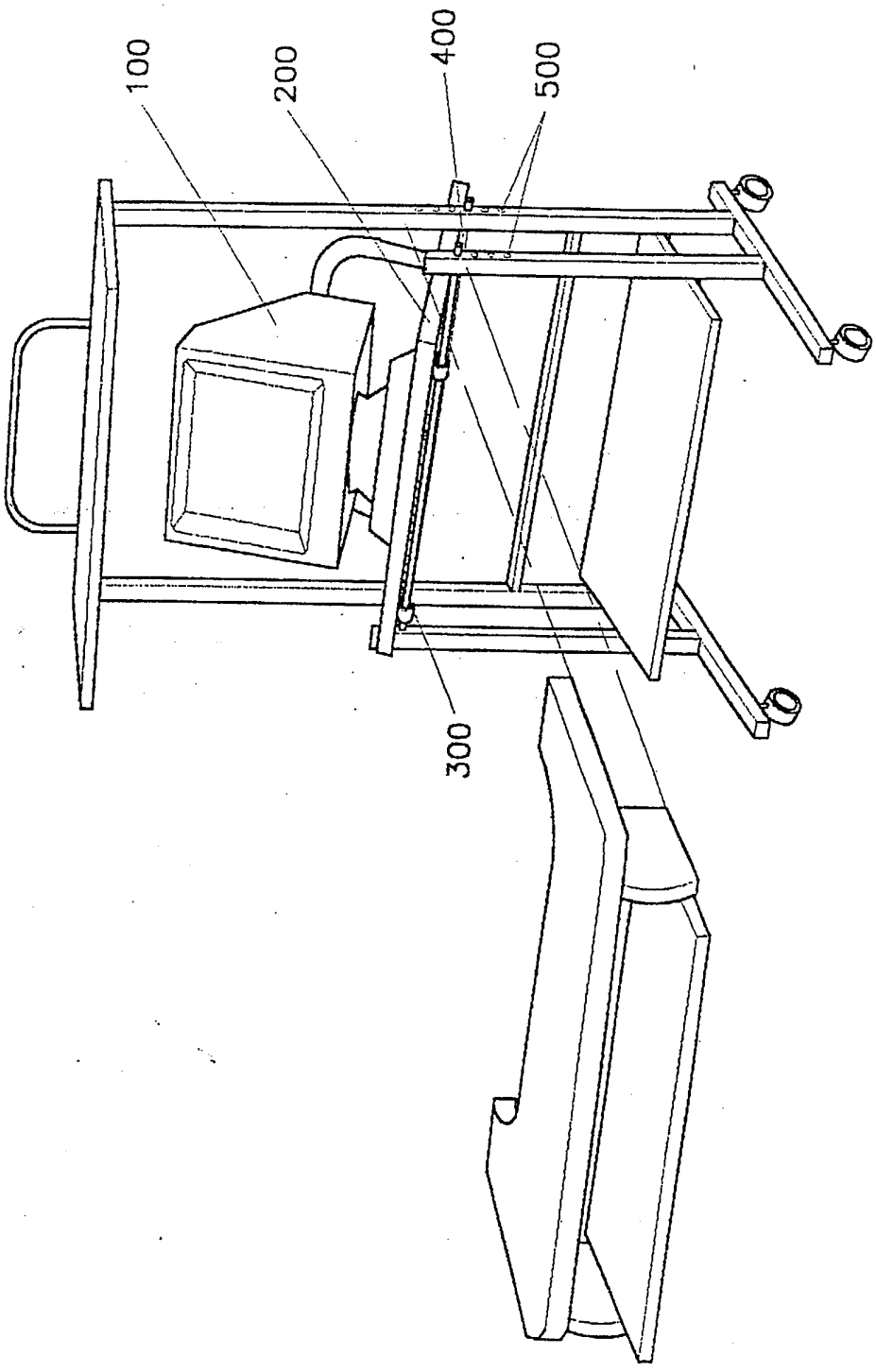


Fig. 1

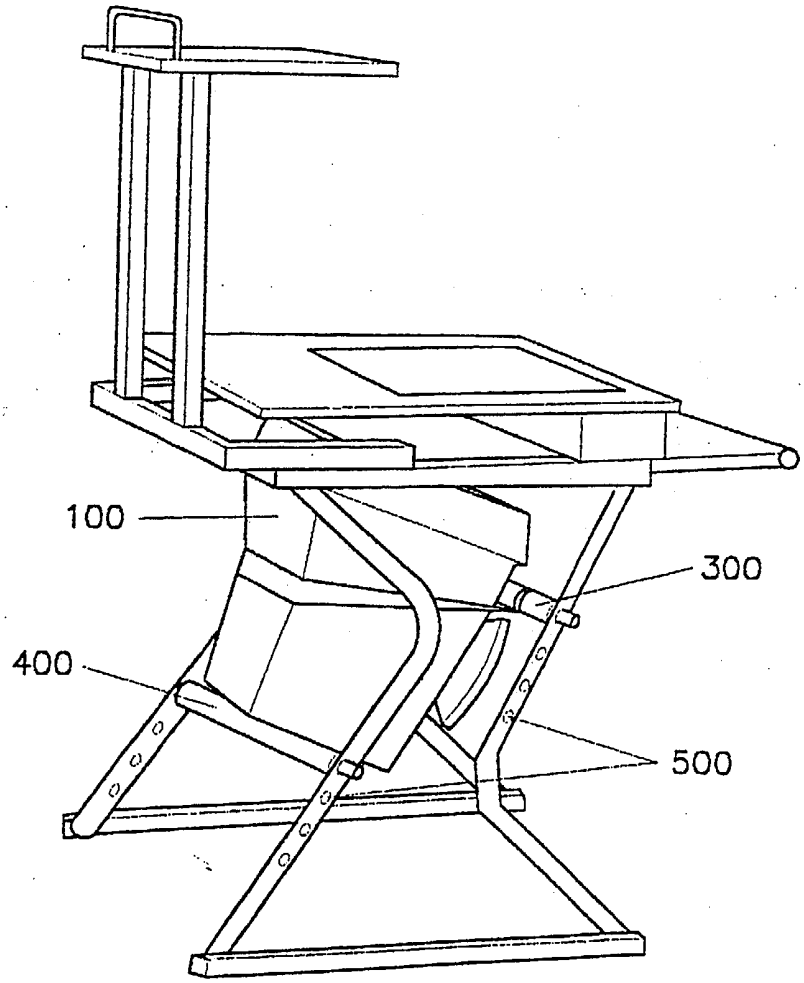
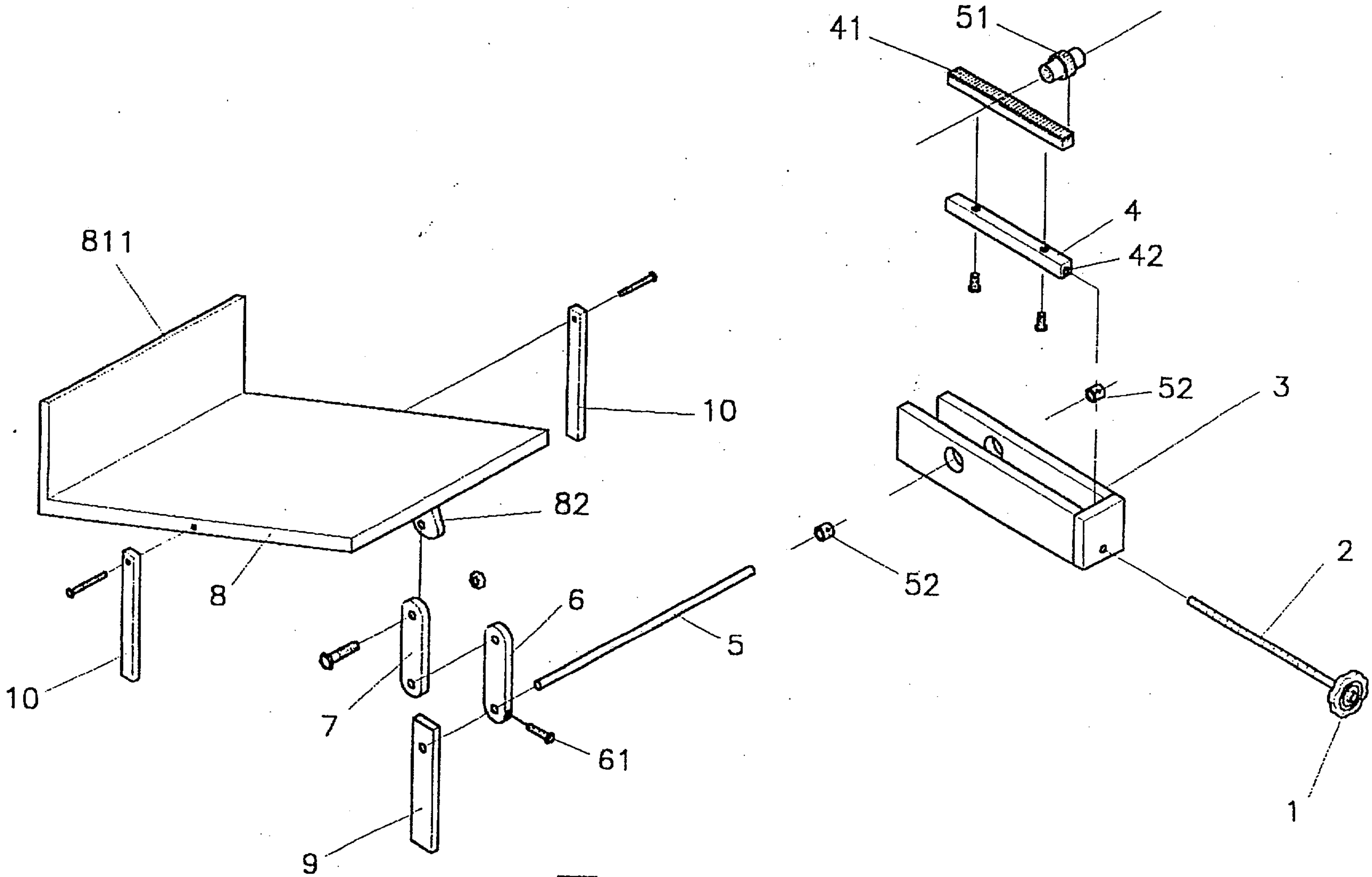


Fig. 2



Fig・3

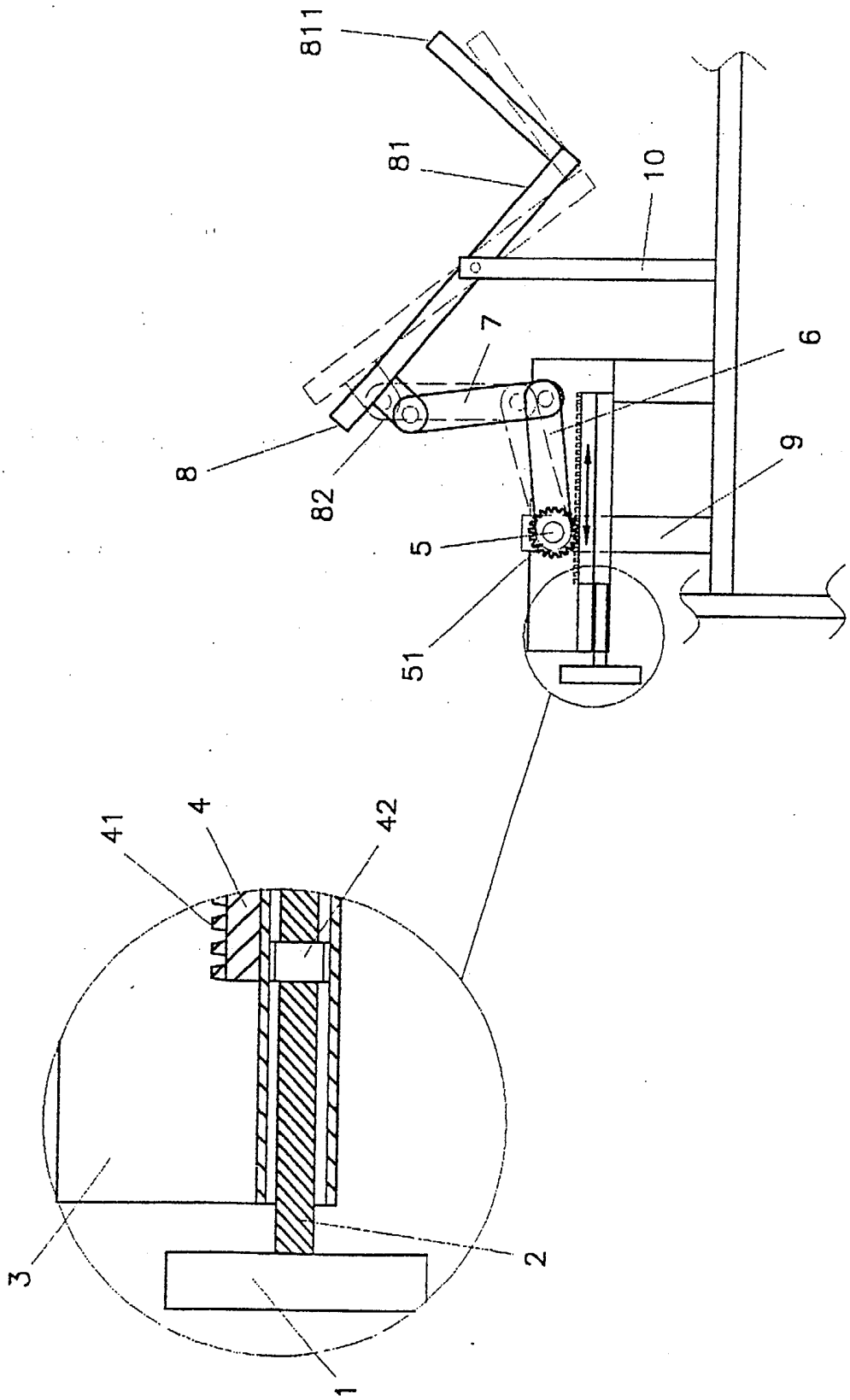


Fig. 4

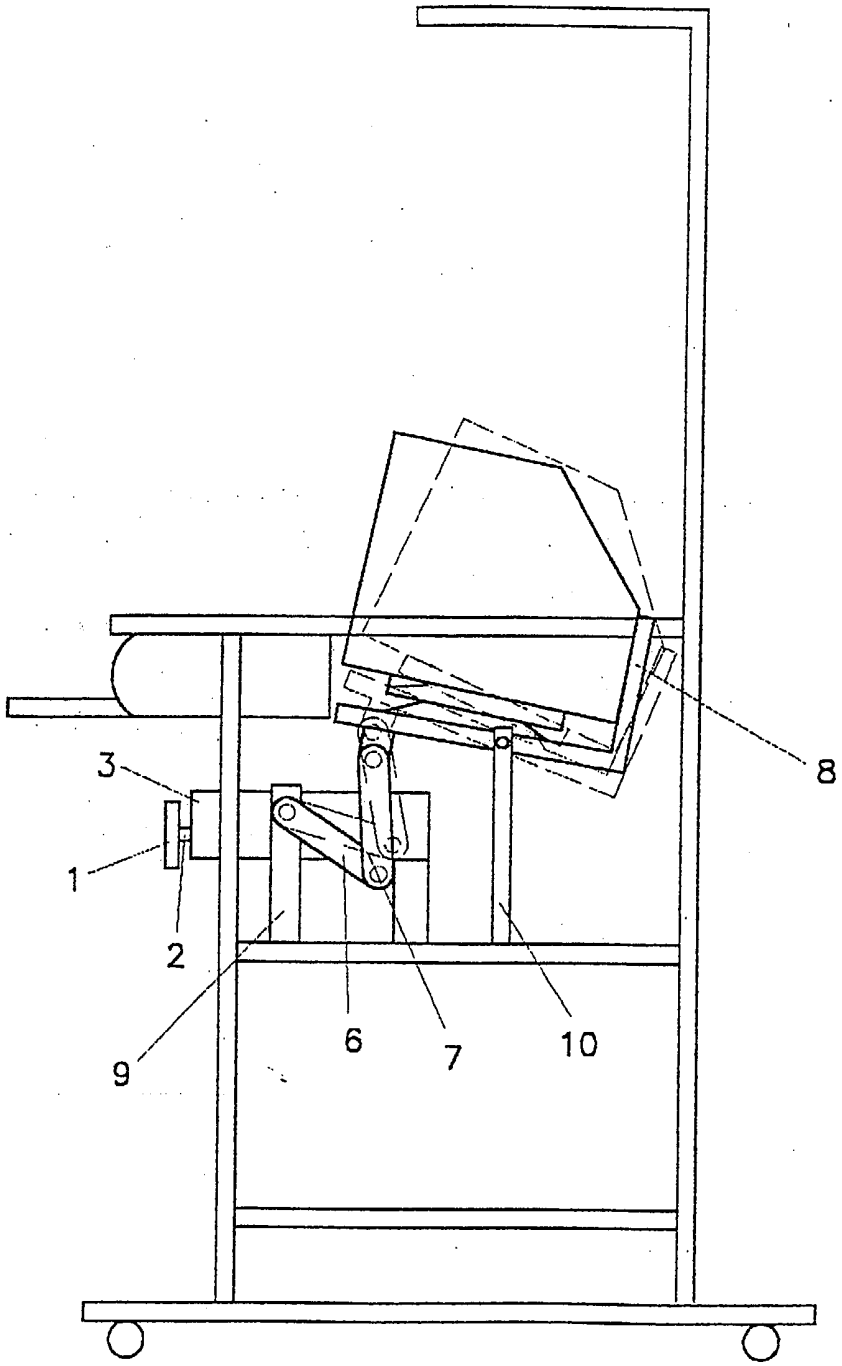
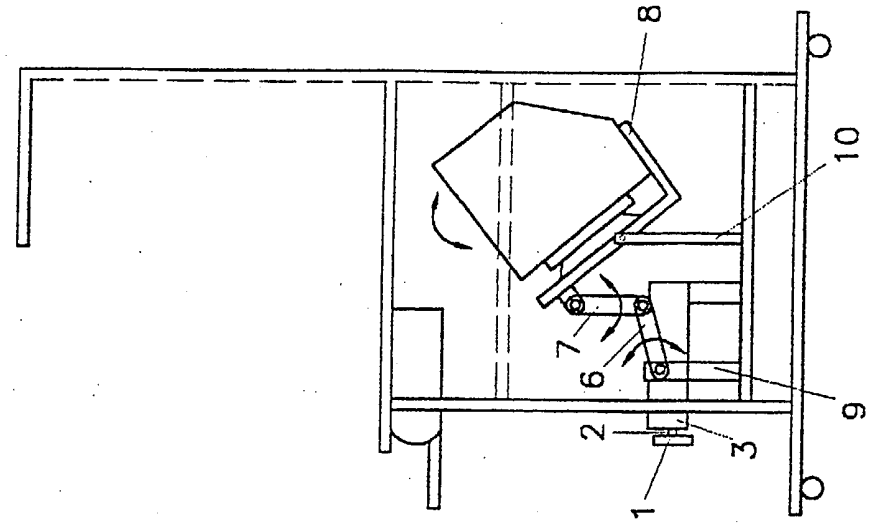
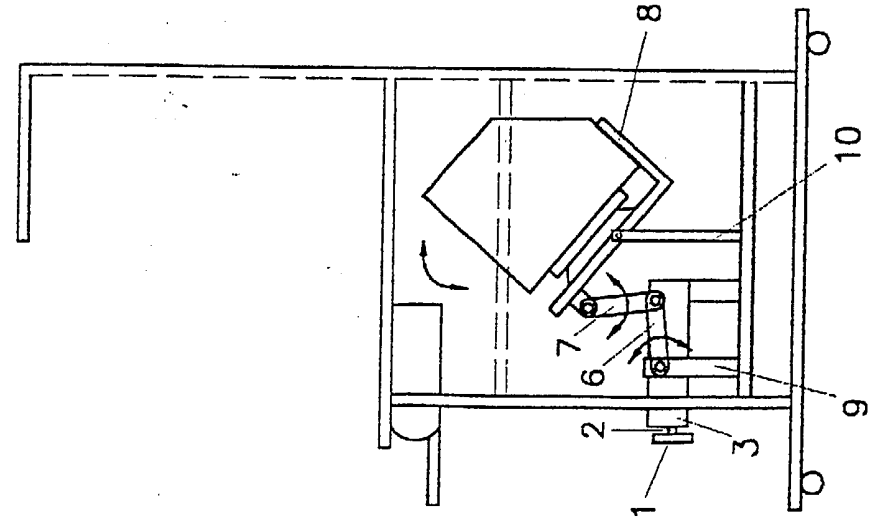


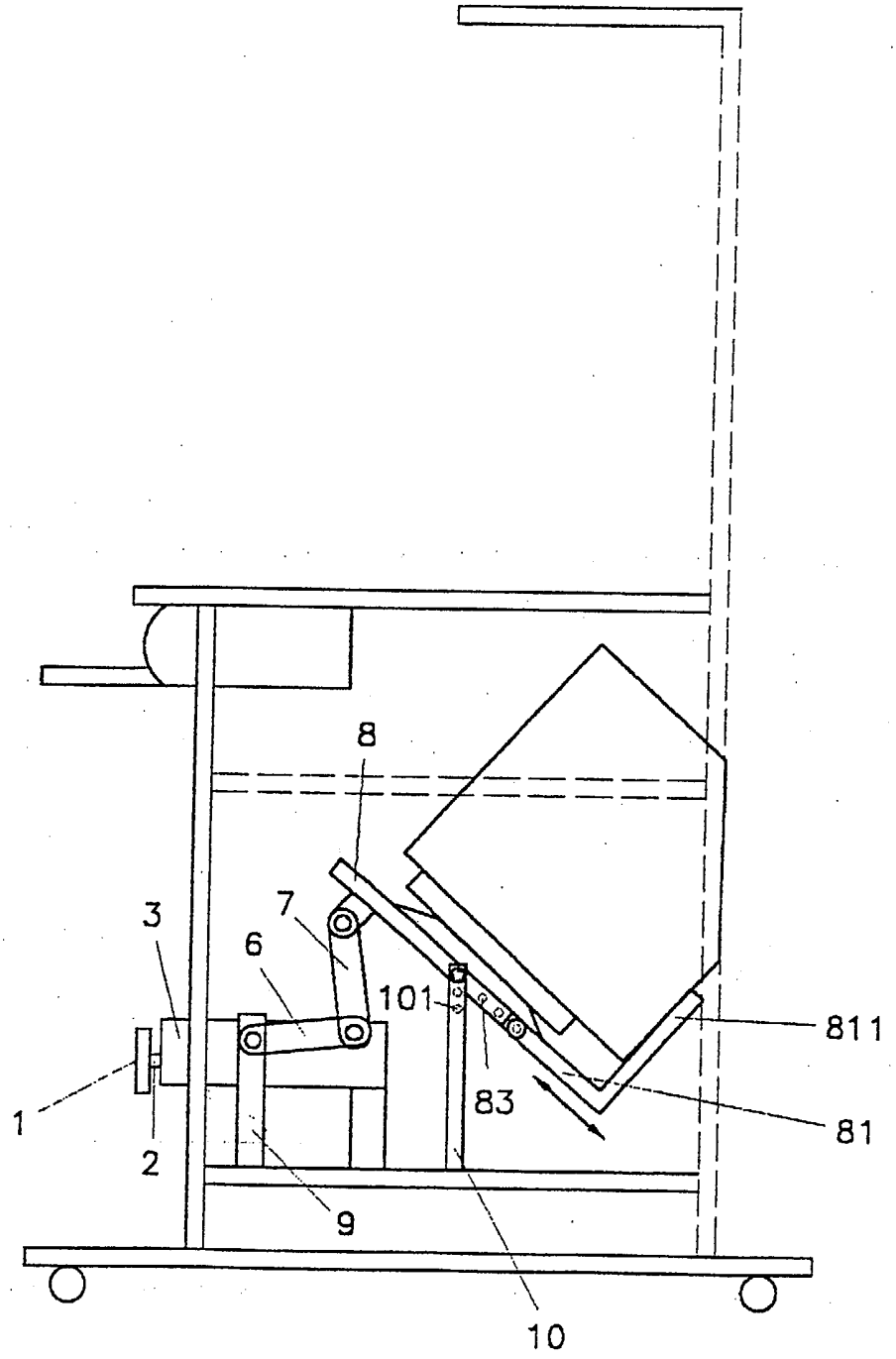
Fig. 5



Fig·6A



Fig·6



Fig·7

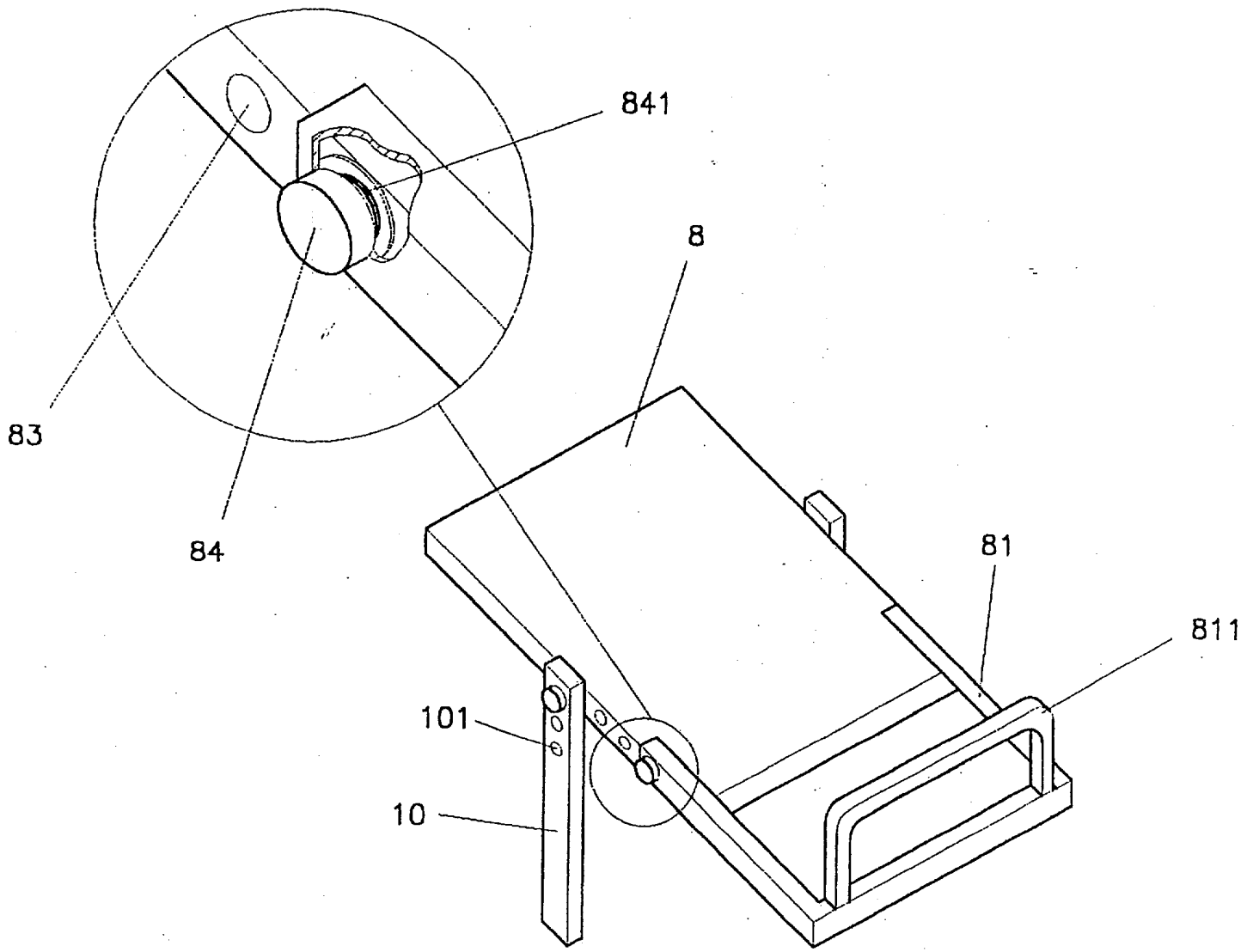


Fig. 7A

INCLINATION-ADJUSTABLE ARRANGEMENT OF A MONITOR STAND

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to an inclination-adjustable arrangement of a monitor stand and, more particularly, to an arrangement in which a toothed bar is turned by turning a screw cap to drive a toothed wheel and a transmission arrangement coupled on the shaft of the toothed wheel. Accordingly, the adjustment of the angle of the monitor stand can be reached. Moreover, a movable seat is mounted on the stand to adapt to monitors of different size.

2. Description of the Prior Art

The personal computer is a quite popular equipment in our society. The living space of the modern people is generally limited so that a computer table effectively making use of space to place the computer and its peripheries becomes an indispensable equipment. Some of people work or play games in front of the computer for a long time. How to remove the fatigue and reduce the damage of the monitor radiation to the user who works in front of computer for a long time becomes a main problem which the computer table industry wants to overcome. Thus, a computer table which is able to adjust the angle of the monitor has been developed. This kind of the computer table can be divided into two types: one is that the monitor is placed on the table top, as shown in Fig. 1 and the other is that the monitor is placed under a transparent table top, as shown in Fig. 2. The arrangement for

adjusting the angle is provided with a plurality of locating holes 500. In changing the angle of the monitor 100, it is necessary to change the locating position of the rear locating rod 400 and the locating holes 500 so that the angle of the monitor stand 200 can be adjusted by means that the front locating rod 300 serves as rotating shaft. If the monitor 100 is different in size, the height of the locating rod 300 has to be changed. However, it includes the following drawbacks:

1. It's very inconvenient in adjusting the angle of the monitor by changing the height of the rear locating rod at the bottom of the monitor stand. It will be more strenuous and unsafe when the monitor has been placed upon the stand. In addition, a computer can be used by many people of different height so that a frequent adjustment of the angle of the monitor is necessary, and this is very inconvenient.
2. The angle of the monitor stand is changed by means that the locating rod is located in different locating holes. This kind of adjustment is restricted, and can't completely reach the required angle.
3. When the monitors are different in size, the front and rear locating rods have to be adjusted in order to get a best using angle. This work is very complicated and inconvenient (the problem will be more obvious when the monitor is placed under the table top, as shown in Fig. 2).

SUMMARY OF THE INVENTION

It is a primary object of the present invention to remove the above-mentioned drawbacks and to provide an inclination-adjustable arrangement of a monitor stand having a screw cap, a screw shaft, a slide groove, a slide element, a transmission shaft, a transmission plate, a coupled plate, a stand, a front bracket and a rear bracket. The

slide element contains a female thread at one end thereof while a toothed bar is fixed thereon. The transmission shaft is fitted with a toothed wheel at a proper position thereof. In assembly, one end of the transmission shaft is inserted into the slide groove in such a way that the toothed wheel and the toothed bar are engaged and coupled together. And the other end of the transmission shaft is pivoted at a proper position of the front bracket. The transmission plate is secured at a proper position of the transmission shaft. And two ends of the coupled plate are respectively pivoted at one end of the transmission plate and at a connecting member of the stand. The stand is pivotally disposed at a proper position of the rear bracket. Accordingly, the angle of the stand is easily adjustable by turning the screw cap to change the angle of elevation of the monitor to any proper position.

It is a further object of the present invention to provide an inclination-adjustable arrangement of a monitor stand on which a movable seat is mounted to adapt to the different size of the monitor by adjusting the distance of the end stop at the rear end of the movable seat.

BRIEF DESCRIPTION OF THE DRAWINGS

The accomplishment of this and other objects of the invention will become apparent from the following description and its accompanying drawings of which:

Fig. 1 is a perspective view of a conventional computer table with an inclination-adjustable arrangement of a monitor stand;

Fig. 2 is a perspective view of another conventional computer table with an inclination-adjustable arrangement of a monitor stand;

Fig. 3 is a perspective exploded view of a first embodiment of the present

invention;

Fig. 4 is an assembly side view of Fig. 3;

Fig. 5 is a side view of a computer table fitted with the first embodiment of the present invention;

Fig. 6 is a side view of a computer table fitted with a second embodiment of the present invention;

Fig. 6A is another side view of a computer table fitted with the second embodiment of the present invention;

Fig. 7 is a side view of a computer table fitted with a third embodiment of the present invention; and

Fig. 7A is a perspective view of a fixing apparatus of a movable seat of the third embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Figs. 1 and 2 show a perspective view of two conventional computer tables with an inclination-adjustable arrangement of a monitor stand respectively. The configuration, the principle and the use thereof have been shown above so that it won't be described more hereinafter.

Fig. 3 shows perspective exploded view of a first embodiment of the present invention. It's apparent in Fig. 3 together with Fig. 4 that the inclination-adjustable arrangement of a monitor stand in accordance with the present invention at least includes a screw cap 1, a screw shaft 2, a slide groove 3, a slide element 4, a transmission shaft 5, a transmission plate 6, a coupled plate 7, a stand 8, a front

bracket 9 and a rear bracket 10. The slide element 4 contains a female thread 42 at one end thereof while a toothed bar 41 is fixed thereon. The transmission shaft 5 is fitted with a toothed wheel 51 at a proper position thereof. The stand 8 includes a raised end stop 811 at the rear end thereof. In assembly, the screw cap 1 is screwed at one end of the screw shaft 2 while the other end thereof is inserted into the slide groove 3 for connecting with the female thread 42 of the slide element 4. In addition, one end of the transmission shaft 5 is inserted into the slide groove 3 in such a way that the toothed wheel 51 and the toothed bar 41 are engaged and coupled together. And the transmission shaft 5 is fixed on two sides of the slide element 4 by means of fixing sleeves 52 respectively. The transmission plate 6 is secured at a proper position of the transmission shaft 5 by means of a screw 61 in a crank-like operation manner. The other end of the transmission shaft 5 is pivotally disposed at a proper position of the front bracket 9, and two ends of the coupled plate 7 are respectively pivoted at one end of the transmission plate 6 and at a connecting member 82 of the stand 8. The stand 8 is pivotally disposed at a proper position of the rear bracket 10. Accordingly, the angle of the stand 8 is easily adjustable by turning the screw cap 1 (see Fig. 5) to change the angle of elevation of the monitor to any proper position. And the back of the monitor is supported by the end stop 811 for protection against the falling of the monitor.

Fig. 6 and 6A show different side views of a computer table fitted with a second embodiment of the present invention. It's apparent that the monitor is disposed under the table top by lowering the height of the front and the rear brackets 9, 10 and fitting with a transparent table top. Accordingly, a protection against radiation of the monitor to damage the user can be achieved.

Fig. 7 shows a side view of a computer table fitted with a third embodiment of the present invention. It's apparent from Fig. 7 together with Fig. 7A that the stand 8 is provided with a movable seat 81 on the surface thereof while the end stop 811 is

disposed at a proper position of the rear end of the movable seat 81. Moreover, the stand 8 is provided with a plurality of locating holes 83 and a pair of fixing element 84 at two sides of the stand 8. When the size of the monitor is different, the movable seat 81 is movable by pulling the fixing element 84. When the position to adapt to the size of the monitor is reached, release the fixing element 84 to restore itself by means of the resilience of the spring 841 for fixing the movable seat 81. Therefore, the monitor can be stably placed and hooked. In addition, the rear bracket 10 is fitted with a plurality of displacement holes 101 at proper position thereof. In holding a bigger monitor, the stand 8 can be therefore lowered for increasing the placing space.

Thus, a continuous adjustment of the angle of the monitor can be easily reached by turning the screw cap 1. Moreover, the movable seat is mounted to adapt to the different size of the monitor by adjusting the distance of the end stop at the rear end of the movable seat.

Many changes and modifications in the above-described embodiments of the invention can, of course, be carried out without departing from the scope thereof. Accordingly, to promote the progress in science and the useful arts, the invention is disclosed and is intended to be limited only by the scope of the appended claims.

CLAIMS

1. An inclination-adjustable arrangement of a monitor stand comprising at least a screw cap, a screw shaft, a slide groove, a slide element, a transmission shaft, a transmission plate, a coupled plate, a stand, a front bracket and a rear bracket, wherein the improvement is characterized by:

said slide element having a female thread at one end thereof while a toothed bar is fixed thereon;

said transmission shaft fitted with a toothed wheel at a proper position thereof;

said stand having a raised end stop at the rear end thereof;

and wherein, in assembly, said screw cap is screwed at one end of said screw shaft while the other end thereof is inserted into said slide groove for connecting with said female thread of said slide element; in addition, one end of said transmission shaft is inserted into said slide groove in such a way that said toothed wheel and said toothed bar are engaged and coupled together, and wherein said transmission plate is secured at a proper position of said transmission shaft by means of a screw in a crank-like operation manner while the other end of said transmission shaft is pivotally disposed at a proper position of said front bracket, and two ends of said coupled plate are respectively pivoted at one end of said transmission plate and at a connecting member of said stand, and said stand is pivotally disposed at a proper position of said rear bracket; accordingly, the angle of said stand is easily adjustable by turning said screw cap for changing the angle of elevation of the monitor to any proper position

while the back of the monitor is supported by said end stop for protection against the falling of the monitor.

2. An inclination-adjustable arrangement of a monitor stand as claimed in claim 1, wherein said stand is provided with a movable seat on the surface thereof while said end stop is disposed at a proper position of the rear end of said movable seat, and said stand is provided with a plurality of locating holes and a pair of fixing element 84 at wo sides of the stand, and said movable seat can be moved by pulling the fixing element outwards for changing the space size in placing the monitor, and said fixing element is fixed when the position of the proper size is reached.

3. An inclination-adjustable arrangement of a monitor stand as claimed in claim 1 or 2, wherein said fixing element is provided with a spring, and when said movable seat is moved to a proper position, said fixing element is fixed in position by means of the resilience of said spring.

4. An inclination-adjustable arrangement of a monitor stand as claimed in claim 1 or 2, wherein said rear bracket is fitted with a plurality of displacement holes at proper position thereof, and in holding monitors of different size, said stand can be therefore moved for adjusting thereto.

5. An inclination-adjustable arrangement for a monitor, said arrangement comprising adjustably-mounted support means and means for adjusting the angle of inclination of said support means, said adjusting means comprising a pivotable linkage connected to the support means, a screw adjuster and connecting means connecting the adjuster to the linkage, the arrangement being such that turning of the screw adjuster is effective to adjust the angle of inclination of the support means.

6. An inclination-adjustable arrangement for a monitor substantially as described herein with reference to Figs. 3 to 7A of the drawings.

Application No: GB 0125221.2
Claims searched: 1 to 6
Examiner: Dean Parry
Date of search: 11 February 2002

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.T): A4L (LAAJ, LBPB, LCC)

Int Cl (Ed.7): A47B (17/00, 17/06, 21/00, 46/00), F16M (13/00)

Other: Online: EPODOC, WPI, JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	GB 2298569 A	(CHUANG) see figs 1, 2, 3, and 5, and pages 6-7 lines 21-27 and 1-20 respectively.	5
A	DE 4334574 A	(JEREMIAS) see figs, and EPO, WPI abstracts.	
X	DE 3931574 A	(HOFMANN) see fig 1, and EPO, WPI abstracts.	5
A	EP 0721749 A	(MOLL) see fig 2, and EPO, WPI abstracts.	
A	US 6012694 A	(SULLIVAN) see fig1.	
A	US 5778799 A	(EYRE) see fig 1.	
A	US 4590866 A	(SCHAIRBAUM) see figs.	

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.