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(54) Support for a portable computer

(57) The invention relates to a support for a portable computer in a situation in which only the display screen is used and in which use is furthermore made of an external keyboard and possibly of an external mouse. The support consists of two flat plates, which can be folded against each other during transport and which enable a vertical adjustment of the display screen in unfolded condition.

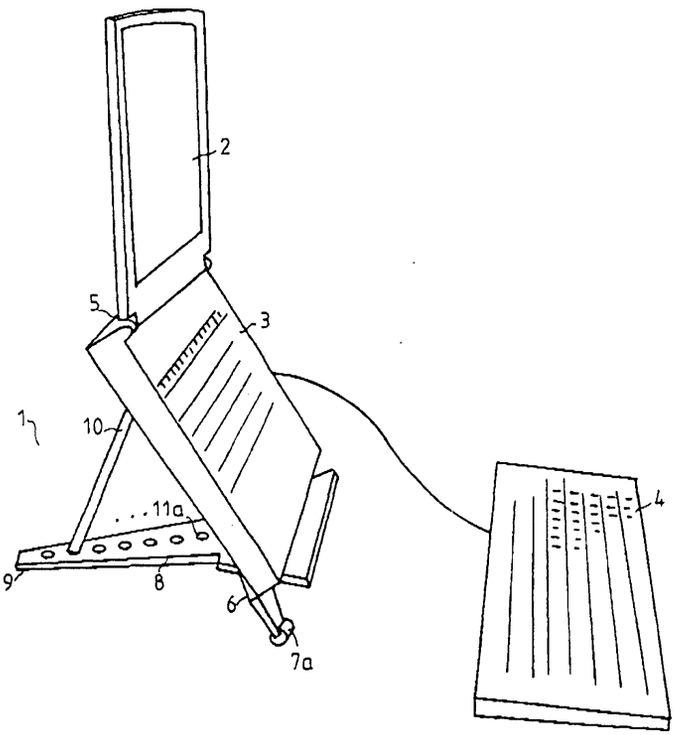

FIG.1

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Description

[0001] The invention relates to a support for a portable computer comprising a housing and a display screen which is pivotally connected thereto. Supports for portable computers are known as such, for example from US-A-5,722,624. With the known supports, the aim is to obtain a more advantageous position especially of the keyboard that forms part of the housing. The point of departure of the present invention is that this can never lead to an ergonomically sound position, so that in the long run problems for the user in the form of shoulder and neck complaints are inevitable. The invention is furthermore based on the premise that a small keyboard, such as the keyboard of a portable computer, is not suitable for prolonged use. Consequently, it is assumed that in the case of prolonged use, for example at the office, a separate keyboard will be connected to the portable computer. An additional advantage is the fact that the user has much more freedom in positioning the display screen. Accordingly, the present invention is characterized in that the support is arranged for positioning the display screen in an ergonomically substantially optimum manner.

[0002] An advantageous embodiment, which on the one hand forms a very stable support and which on the other hand is easy to carry along and, in addition, easy to produce, is characterized in that the support comprises a first flat plate and a second flat plate which is pivotally connected thereto, that the plates can be placed at least substantially in abutment with each another so as to include an acute angle with each other in a position of use.

[0003] Another advantageous embodiment, which combines a very stable support with an aesthetic and slender appearance, is characterized in that the first flat plate is provided with a first and a second foot-shaped member and a supporting member for supporting a bottom of the housing, that a first end of the second flat plate extends between the first and the second foot-shaped member in a position of use, and that an opposite second end forms a third foot-shaped member. The first end of the second plate forms a support for the front side of the housing in the position of use.

[0004] Another advantageous embodiment, which renders the support suitable for different users and different types of portable computers, is characterized in that adjusting means are provided for adjusting the angle between the first flat plate and the second flat plate in a position of use.

[0005] Another advantageous embodiment is characterized in that the adjusting means comprise a bar-shaped member, which is pivotally connected to the first flat plate. Preferably, the first flat plate is provided with a slot in that case, which functions to receive said bar-shaped member when the plates are placed in abutment with each other, and the second flat plate is provided with cavities into which one end of said bar-shaped member can be placed.

[0006] Another advantageous embodiment, which makes the support virtually indestructible, is characterised in that the first flat plate and the second flat plate are interconnected by means of a piano hinge. Preferably, the first flat plate and the second flat plate are glued to said piano hinge. If desired, a recess may be milled in the first flat plate and/or in the second flat plate, in which the piano hinge is received in part, as a result of which the first and the second plate can be placed fully in abutment with each other in a closed position.

[0007] Another advantageous embodiment is characterized in that at least the first and the second foot-shaped member are provided with a block of a rubber or a plastic, and that preferably also the first end of the second flat plate is provided with an antiskid layer of a rubber or a plastic.

[0008] The invention will now be explained in more detail with reference to the following figures, in which:

Figure 1 is a schematic, perspective view of the support according to the invention in a position of use thereof;
Figure 2 is a front view of the first flat plate and the adjusting element; and
Figure 3 is a top plan view of the second flat plate.

[0009] Figure 1 schematically shows in perspective view the inventive support 1 in a position of use thereof, on which a portable computer consisting of a display screen 2 and a housing 3 is present, to which computer a so-called external keyboard 4 is connected. The display screen 2 can be positioned at eye level by means of the support 1, whilst an optimum angle between the display screen 2 and the housing 3 can be adjusted by means of a hinge 5.

[0010] The support 1 consists of an at least substantially upright plate 6 provided with two feet 7a, 7b, of which only the foot 7a is shown in the figure, against which the housing 3 rests, and an at least substantially horizontal plate 8, which supports the housing 3 on one side and which forms a foot 9 on the other side. The upright plate 6 is pivotally connected to the horizontal plate 8, and the opening angle between the two plates can be adjusted by means of a bar 10, which is pivotally connected to the upright plate 6 and which can be selectively placed into one of the cavities 11a, 11b, 11c, .. in the horizontal plate 8. The last cavity is located such that also older portable computers, whose display screen cannot be swung open very far, can nevertheless be placed in an advantageous position.

[0011] Figure 2 is a front view of first flat plate 6 with the adjusting element, bar 10. In the embodiment that is illustrated in this figure, the plate 6 is made of a 6 mm thick acrylate plate. The plate 6 is centrally provided with a slot 12, in which the bar 10 is pivot-mounted by means of a steel pin 13. The bar 10, which is preferably rectangular in section, fits precisely in the slot 12, thus reduc-

ing the load on the hinge formed by the pin 13. A recess 14 is formed round the bar 10, via which recess the bar 10 can easily be pressed out of the slot 12. A piano hinge 15 is fixed, preferably glued, to the rear side of the plate 6, with the central axis 16 indicating a hinging line in the figure. The glue site can be slightly recessed, so that the piano hinge 15 is partially countersunk therein. Preferably, the piano hinge 15 is bevelled at the ends, as is indicated in the figure. The feet 7a, 7b are preferably surrounded by rubber, thus preventing the feet from shifting and making scratches in the supporting surface.

[0012] Figure 3 is a top plan view of the second flat plate 8, which is likewise made of a 6 mm thick acrylate plate in this embodiment. The surface 17 between the broken lines indicates where the piano hinge 15 is to be fixed, preferably glued. Also in this figure, the central axis 16 indicates the hinging line. The surface 17 may be slightly recessed, so that the piano hinge 15 is partially countersunk therein. The flat plate 8 is provided with cavities 11a, 11b, .., which have been bored to a depth of, for example, 4 mm, into which cavities bar 10 can be placed so as to obtain a desired angle between the first and the second flat plate. A rubber cap 18 may be placed under the cavity 11i, thus preventing the plate from shifting and making scratches in the supporting surface. The plate 8 is furthermore partially provided with an antiskid layer 19 of a rubber or a plastic, which functions to prevent the housing 3 moving off. Preferably, said antiskid layer is provided with transversely extending grooves, as already indicated in the figure, with the additional advantage that the support can also be used quite well as a document support, for example when the portable computer is used in the conventional manner.

Claims

1. A support for a portable computer comprising a housing and a display screen which is pivotally connected thereto, **characterized in that** the support is arranged for positioning the display screen in an ergonomically substantially optimum manner.

2. A support according to claim 1, **characterized in that** the support comprises a first flat plate and a second flat plate which is pivotally connected thereto, that the plates can be placed at least substantially in abutment with each another so as to include an acute angle with each other in a position of use.

3. A support according to claim 2, **characterized in that** the first flat plate is provided with a first and a second foot-shaped member and a supporting member for supporting a bottom of the housing, that a first end of the second flat plate extends between the first and the second foot-shaped member in a position of use, and that an opposite second end forms a third foot-shaped member.

4. A support according to claim 3, **characterized in that** adjusting means are provided for adjusting the angle between the first flat plate and the second flat plate in a position of use.

5. A support according to claim 4, **characterized in that** the first flat plate is provided with a slot **in that** case, which functions to receive said bar-shaped member when the plates are placed in abutment with each other.

6. A support according to claim 4 or 5, **characterized in that** the second flat plate is provided with cavities into which one end of said bar-shaped member can be placed.

7. A support according to any one of the claims 2 - 6, **characterized in that** the first flat plate and the second flat plate are interconnected by means of a piano hinge.

8. A support according to claim 7, **characterized in that** the first flat plate and the second flat plate are glued to said piano hinge.

9. A support according to claim 3, **characterized in that** at least the first and the second foot-shaped member are provided with a block of a rubber or a plastic.

10. A support according to claim 3, **characterized in that** the first end of the second flat plate is provided with an antiskid layer of a rubber or a plastic.

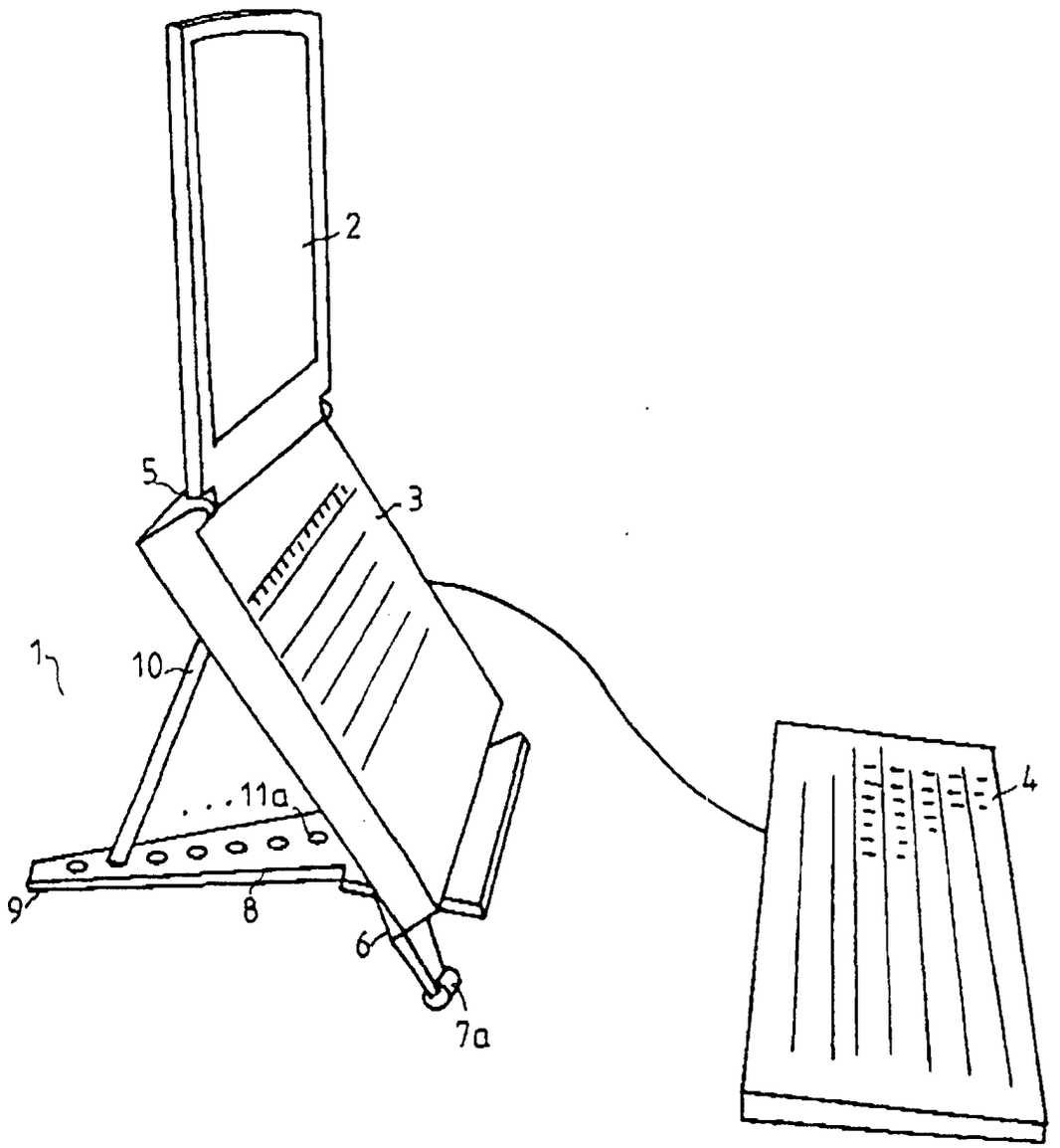

FIG.1

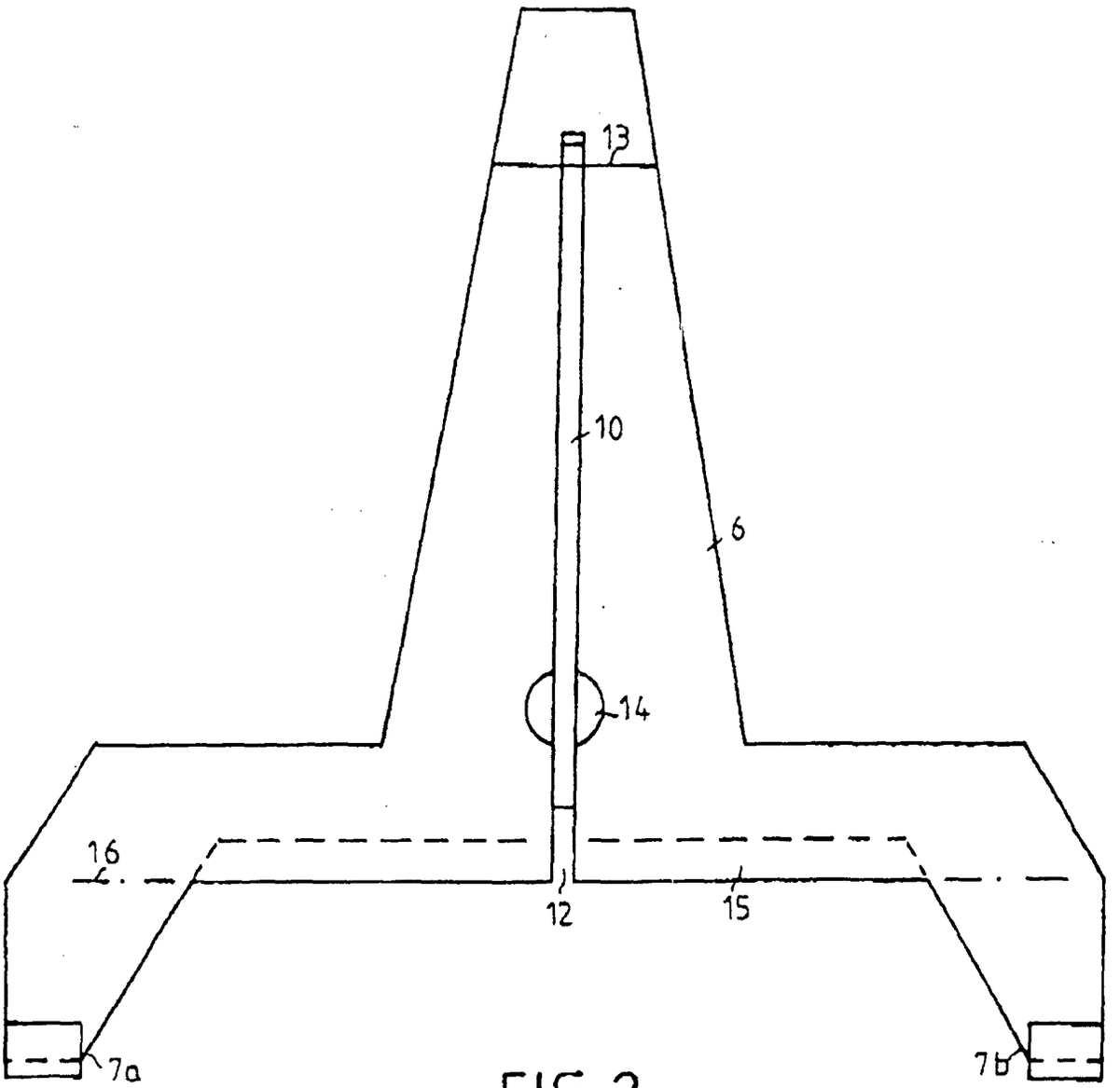

FIG. 2

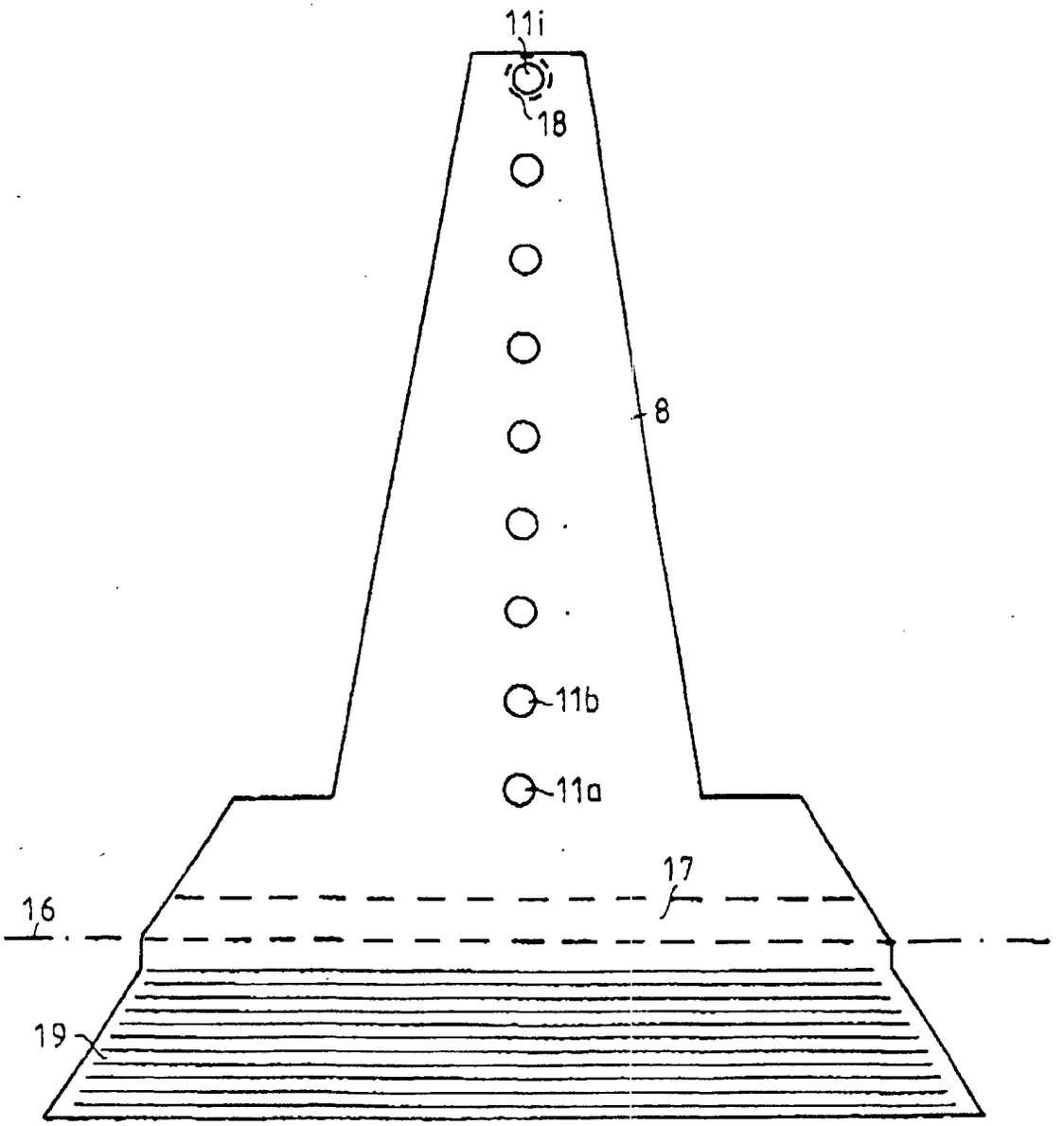

FIG.3

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EUROPEAN SEARCH REPORT

Application Number
EP 02 07 5516

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 3 937 435 A (ROBERTS RAYMOND L) 10 February 1976 (1976-02-10) * column 2, line 62 - column 4, line 63 *	1-5	A47B23/04
Y		6,7,9,10	
A		8	

X	GB 2 135 181 A (CHENG KWOK WO) 30 August 1984 (1984-08-30) * the whole document *	1-4	
Y		6,7,9,10	
A		5,8	

Y	US 4 848 243 A (GIORDANO JOHN M) 18 July 1989 (1989-07-18) * column 5, line 43 - line 55 * * figures 1,4 *	6	

Y	US 5 290 002 A (COHEN DELL P) 1 March 1994 (1994-03-01) * column 4, line 44 - line 56 * * figure 1 *	7	
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	29 April 2002	Ottesen, R

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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29-04-2002

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82