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(71) Applicant(s)
Je-Ho Yun
481-7, Beom-eo 3-dong, Suseong-gu, Taegu,
Republic of Korea

(72) Inventor(s)
Je-Ho Yun

(74) Agent and/or Address for Service
R G C Jenkins & Co
26 Caxton Street, LONDON, SW1H ORJ,
United Kingdom

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B6F FMKK FMK8
A4L LAAJ L118 L130

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FMK8 , B6W WN
INT CL^6 A47B 21/00 , B41J 5/10 29/15 , F16M 11/06
Online: WPI

(54) A document support device for a keyboard

(57) A document support device (100,Fig.1) is disclosed which comprises a U-shaped main body (102,Fig.1) having a hand rest (104,Fig.1) provided on a front side thereof, the hand rest (104,Fig.1) having a plate (106,Fig.1) on a top side thereof allowing an operator to rest hands during keyboard operation, a catch member (108,Fig.1) being provided on the rear side of the main body (102,Fig.1) so as to engage the rear of a keyboard (not shown) in operation. A carriage groove may be formed on the upper surface of the catch member (108,Fig.1) wherein a carriage (112,Fig.1) having a guide (120,Fig.1) maybe positioned so as to engage with the carriage groove, a document holder (124,Fig.1) having a document seat (115,Fig.1) being pivotally mounted to the carriage by means of pivot mounts (113,Fig.1), an attachment pin (118,Fig.3) allows for left and right movement of the carriage (112,Fig.1) relative to a user of the device (100,Fig.1). Several other embodiments are disclosed (see Figs. 2-3,4-7,8,9,10,11,15-17) including in one embodiment (Figs. 15-17), a main body (102,Fig.16) is disclosed having a front catch member (146,Fig.15) and a rear catch member (148,Fig.15) engaging a keyboard (140,Fig.15) at the front side and rear side thereof respectively and in another embodiment (Figs.18-19), a main body (102,Fig.19) is disclosed having a front part (154,Fig.19) and a rear part (156,Fig.19), a number of assembling holes (158,Fig.19) being formed on the front body part (154,Fig.19) and a number of assembling studs (160,Fig.19) formed on the rear body part (156,Fig.19), thus by varying the position of where the assembling studs (160,Fig.19) are inserted into the assembling holes (158,Fig.19), keyboards (140,Fig.18) of different sizes to be accommodated. In addition, a document support device (124,Fig.12) formed integrally as a single body with a keyboard (140,Fig.12) is disclosed (see Figs.12-14).

FIG. 1

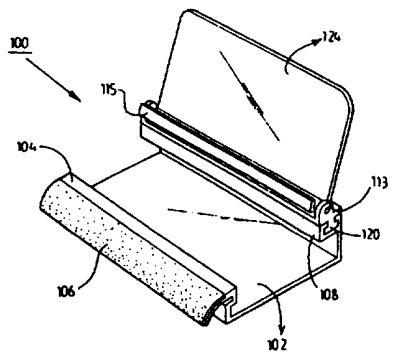

FIG. 3

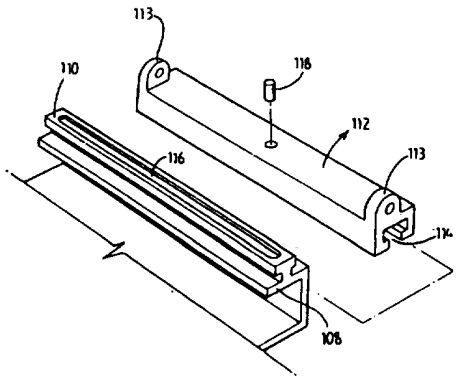

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FIG. 1

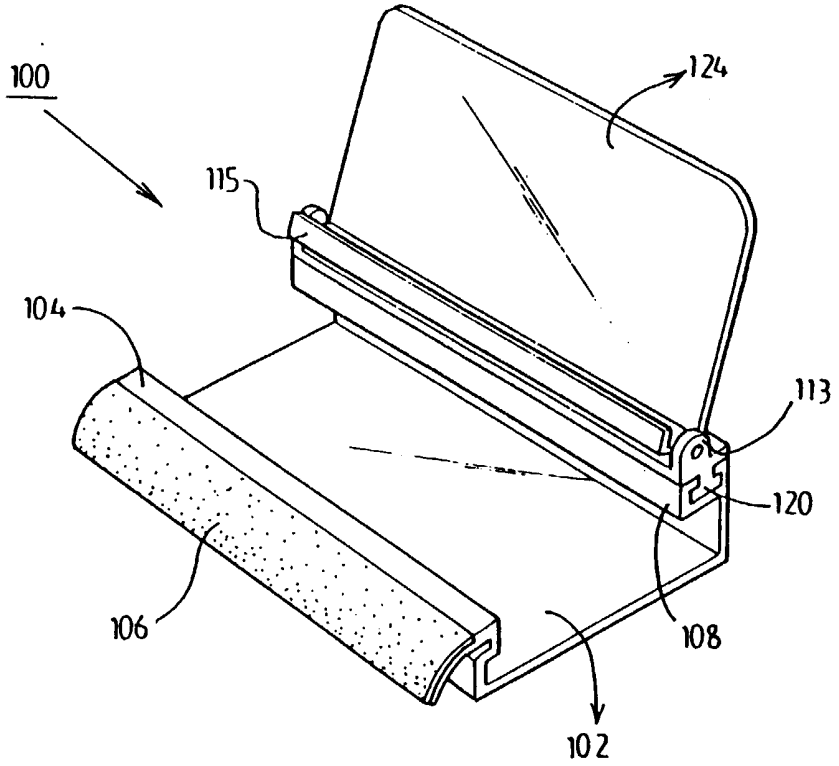
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FIG. 2

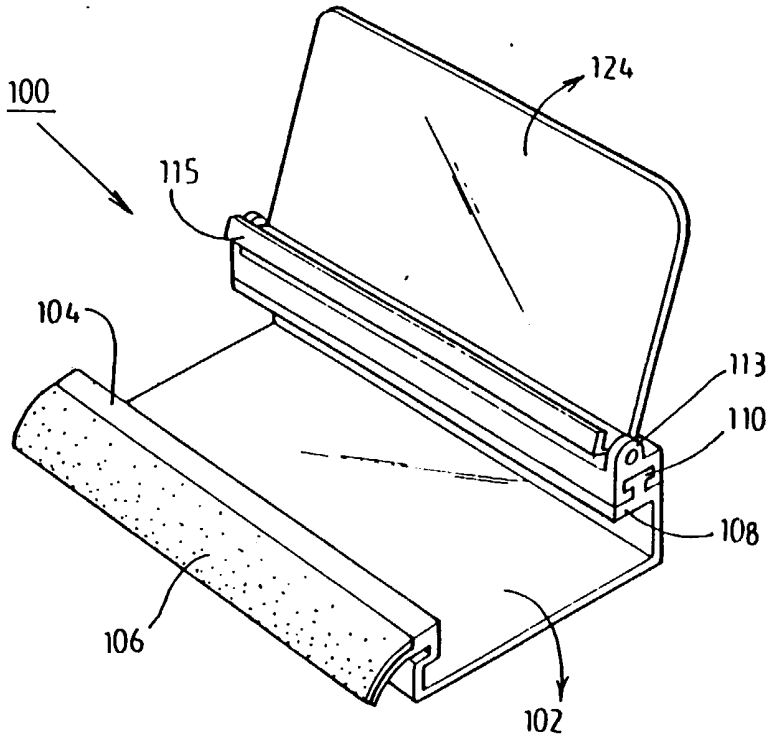
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FIG. 3

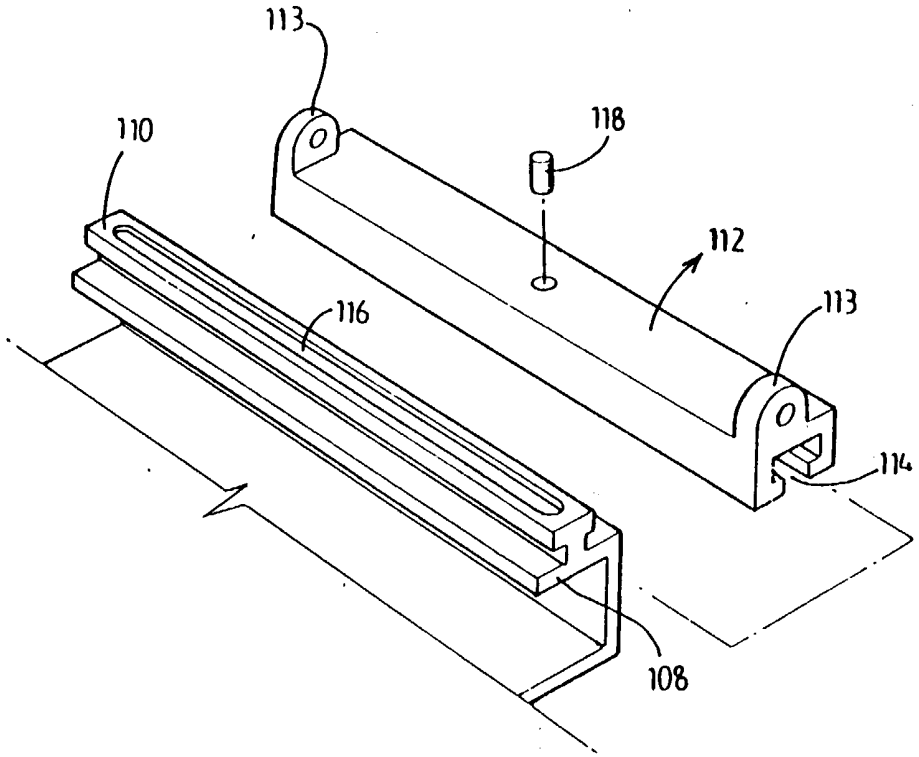

FIG. 4

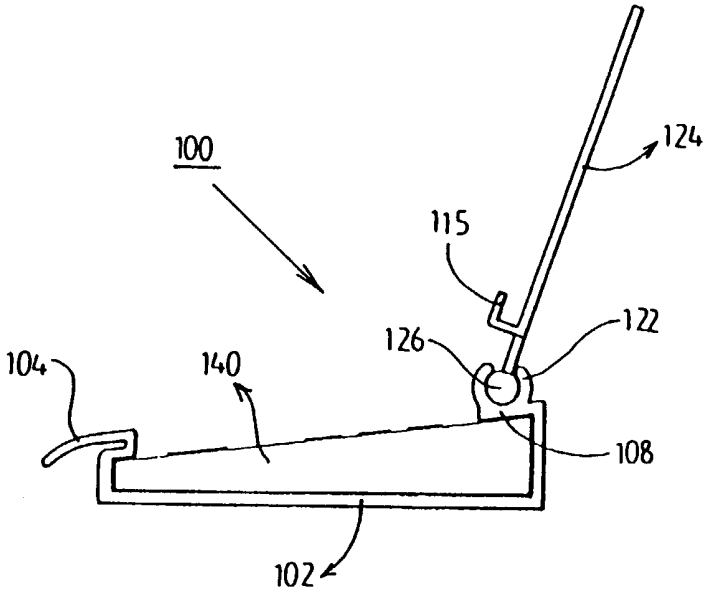

FIG. 5

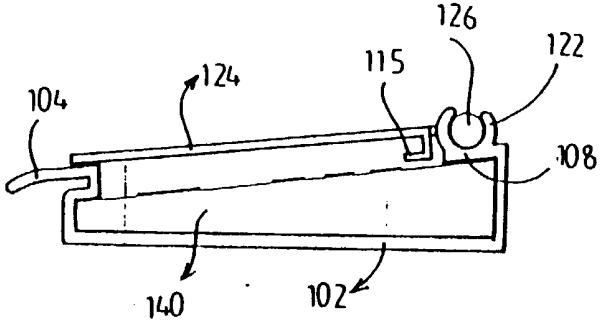

FIG. 6

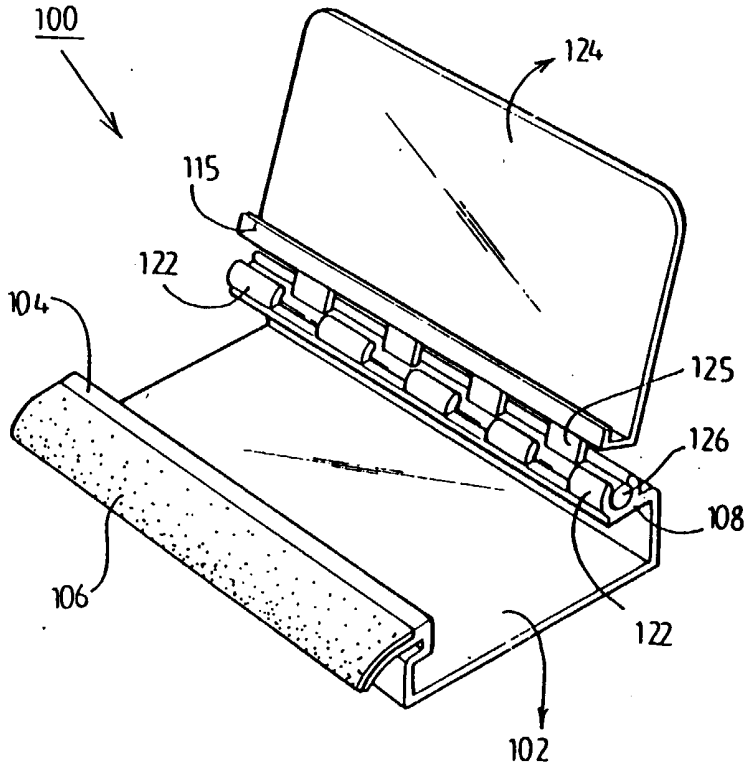
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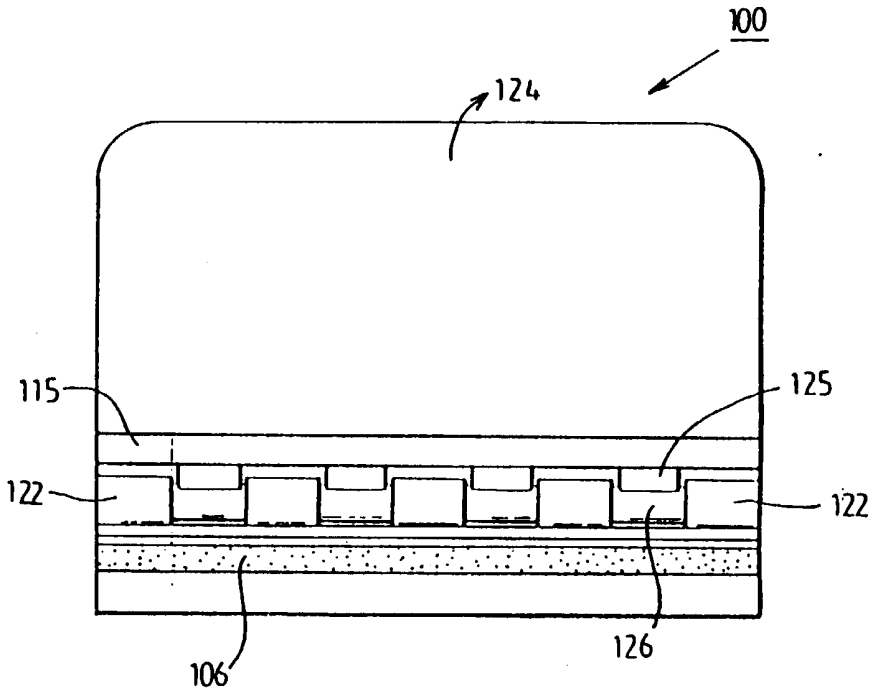
FIG. 7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106
126

FIG. 8

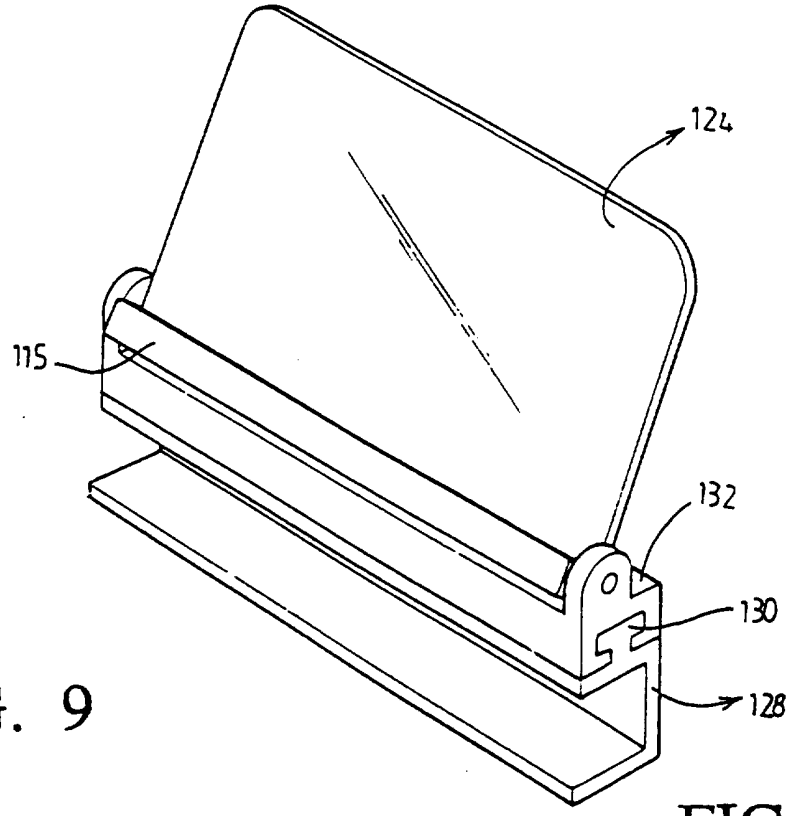


FIG. 9

FIG. 10

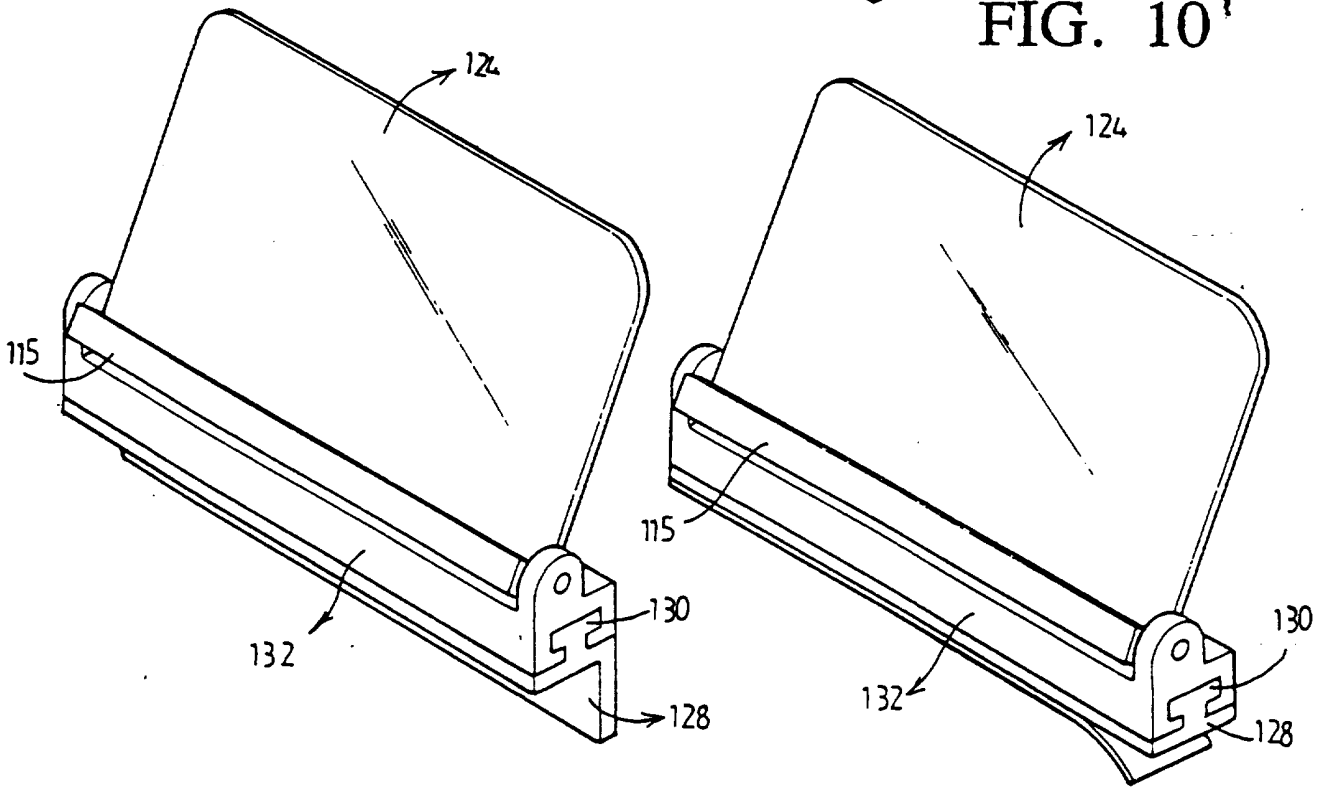


FIG. 11

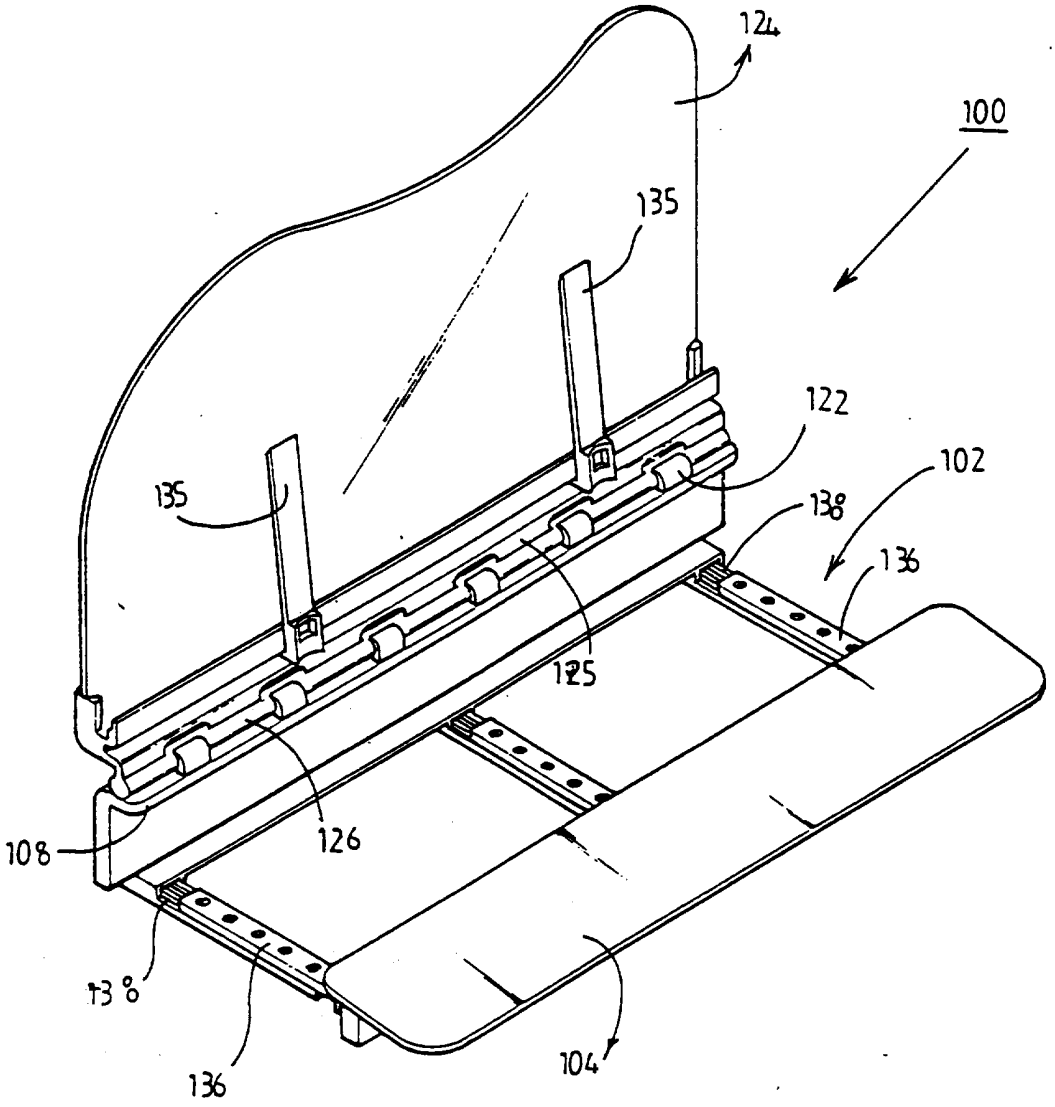


FIG. 12

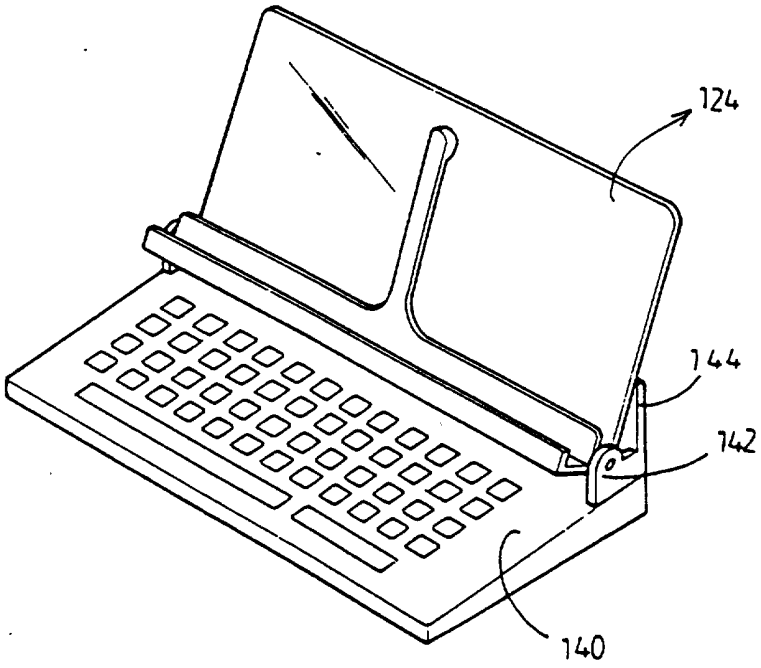


FIG. 13

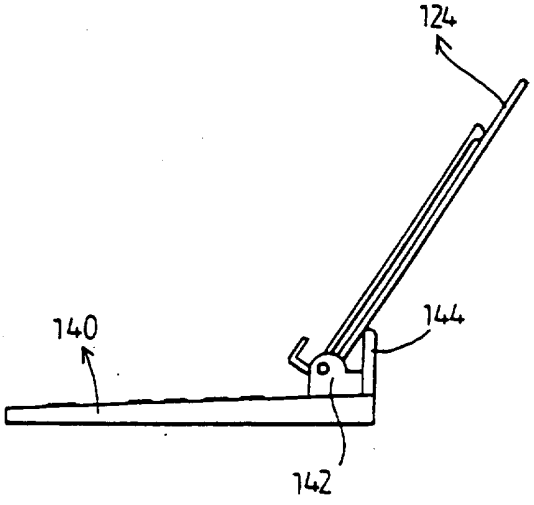


FIG. 14

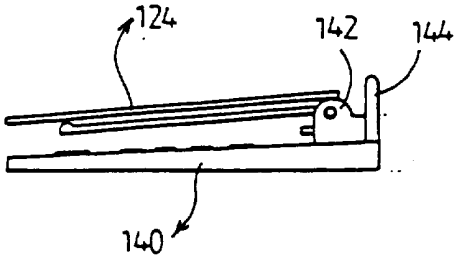


FIG. 15

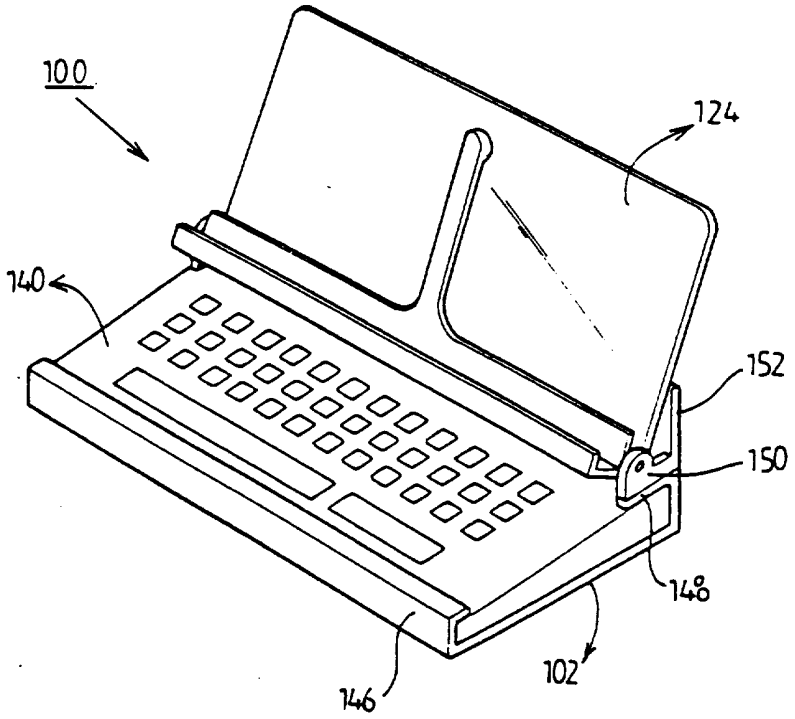


FIG. 16

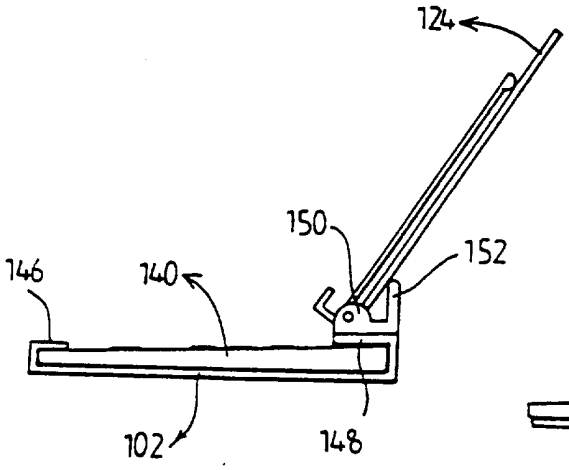


FIG. 17

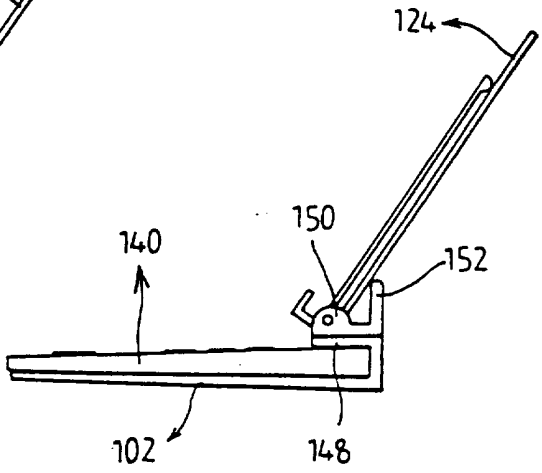
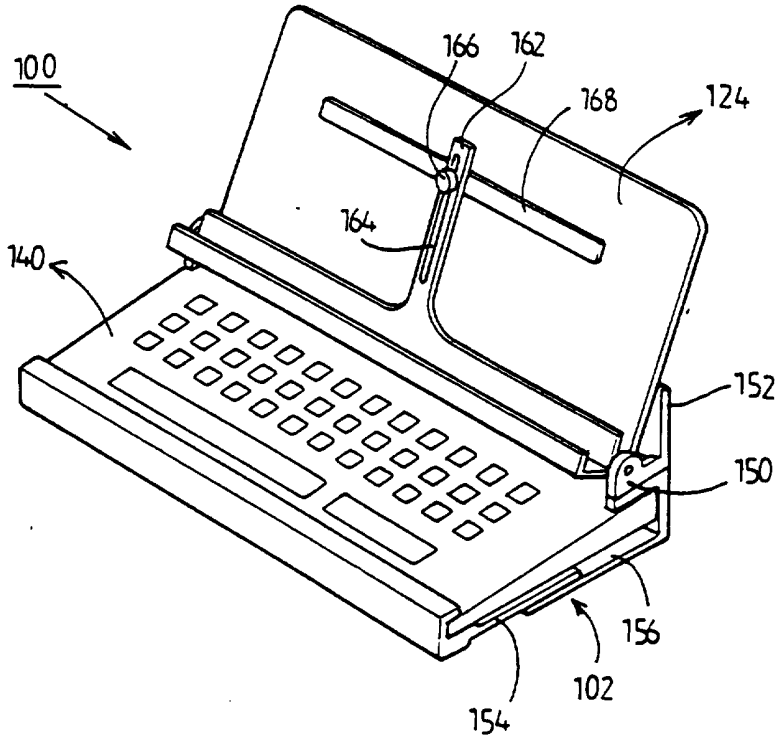


FIG. 18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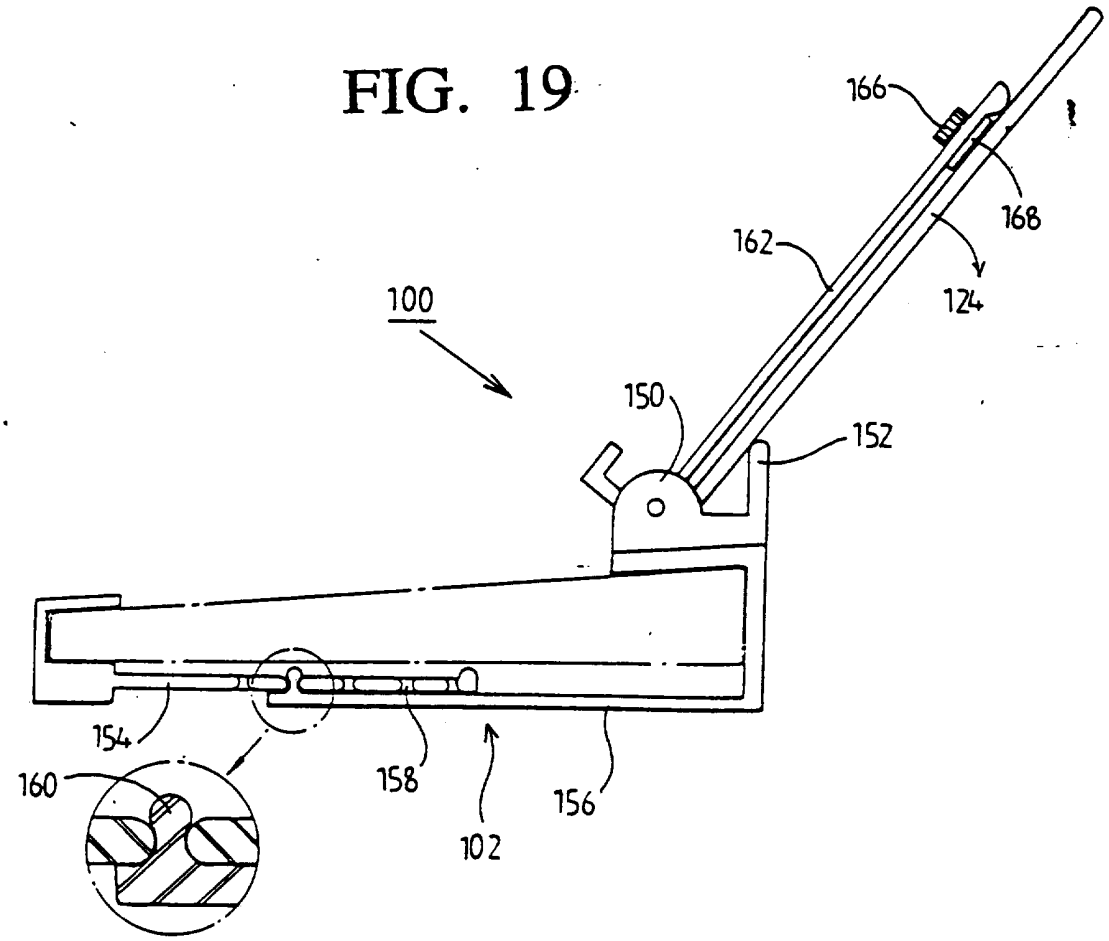
154

FIG. 19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DOCUMENT SUPPORT DEVICE FOR A COMPUTER KEYBOARD

This invention concerns a document support device for use with a computer keyboard to offer more convenient computer keyboard work and to improve work efficiency.

BACKGROUND OF THE INVENTION

In general, to load data from documents such as printed and/or manuscript papers into computer, the documents are placed at an appropriate place on the desk where computers and keyboards are situated, and operators carry out computer work while looking at the documents.

However, such a working procedure has the following demerits:

Because the documents are placed on the left or right side of the keyboard and monitor of the computer, the operator has to move his or her eyes very often during computer work, easily causing eye strain. This makes computer keyboard operation inconvenient and causes work efficiency to deteriorate.

The present invention addresses such existing disadvantages and aims to provide a device which by enabling a document to be placed directly above the

computer keyboard, leads to a reduction in eye strain; keyboard work is thus made convenient and efficiency is improved.

SUMMARY OF THE INVENTION

Accordingly, the present invention provides a document support device comprising a document holder board, and means for pivotally mounting said document holder board relative to the upperside of a keyboard at the rear side thereof so as to permit forward and backward pivotal adjustment of the position of the document holder board. Preferably, the holder board can pivot sufficiently forwardly so as to cover and protect the keyboard when not in use.

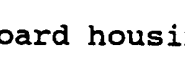
This device enables the operator to see the supported document in the most suitable direction and angle; upon completion of the work, the operator can pull the document holder board forwardly so as to cover and protect the keyboard.

Preferably, the document holder board is also positionally adjustable to left or right, and a hand rest is provided so as to lie in front of the keyboard so that an operator can rest his or her hands comfortably to ensure comfortable and efficient keyboard work.

The mounting means may comprise brackets for fixed location on left and right sides of the

keyboard, and connected to the document holder board by way of shaft-pins, these brackets including document board supports for supporting the document holder board.

In one embodiment, the device is of a fixed body size, suited to a particular size or limited range of sizes of keyboard.

To provide greater flexibility of use, the device may be constructed in "  " type which is equipped with only a rear catch for engaging the rear of the keyboard housing, or in "  " type with rear and front catches between which the separation can be adjusted so that the device can be used regardless of types, or sizes, of keyboards.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view of a document support device according to a first embodiment of the present invention;

Fig. 2 is a perspective view of a document support device according to a second embodiment of the present invention;

Fig. 3 is a perspective view showing a carriage part disassembled from a catch part of the device of the second embodiment;

Fig. 4 is a side view of a document support device according to a third embodiment of the present

invention;

Fig. 5 is a side view of the third embodiment with the document holder board turned down towards the front so as to cover the keyboard;

Fig. 6 is a perspective view of the third embodiment device;

Fig. 7 is a front view of the third embodiment device;

Fig. 8 is a perspective view of a document support device according to a fourth embodiment of the present invention;

Fig. 9 is a perspective view of a document support device according to a fifth embodiment of the present invention;

Fig. 10 is a perspective view of a document support device according to a sixth embodiment of the present invention;

Fig. 11 is a perspective view of a document support device according to a seventh embodiment of the present invention;

Fig. 12 is a perspective view of a document support device according to an eighth embodiment of the present invention, shown assembled with a keyboard;

Fig. 13 is a side view of the eighth embodiment device;

Fig. 14 is a side view of the eighth embodiment device with the document holder board covering the keyboard;

Fig. 15 is a perspective view of a document support device according to a ninth embodiment of the present invention, shown assembled with a keyboard;

Fig. 16 is a side view of the ninth embodiment device;

Fig. 17 is a side view of the ninth embodiment device modified by removal of the front catch;

Fig. 18 is a perspective view of a document support device according to a tenth embodiment of the present invention; and

Fig. 19 is a part sectional side view of the tenth embodiment.

DESCRIPTION OF MAJOR COMPONENTS SHOWN ON DRAWINGS

(100) Document Support	(102) Main body
(104) Hand rest	(106) Synthetic resin plate
(108) Catch	(110) Guide
(112) Carriage	(113) Pivot mount
(114) Guide groove	(116) Carriage groove
(118) Attachment pin	(120) Guide
(122) Document holder connector	(124) Document holder board
(126) Guide bar	(128) Catch
(130) Guide groove	(132) Carriage

(135) Document holder (136)(138) Adjusting plate

(140) Keyboard (142) Bracket

(144) Document board support (146)(148) Catch

(150) Bracket (152) Document board support

(154) Front body part (156) Rear body part

(158) Assembling hole (160) Assembly stud

(162) Document holder (164) Slot

(166) Adjuster (168) Cross bar

DETAILED DESCRIPTION OF THE EMBODIMENTS

Detailed description of the preferred embodiments of this invention are provided as follows by way of example and with reference to the attached drawings.

With reference to Figs. 1 and 2, the document support device (100) of the first and second embodiments includes a main body (102) on the front of which is provided a hand rest (104) which has been slightly downwardly curved towards the front; and on top of this hand rest (104), a piece of synthetic resin plate (106) is attached to allow a computer operator to rest hands comfortably during keyboard work.

Provided at the rear of the main body (102) is a generally concave catch (108), and in the second embodiment a crosswise long guide (110) is attached on top of this catch (108) as shown in Figs. 2 and 3.

The guide (110) is inserted in a guide groove (114) of a carriage (112) so that the carriage (112) can move to right or left relative to guide (110). A carriage groove (116) is formed in the top of the guide (110). As shown in Fig. 3, an attachment pin (118) inserted into the carriage (112) is fitted into this carriage groove (116). This allows carriage (112) to move to left or right, and if the carriage moves a predetermined distance, the attachment pin (118) makes contact with the end of the carriage groove (116), preventing the carriage from moving any further.

On both left and right sides of the above carriage (112) are installed respective pivot mounts (113) with which the document holder board equipped with a document holder seat (115) is pivotally engaged.

As for the construction of the first embodiment as shown in Fig. 1, the carriage groove is formed on top of the catch (108), and the carriage (112) is equipped with a guide (120) which is inserted into the guide groove to facilitate the left or right movement of the carriage.

Figs. 4 to 6 show the third embodiment. On top of the catch (108) provided at the rear of the main body (102), a number of round document holder connectors (122) are formed, and a guide bar (126)

provided in front of the document holder board (124) is inserted into the above document holder connectors so that the document holder board can be moved to left or right.

In addition, as shown in Figs. 8, 9 and 10, the document support device can be constructed, in accordance with the fourth, fifth and sixth embodiments, without including a main body, in " ⌐¬ " type, " ¬⌐ ", type and " ——— " type by using the catch (128) alone which is assembled, or bonded/fixed, to the rear of the keyboard. After this, the guide groove of the carriage (112) is fitted onto the guide (130) formed on catch (128) so that the document holder board can move to left or right.

Further, the document holder board moving system and hand rest, the components of the document support device described above, can be constructed into one body to the rear and front of the keyboard respectively when manufacturing the keyboard, and the effects are same.

Fig. 11 shows the construction of a seventh embodiment of this invention. A pair of document holders (135), movable to left or right, are installed on the document holder seat formed on the front of the document holder board (124), and these paper holders (135) are used to fix source documents (manuscripts)

placed on the document holder board.

In addition, the main body (102) can be constructed in two sections, front and back. By using front and back relatively movable adjusting plates (136) (138) constructed on the main body (102), the width of the main body (102) can be adjusted to flexibly accommodate keyboards regardless of types and sizes. Also, as shown in Fig. 12, the document support device can be integrally formed as a single body with the computer keyboard (140) housing.

In other words, brackets (142) are formed on both sides of the keyboard (140), and the document holder board is mounted on the above brackets (142) using shaft pins to allow the board (124) to freely pivot. To the back of brackets (142), document board supports (140) of a specific height are disposed so that the document board supports can support the document holder board (124) from behind to prevent the document holder board from tilting too far backwards and to ensure the document holder board maintains a uniform angle of orientation at all times.

Fig. 15 shows a ninth embodiment of this invention. As a means to fix document holder board (124) "⊓" type main body (102) equipped with front and back catches (146) (148) is injected molded; also, brackets (150) are provided on both left and

right sides of the back catch (148), allowing the document holder board (124) to pivot on the above brackets (150). At this time, too, at the back of brackets (150), document board support (152) is provided to ensure that the document holder board (124) maintains a uniform angle of orientation.

Also, as shown in Fig. 17, the main body (102) may be modified by being constructed in " " form which, while forming a keyboard support plate, is equipped with only a back catch (148), the front catch being omitted.

Fig. 18 shows a tenth embodiment of this invention. To flexibly use the document support device irrespective of the size of the keyboard (140) to which it is to be fitted, main body (102) may be constructed in such a structure which allows relative adjustment of a " " form front body part (154), and a " " form back body part (156), so that the document support device can be used for many different types and sizes of keyboard.

In this embodiment, as shown in Fig. 19, a number of assembling holes (158) are formed at regular intervals on the front body part (154), and assembling studs (160) are formed on the back body part (156) which is attached to the front body part, and depending on the position where the assembling studs

(160) are inserted into the assembling holes (158) keyboards (140) of different sizes and types can be accommodated. In addition, brackets (150) and document board supports (152) are provided on the back body part (156) described above, and the freely pivoting document holder board (124) is mounted on brackets (150). At this time, a slot (164) is punctured on the document holder (162) provided in front of the document holder board (124); also, a crossbar (168), the height of which is controlled by the operation (loosening and tightening and movement) of an adjuster (166) on the slot described above, is provided.

Based on the above-described construction, documents, such as manuscripts, the data of which is to be loaded into the computer, can be placed on the document holder board (124) provided at the back of the keyboard (140) to ensure convenient computer operation. Upon completion of computer work, the document holder board (124) can be pulled forwards to protect the keyboard (140), as shown in Figs. 5 and 14.

In addition, as the document support devices of the present invention are constructed in such a way that, after the document holder board (124) is assembled to the back of main body (102), the carriage (112) can move to left or right along the guide (110),

the position of the document holder board (124) can be freely adjusted as needs arise, to ensure most convenient use. Furthermore, a hand rest (104) composed of synthetic resin plate (6) is installed in front of the document support device (100) to allow computer operators to rest hands on the hand rest (104) and therefore work in a comfortable posture so as to improve work efficiency.

As document support device as shown on Figs. 8 ~ 10 can be assembled to the keyboard (140) main body, or adhesive can be used to fix for convenient use, and a separate hand rest may be installed at this time at the front of the keyboard (140).

Also, the hand rest or the movable document support can be manufactured into a single body with the keyboard, and the operating effects are the same.

In addition, as shown in Fig. 6, document holder board (124) is provided on the keyboard support (100) in such a way as to allow the document holder board (124) to move; round document holder connectors (122) are installed on the catch (108) and the guide bar (126) formed at the bottom of the document holder board is assembled to the above-said document holder connectors (122). To move the document holder board (124) to left or right at this time, it can be moved to left or right in its standing position; also, if it

is desired to cover the keyboard (140) by pulling the document holder board (124) towards the front, the connectors (125) which connect the document holder board (124) to the guide bar (126) then enter into the spaces between the document holder connectors (122), as the document holder board (124) is pulled forwards to the position shown on Fig. 5, in which document holder board projects forwardly, covering the keyboard.

Accordingly, based on this invention, the document support device can be constructed as a system which can be assembled to the computer keyboard, or can be manufactured as part of the keyboard so that documents, such as manuscripts, can be placed at the back of the keyboard, offering convenient work and improving work efficiency; the freely turning document holder board (124) is installed at the back of the main body (102), and as the document holder board (124) can be moved to left or right, its position can be adjusted according to requirements.

The hand rest (104) installed at the front of the main body (102) enables operators to carry out computer work more conveniently and improve work efficiency significantly.

CLAIMS

1. A document support device for a computer keyboard, the device having a main body provided with a hand rest and a keyboard engagement catch at the front and back thereof, respectively, and a pivotally mounted document holder board, equipped with a document seat protruding forwardly at the bottom of said document holder board.

2. A document support device according to claim 1, wherein the document holder board is pivotally carried on a carriage which is movably mounted on the catch so as to enable the carriage and the document holder board thereon to be moved left or right relative to the keyboard.

3. A document support device according to claim 2, wherein one of said catch and carriage is formed with an elongate guide groove, and the other of said catch and carriage is formed with a guide follower located in and movable along said guide groove.

4. A document support device according to claim 1, wherein document holder connectors of arcuate section are provided on the catch at regularly spaced

intervals, and a guide bar provided along the bottom of the document holder board is located in said document holder connectors so as both to form the pivotal mounting of the document holder board and to facilitate leftward/rightward movement thereof relative to the keyboard.

5. A document support device according to claim 1, wherein the main body comprises first and second portions which are interconnected so as to permit adjustment of the size of the main body, whereby the device is adaptable to different sized keyboards.

6. An electronic keyboard, such as a computer keyboard, wherein a document holder board is pivotally mounted to the back of said keyboard by way of mounting members attached to or integrally formed with a rear part of the keyboard casing.

7. An electronic keyboard according to claim 6, wherein said mounting members are pivot brackets to which the document holder board is pivotally assembled using shaft pins, and wherein a document board support member of a predetermined height is provided behind, or on the rear of, said brackets.

8. A document support device, substantially as hereinbefore described with reference to Fig. 1, or Figs. 2 and 3, or Figs. 4 to 7, or Fig. 8, or Fig. 9 or Fig. 10, or Fig. 11, or Figs. 12 to 14, or Figs. 15 and 16, or Fig. 17, or Fig. 18 and 19 of the accompanying drawings.

The Patent Office

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Application No:	GB 9618670.5	**Examiner:**	Gary Williams
Claims searched:	1-5,8	**Date of search:**	29 November 1996

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.O): B6F: FMKK,FMK6,FMK8 A4L: LAAJ,LAL B6W: WN

Int Cl (Ed.6): A47B: 21/00 B41J: 5/10,29/15 F16M: 11/06

Other: Online: WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
Y	US 5375800	(BASIC NEEDS) See Figures 2,3,6 col.14,lines 6-34, esp. lines 30-34, col. 14,lines 45-54	1
Y	US 4546947	(GESTEN) See Figures 2 and 4, col.4,lines 35-46	1

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.