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(54) Title: PLANAR ELECTRONIC DISPLAY MOUNT WITH ADJUSTABLE KEYBOARD TRAY

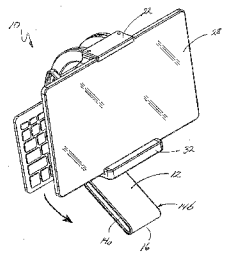

FIG. 1A

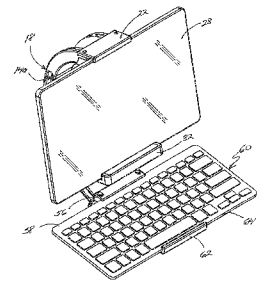

FIG. 1B

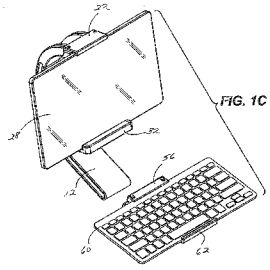

FIG. 1C

(57) Abstract: A device supports a separate keyboard and flat panel electronic display, such as a tablet touch screen computer, on common arched member. The keyboard position and monitor orientation are each independently adapted on arched member, being support by a first and second mounting bracket respectively. The first mounting bracket is a key board tray that slidably translates along the arch to optionally dispose the keyboard between a first horizontal position ready for use at the lower portion of the arch, and a second position proximal to the top of the arch in which the keyboard and tray is vertical and disposed behind the second mounting bracket. The second mounting bracket accepts a flat panel monitor, tablet computer or a generally planar case protecting the same, and preferably includes a docking connector to provide signal connection between the monitor and the key board. A protective case for a tablet display device is sealed to prevent accidental ignition of flammable gas by static discharge. The protective case preferably includes a mean for engaging the display device in a remote docking station in a safe location, for charging and/or connection with I/O device, without removing the display device. The protective case also preferably deploys a slightly conductive transparent cover for compatibility with capacitive touch screen table devices.

WO 2013/188319 A1

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Declarations under Rule 4.17:

— *as to the identity of the inventor (Rule 4.17(i))*

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

— *of inventorship (Rule 4.17(iv))*

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Specification for a PCT (International) Patent Application for:

PLANAR ELECTRONIC DISPLAY MOUNT WITH ADJUSTABLE KEYBOARD TRAY

Cross Reference to Related Applications

[0001] The present application claims the benefit of priority to the US provisional patent application having serial number 61/658,018 for a "RUGGEDIZED MOBILE DIGITAL COMPUTER MOUNT HAVING INTEGRATED TABLET COMPUTER MOBILE DOCKING STATION AND RETRACTABLE KEYBOARD SLIDE" that was filed on June 11, 2012, and is incorporated herein by reference

Background of Invention

[0002] The present invention relates generally to keyboard and electronic display mounting systems, including mobile data terminals for use in in-vehicle computing and fleet computing, and more particularly to ruggedized mobile data terminal mounting apparatus, and still more particularly to a ruggedized mobile data terminal mounting device for a mobile digital computer having an integrated tablet computer docking station easel and retractable keyboard clamp and slide.

[0003] Background Discussion: Ruggedized laptop and mobile digital computer systems are well known. The use of mobile digital computers in civilian agency vehicles, notably police, fire, and ambulance, requires systems that are secure, easy to deploy, extremely durable, and capable of operation in extremely harsh environments. Frequently, ruggedized systems are designed under military construction specifications (e.g., MIL-STD **810**E) having

performance standards based on use in environments considerably more harsh that those encountered in civilian environments.

[0004] Many mounting systems for ruggedized laptops and other mobile digital computers have been devised. However, tablet computers having touch screen interfaces for user input are increasingly used for in-vehicle and fleet computing purposes, and touch screen input using touch screen keyboards or keypads is mechanically inferior to input on a standard discrete physical qwerty keyboard or keypad. Therefore, it would be desirable to have a mobile docking station easel for displaying a tablet computer with touch screen functionality along with a retractable keyboard slide assembly for input using a standalone keyboard operatively connected to the tablet when it is mounted on the docking station.

Summary of Invention

[0005] In the present invention, the first object is achieved by providing a ruggedized mobile data terminal mounting apparatus for an in-vehicle and fleet computing mobile digital computer, said mounting apparatus comprising a mounting bar having at least an arcuate portion; the arcuate portion having a lower portion that is substantially horizontal and an upper portion that is substantially vertical, a retractable keyboard clamp assembly slideably mounted on said mounting bar and having a fully retracted position and a fully deployed position and an indeterminate number of positions therebetween; and a tablet computer docking station easel disposed at an upper end of said mounting bar; wherein when said keyboard clamp assembly is in the fully retracted position, a keyboard mounted on said keyboard clamp assembly is positioned behind said tablet computer docking station in a generally vertical orientation, and when said keyboard clamp assembly is in the fully deployed position, a keyboard mounted on said keyboard clamp assembly is positioned under said tablet computer docking station in a generally horizontal orientation for easy user input.

[0006] A second aspect of the invention is planar display enclosure comprising a generally planar plate shaped receptacle having a cavity defined between an inner bottom surface and connected surrounding upright walls, and an outer bottom surface disposed opposite the inner bottom surface, wherein the upper surface of the upright walls provide a rim surrounding the cavity, and a transparent cover plate adapted for sealed engagement with the rim of the receptacle, a partially removable portal in the surrounding upright wall, which is responsive to an externally engaged actuator means coupled to partially open the portal.

[0007] Another aspect of the invention is a planar display docking system comprising a planar display enclosure having; a generally planar plate shaped receptacle having a cavity defined between an inner bottom surface and connected

surrounding upright walls, and an outer bottom surface disposed opposite the inner bottom surface, wherein the upper surface of the upright walls provide a rim surrounding the cavity, a transparent cover plate adapted for sealed engagement with the rim of the receptacle, a partially removable portal in the surrounding upright wall, an easel shaped docking station having adapter to receive and support the planar display enclosure, the docking station having; an upright support face having a front surface and an opposing rear surface, a front ledge connected to extend orthogonally from the front surface of the upright support face, a multi-pin connector disposed on the front ledge and oriented with at least one of pins and sockets extending upward in the direction of the upright support face, the front surface of the upright support face having at least one of rails and channels that slidingly engage a complimentary structure on the outer bottom surface of the receptacle, in which the insertion of at least one rail in a channel urges an actuator means to dispose at least a portion of the partially removable portal away from the upright wall of the receptacle before the corresponding portion of the upright wall contacts the multi-pin connector.

[0008] The above and other objects, effects, features, and advantages of the present invention will become more apparent from the following description of the embodiments thereof taken in conjunction with the accompanying drawings.

Brief Description of Drawings

[0009] FIG. 1A is an upper front left perspective view showing the mounting system of the present invention, showing the keyboard and keyboard slide in a fully retracted position

[0010] FIG. IB is the same view showing the system with the keyboard deployed fully forward;

[0011] FIG. 1C is a partially exploded upper front left perspective view showing the keyboard slide removed from the arcuate mounting bar;

[0012] FIG. 2A is a side view in elevation showing the keyboard in a fully retracted position, this view corresponding to FIG. IA;

[0013] FIG. 2B shows the keyboard deployed fully forward, this view corresponding with FIG. 1B;

[0014] FIG. 3A is a front view in elevation corresponding to FIGS. 1A and 2A;

[0015] FIG. 3B is a front view in elevation corresponding to FIGS. 1B and 2B;

[0016] FIG. 4A is a top plan view corresponding to FIGS. 1A, 2A, and 3A; and

[0017] FIG. 4B is a top plan view corresponding to FIGS. 1B, 2B, and 3B.

[0018] FIG. 5 is a perspective exterior view of an alternative embodiment of the device supporting an enclosed tablet computer with an external keyboard

[0019] FIG. 6 is a perspective exterior view of an alternative embodiment of the device supporting an enclosed tablet computer with an external keyboard in which the enclosed tablet is disposed in a landscape format.

[0020] FIG. 8A is a rear elevation view of the tablet computer enclosed in the protective case supported on the pivoting mount, whereas FIG. 8B is a cross-sectional elevation view thereof;

[0021] FIG. 9 is an exploded rear perspective view of the lower rear portion of the protective case.

[0022] FIG. 10A is a front perspective view of the pivoting mount, whereas FIG. 10B and 10C are front and side elevations views thereof respectively;

[0023] FIG. 11A is a rear perspective view of the pivoting mount, whereas FIG. 11B is a rear elevations views thereof;

Detailed Description

[0024] Referring now to FIGS. 1A through 11B, wherein like numbers refer to identical elements in the various views, the present invention is a ruggedized mobile data computer mounting system having an integrated table computer easel and retractable keyboard slide.

[0025] In accordance with one aspect of the present invention, generally denominated **10** herein, includes an arcuate mounting bar **12**, having left and right side channels **14a**, **14b** extending from a bottom end **16** of the mounting bar to an upper portion **18** of the mounting bar. At the upper end **20** of the mounting bar, a tablet computer docking easel **22** is attached, the docking easel including an upper clamping member **24** affixed to the mounting bar for holding the upper edge **26** of a tablet computer **28**, and a lower clamping member **32**, including a shelf portion **34**, and a retaining lip **36** for engaging and capturing the lower edge **38** of the tablet computer.

[0026] Incorporated in generally the middle of the shelf portion of the lower clamping member are a docking connector for coupling with the docking station receptacle in the tablet computer. These are well known and not shown in the views. Electronics for the docking station are disposed in the shelf and back support portions of the docking station easel, and wires for connecting the mobile data computer to in-vehicle peripheral devices, systems, and computers are routed over and/or through the mounting bar.

[0027] The mounting bar further includes a mounting boss **40** having a plurality of holes for coupling to a dash mount swing arm. Thus, ergonomics can be closely tailored to user needs.

[0028] The retractable keyboard slide assembly includes a right side **42** having a first sliding pin **44** fixed in the right side and an end portion **46** slidably inserted into the right side channel **14b** of mounting bar **12**. A left side **48** of the slide

assembly includes a second sliding pin **50** threadably inserted through the left side and an interior end portion **52** slidably extending from the left side and slidably disposed in the left side channel **14a** of the mounting bar **12**. An adjustment knob **54** coupled to an exterior end of the second pin enables a user to selectively loosen the slide assembly for any translation within the channels to any position along the length of the channels and thereafter to be fixed in the selected position, as is shown in the various views.

[0029] The slide assembly next includes a proximal clamping member **56** for engaging and capturing an upper edge **58** of a keyboard **60**, and a distal clamping member **62** for engaging and clamping a lower edge **62** of the keyboard.

[0030] In this way, a mobile data computer can be provided with a fully retractable keyboard tray integrated with a table computer docking station for in-vehicle and fleet computing in a space-saving and ergonomically sound manner.

[0031] In another embodiment of the invention, illustrated in FIG. 5-11, the tablet shaped electronic display is contained in a ruggedized housing or protective case **100** that mounts on the easel portion **200** of the device. The housing **100** is adapted to accommodate the external access to the docking station receptacle of the electronic display or tablet computer, via a portal **130** that is optionally is partially removable, meaning that it swings, tilts or slides to at least partially open to allow access to the enclosed electronic device.

[0032] The protective case **100** has generally planar plate shaped receptacle **110** having a cavity **101** defined between an inner bottom surface **111**a and connected surrounding upright walls **112**, and an outer bottom surface **111**b disposed opposite the inner bottom surface **111**a, wherein the upper surface of the upright walls **112** provide a rim **113** surrounding the cavity **101** at the top thereof.

[0033] A transparent cover plate **120** is adapted for sealed engagement with the rim **113** of the receptacle. A partially removable portal **130** in the surrounding

upright wall **112** opens in response to an externally engaged actuator means. Gasket **134** is preferably disposed between the partially removable portal **130** and the outer bottom surface **111**b or wall **112** of the receptacle **110**.

[0034] The cover plate **120** of the receptacle has a bezel **121** with one of more contact switches **123** to engage complimentary switches on the display **28**. Further, transparent material between the inner perimeter of the bezel 121 to form the front of the cover plate **120**. In the case of capacitive touch screen display, this material is an at least semi-conductive transparent material is preferably Invisishield™ brand screen protectors available from ZAGG, Inc.3855 So. 500 W. Suite B Salt Lake City, UT 84115-4279. Further, a supportive device cushion **119** is disposed the bottom of the cavity **101**. Hence, display 28 is held between cushion **119** and bezel **121**. Further, a gasket **124** is disposed between the cover plate **120** and the rim **113** to seal the cavity **101.** The case **100** is optionally sealed closed by the insertion of nuts through a plurality of bolt receiving through **126** holes disposed about perimeter of the bezel of the transparent cover plate. The bolts then engage the threaded bores **116** disposed in a complimentary arrangement about the perimeter of the rim **113** of the receptacle. However, other closure means such as clamps and latches may be deployed.

[0035] A more preferred embodiment of the invention is a protective case **100** holding the tablet or planar display **28** which is adopted to be received in a mounting easel **200**. In contrast to the other embodiment, rather the engaging the display or display protective case in top and bottom clamping members, the easel **200** includes one or more vertical rails or tracks that engage a complementary member on the display or a protective case for the display. More particularly, easel shaped mount **200** illustrated in FIG.10A-10C with a front ledge **211** connected to extend orthogonally from an upright support face **210**. The front ledge includes a multi-pin connector **220**. The upright support has at least one of rails and channels that slidingly engage the complimentary structure on the outer bottom surface of the receptacle. The insertion of at

least one rail and channel urges an actuator means to open a pivoting partially portal to open a bottom edge of the receptacle.

[0036] The easel **200** also provides a means for locking the receptacle or case **100** to the docking station. In one embodiment the locking means is an adjustable arm **260** connected in hinged engagement to the rear portion **210**b of the upright support face **210**. Arm **260** also includes an engaging lateral portion **261** which extends through a slot **262** in the supporting face of the easel into a notch or cavity **161** in the rear face **111**b of the case **100**.

[0037] The outer bottom surface of the receptacle **111**b has a pair of linear outer channel **116**a and **116**b extending upward from the lower edge**111**c, with the partially removable portal **130** in hinged engagement between them having the opening face adjacent the lower edge. A central channel **115** is disposed above the hinged connection of the portal **130**. The partially removable portal **130** in the surrounding upright wall **113** of the receptacle is connected by hinges **137**.

[0038] An actuator is engaged when rails one of the rails enter one or more of the channels. A preferred actuator is provided in part by one or more linear channels on the outer bottom surface of the receptacle. The upright support **210** has outer rails **216a** and **216b** configured to slidingly engage the outer channels **116a** and **116b.** The outer channels **116a** and **116b** have fan shaped openings **116a**' and **116b**' at the lower edge of the receptacle **100**, which aid to guide the display or tablet device housed in receptacle **110** downward such that the docking connector thereof is properly oriented to engage multi-pin connector **210**. After the case **100** engages rails **216**a and **216**b, the portal **130** is urged open by the upper edge **215**a of a central rail contacting the portion **130**a of the door or portal **130** above hinge **137**. After door **130** swings open, the central rail **215** engages the central channel **115**. When the receptacle or case **100** is removed from support **200**, the portal **130** swings closed in response to the torsion spring **136** coupled to the hinge axle **218**. The hinge axle **118** is held in place by a pair of L-shaped brackets **270** that attach to the bottom edge of the case **100**.

[0039] In another embodiment of the invention, illustrated in FIG. 5-11, the easel **200** clamping the display or tablet protective case **100** is connected to the arched mounted via a mounting member **300** that is adjustable to rotate by at least 90 degrees, and hence rotate the display between a portrait and landscape orientation. A preferred embodiment of the pivoting means provided by a pair of spaced apart columns **241** and **242** extending outward from the rear **210**b of the upright support face **210** which extend through a pair of orthogonally disposed curved tracks **341** and **342** formed in a fixed support plate. The top of the columns **241** and **242** that extend through the tracks are capped by retaining disks **245**. The pair of tracks are offset so that as the receptacle **100** and docking station **200** are rotated the columns **241** and **242** are urged to progress from a latched position at one end of the tracks **341** and **342** respectively to another latched position at the opposite end. The tracks **341** and **342** have a curvilinear shape that connects to offset linear section at opposing ends. The linear opposing ends of the tracks are orthogonally disposed in the plane of mount **300**. Alternative pivoting means include a simple rotary connector with rotation limit stop to prevent the display from rotating at least beyond a full circle, and thus twist and hardwire connections to the multi-pin docking fixture.

[0040] While the invention has been described in connection with a preferred embodiment, it is not intended to limit the scope of the invention to the particular form set forth, but on the contrary, it is intended to cover such alternatives, modifications, and equivalents as may be within the spirit and scope of the invention as defined by the appended claims.

Claims

We claim:

[c1] A ruggedized mobile data terminal mounting apparatus for an in-vehicle and fleet computing mobile digital computer, said mounting apparatus comprising:

a) a mounting bar having at least an arcuate portion; the arcuate portion having a lower portion that is substantially horizontal and an upper portion that is substantially vertical,

b) a retractable keyboard clamp assembly slideably mounted on said mounting bar and having a fully retracted position and a fully deployed position and an indeterminate number of positions therebetween; and

c) a tablet computer docking station easel disposed at an upper end of said mounting bar;

d) wherein when said keyboard clamp assembly is in the fully retracted position, a keyboard mounted on said keyboard clamp assembly is positioned behind said tablet computer docking station in a generally vertical orientation, and when said keyboard clamp assembly is in the fully deployed position, a keyboard mounted on said keyboard clamp assembly is positioned under said tablet computer docking station in a generally horizontal orientation for easy user input.

[c2] The ruggedized mobile data terminal mounting apparatus of claim 1, further including a mounting boss for connection to a dash mounted swing arm.

[c3] The ruggedized mobile data terminal mounting apparatus of claim 1, wherein said mounting bar includes an arcuate portion and a generally straight portion.

[c4] The ruggedized mobile data tenninal mounting apparatus of claim 1, wherein said mounting bar includes right and left channels, and said retractable keyboard clamp assembly includes right and left sides, a first pin disposed through one of said right or left sides and having an end extending from said side so as to be slidably inserted

into one of said right or left channels, a second pin threadly disposed through the other of said right or left side and having an interior end extending from said side and slidably disposed in the other of said right or left channels and an adjustment knob disposed on an exterior end of said second pin, and clamps for capturing and retaining a keyboard.

[c5] The ruggedized mobile data terminal mounting apparatus of claim 1, further including a docking connector for coupling with a docking station receptacle in a tablet computer or other connected device.

[c6] The ruggedized mobile data terminal mounting apparatus of claim 5, wherein docking station mounting easel includes an upper clamping member and a lower clamping member having a shelf portion, and wherein said docking connector is disposed generally in the middle of said lower clamping member.

[c7] The ruggedized mobile data terminal mounting apparatus of claim 6, wherein wires connecting said docking connector to in-vehicle peripheral devices, systems, and computers are routed over and/or through the mounting bar.

[c8] A planar display enclosure comprising:

a) A generally planar plate shaped receptacle having a cavity defined between an inner bottom surface and connected surrounding upright walls, and an outer bottom surface disposed opposite the inner bottom surface, wherein the upper surface of the upright walls provide a rim surrounding the cavity,

b) a transparent cover plate adapted for sealed engagement with the rim of the receptacle,

c) a partially removable portal in the surrounding upright wall, which is responsive to an externally engaged actuator means coupled to partially open the portal.

[c9] A planar display docking system comprising:

a) a planar display enclosure having;

i) generally planar plate shaped receptacle having a cavity defined between an inner bottom surface and connected surrounding upright walls, and an

outer bottom surface disposed opposite the inner bottom surface, wherein the upper surface of the upright walls provide a rim surrounding the cavity,

ii) a transparent cover plate adapted for sealed engagement with the rim of the receptacle,

iii) a partially removable portal in the surrounding upright wall,

b) an easel shaped docking station having adapter to receive and support the planar display enclosure, the docking station having;

i) an upright support face having a front surface and an opposing rear surface, a front ledge connected to extend orthogonally from the front surface of the upright support face,

ii) a multi-pin connector disposed on the front ledge and oriented with at least one of pins and sockets extending upward in the direction of the upright support face,

c) the front surface of the upright support face having at least one of rails and channels that slidingly engage a complimentary structure on the outer bottom surface of the receptacle, in which the insertion of at least one rail in a channel urges an actuator means to dispose at least a portion of the partially removable portal away from the upright wall of the receptacle before the corresponding portion of the upright wall contacts the multi-pin connector.

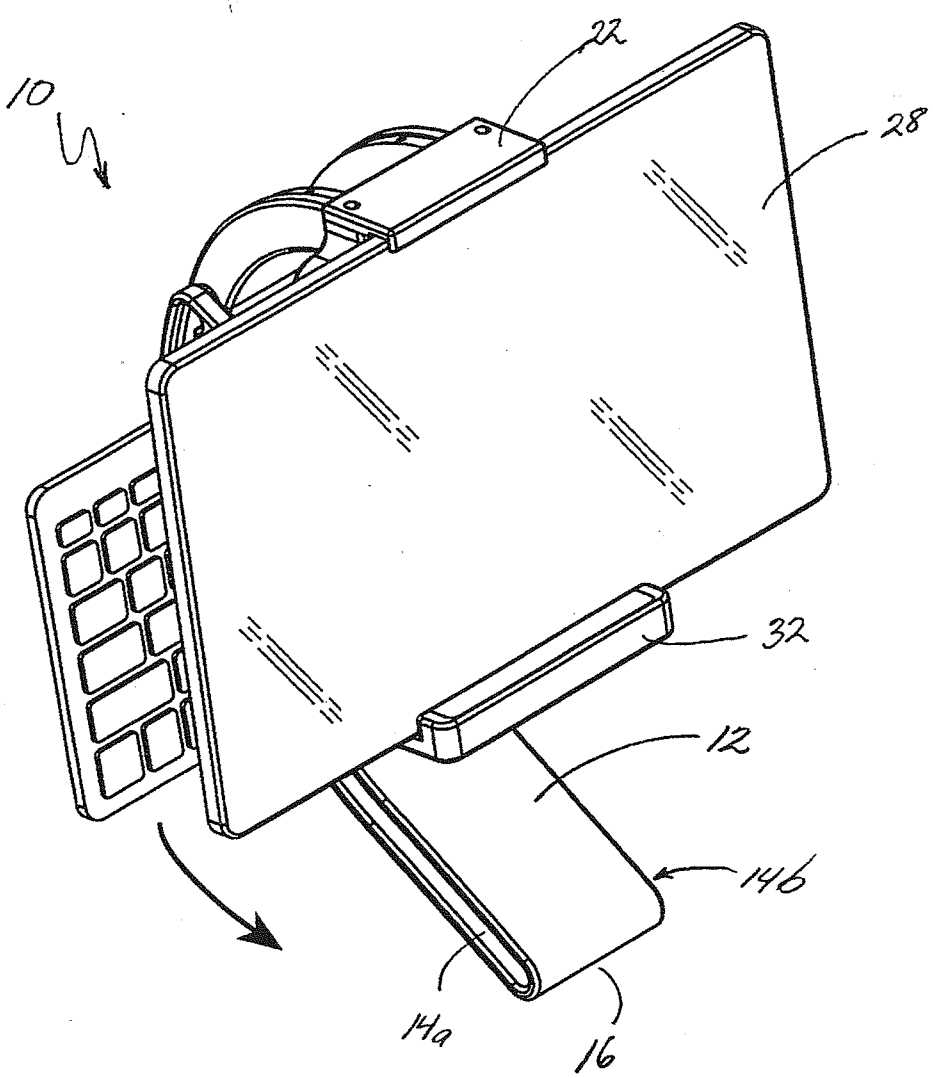


FIG. 1A

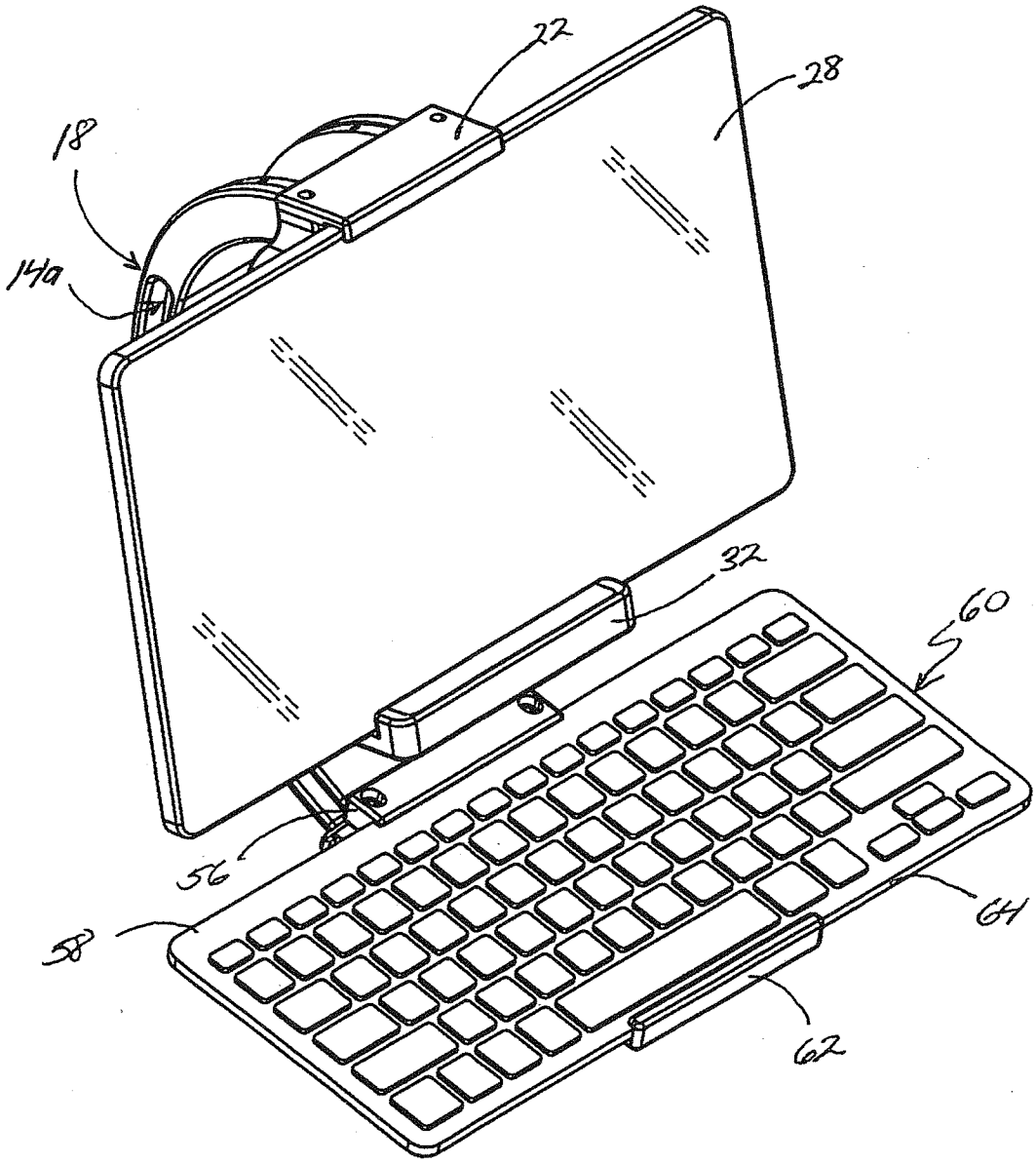
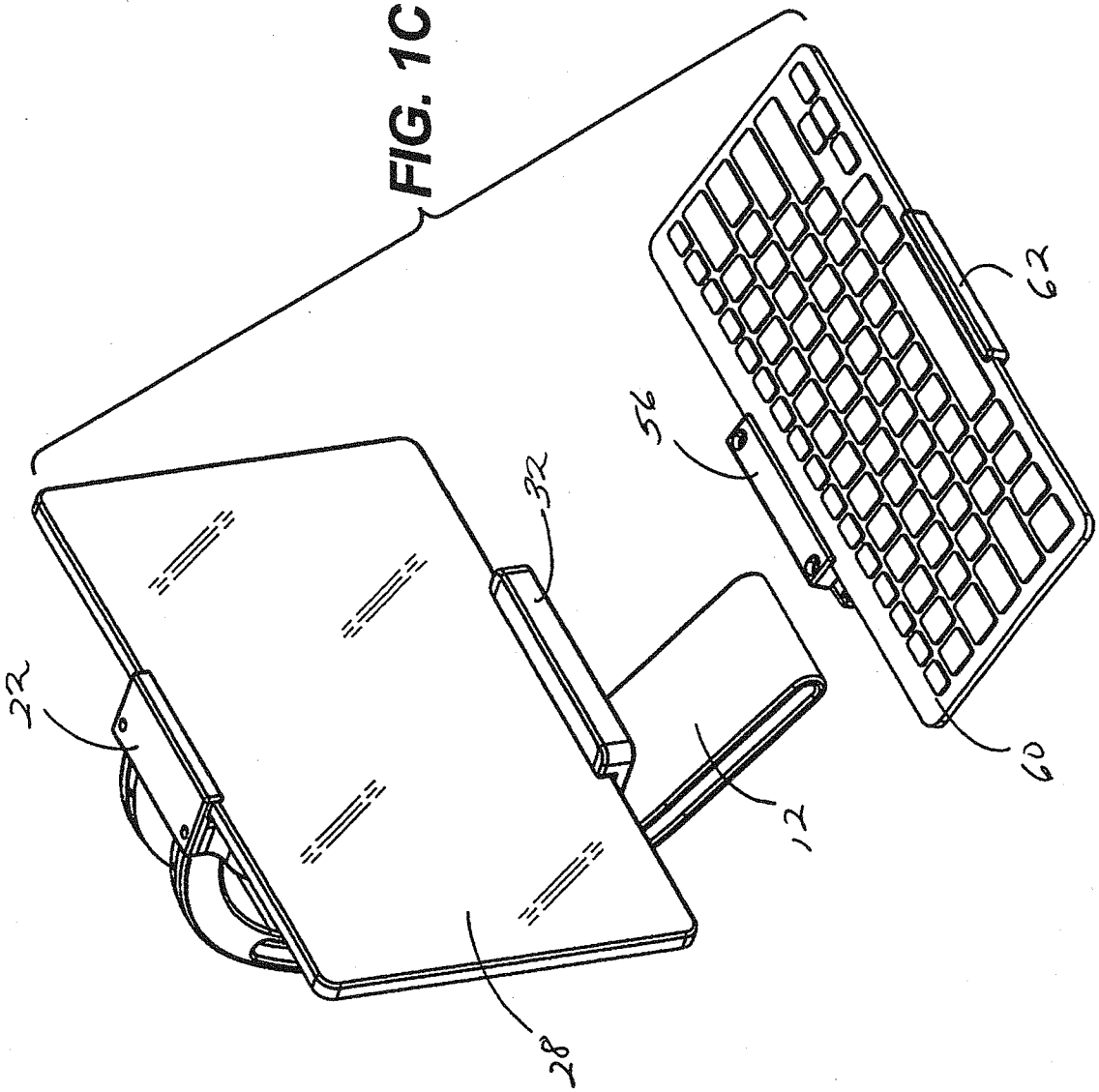


FIG. 1B

FIG. 1C



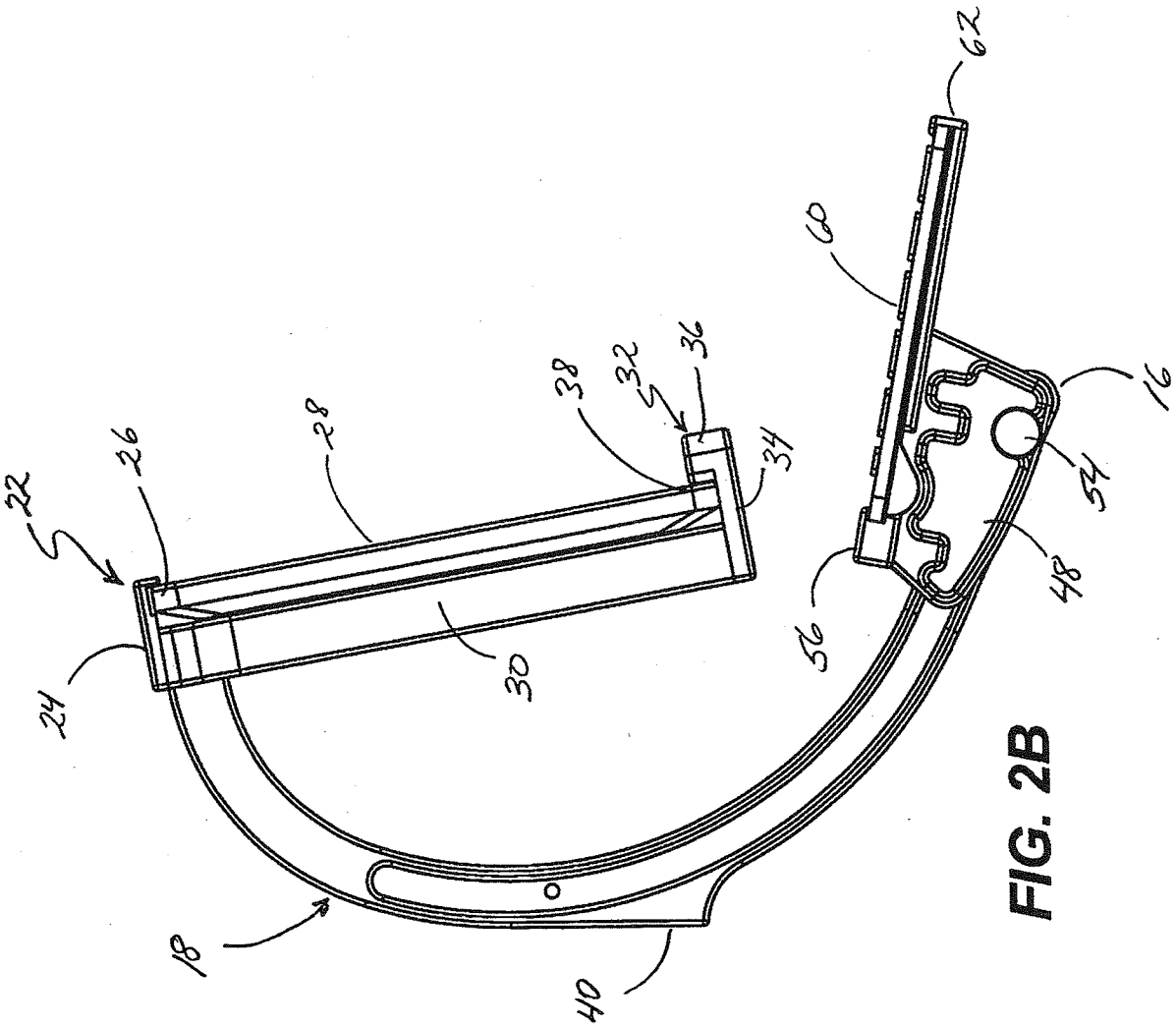

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FIG. 2B

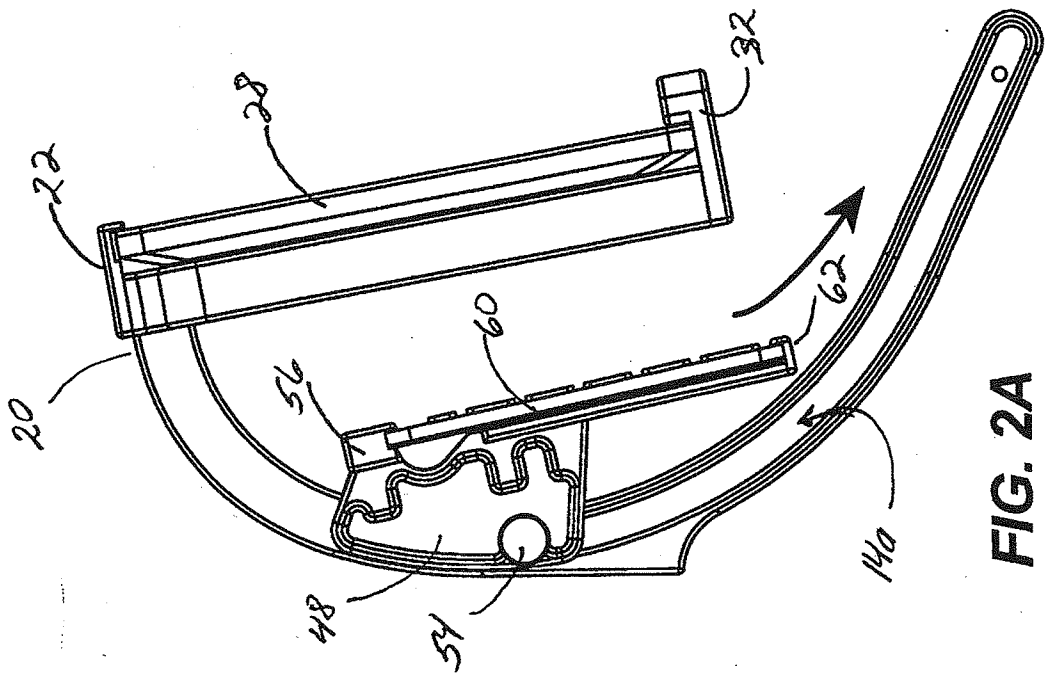
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FIG. 2A

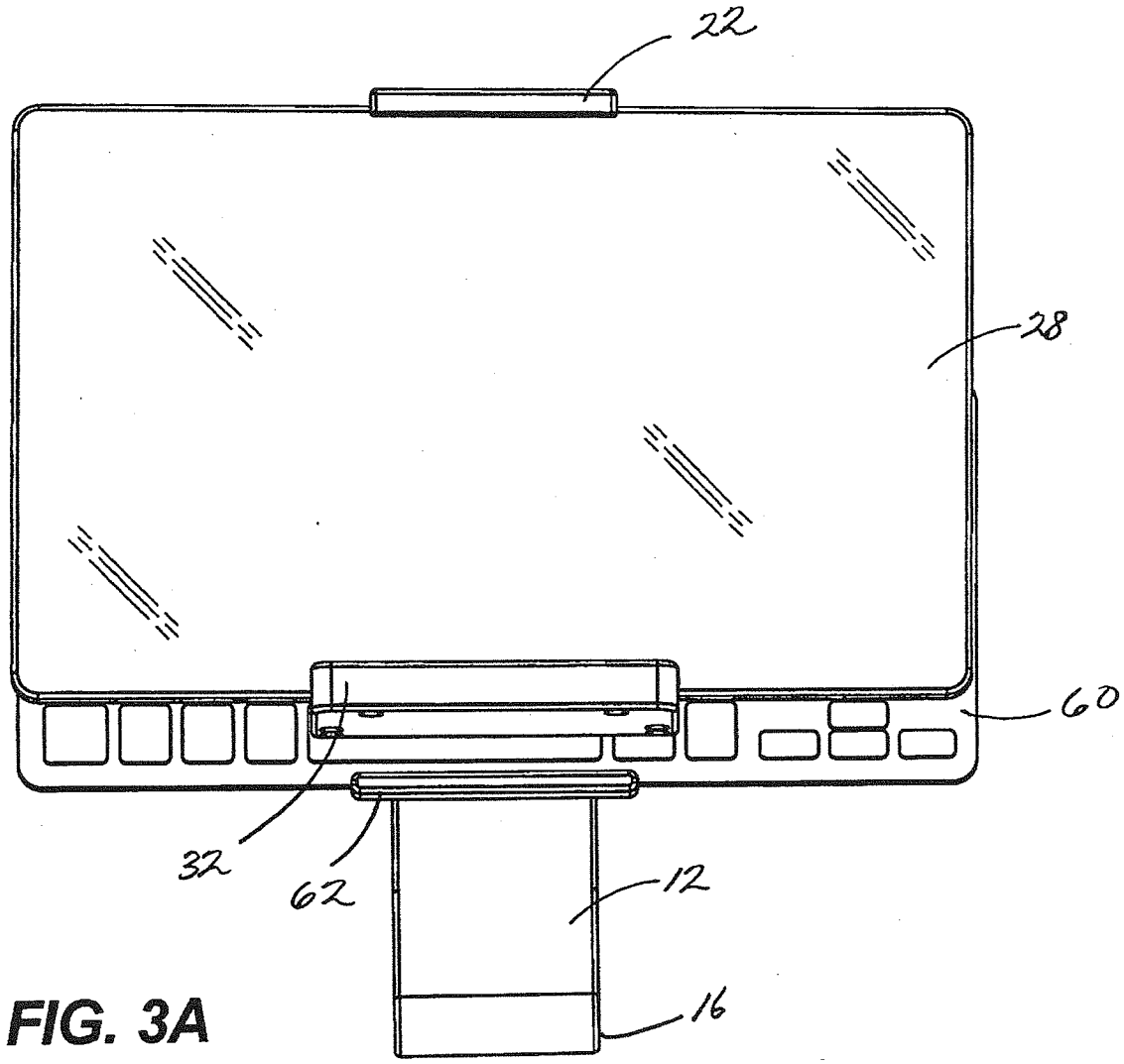


FIG. 3A

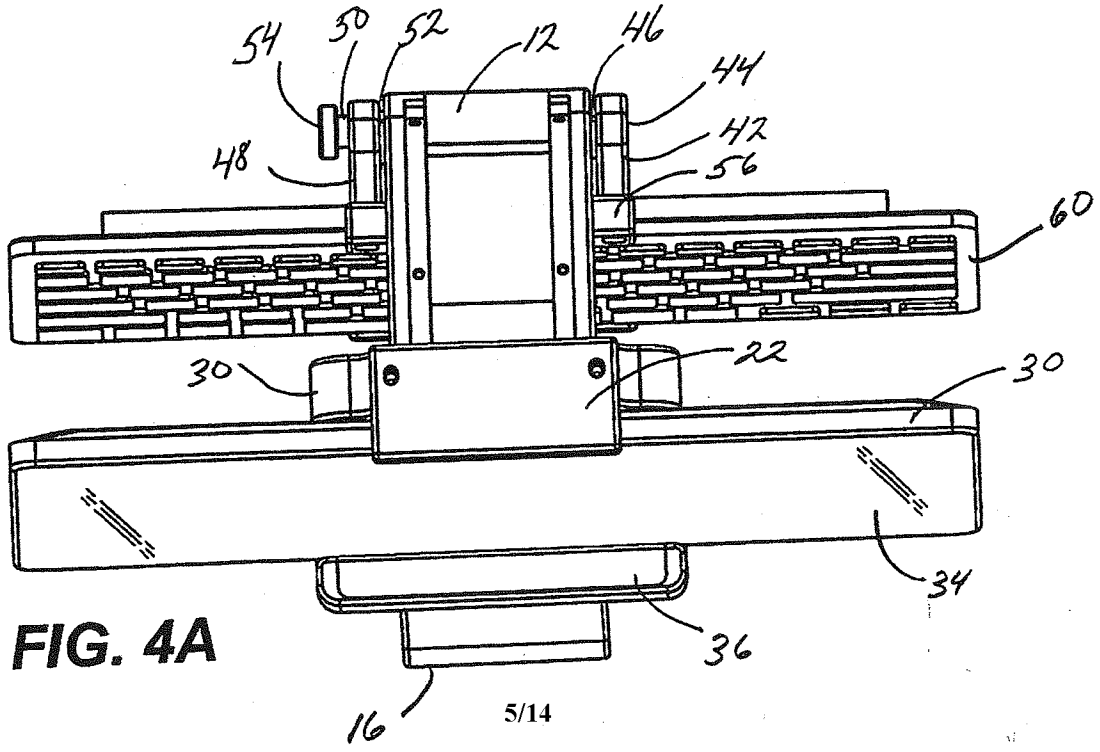


FIG. 4A

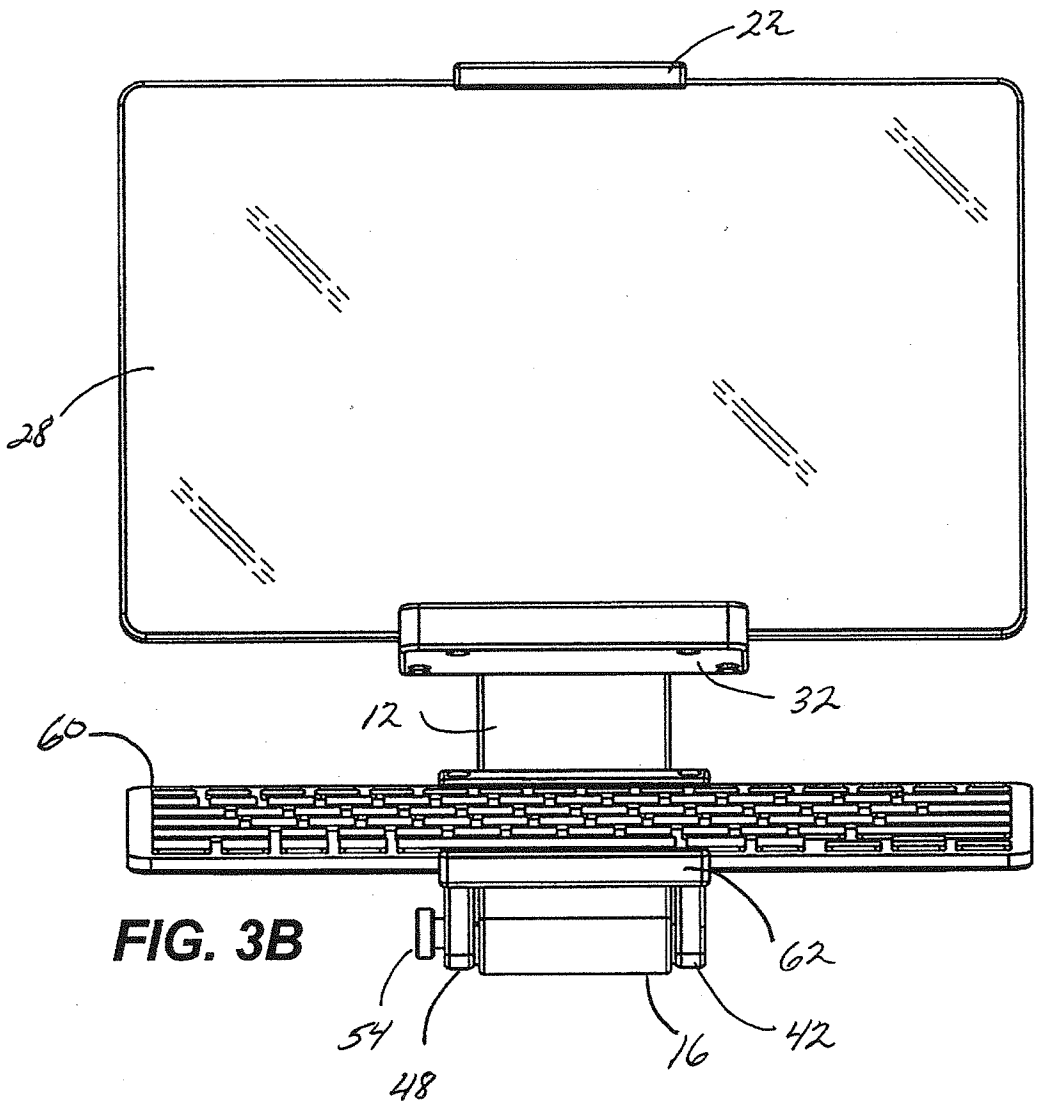


FIG. 3B

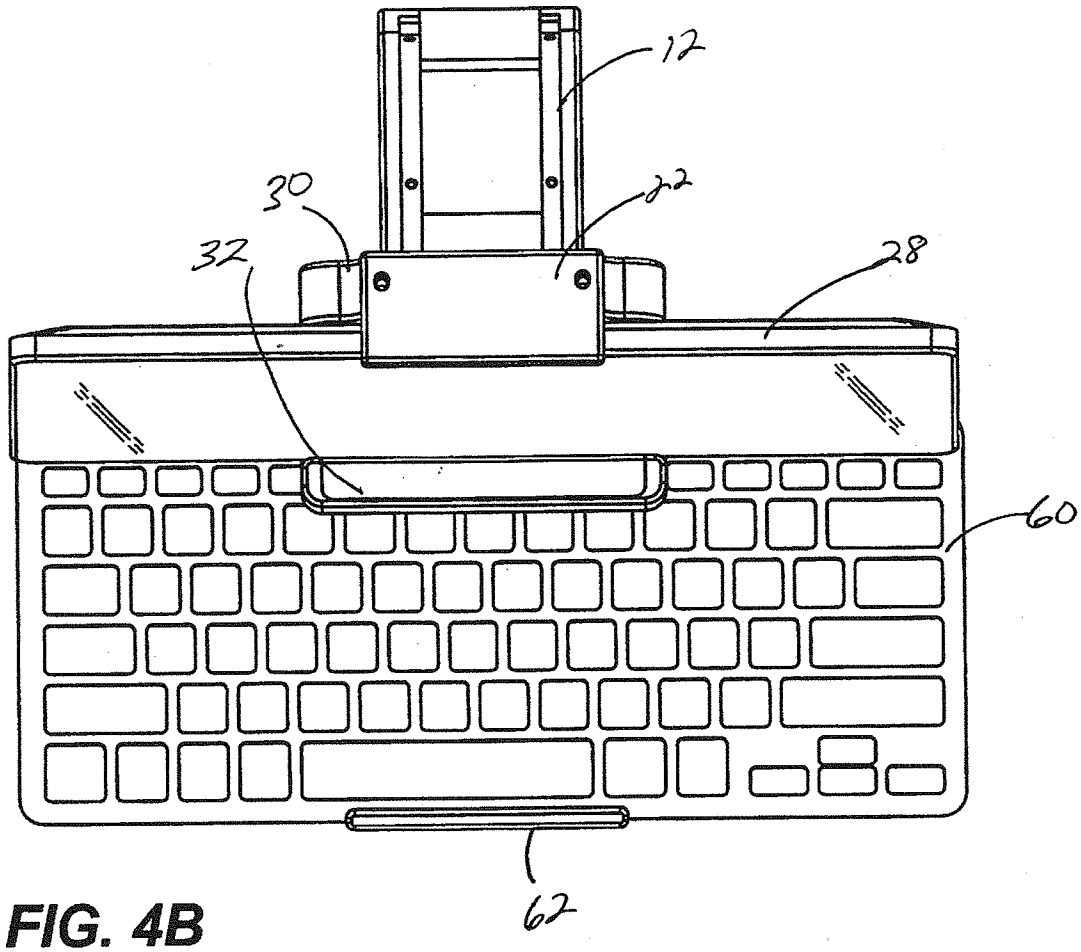


FIG. 4B

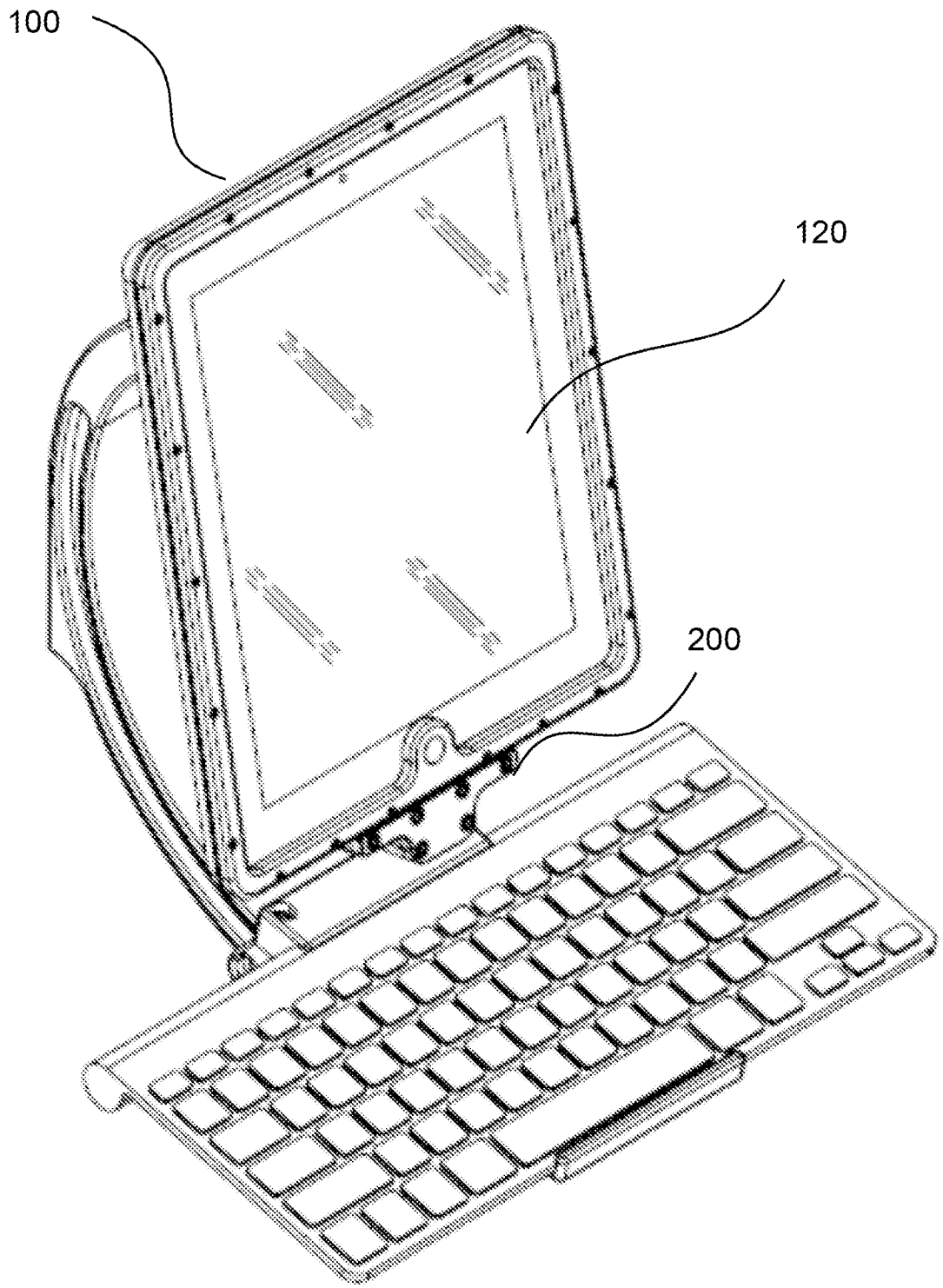


FIG. 5

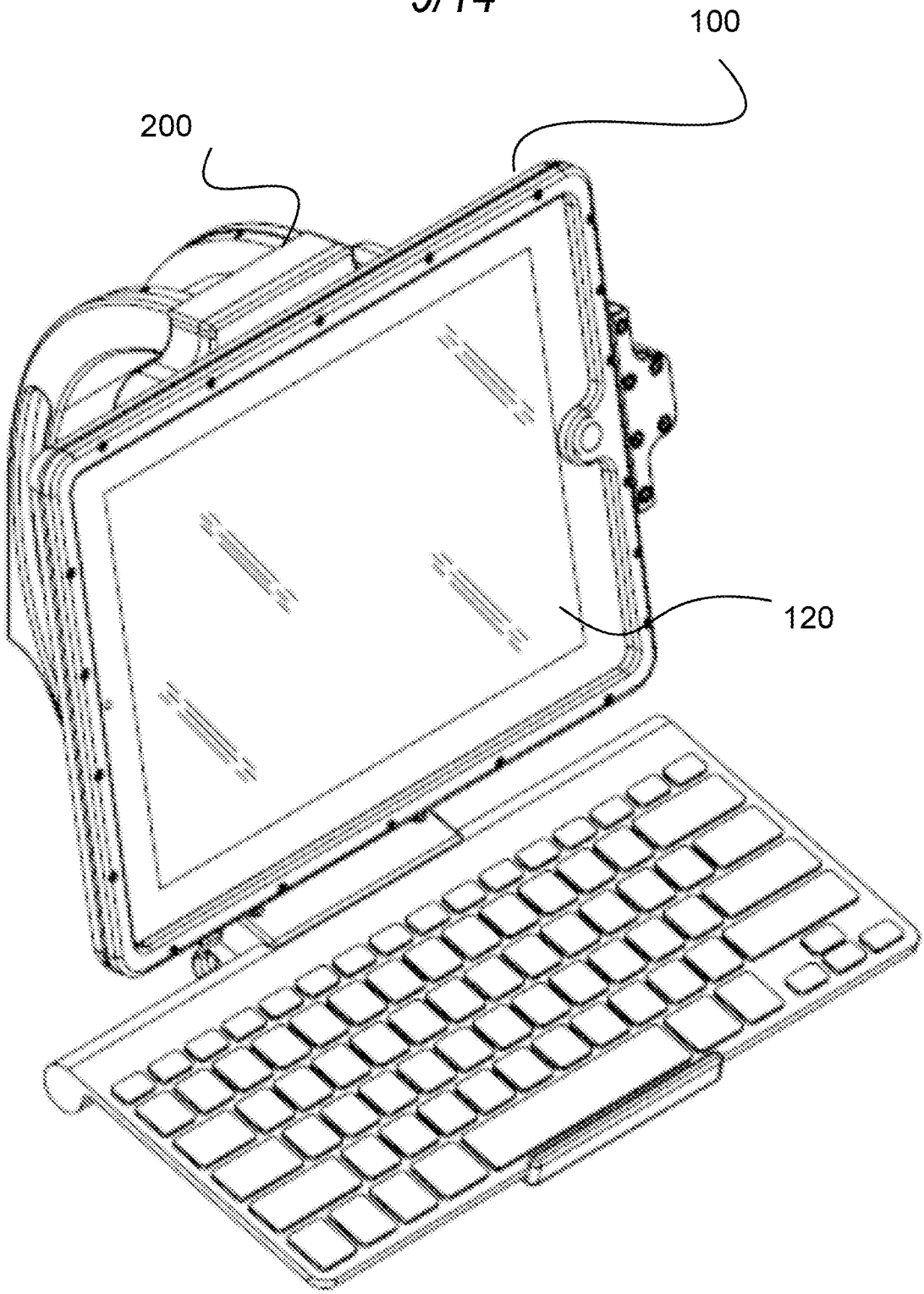


FIG. 6

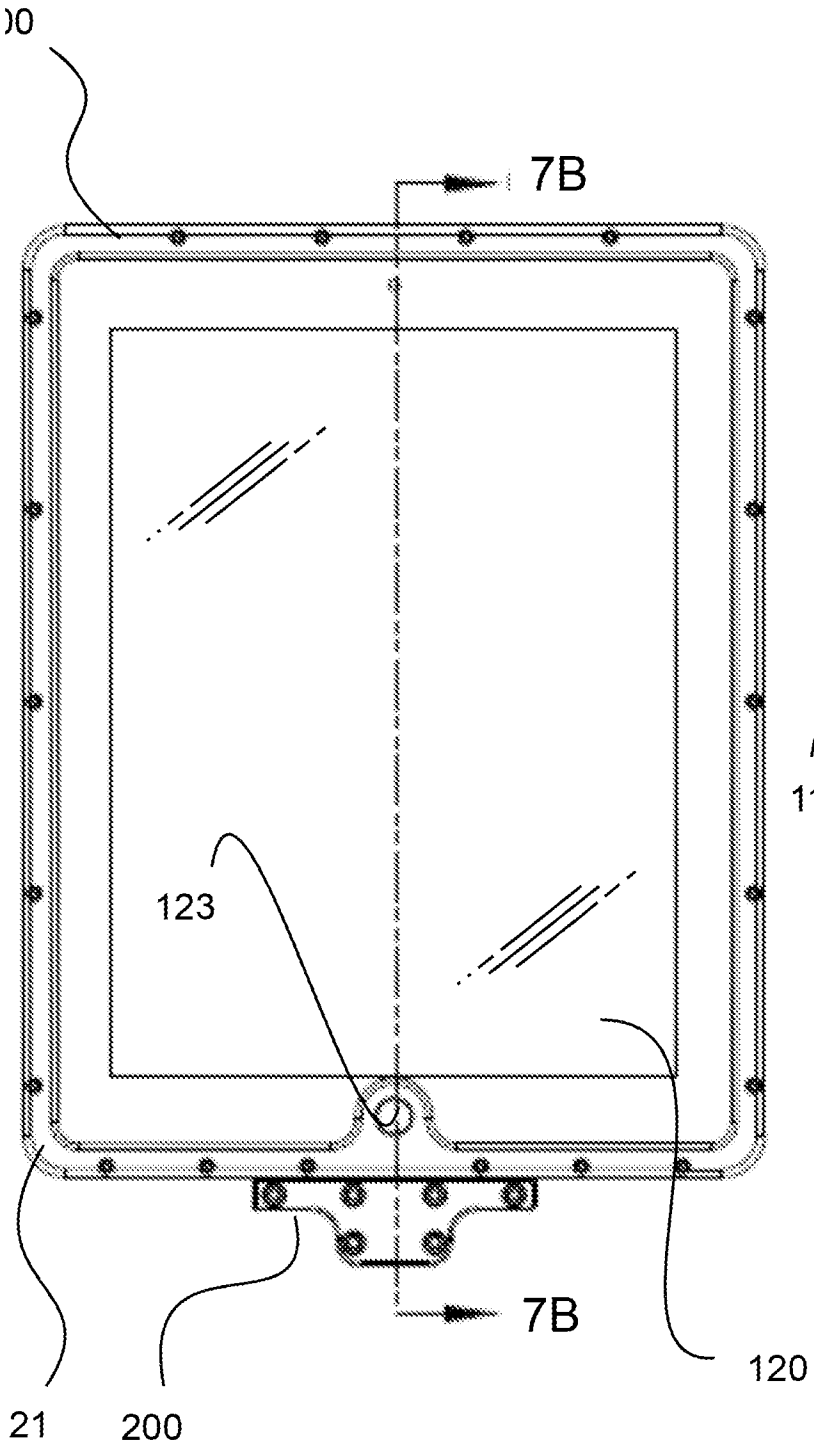

)0
7B
123
7B
21
200
120

FIG. 7A

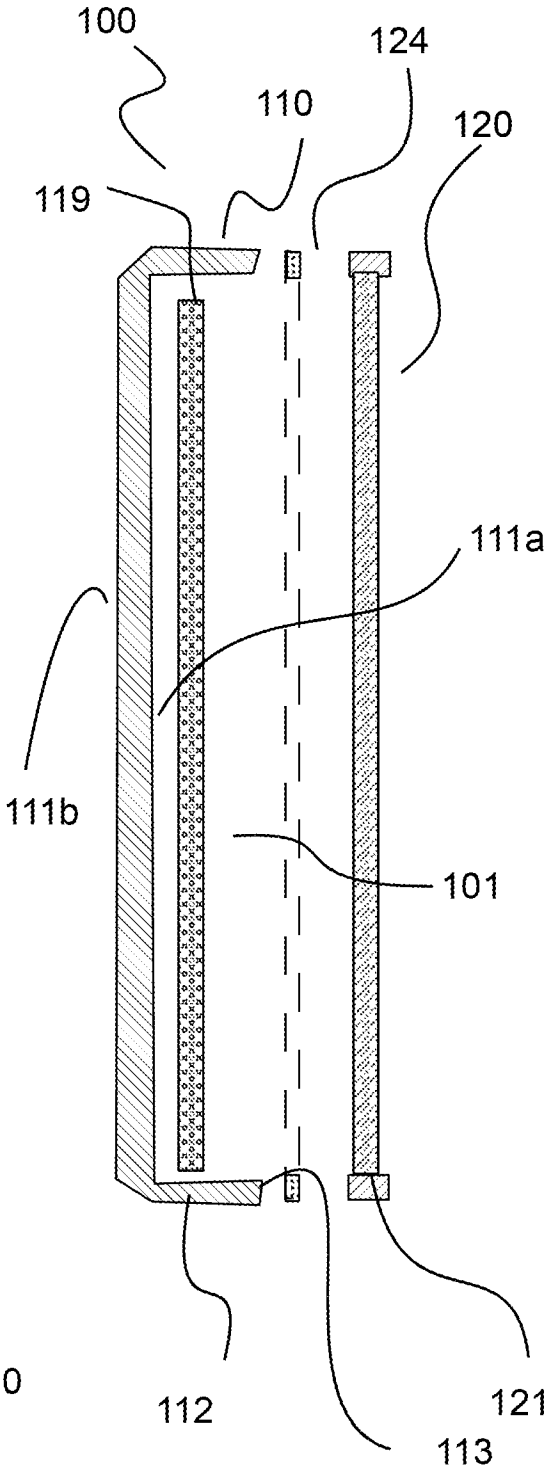

100
124
110
120
119
111a
111b
101
112
113
121

FIG. 7B

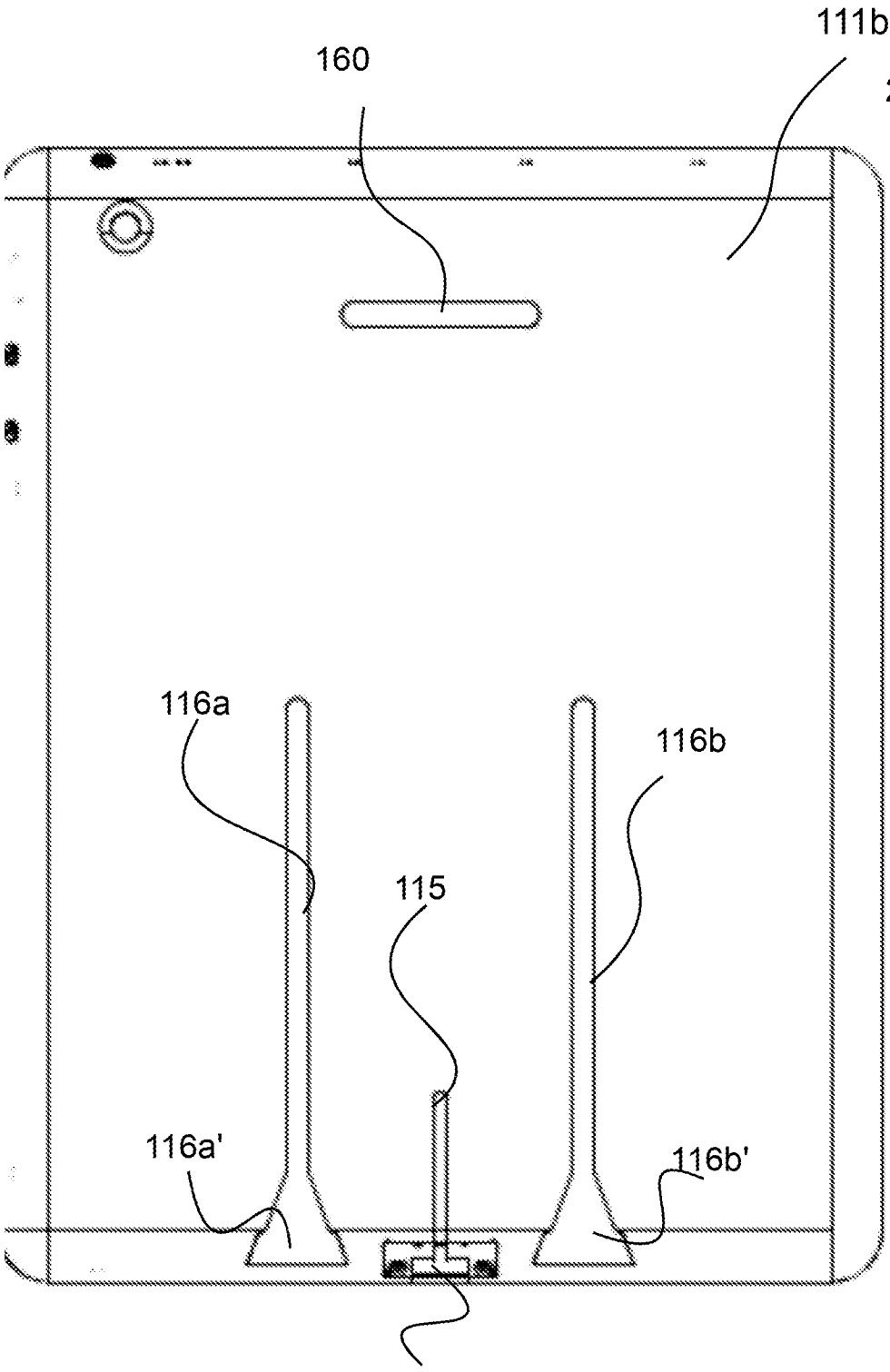


FIG. 8A

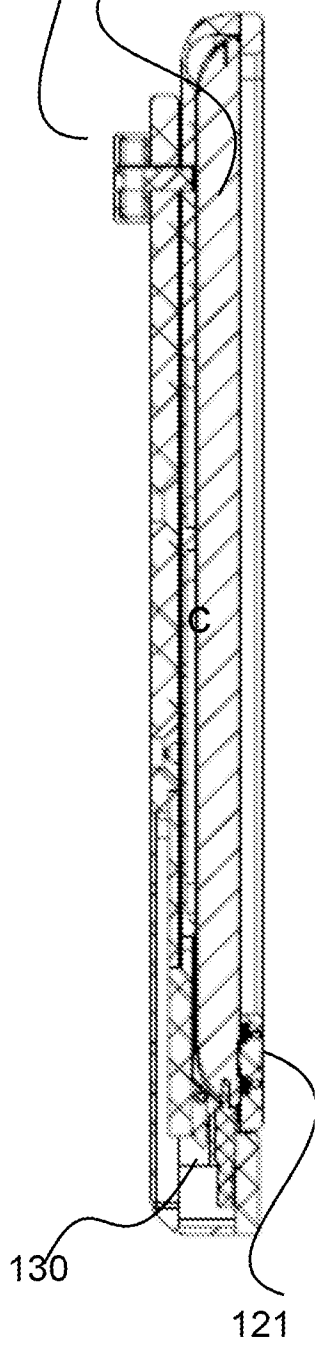


FIG. 8B

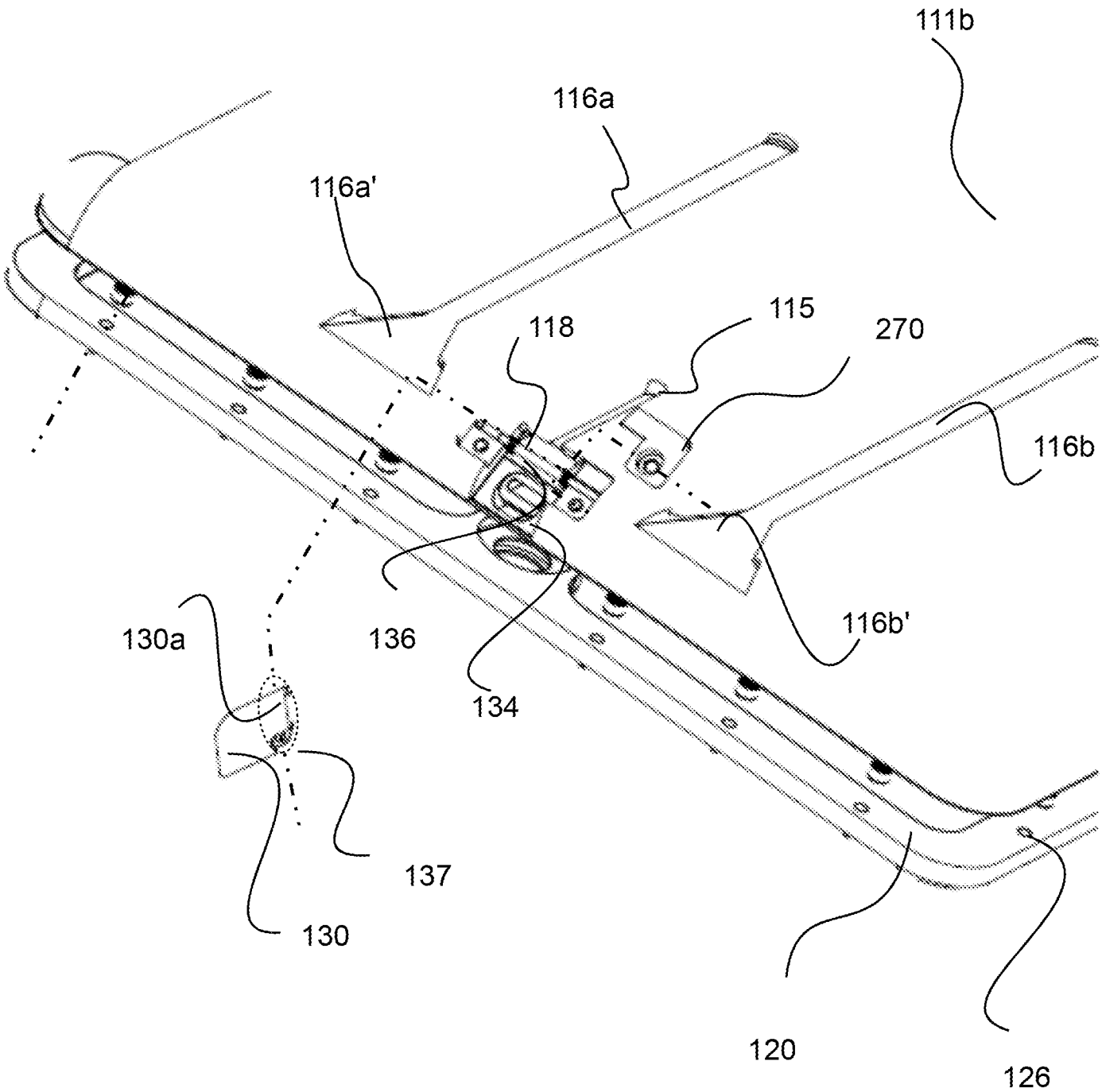

111b
116a
116a'
118
115
270
116b
116b'
130a
136
134
137
130
120
126

FIG. 9

FIG. 10A

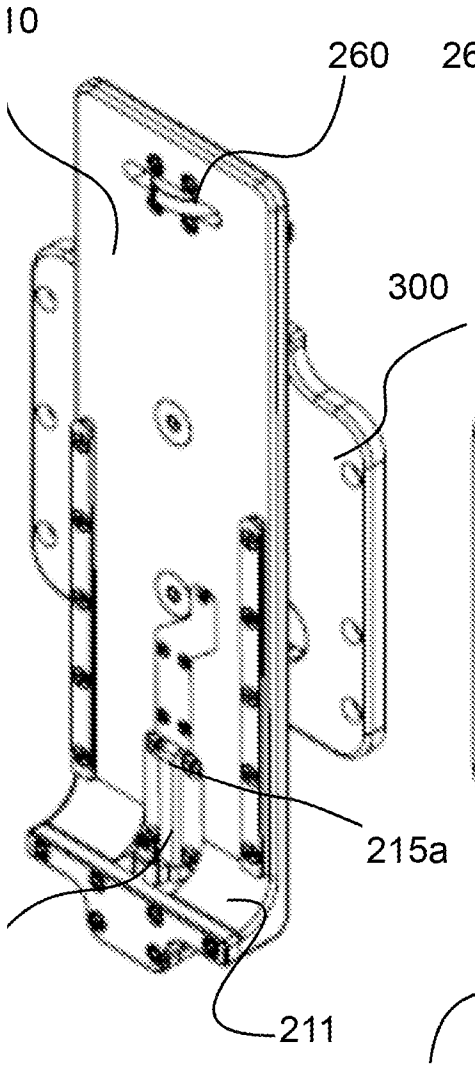


FIG. 10B

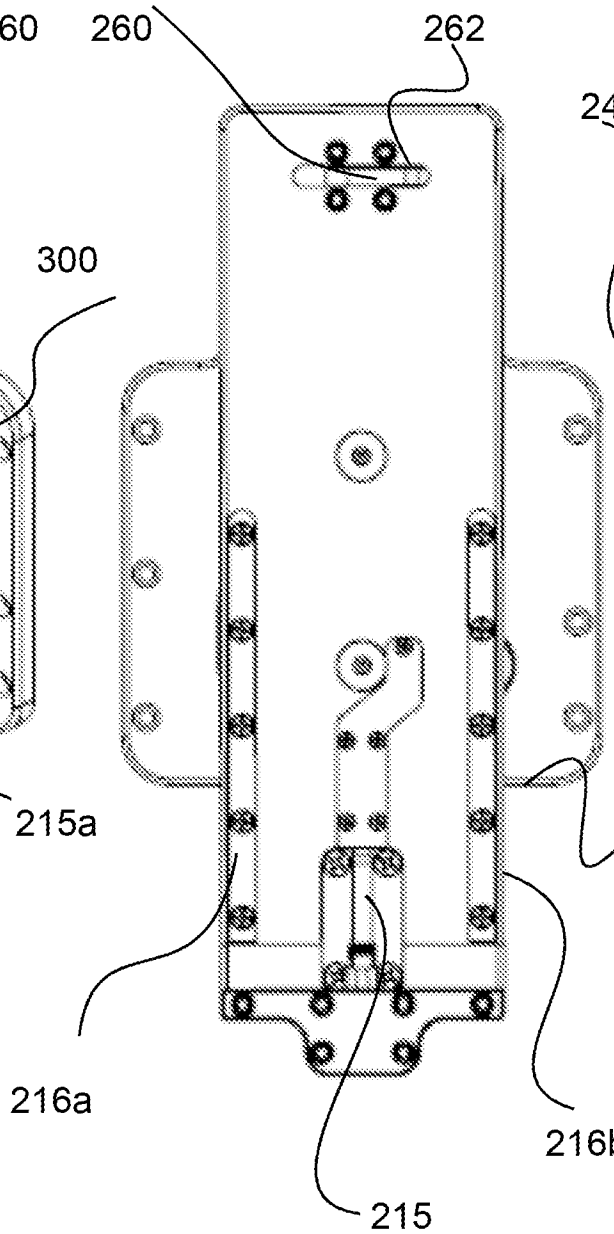
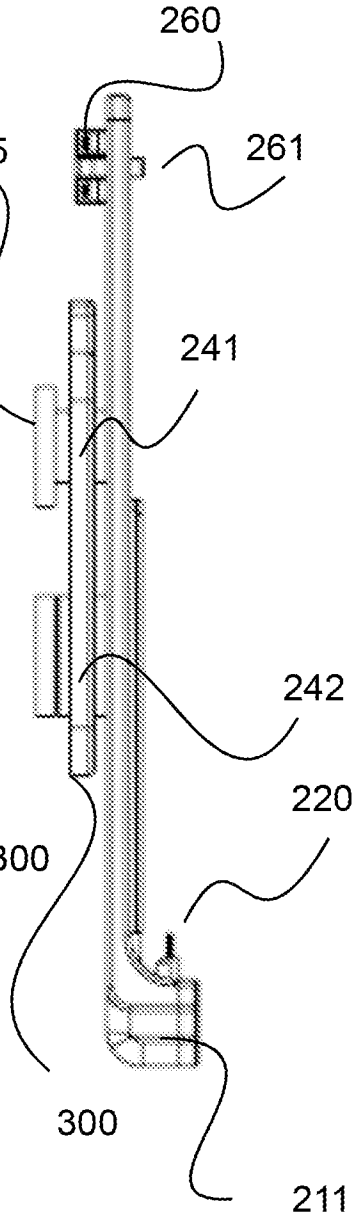


FIG. 10C



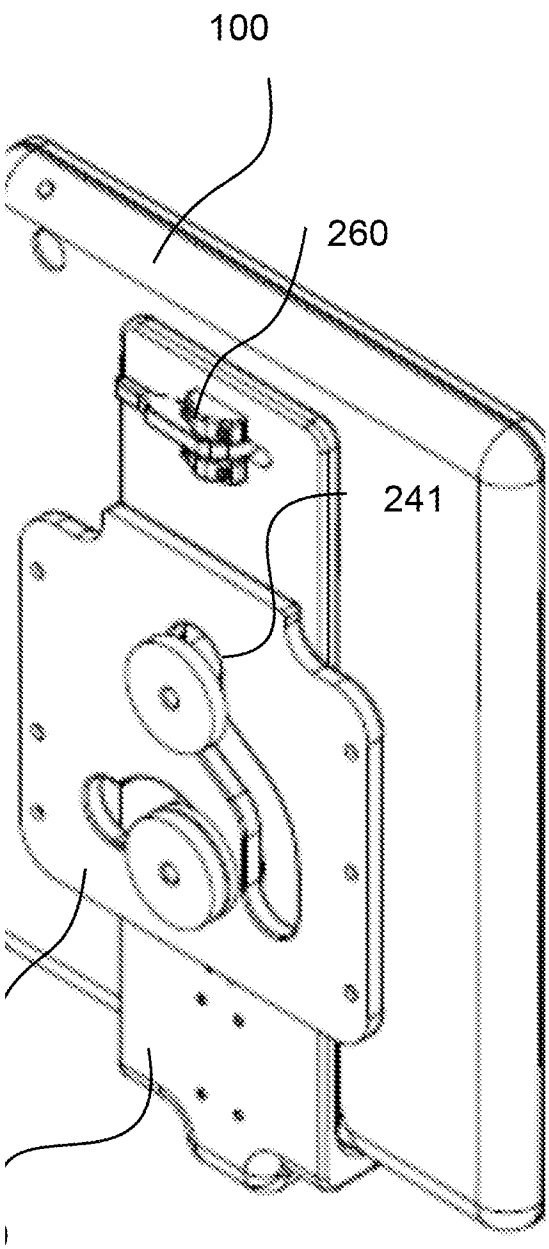


FIG. 11A

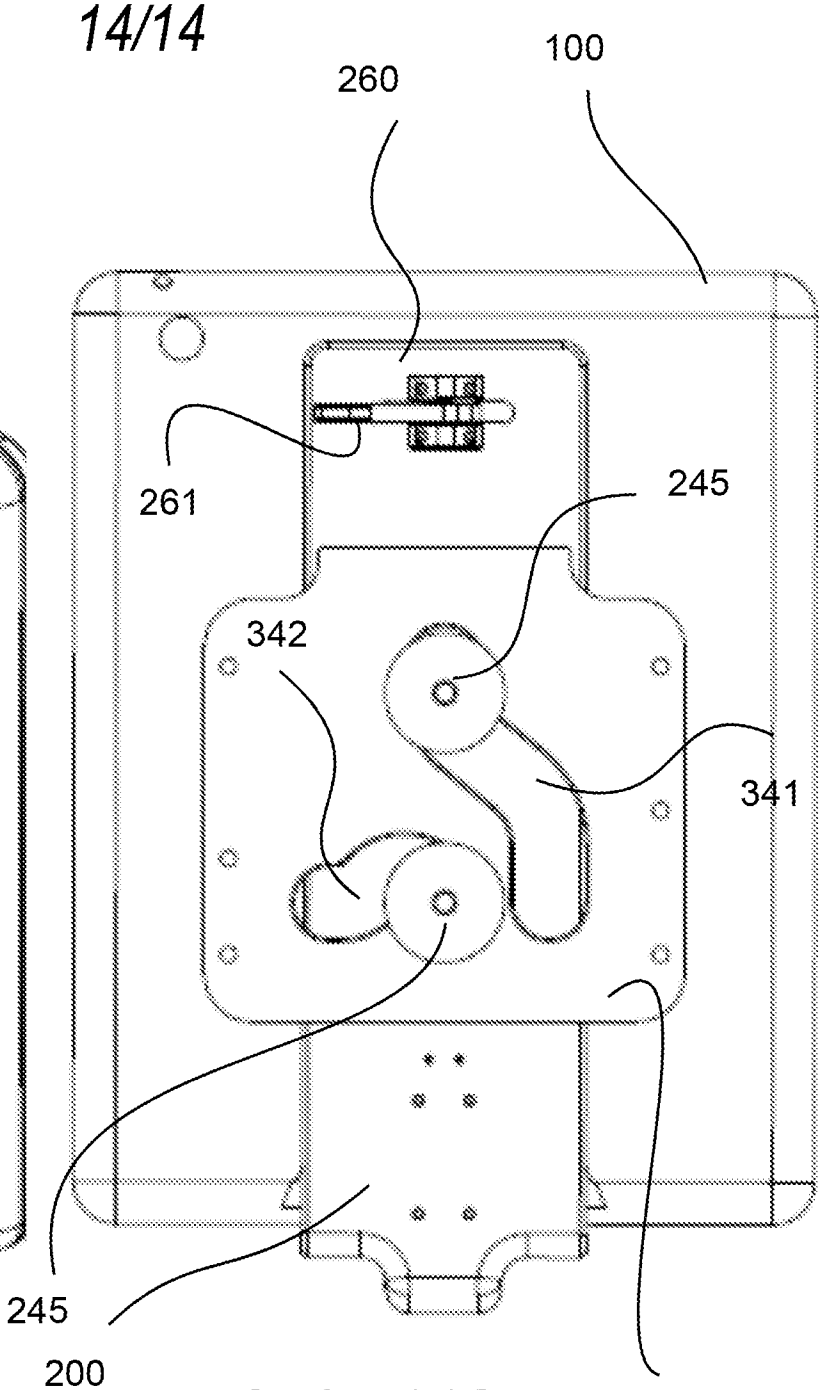


FIG. 11B

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2013/045050

A. CLASSIFICATION OF SUBJECT MATTER

G06F 1/16(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
G06F 1/16; H03M 11/00; H05K 13/00; H03K 17/94; B60R 7/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean utility models and applications for utility models
Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
eKOMPASS(KIPO internal) & Keywords: mount, planar display, keyboard tray, docking easel, slider.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2006-0071820 A1 (LICHEN WANG et al.) 06 April 2006 See paragraphs [0039]-[0040], [0042], [0044]-[0045], [0049], [0060]; and figs. 1A-1D, 2C-2D, 5A, 6A-6B, 17.	1-7
A	US 2008-0285213 A1 (MIN-LIANG TAN et al.) 20 November 2008 See paragraphs [0001]-[0011]; and figs. 8-10.	1-7
A	US 6386413 B1 (ROBERT H. TWYFORD) 14 May 2002 See column 1, lines 1-67; column 2, lines 1-29; and figs. 1-2.	1-7
X	US 2005-0243505 A1 (LOUIS R. JACKSON JR.) 03 November 2005 See paragraphs [0016]-[0017], [0019]-[0021], [0020]-[0043]; and figs. 1-2, 8.	8
A		9
A	US 2007-0035917 A1 (STEVE HOTELLING et al.) 15 February 2007 See paragraphs [0006], [0036]-[0037], [0041]; and fig. 1.	8-9
A	US 06108200 A (ROVERT L. FULLERTON) 22 August 2000 See column 1, lines 12-67; column 2, lines 1-67; column 3, lines 1-17; and figs. 1, 6.	8-9

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents,such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
26 September 2013 (26.09.2013)	**26 September 2013 (26.09.2013)**

Name and mailing address of the ISA/KR
Korean Intellectual Property Office
189 Cheongsa-ro, Seo-gu, Daejeon Metropolitan City, 302-701, Republic of Korea
Facsimile No. +82-42-472-7140

Authorized officer
LEE Dong Yun
Telephone No. +82-42-481-8734

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2013/045050

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

I. Claims 1-7 relate to a mounting apparatus comprising a mounting bar, retractable keyboard clamp assembly, tablet computer docking station easel.
II. Claims 8-9 relate to a planar display docking station comprising planar display enclosure, easel shaped docking station.

1. ☐ As all required addtional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☒ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/US2013/045050

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2006-0071820 A1	06/04/2006	US 2004-0075588 A1	22/04/2004
		US 2004-0075589 A1	22/04/2004
		US 2006-0077074 A1	13/04/2006
		US 2006-0192689 A1	31/08/2006
		US 6999008 B2	14/02/2006
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		US 7479902 B2	20/01/2009
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		KR 10-2008-0080159 A	02/09/2008
		WO 2007-067195 A1	14/06/2007
		WO 2007-067195 A9	17/11/2011
US 6386413 B1	14/05/2002	WO 2003-006873 A1	23/01/2003
		WO 2003-006873 A8	11/12/2003
US 2005-0243505 A1	03/11/2005	US 2002-0149905 A1	17/10/2002
		US 2007-0041153 A1	22/02/2007
		US 2008-0024971 A1	31/01/2008
		US 7149080 B2	12/12/2006
		US 7295429 B2	13/11/2007
US 2007-0035917 A1	15/02/2007	None	
US 06108200 A	22/08/2000	None	