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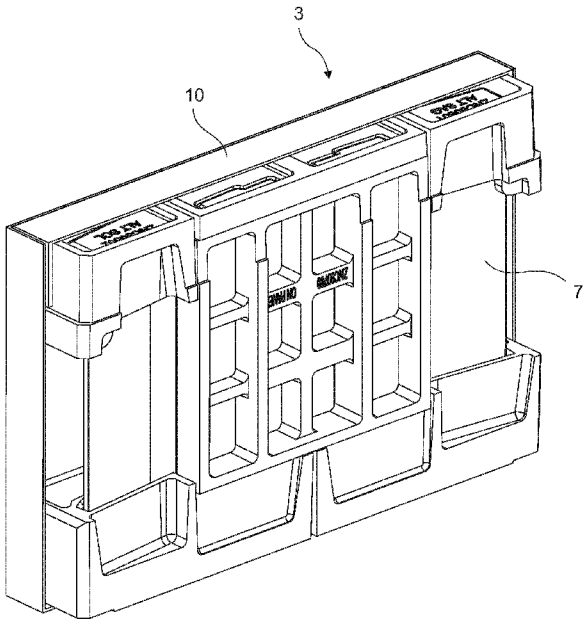
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[Continued on next page]

(54) Title: LARGE SCREEN IMAGE DISPLAY DEVICE WITH AN IMPROVED SUPPORT STAND ASSEMBLY

(57) Abstract: The present invention relates to a stand assembly (5) particularly for a large or very large panel image display device (1) such as an LCD TV, LED TV etc; the stand assembly (5) being adapted to be mounted into flat panel display devices in a substantially facilitated manner. The present invention more particularly relates to an image display device (1) comprising a display unit (7) and a stand assembly (5) attachable to the display unit (7) to carry and support the display unit (7) in an upright position in a secure manner, the image display device (1) being enclosable by a transportation package (2) in the form of a rectangular prism.

Fig. 1



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Description

LARGE SCREEN IMAGE DISPLAY DEVICE WITH AN IMPROVED SUPPORT STAND ASSEMBLY

[0001] The present invention relates to a stand assembly particularly for a large or very large panel image display device such as an LCD TV, LED TV etc., the stand assembly being adapted to be mounted into flat panel display devices in a substantially facilitated manner.

[0002] Support stands are conventionally used for carrying and supporting flat panel display devices in a secure manner. Such mechanisms typically comprise a plurality of components in the manner that a support stand device has a vertical supporting plate and a base plate. The vertical supporting plate is connected and fixed with the flat panel television, and the base plate is connected with the supporting plate. A stand column in the form of a columnar is provided between the vertical supporting plate and the base plate.

[0003] It is to be noted that the flat panel of a particularly large image display device such as a 65 inch panel TV is needed to be removed from its package with care and is first needed to be put on a large surface such as a table or should be put on the ground for fixedly attaching the stand assembly. Therefore, a very large flat panel image display device's installation and/or maintenance operations require careful handling of the image display device by a number of people to avoid damage and particularly needs to be carried out on a large open area such as for instance on a carpet so that it can be laid down thereon for effecting connection of the stand assembly. As the latter support assembly may usually involve a number of components and mechanical elements, the horizontal orientation of the flat panel image display device is a necessity prior to assembling the respective parts.

[0004] It is to be noted that the above-described installation and/or repair operations may take excessive time for assembling of various parts. A foot assembly which is easily and practically mounted to a very large panel image display device by a single person in a reasonable amount of time and without requiring laying down of the image display device is very

desirable because a continually increasing number of very large panel TVs are needed to be repaired in service centers and the TVs being mostly transported in their original packages, the stand assemblies are first needed to be mounted to allow the large panel TV to stand in upright position prior to any repair/maintenance operation.

[0005] A prior art publication in the technical field o the present invention may be referred to as US20110079688, which discloses a folding TV stand assembly adapted to be shipped disassembled in a substantially-flat configuration within a compact shipping container and assembled without the use of tools. The TV stand assembly includes a rotatable shelf support, a TV mount to be connected to the back of a television, and an upstanding back spine to be removably received at one end thereof by a spine-receiving base of the rotatable shelf support and detachably connected at the opposite end thereof to the TV mount. The shelf support has first and second sets of rails that are pivotally coupled to respective opposite sides of the spine-receiving base. The first and second sets of rails are rotatable relative to the spine-receiving base between an unfolded position projecting outwardly and away from one another to a folded position arranged in parallel alignment with one another to facilitate transport in the substantially-flat shipping configuration. A plurality of shelves are detachably connected to the sets of rails of the shelf support when the rails are rotated to the unfolded position.

[0006] The present invention provides a support stand for a large flat panel display device overcoming the aforementioned inconveniences, which is defined in the characterized portion of Claim 1.

[0007] Primary object of the present invention is to provide a support stand for a larger flat panel display device.

[0008] The present invention discloses an image display device and a stand assembly attachable to a display unit of the image display device in an upright position. The image display device is enclosed by a transportation package as a rectangular prism. The stand assembly is mounted to the display unit when the latter is within the transportation package such that an opening of at least one width flap member at a first face of the

transportation package facing the lower side of the image display device along the width thereof is used to mount the stand assembly in the upside down configuration of the transportation package.

[0009] The stand assembly is practically mounted in the upside down configuration of the transportation package because it requires no horizontal orientation of the latter or removing of the image display device prior to the assembling operation.

[0010] Further, package foot openings on a second face neighboring the first face of the transportation package allow quick and practical attaching of the stand assembly to the display unit in an upright position and during which the display unit is still within the transportation package.

[0011] Accompanying drawings are given solely for the purpose of exemplifying a support stand for a large flat panel image display device whose advantages over prior art were outlined above and will be explained in brief hereinafter.

[0012] The drawings are not meant to delimit the scope of protection as identified in the claims nor should they be referred to alone in an effort to interpret the scope identified in the claims without recourse to the technical disclosure in the description of the present invention.

[0013] Fig. 1 demonstrates a perspective view of the image display device in a transportation package with the front half of the package being not shown for clarity.

[0014] Fig. 2 demonstrates a perspective view of the image display device in the transportation package before mounting of the stand assembly, with a removed width flap member and with second face package foot openings of the transportation package being openable according to the present invention.

[0015] Fig. 3 demonstrates a perspective view of the image display device with the stand assembly being mounted according to the present invention.

[0016] The followings numerals are used in the detailed description of the present invention:

[0017] (1) Image display device

[0018] (2) Transportation package

[0019] (3) Width flap member

[0020] (4) Package foot openings

[0021] (5) Stand assembly

[0022] (6) Stand bracket

[0023] (7) Display unit

[0024] (8) Bracket slot

[0025] (9) Release opening

[0026] (10) First face

[0027] (11) Second face

[0028] The present invention proposes an image display device (1) such as a as an LCD TV, LED TV etc. with a display unit (7) and having a stand assembly (5) with stand brackets (6). The stand assembly (5) typically serves for carrying and supporting the display panel of the image display device (1) establishing mechanical connection with the same in a securely connected manner.

[0029] Considering a particularly large flat panel image display device (1) such as for instance a 65 inch panel, when carrying out repair or installing the large panel image display device (1), one needs to remove it from its package with care and lay it down on a large surface to effectuate attachment of the stand assembly (5). This is time consuming, labor intensive and error prone because careful handling of such a large and heavy image display device necessitates a certain number of people helping each other to avoid damage. When installing the device in the home of the consumer or when repairing the same in a service center, a large open area is needed to lay it down for attaching the stand assembly (5) because the latter support assembly may usually involve a number of components and mechanical elements, the horizontal orientation of the flat panel image display device is a necessity when assembling the respective parts.

[0030] It is to be noted that the above-described installation and/or repair operations may therefore take excessive time for assembling of various parts. A foot assembly which is easily and practically mounted to a very large panel image display device by a single person in a reasonable amount of time and without requiring laying down of the image display

device is not possible because the transportation package (2) of the image display device (1) does not allow mounting of the stand assembly (5) prior to removing the device from the package. Only then the stand assembly (5) can be assembled and the image display device (1) can stand in upright position.

[0031] According to the present invention, the stand assembly (5) is mounted to the display unit (7) of the image display device (1) when the display unit (7) is within the transportation package (2). To this end, the transportation package (2) in the form of a rectangular prism has at least one width flap member (3) covering a first face (10) of the transportation package (2) facing the lower side of the image display device (1) along the width thereof. When the at least one width flap member (3) is opened in the upside down configuration of the transportation package (2), the lower side of the display unit (7) is directly exposed upwardly with any width flap members (3) on the first face (10) of the transportation package (2) being removed, the stand assembly (5) can be mounted while the display unit (7) is still within the transportation package (2).

[0032] To this end, the transportation package (2) comprises package foot openings (4) on a second face (11) neighboring the first face (10) thereof, such openings allowing fixedly attaching of the stand assembly (5) to the display unit (7) without removing or damaging the transportation package (2) but more importantly they substantially shorten the time duration for completing the assembling operation as the stand assembly (5) with the stand brackets (6) thereof mounted in the upside down configuration can be again turned upside down together with the transportation package (2) and the latter can be removed after the image display device (1) stands on the stand assembly (5).

[0033] Therefore, the present invention allows assembling of the parts in an easy manner even by end users. Stand brackets (6) of the stand assembly (5) are inserted into respective bracket slots (8) of the image display device (1) so as to be locked in the correct position, i.e. when the distal end of the stand bracket (6) having a fixation hole (not shown) reaches a spring-loaded engagement member (not shown) within the bracket slots

(8). To release the stand brackets (6) from the locked position, a sharp-end tool can be inserted into the release openings (9) to retract the spring-loaded engagement members and free the stand brackets (6).

[0034] In summary, the present invention proposes an image display device (1) comprising a display unit (7) and a stand assembly (5) attachable to the display unit (7) to carry and support the display unit (7) in an upright position in a secure manner, the image display device (1) being enclosable by a transportation package (2) in the form of a rectangular prism.

[0035] In one embodiment of the present invention, the stand assembly (5) is mounted to the display unit (7) of the image display device (1) when the display unit (7) is within the transportation package (2) in the manner that the stand assembly (5) is mounted to the display unit (7) through an opening of at least one width flap member (3) covering a first face (10) of the transportation package (2) facing the lower side of the image display device (1) along the width thereof.

[0036] In a further embodiment of the present invention, the stand assembly (5) is mounted to the display unit (7) through the opening of at least one width flap member (3) in the upside down configuration of the transportation package (2).

[0037] In a further embodiment of the present invention, the transportation package (2) comprises package foot openings (4) on a second face (10) neighboring the first face (9) of the same, such openings allowing fixedly attaching of the stand assembly (5) to the display unit (7) in a position where the display unit (7) is within the transportation package (2).

[0038] In a further embodiment of the present invention, the stand assembly (5) has at least two stand brackets (6) insertable into bracket slots (8) of the image display device (1) in a positionally lockable manner.

[0039] In a further embodiment of the present invention, distal end of the stand bracket (6) has a fixation hole reaching a spring-loaded engagement member within bracket slots (8) of the image display device (1).

[0040] In a further embodiment of the present invention, the stand brackets (6) are releasable from locked position through release openings (9) of the image display device (1).

[0041] In a further embodiment of the present invention, a transportation package (2) for enclosing an image display device (1) is disclosed.

[0042] In a further embodiment of the present invention, a method for mounting a stand assembly (5) to an image display device (1) enclosed by a transportation package (2) in the form of a rectangular prism is proposed, the method comprising the steps of: (a) turning upside down a transportation package (2) of the image display device (1), (b) opening at least one width flap member (3) covering a first face (10) of the transportation package (2) facing the lower side of the image display device (1) along the width thereof, (c) opening package foot openings (4) disposed on a second face (11) neighboring the first face (10) of the transportation package (2), (d) fixedly attaching the stand assembly (5) to the display unit (7) in a position where the display unit (7) is within the transportation package (2) in the manner that at least two stand brackets (6) are insertable into the image display device (1) in a locked manner, (e) inserting two stand brackets (6) into the image display device (1) through the package foot openings (4) disposed on the second face (11) neighboring the first face (10) of the transportation package (2), (f) turning the transportation package (2) upside down with the image display device (1) inside and removing the transportation package (2) while the image display device (1) stands on the stand assembly (5).

[0043] Therefore, the present invention allows assembling of the parts in an easy manner even by end users. A foot assembly can be easily and practically mounted to a very large panel image display device by a limited number of persons in a reasonable amount of time and without requiring laying down of the image display device on a flat surface when handling image display devices in service centers or when installing the same in the home of consumers.

Claims

1. An image display device (1) comprising a display unit (7) and a stand assembly (5) attachable to the display unit (7) to carry and support the display unit (7) in an upright position in a secure manner, the image display device (1) being enclosable by a transportation package (2) in the form of a rectangular prism, **characterized in that**
   the stand assembly (5) is mounted to the display unit (7) of the image display device (1) when the display unit (7) is within the transportation package (2) in the manner that the stand assembly (5) is mounted to the display unit (7) through an opening of at least one width flap member (3) covering a first face (10) of the transportation package (2) facing the lower side of the image display device (1) along the width thereof.
2. An image display device (1) as in Claim 1, **characterized in that** the stand assembly (5) is mounted to the display unit (7) through the opening of at least one width flap member (3) in the upside down configuration of the transportation package (2).
3. An image display device (1) as in Claim 1 or 2, **characterized in that** the transportation package (2) comprises package foot openings (4) on a second face (10) neighboring the first face (10) of the same, such openings allowing fixedly attaching of the stand assembly (5) to the display unit (7) in a position where the display unit (7) is within the transportation package (2).
4. An image display device (1) as in Claim 3, **characterized in that** the stand assembly (5) has at least two stand brackets (6) insertable into bracket slots (8) of the image display device (1) in a positionally lockable manner.
5. An image display device (1) as in Claim 4, **characterized in that** distal end of the stand bracket (6) has a fixation hole reaching a spring-loaded engagement member within bracket slots (8) of the image display device (1).
6. An image display device (1) as in Claim 5, **characterized in that** the stand brackets (6) are releasable from locked position through release openings (9) of the image display device (1).
7. A transportation package (2) for enclosing an image display device (1) as in Claim 1.
8. A method for mounting a stand assembly (5) to an image display device (1)

enclosed by a transportation package (2) in the form of a rectangular prism, the method comprising the steps of:

(a) turning upside down a transportation package (2) of the image display device (1),

(b) opening at least one width flap member (3) covering a first face (10) of the transportation package (2) facing the lower side of the image display device (1) along the width thereof,

(c) opening package foot openings (4) disposed on a second face (11) neighboring the first face (10) of the transportation package (2),

(d) fixedly attaching the stand assembly (5) to the display unit (7) in a position where the display unit (7) is within the transportation package (2) in the manner that at least two stand brackets (6) are insertable into the image display device (1) in a locked manner,

(e) inserting two stand brackets (6) into the image display device (1) through the package foot openings (4) disposed on the second face (11) neighboring the first face (10) of the transportation package (2),

(f) turning the transportation package (2) upside down with the image display device (1) inside and removing the transportation package (2) while the image display device (1) stands on the stand assembly (5).

Fig. 1

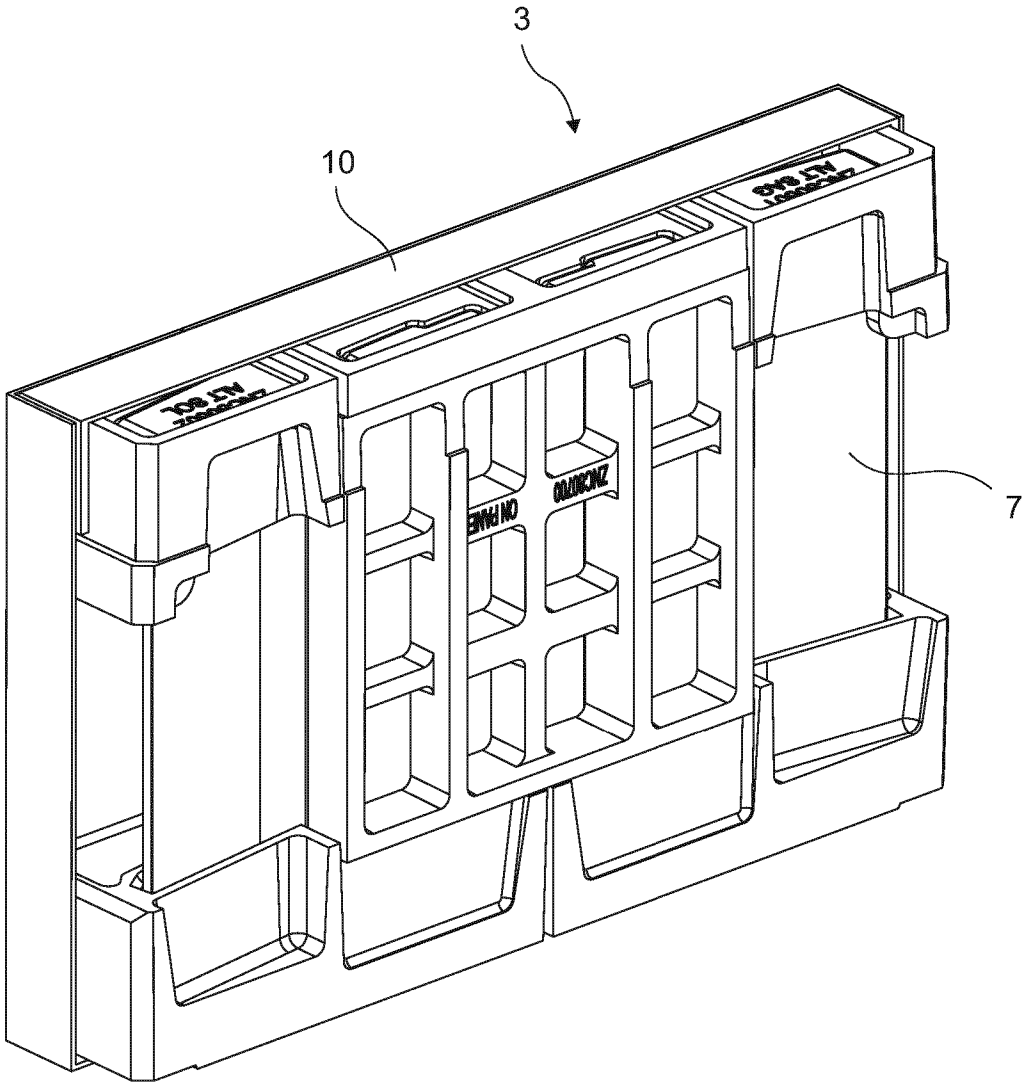


Fig. 2

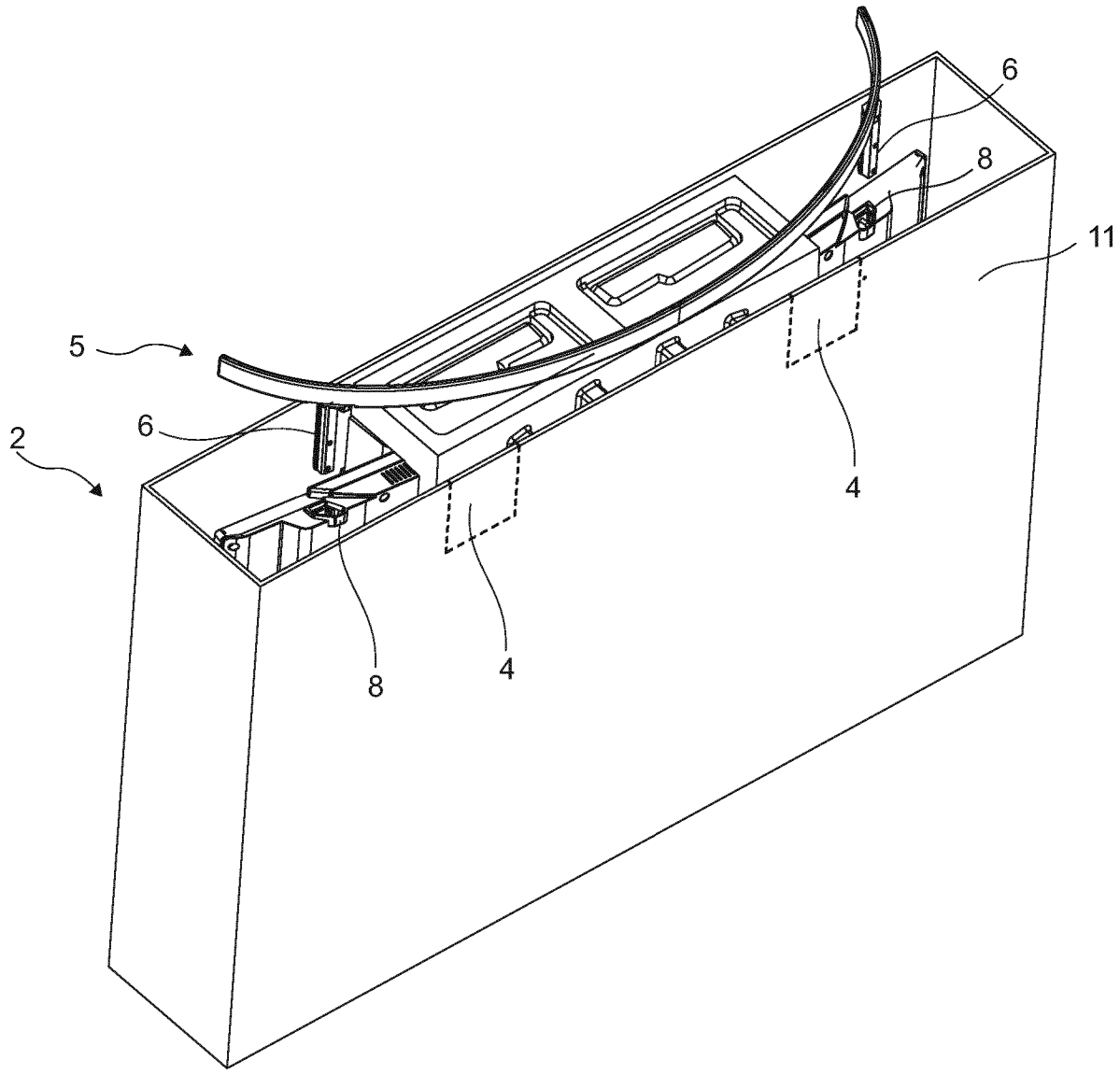
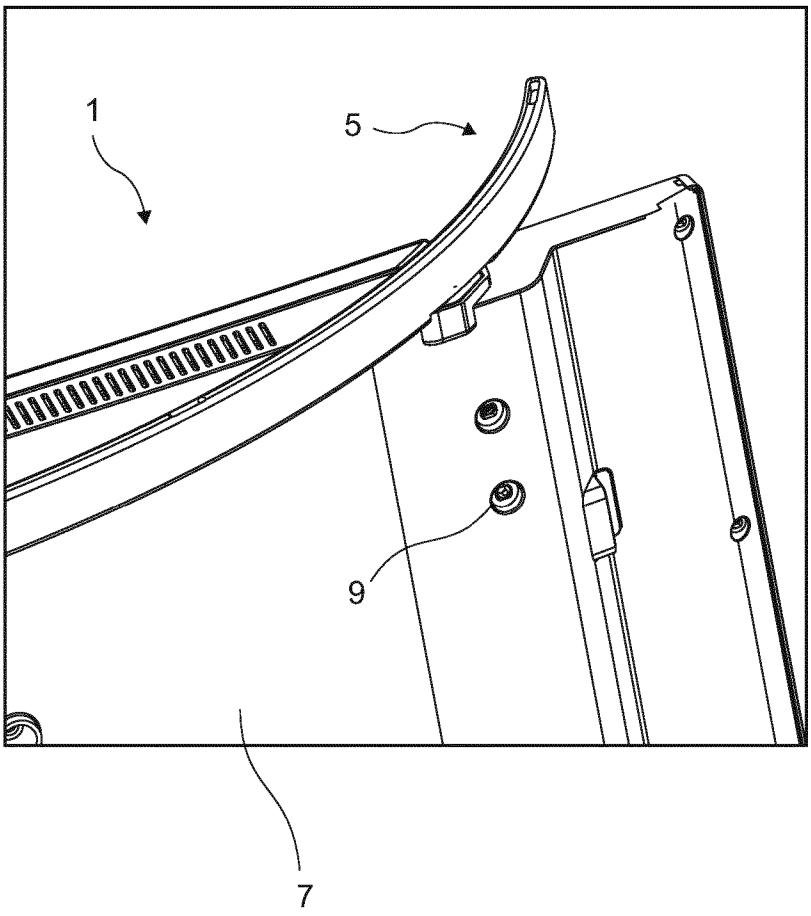


Fig. 3



INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER
INV. H04N5/64 F16M11/00 F16M13/00 H04N5/655 B65D5/00
ADD.

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)
B65D F16M H04N G06F H05K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2006/087596 A1 (PARK DOO-SOON [KR] ET AL) 27 April 2006 (2006-04-27) abstract figure 1 paragraph [0006] - paragraph [0013] -----	1-4,7
A	US 2008/112115 A1 (YANG CHU-FANG [TW]) 15 May 2008 (2008-05-15) abstract figures 5,6 paragraph [0028] - paragraph [0031] -----	1-8
A	WO 2012/035464 A1 (KONINKL PHILIPS ELECTRONICS NV [NL]; VANDALE GEERT [BE]) 22 March 2012 (2012-03-22) abstract figures 7-10 page 8, line 28 - page 9, line 22 -----	1-8

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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2010/103595 A1 (HSU CHENG-HUNG [TW] ET AL) 29 April 2010 (2010-04-29) abstract figure 4	1-8
A	US 2010/328556 A1 (YAMAMOTO KAORI [JP]) 30 December 2010 (2010-12-30) the whole document	1-8

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2015/078797

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2006087596 A1	27-04-2006	CN 1767730 A	03-05-2006
		KR 20060036194 A	28-04-2006
		US 2006087596 A1	27-04-2006
		US 2011141674 A1	16-06-2011
US 2008112115 A1	15-05-2008	JP 2008120451 A	29-05-2008
		TW 200821231 A	16-05-2008
		US 2008112115 A1	15-05-2008
WO 2012035464 A1	22-03-2012	NONE	
US 2010103595 A1	29-04-2010	TW 201018370 A	01-05-2010
		US 2010103595 A1	29-04-2010
US 2010328556 A1	30-12-2010	CN 101960361 A	26-01-2011
		US 2010328556 A1	30-12-2010
		WO 2009107432 A1	03-09-2009