



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
19.09.2018 Bulletin 2018/38

(51) Int Cl.:
H01R 27/02 (2006.01) **H01R 31/06 (2006.01)**
H01R 24/62 (2011.01)

(21) Application number: **17160675.9**

(22) Date of filing: **13.03.2017**

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**
Designated Extension States:
BA ME
Designated Validation States:
MA MD

(72) Inventor: **Ebrahimi, Ahmad**
D14167 Berlin (DE)

(74) Representative: **Lang, Christian**
LangPatent Anwaltskanzlei
IP Law Firm
Rosenheimer Straße 139
81671 München (DE)

(71) Applicant: **Grandsky Engineering Limited**
Central (HK)

(54) **SERIAL ADVANCED TECHNOLOGY ATTACHMENT, SATA, ADAPTER CABLE**

(57) A serial advanced technology attachment (SATA) adapter cable is disclosed, which mainly comprises a SATA connector, a connector, and a connecting cable; the connecting cable has one end connected to the SATA connector and another end connected to the connector, wherein the SATA connector includes a main body, a plurality of signal terminals disposed in the main body, a power terminal disposed on a lateral side of the main body, and a ground terminal disposed on another lateral side of the main body, such that the SATA connector can transmit power directly. The connector can be a connector with a power transmission terminal or a connector that does not have a power terminal but is complemented with a power connector, thereby allowing the SATA adapter cable of the present invention to serve the dual purpose of signal transmission and power transmission.

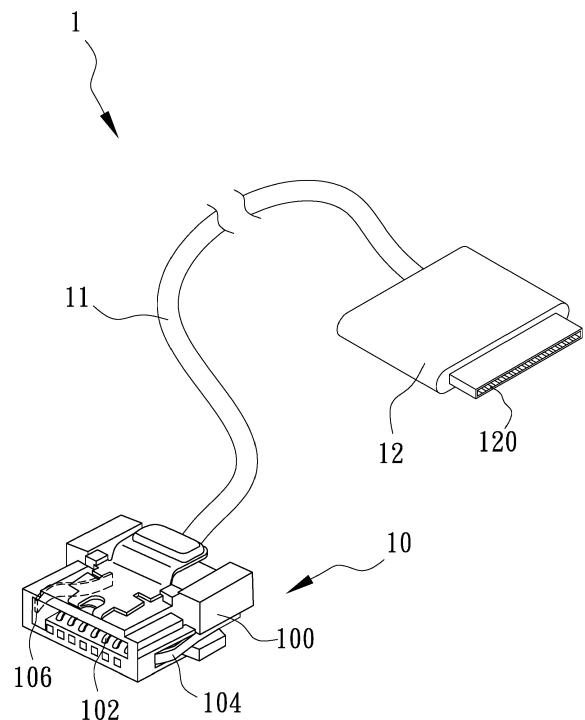


Fig. 1

Description

BACKGROUND OF THE INVENTION

a) Field of the Invention

[0001] The present invention relates to an adapter cable, and more particularly to a SATA (Serial Advanced Technology Attachment) adapter cable 1.

b) Description of the Prior Art

[0002] The conventional SATA connectors that are used to connect and insert to the computer motherboards can only transmit signals, thus the general SATA adapter cables cannot transmit power. If additional power transmission is required, it would be necessary to connect an additional power cable, which leads to excessive transmission cables being inserted to a motherboard, and hampers the re-assembly and maintenance of a computer as the available space in the computer case is severely reduced by the disorganized transmission cables.

[0003] The preferred embodiments of the present invention are provided as follows in order to describe characteristics and advantages of the present invention in details, which helps anyone skilled in the art understand and implement the technical contents of the present invention. By following the contents, claims and figures disclosed in this description, anyone skilled in the art can easily understand the purpose and the advantages of the present invention.

SUMMARY OF THE INVENTION

[0004] It is a primary object of the present invention to provide: a single SATA connector that can directly transmit power and signals at the same time, which can be used in combination with a connector having a power transmission terminal, or a connector not having a power terminal but complemented with a power connector, such that the SATA adapter cable of the present invention can serve the dual purpose of signal transmission and power transmission.

[0005] To achieve the above-mentioned objects, the present invention provides a SATA adapter cable, comprising: a SATA connector which includes a main body, a plurality of signal terminals disposed in the main body, a power terminal disposed on a lateral side of the main body, and a ground terminal disposed on another lateral side of the main body; a connecting cable with one end connected to the SATA connector and another end connected to at least one connector.

[0006] According to an embodiment of the present invention, the connector further comprises a power transmission terminal.

[0007] According to an embodiment of the present invention, the connector having the power transmission terminal can be one of an eSATA female, an eSATA

male, a SATA 22-pin female, a SATA 22-pin male, a SATA 8-pin female or a SATA 8-pin male.

[0008] An embodiment of the present invention further comprises a power connector being connected to the connecting cable and on one same end with the connector.

[0009] According to an embodiment of the present invention, the power connector can be one of a DC (Direct Current) Jack, a SATA 15-pin male, an USB (Universal Serial Bus) Type-A, a pin header (USB), a power connector 4-pin or a SATA 15-pin male.

[0010] According to an embodiment of the present invention, the connector is a SATA 7-pin male.

[0011] To enable a further understanding of the said objectives and the technological methods of the invention herein, the brief description of the drawings below is followed by the detailed description of the preferred embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012]

FIG. 1 is a three-dimensional schematic view showing a preferred embodiment of the present invention. FIG. 2 is a three-dimensional schematic view showing another preferred embodiment of the present invention.

FIG. 3 is a three-dimensional schematic view showing yet another preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0013] Implementations of the present invention are described by using the following embodiments, so that a person skilled in the art can easily understand other advantages and effects of the present invention by following the contents disclosed in the description of the embodiments.

[0014] The structures, proportions and sizes illustrated in the figures of the description are only meant to demonstrate the contents disclosed in the description, so as to assist a person skilled in the art in understanding and reading; they are not intended to limit the implementations of the invention and have no actual technical meaning. Any modifications to the structures, proportions and sizes should not influence the effects and purposes intended by the invention and still fall within the scope of the invention as disclosed herein. Further, words like "one", "two" and "on" used in the description are only intended to make the description clearer in meaning, and are not meant to limit the implementable scope of the invention; any relative changes or modifications thereof should be regarded as the implementable scope of the invention without actually changing the technical contents.

[0015] Referring to FIG. 1, which is a three-dimensional schematic view showing a preferred embodiment of the present invention. The SATA adapter cable 1 of the present invention mainly comprises a SATA connector 10, a connecting cable 11 and at least a connector 12, wherein the SATA connector 10 includes a main body 100, a plurality of signal terminals 102 disposed in the main body 100, a power terminal 104 disposed on a lateral side of the main body 100, and a ground terminal 106 disposed on another lateral side of the main body 100; the connecting cable 11 has one end connected to the SATA connector 10 and another end connected to at least one connector 12. In which the connector 12 further comprises a power transmission terminal 120 (which can be an eSATA female, an eSATA male, a SATA 22-pin female, a SATA 22-pin male, a SATA 8-pin female or a SATA 8-pin male). The SATA adapter cable 1 of the present invention can be used for signal transmission as well as power transmission, and inserted to a computer motherboard. Therefore, when there is one single connector 12 being connected to an end of the connecting cable 11, the connector 12 used in combination requires a power transmission terminal 120 that is inserted to an external equipment. In this diagram, a SATA 22-pin male is applied to the connector 12 as an example, and the type of the connector 12 can be freely changed according to requirements as long as the connector 12 is provided with the power transmission terminal 120. Accordingly, a single SATA connector can directly transmit power and signals at the same time; when complemented with a connector having a power transmission terminal, the SATA adapter cable of the present invention can serve the dual purpose of signal transmission and power transmission.

[0016] Referring to FIG. 2, which is a three-dimensional schematic view showing another preferred embodiment of the present invention. The connector 12 shown in FIG. 1 is complemented with the power transmission terminal 120, but the connector 12 of this embodiment does not have the power transmission terminal 120, thus an additional power connector 14 has been added; the type of the power connector 14 can be a DC Jack, a SATA 15-pin male, an USB Type-A, a pin header (USB), a power connector 4-pin or a SATA 15-pin male. In this embodiment, a DC Jack is applied to the power connector 14 as an example, and thus power is transmitted via the DC Jack, and signals are transmitted via the connector 12 (which is a SATA 7-pin male here). Accordingly, a single SATA connector can directly transmit power and signals at the same time; by complementing a connector having no power terminal with a power connector, the SATA adapter cable of the present invention can serve the dual purpose of signal transmission and power transmission.

[0017] Both of the aforesaid embodiments can allow the SATA connector 10 inserted to a computer motherboard to achieve the effect of power transmission, and external equipment is connected by using a connector

having a power transmission terminal, or a connector having no power terminal but complemented with a power connector, which is shown in FIG. 3, a three-dimensional schematic view showing yet another preferred embodiment of the present invention. In this embodiment, the SATA connector 10 is reversely used to connect an external equipment; a SATA 22-pin male is applied to the SATA connector 10 as an example in this case, and the SATA connector 10 has a power terminal 104. The connector 12 inserted to a computer motherboard can either be a connector having a power transmission terminal or a connector having no power terminal but complemented with a power connector. As an example, the connector 12 of this embodiment comprises a power transmission terminal 120 (which can be an eSATA female, an eSATA male, a SATA 22-pin female, a SATA 22-pin male, a SATA 8-pin female or a SATA 8-pin male), thereby allowing the SATA adapter cable of the present invention to serve the dual purpose of signal transmission and power transmission.

[0018] It is of course to be understood that the embodiments described herein is merely illustrative of the principles and effects of the invention without limiting the invention, and that a wide variety of modifications thereto may be effected by persons skilled in the art without departing from the spirit and scope of the invention as set forth in the following claims.

Claims

1. A serial advanced technology attachment adapter cable, comprising:
 - a SATA (Serial Advanced Technology Attachment) connector 10 including a main body 100, a plurality of signal terminals 102 disposed in the main body 100, a power terminal 104 disposed on a lateral side of the main body 100, and a ground terminal 106 disposed on another lateral side of the main body 100; and
 - a connecting cable 11 having one end connected to the SATA connector 10 and another end connected to at least one connector 12.
2. The serial advanced technology attachment adapter cable of claim 1, wherein the connector 12 further comprises a power transmission terminal 120.
3. The serial advanced technology attachment adapter cable of claim 2, wherein the connector 12 having the power transmission terminal 120 can be one of an eSATA female, an eSATA male, a SATA 22-pin female, a SATA 22-pin male, a SATA 8-pin female or a SATA 8-pin male.
4. The serial advanced technology attachment adapter cable of claim 1, further comprising a power connector

tor 14 connected to the connecting cable 11 and on one same end with the connector 12.

5. The serial advanced technology attachment adapter cable of claim 4, wherein the power connector 14 can be one of a DC (Direct Current) Jack, a SATA 15-pin male, an USB (Universal Serial Bus) Type-A, a pin header (USB), a power connector 4-pin or a SATA 15-pin male.
6. The serial advanced technology attachment adapter cable of claim 4, wherein the connector 12 is a SATA 7-pin male.

10

15

20

25

30

35

40

45

50

55

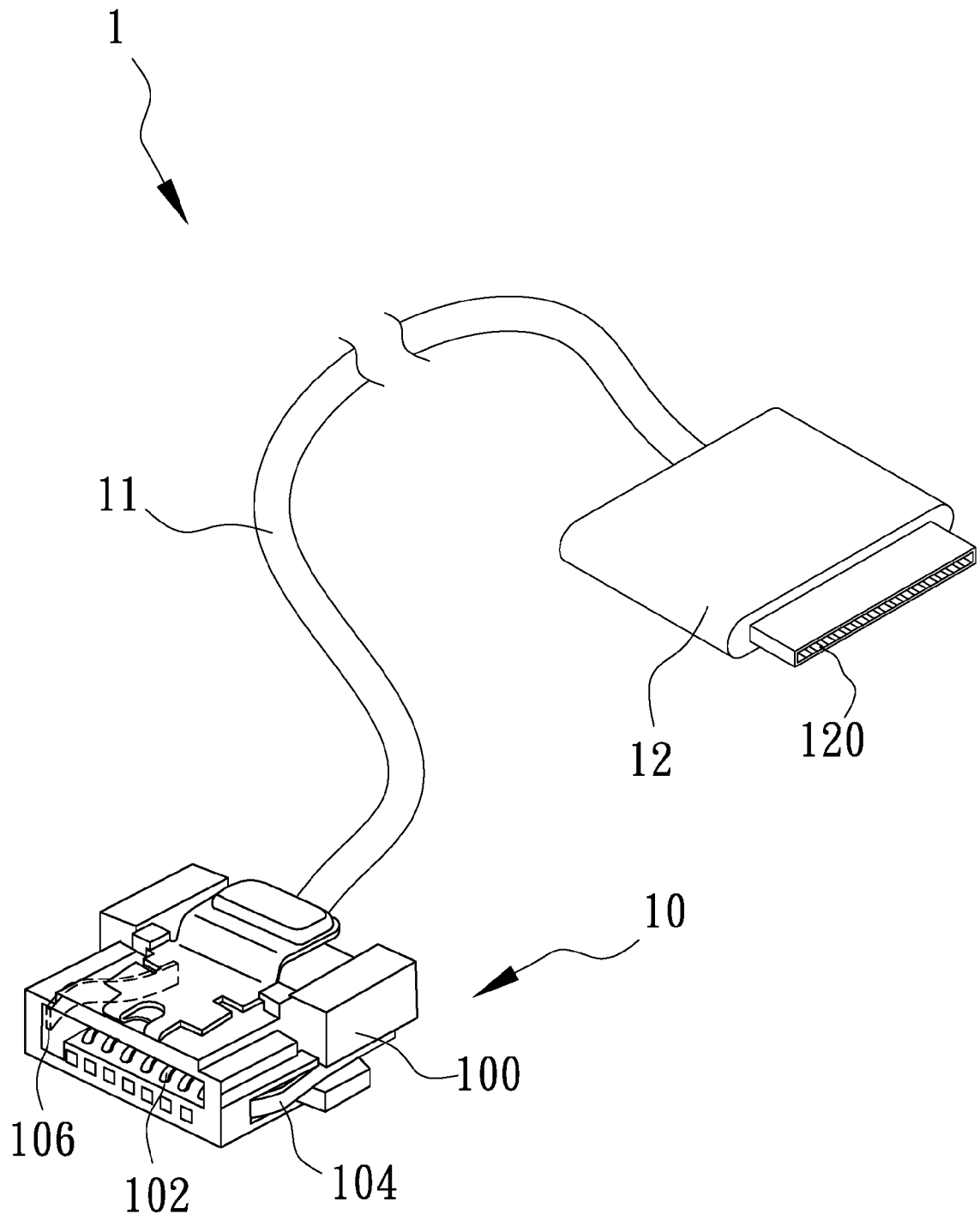


Fig. 1

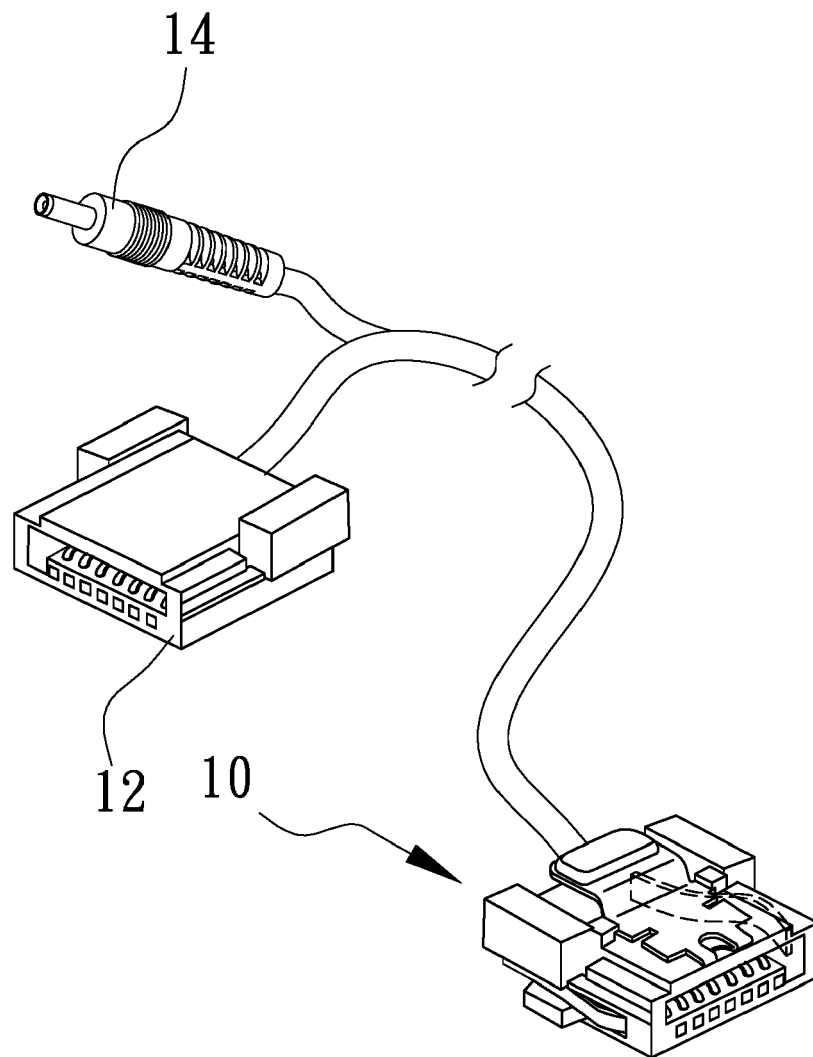


FIG. 2

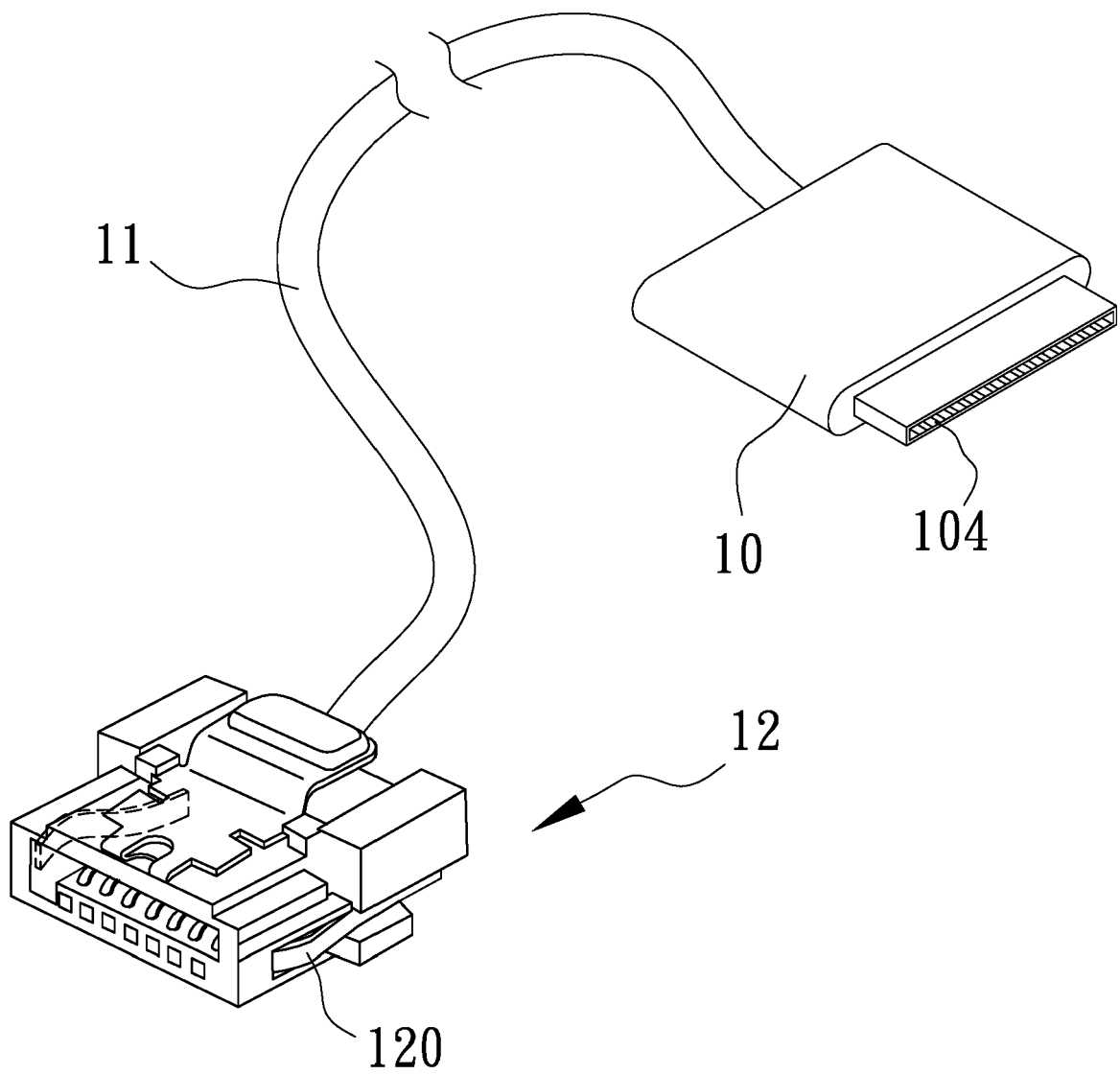


Fig. 3



EUROPEAN SEARCH REPORT

Application Number
EP 17 16 0675

5

10

15

20

25

30

35

40

45

50

55

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 20 2008 006695 U1 (MICRO STAR INT) 31 July 2008 (2008-07-31)	1,2,4-6	INV. H01R27/02 H01R31/06 H01R24/62
Y	* figures 4-6 * * paragraph [0016] *	3	
Y	US 2008/274631 A1 (LEE CHUNG-LIANG ET AL) 6 November 2008 (2008-11-06) * figure 2 * * paragraph [0010] *	3	
Y	WO 2009/138972 A2 (FRAMATOME CONNECTORS INT) 19 November 2009 (2009-11-19) * figures 1, 3, 5 * * page 5, line 20 - page 6, line 2 *	3	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			H01R
Place of search		Date of completion of the search	Examiner
The Hague		18 September 2017	Mier Abascal, Ana
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03/02 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 17 16 0675

5

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

18-09-2017

10

15

20

25

30

35

40

45

50

55

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 202008006695 U1	31-07-2008	DE 202008006695 U1	31-07-2008
		JP 3140192 U	13-03-2008
		TW M328091 U	01-03-2008
		US 2009094394 A1	09-04-2009

US 2008274631 A1	06-11-2008	TW M321169 U	21-10-2007
		US 2008274631 A1	06-11-2008
		US 2009298313 A1	03-12-2009

WO 2009138972 A2	19-11-2009	TW 201001842 A	01-01-2010
		WO 2009138972 A2	19-11-2009
