



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
24.10.2018 Bulletin 2018/43

(51) Int Cl.:
B66B 3/00 (2006.01) **B66B 13/30 (2006.01)**
B66B 11/02 (2006.01)

(21) Application number: **18161879.4**

(22) Date of filing: **15.03.2018**

(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:
KH MA MD TN

(72) Inventors:
• **CREMASCHI, Alessandro**
I-27020 Travacò Siccomario (PV) (IT)
• **LIBERALI, Fabio**
I_27020 Travacò Siccomario (PV) (IT)
• **EUSEBIO, Emanuele**
I-27020 Travacò Siccomario (PV) (IT)

(30) Priority: **22.03.2017 IT 201700031537**

(74) Representative: **Rastelli, Franco**
Dott. Franco Cicogna & C. SRL
Via Visconti di Modrone, 14/A
20122 Milano (IT)

(71) Applicant: **TGD S.p.A.**
20123 Milano (IT)

(54) **CAR FOR LIFT AND SIMILAR, HAVING ENHANCED COMMUNICATION AND INTERACTIVE FEATURES**

(57) A car for lift and similar with walls (2, 18,19), a floor (16), a ceiling (17) and car doors (11), having a multimedia display (3) and/or a transparent display (13) with communication and interactive features in audio and video mode. Compared to the well-known cars for lifts and similar, the car of the invention offers the benefit of

adding video signals to the communication audio signals of the user to the outer world. In addition, the car of the invention offers the maintenance operator the advantage of real-time communications with the service centre so as to receive audio and video instructions needed to carry out system maintenance.

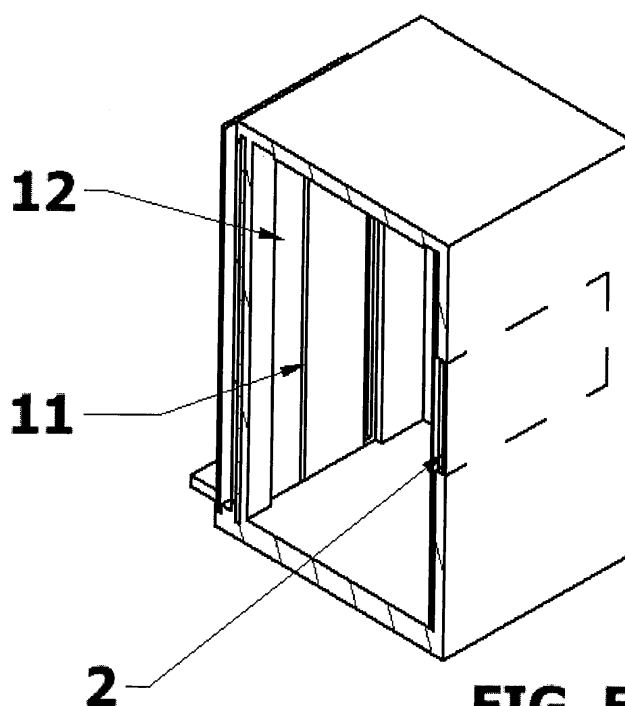


FIG. 5

Description

BACKGROUND OF THE INVENTION

[0001] The present invention relates to a car for lift and similar having enhanced communication and interactive features.

[0002] The field of the invention is the field of cars for lifts and goods lifts (Lift Directive No. 2014/33/EU) and the field of carriers for lifting platforms (Machinery Directive No. 2006/42/EC). In the description below, cars for lifts and goods lifts and carriers for lifting platforms are all referred to as "lift cars".

[0003] Lift cars are traditionally equipped with push-button systems and similar to control the lift operation and to manage emergencies.

[0004] However, these well-known cars have the drawback of limiting communications between the user and the operational centre merely to an audio system.

[0005] Furthermore, warnings, messages, information and similar, are traditionally displayed in the lift car by means of posting notices or using closed-circuit screens, exclusively devoted to this function.

[0006] In addition, the simultaneous presence of a pushbutton panel and other auxiliary communication means affect the appearance and design of the space inside the car.

[0007] This said, it should be added that in traditional lift systems, car and landing doors are passive, i.e. they lack means suitable for communication, able to provide the user with audio and video signals or similar.

SUMMARY OF THE INVENTION

[0008] As a result, the main object of this invention is to provide a lift car where, unlike traditional equipment of this type, communication is not limited to audio signals but also includes video signals and Internet connection, in order to provide features allowing the user to interact with the outside world and vice versa.

[0009] It is another object of the invention to provide a car, of the above mentioned type, having, within a single system of communication, the function of displaying notices and general information messages, both useful for the user and commercially relevant, whose dimensions do not affect the interior design or are undesirable in the smallest cars.

[0010] It is a still further object of the invention to provide car doors and doors at each landing with a communication and interactive feature for the user.

[0011] These and other objects are achieved through the car for lift and similar of claim 1. There are preferred embodiments of the invention resulting from the remaining claims.

[0012] Compared to the well-known cars for lifts and similar, the car of the invention offers the benefit of adding video signals to the communication audio signals of the user to the outer world.

[0013] In addition, the car of the invention offers the maintenance operator the advantage of real-time communications with the service centre so as to receive audio and video instructions needed to carry out system maintenance.

[0014] Furthermore, the car of the invention allows the building manager where the lift is installed (airports, shopping centres, hotels and similar), to send the user real-time messages about services, events, as well as general and useful information (safety and more).

[0015] In addition, the car of the invention offers the advantage of providing landing and car doors with the mentioned communication and interactive features, like those available within the car.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] These and other objects, benefits and features result from the following description of a preferred embodiment of the car of the invention illustrated, without limitation, in the figures of the attached drawings.

[0017] Where:

figure 1 is a perspective view of an inner section of the car of the invention;

figure 2 is an exploded view of the communication system components of the car of the invention;

figure 3 is a horizontal section view of the car in figure 1;

figure 4 is a vertical section view of the car in figure 1;

figures 5 and 6 show, respectively, an example of car and landing doors of the system of the invention;

figures 7 and 8 show a version of the invention for panoramic lifts.

DESCRIPTION OF PREFERRED EMBODIMENTS

[0018] The car of the invention is indicated as a whole with 1 in figure 1 and includes walls 2, 18 and 19, a floor 16 and a ceiling 17, where wall 2 features at least one multimedia display 3.

[0019] According to the invention the said multimedia display 3 includes a screen 4, for example a TV-type screen, with LCD, LED and similar technology.

[0020] Furthermore, a frame 5, e.g. in aluminium, plastic or other material, is provided for embedding the screen 4, fixing it inside a relevant recess 6 of the wall 2, the floor or the ceiling of the lift car.

[0021] The external or in-sight part of the multimedia display 3 consists of a glass pane 7 covering the screen 4, optionally with interposition of a touch-sensitive film or another suitable automatic pointing system 8.

[0022] The frame 5 of the system of the invention consists of profiles 9, glued to the surface of the said glass pane 7 facing the recess 6 of car 1 and housed inside the same recess 6, together with the screen 4 and relevant electronics.

[0023] Advantageously, the glass pane 7 has a reflect-

tive treatment providing a mirror-like effect when the screen is dark or turned off, while it is transparent when the screen is lit, i.e. turned on.

[0024] Advantageously, the multimedia display 3 features a camera 10, suitable for providing a two-way video communication system.

[0025] According to the invention, the multimedia display 3 can also be applied to the lift car doors with the same methods described above and as shown in figure 5. Figure 6 instead shows a similar application of the multimedia display 3 to landing doors 12.

[0026] According to the version shown in figures 7 and 8, the screen 4 of the multimedia display 3 is replaced by at least one transparent display 13 embedded between two glass panes 14 and 15, optionally together with a touch-sensitive film 8. The said transparent display 13 differs from the multimedia display 3 especially because it lacks backlighting, thus it is transparent and objects and images behind can be seen. The system can therefore be advantageously used in panoramic lift cars.

[0027] Also in this version, the transparent display 13 can be fitted with a camera 10, suitable for providing a two-way video communication system.

[0028] Thanks to the invention, the multimedia display 3 and the transparent display 13 offer the user the option of interactive multimedia communication, which is not limited only to audio signals but it also includes video signals. This allows the user to receive in real time the required safety information and any warning messages from the operational centre by talking to the operator also in video mode.

[0029] In addition, the user can access additional information and instructions on proper use of the system and how to behave when using a lift in emergency.

[0030] On the other hand, the system manager can interact with the user, check passengers' conditions inside the car and give instructions for example in case of lift failure.

[0031] Similarly, it is possible to take advantage of a system maintenance mode where the maintenance operator is able to communicate through audio and video signals with the operational centre.

[0032] Furthermore, the invention allows the manager to monitor the lift system using it as a means to check users' behaviour, to provide service and commercial information, and more.

[0033] The user can also ask and receive customised information, optionally focused on the user's needs within the services provided by the manager. The manufacturer of the system of the invention can also monitor and check the lift use by talking directly to the maintenance operator in audio and video mode (programmed and predictive maintenance service).

[0034] The invention, as described above and shown in the figures of the attached drawings, can be modified in order to create some versions which nonetheless fall within the scope of the following claims.

[0035] In the same way, for example, the multimedia

display 3 and/or the transparent display 13 could be fitted to all the walls 2, 18 and 19 of the car of the invention, as well as to the floor 16 and ceiling 17. On the other hand, the touch-sensitive film 8 on the glass pane 7 of the multimedia display 3 and on glass panes 14, 15 of the transparent display 13 could be omitted.

Claims

1. Car for lift and similar including walls (2,18,19), a floor (16), a ceiling (17) and car doors (11), **characterized in that** it comprises at least one multimedia display (3) and/or at least one transparent display (13), having communication and interactive features in audio and video mode, wherein said multimedia display (3) comprises a screen (4), a frame (5) for supporting and fixing said screen (4) to the said walls (2,18,19), to the floor (16) or to the ceiling (17) of the car (1) and a glass pane (7) with reflective treatment.
2. Car according to claim 1, **characterized in that** the said multimedia display (3) is applied also to the doors (11) of the car (1).
3. Car according to claims 1 or 2, **characterized in that** the said frame (5) is consisting of profiles (9) inserted in a relevant recess (6) provided on the said walls (2,18,19), on the floor (16), on the ceiling (17) and on the doors (11) of the same car (1), the said profiles (9) being glued to the surface of the said glass pane (7) facing the inner part of the said recess (6).
4. Car according to claim 1, **characterized in that** the said transparent display (13) is embedded between two glass panes (14, 15).
5. Car according to one of claims 1 to 4, **characterized in that** it further comprises an automatic pointing system (8) applied either to the surface of the glass pane (7) facing the screen (4) of the multimedia display (3), or between said glass panes (14,15) of the transparent display (13).
6. Car according to one of claims 1 to 4, **characterized in that** the said multimedia display (3) and the said transparent display (13) include a camera (10).
7. Lift system with car according to one or more of the preceding claims, **characterized in that** it further comprises landing doors (12) having said multimedia display (3) and/or said transparent display (13).

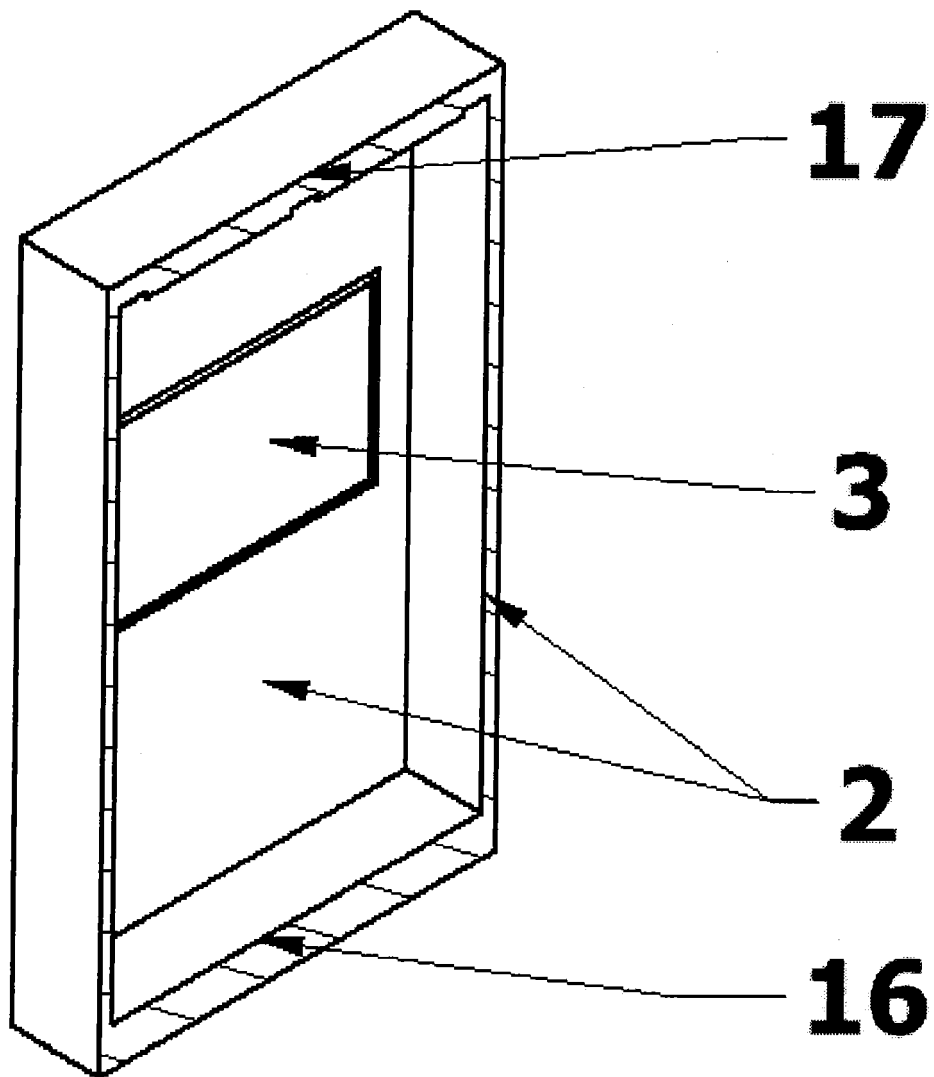
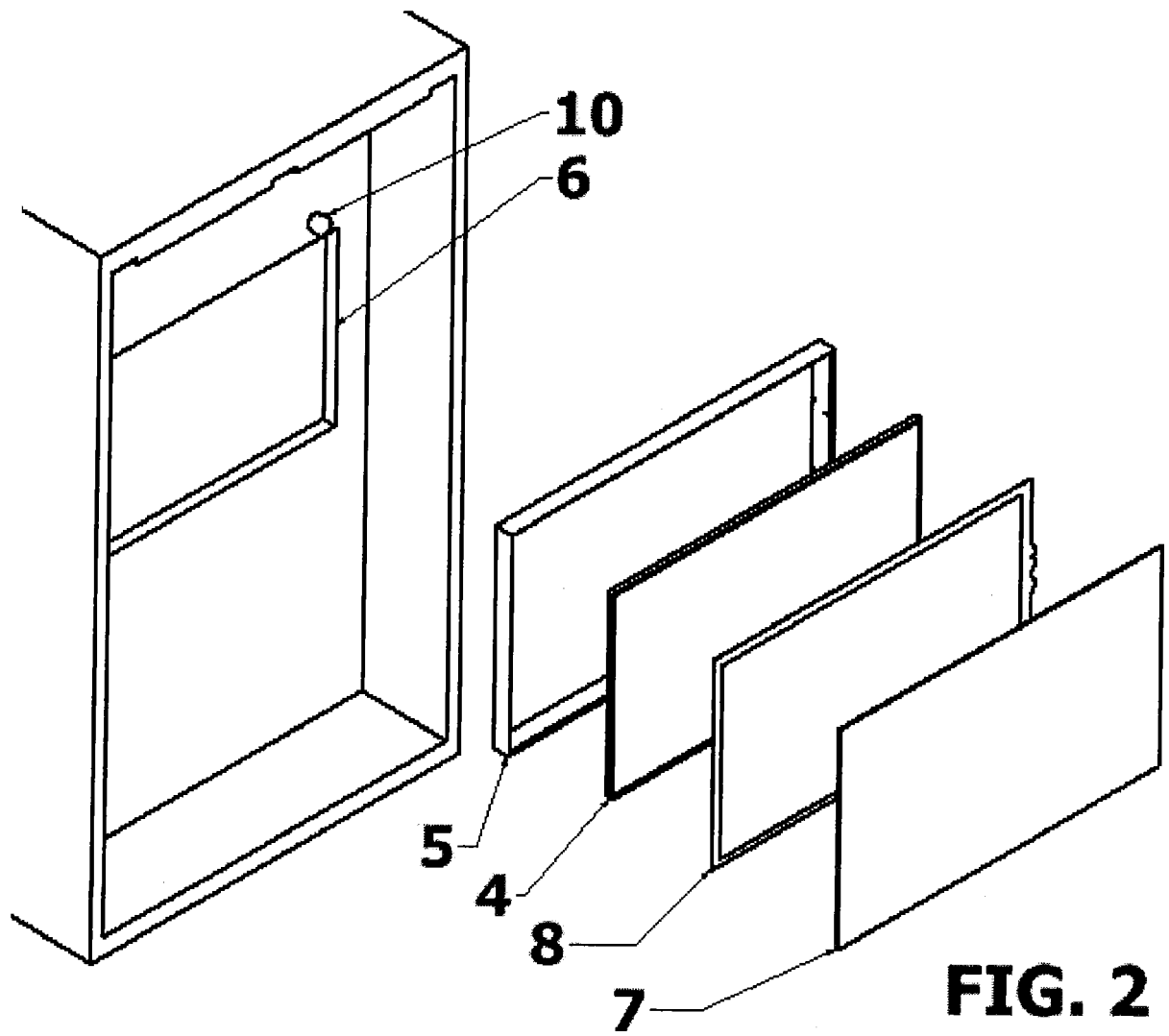
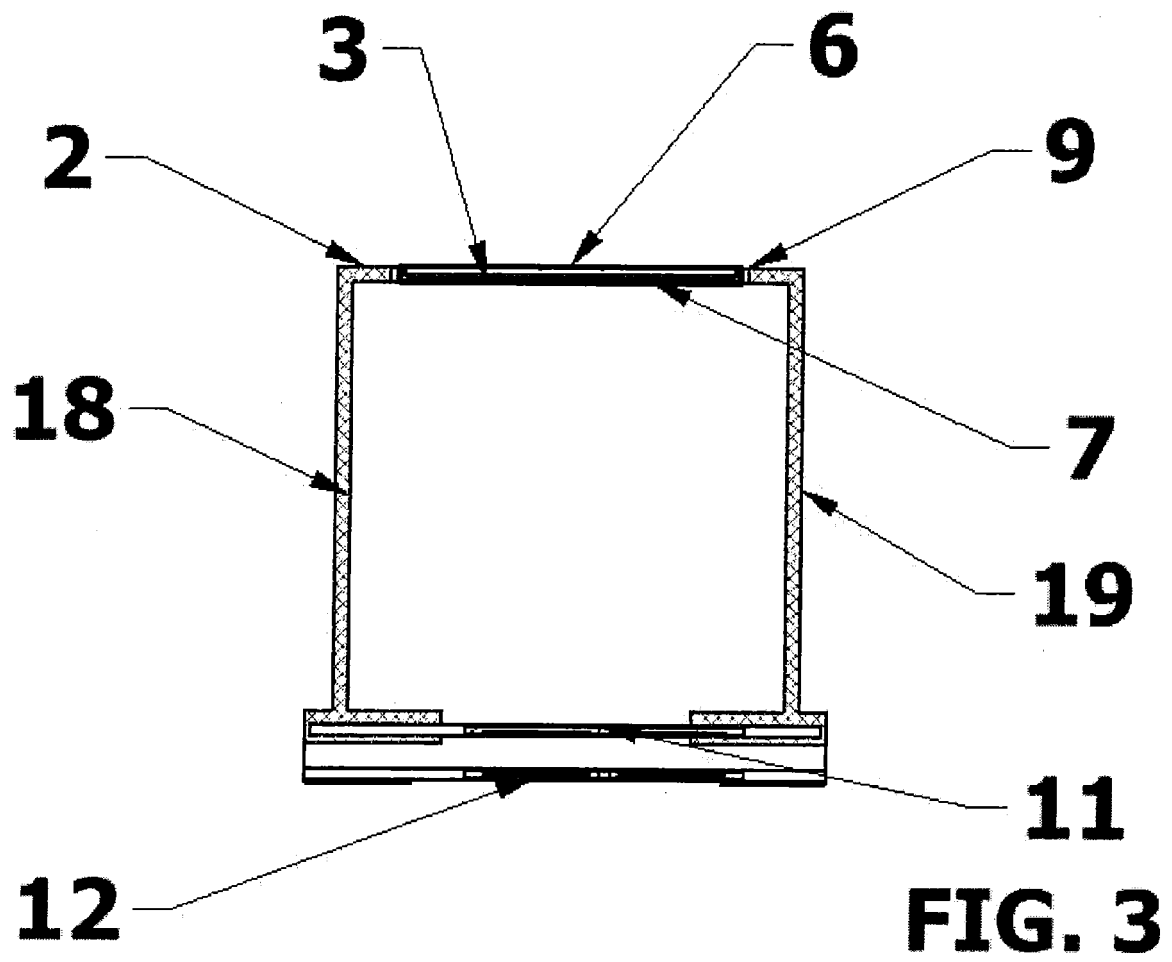
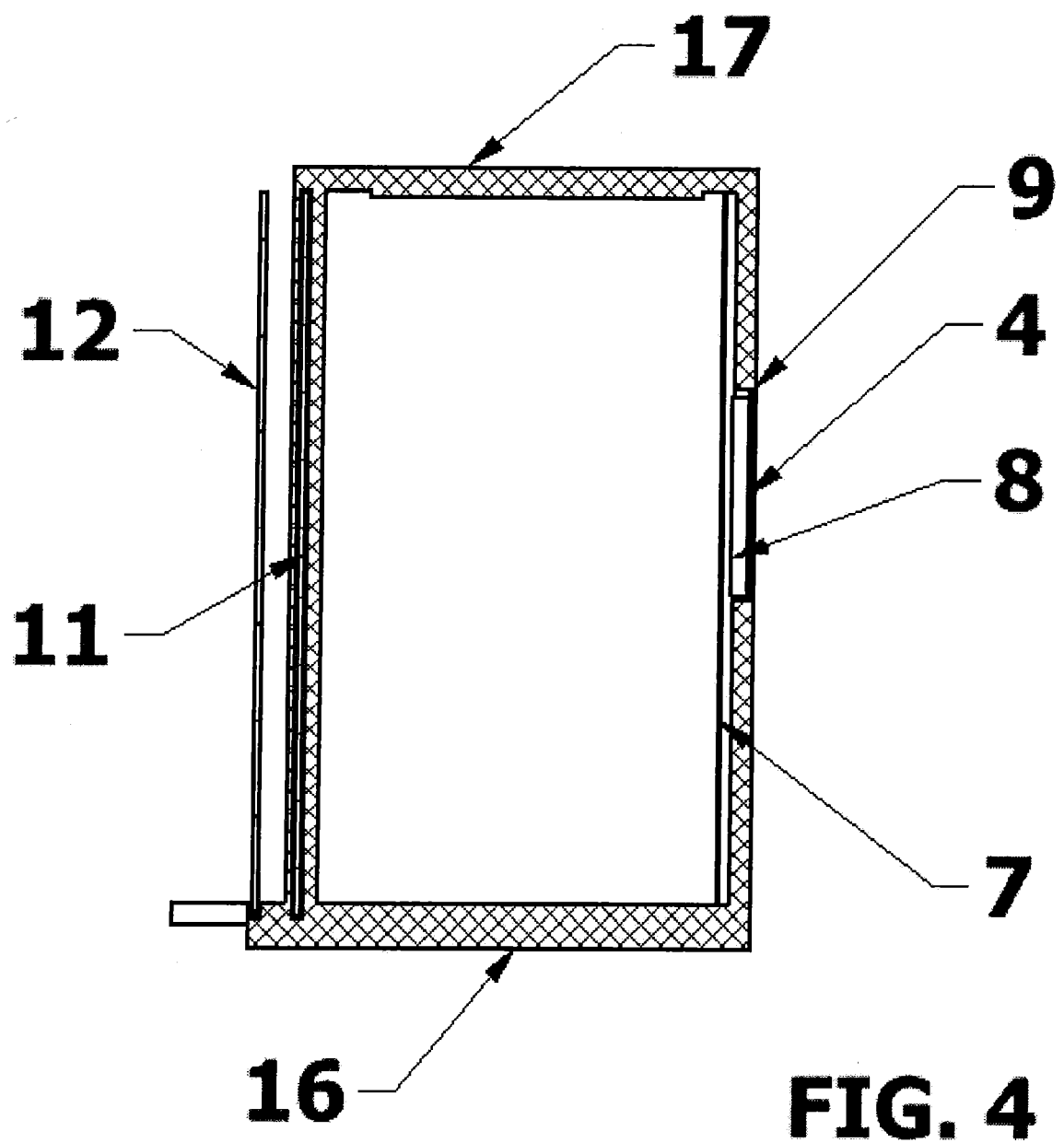
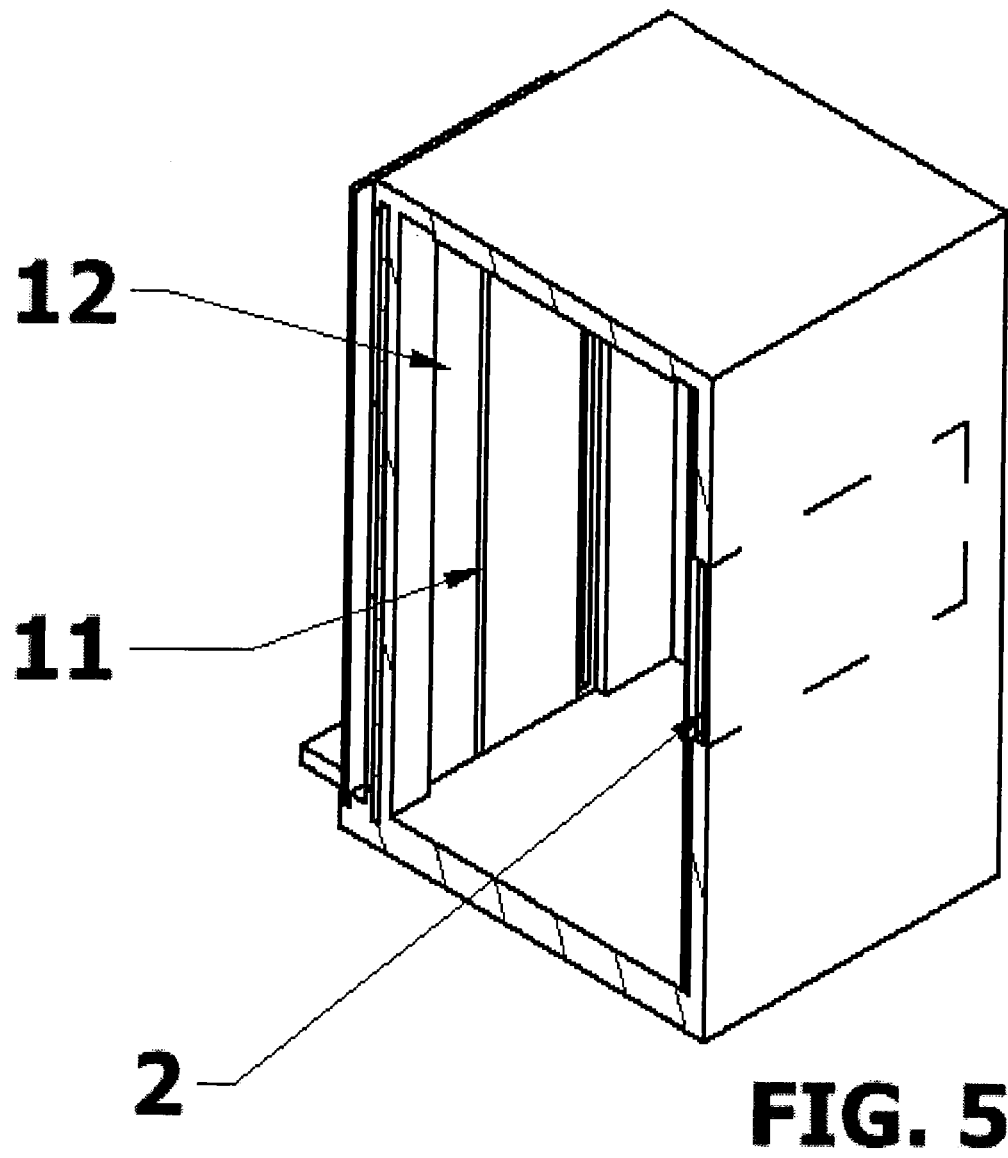


FIG. 1









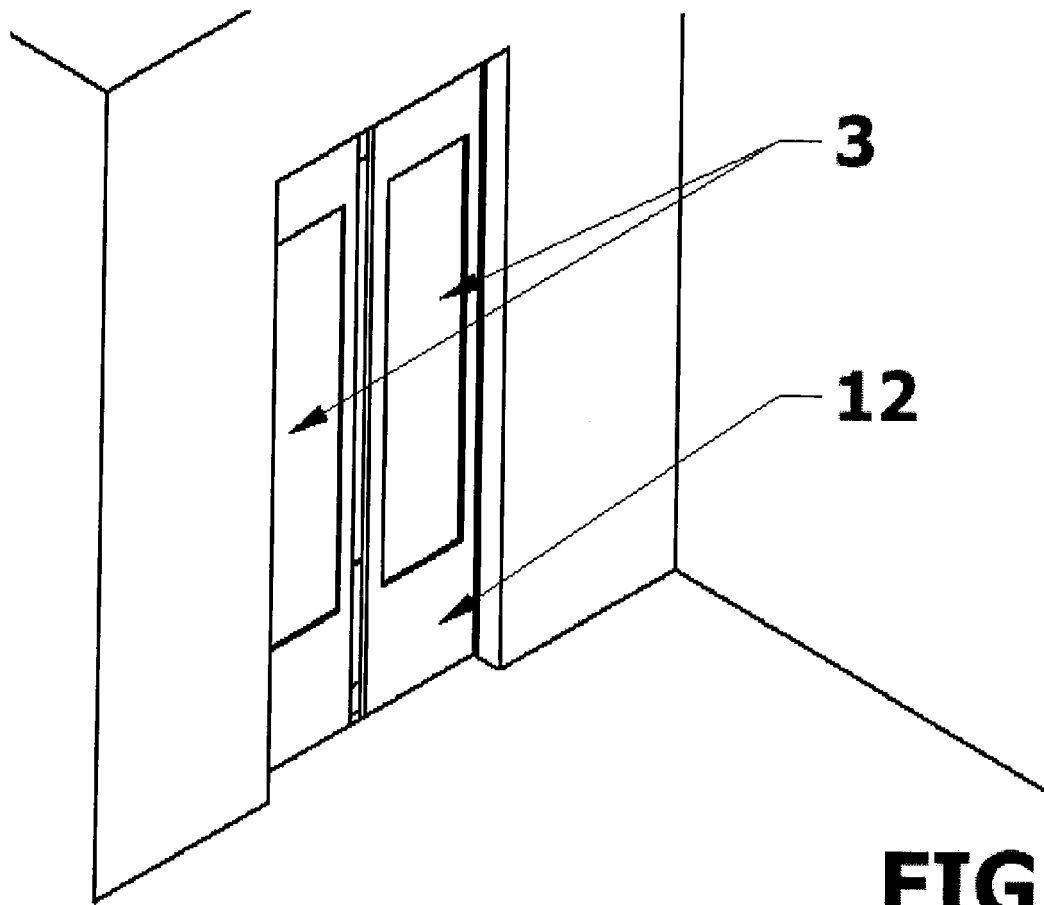


FIG. 6

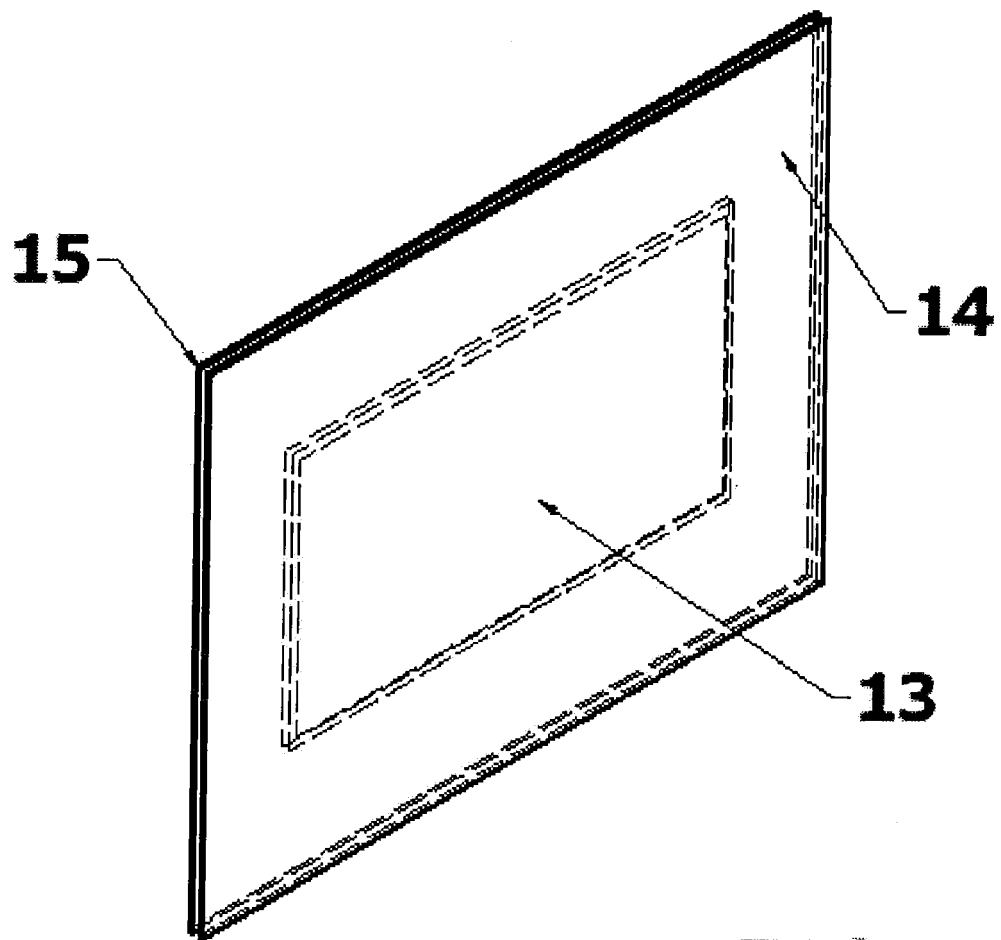


FIG. 7

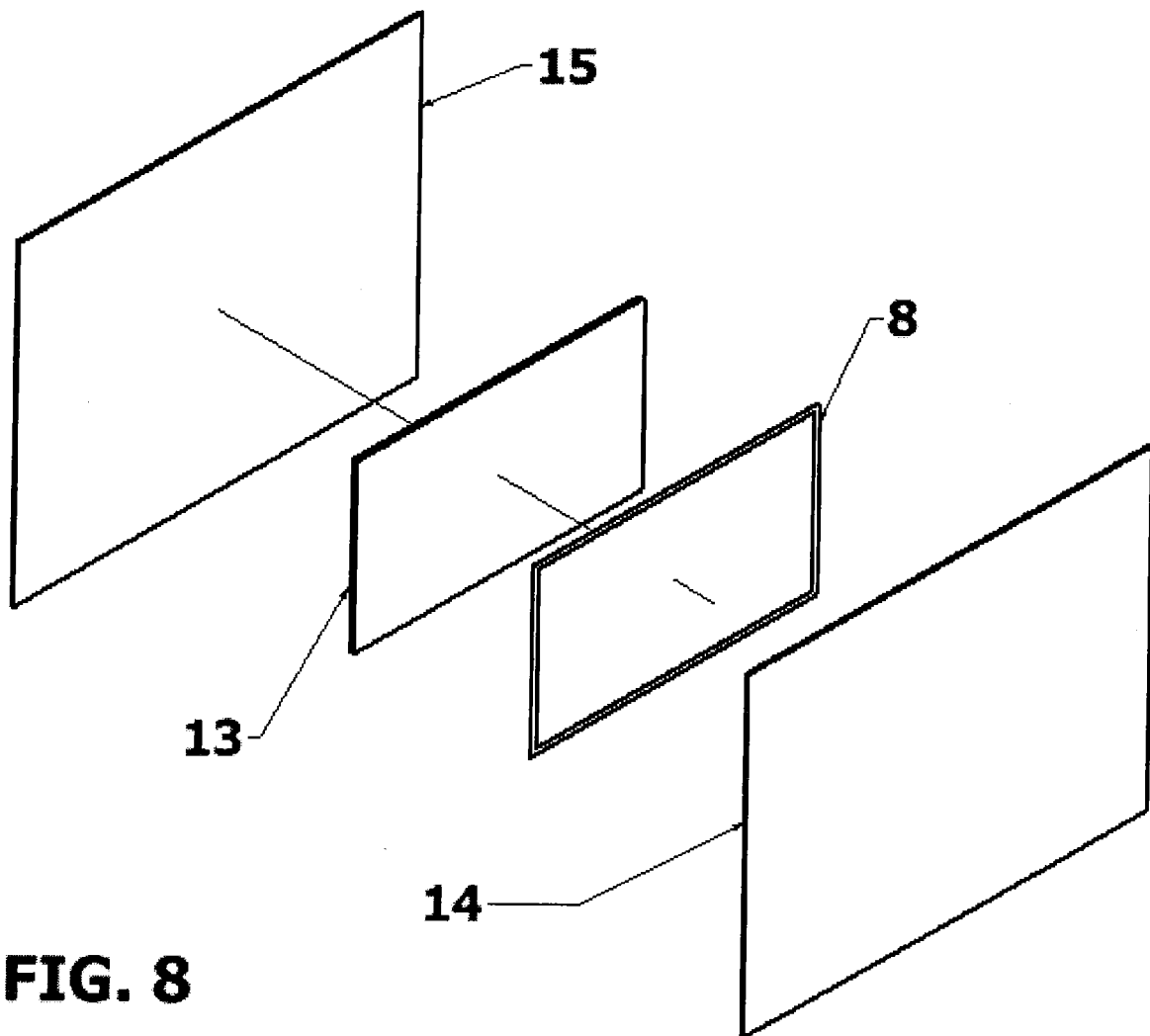


FIG. 8



EUROPEAN SEARCH REPORT

 Application Number
EP 18 16 1879

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	EP 2 072 442 A1 (INVENTIO AG [CH]) 24 June 2009 (2009-06-24)	1-3	INV. B66B3/00 B66B13/30 B66B11/02
Y	* pages 1-6, columns 4-6, paragraphs	7	
A	0010,0011-0033 *	4-6	

X	JP 2014 141325 A (HITACHI LTD) 7 August 2014 (2014-08-07)	1,2	
Y	* page 1, column 0010 - page 6, column	4,7	
A	0025; figures 1-5 *	3,5,6	

X	JP 2016 169096 A (TOSHIBA ELEVATOR CO LTD) 23 September 2016 (2016-09-23)	1,2,5,6	
Y	* pages 1-11, paragraph 0015 - paragraph	7	
A	0050; figures 1-8 *	3,4	TECHNICAL FIELDS SEARCHED (IPC) B66B

Y	US 2005/105303 A1 (EMDE THOMAS [DE]) 19 May 2005 (2005-05-19)	4	
A	* pages 1-5, paragraphs 0010,0020,0033; figures 1-3 *	1-3,5-7	

Y	JP 2015 013749 A (TOSHIBA ELEVATOR CO LTD) 22 January 2015 (2015-01-22)	7	
A	* paragraph [0061] - paragraph [0076]; figures 1-8 *	1-6	

A	JP 2005 200203 A (MITSUBISHI ELECTRIC CORP) 28 July 2005 (2005-07-28)	1-7	
* the whole document *			

A	EP 2 017 215 A1 (INVENTIO AG [CH]) 21 January 2009 (2009-01-21)	1-7	
* the whole document *			

A	WO 2010/026050 A1 (INVENTIO AG [CH]; FRIED ANDREAS [DE]; SILBERHORN GERT [CH]; GEISSHUESL) 11 March 2010 (2010-03-11)	1-7	
* the whole document *			

-/--			
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		18 September 2018	Lohse, Georg
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 03.82 (P04C01)



EUROPEAN SEARCH REPORT

Application Number
EP 18 16 1879

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	DE 103 47 424 A1 (MEILLER AUFZUGTUEREN GMBH [DE]) 19 May 2005 (2005-05-19) * the whole document * -----	1-7	
			TECHNICAL FIELDS SEARCHED (IPC)
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 18 September 2018	Examiner Lohse, Georg
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 03.82 (P04C01)

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

EP 18 16 1879

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.

18-09-2018

10

15

20

25

30

35

40

45

50

55

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 2072442 A1	24-06-2009	EP 2072442 A1	24-06-2009
		WO 2009080809 A1	02-07-2009
JP 2014141325 A	07-08-2014	NONE	
JP 2016169096 A	23-09-2016	CN 106185547 A	07-12-2016
		JP 5951834 B1	13-07-2016
		JP 2016169096 A	23-09-2016
US 2005105303 A1	19-05-2005	AT 280310 T	15-11-2004
		AU 2003208815 A1	02-09-2003
		CN 1630766 A	22-06-2005
		DE 10205405 A1	21-08-2003
		EP 1366265 A1	03-12-2003
		ES 2231765 T3	16-05-2005
		JP 2005517205 A	09-06-2005
		KR 20040081768 A	22-09-2004
		US 2005105303 A1	19-05-2005
		WO 03067014 A1	14-08-2003
JP 2015013749 A	22-01-2015	NONE	
JP 2005200203 A	28-07-2005	NONE	
EP 2017215 A1	21-01-2009	NONE	
WO 2010026050 A1	11-03-2010	BR PI0918285 A2	15-12-2015
		CN 102143903 A	03-08-2011
		EP 2321212 A1	18-05-2011
		HK 1156589 A1	07-02-2014
		KR 20110053443 A	23-05-2011
		RU 2011112693 A	10-10-2012
		SG 193839 A1	30-10-2013
		US 2011272219 A1	10-11-2011
		WO 2010026050 A1	11-03-2010
DE 10347424 A1	19-05-2005	NONE	