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- first carrier means (8) for substantially carrying at least the separator panel (2), which carrier means (8) are pivotally connectable to the longitudinal displacing elements (9),
- second carrier means (7) that are connectable to the kiosk (10) near the passage (3) for attachment of at least the drive (6), which second carrier means (7) are arranged for guiding at least a part of the first carrier means (8).



Description

[0001] The invention relates to a device for opening and/or closing a passage in a building or in an object, such as a kiosk, comprising:

- a separator panel, that in a first position substantially closes the passage, and that in a second position substantially leaves the passage open,
- a drive, for displacing the separator panel between the first and the second position, which drive is provided with longitudinal displacing elements,
- first carrier means for substantially carrying at least the separator panel, which carrier means are pivotally connectable to the longitudinal displacing elements,
- second carrier means that are connectable to the kiosk near the passage for attachment of at least the drive, which second carrier means are arranged for guiding at least a part of the first carrier means.

[0002] Such a device is generally known in the art. By displacing the separator panel from the first position to the second position, the separator panel displaces itself at least partially away from the passage, whereby the separator panel moves in an access area, often a public space, of the building or the object, such as the kiosk. The substantially pivoting movement of the separator panel is possible by a coupling with a rotation axis of the separator panel running horizontally above the passage and parallel to the passage. As soon as the separator panel takes up the second position, the separator panel extends substantially transverse of the passage. In the second position the separator panel forms an overhang, so that persons present in front of the kiosk are out of reach of for example rain or sunshine.

[0003] Such devices are however heavy since the separator panel covers a relatively large surface, compared to for example a window or a door. An architect or a designer of a building is used to situate wall parts, such as the window or the door, substantially independently of the load that the wall part can exert onto the building in a building.

[0004] It is a disadvantage of such devices with separator panels that situating thereof in a building is substantially dependent on the load caused by the weight of the separator panel that is in the second position. Furthermore during displacement of the separator panel between the first and the second position dynamic loads arise that need to be absorbed by the building. The present invention has for its purpose to lift this disadvantage.

[0005] The device according to the invention thereto is **characterized in that** the second carrier means comprise at least one elongated stiff upright intended to extend along a side of the passage, that a hollow space extends in longitudinal direction of the upright for displac-

ing at least a part of the displacing elements in the hollow space in the longitudinal direction with respect to the upright, and that the displacing elements are arranged in the hollow space. Hereby it is possible to place the device according to the invention entirely for or at least close to the passage of the kiosk independent of the strength of the edge elements present around the passage. The upright is designed for transferring the load caused by the weight of the separator panel in all intermediate positions lying between the first and the second position.

[0006] In a preserved embodiment an upright is provided with an elongated through passage to the hollow space, which through passage faces the separator panel, for a displacement of a pressure element reaching into the upright, which pressure element forms part of the first carrier means. Hereby it is possible to shield the parts of the device at least partially for protection against a detrimental influence that the surroundings may exert onto the drive of the device, for example rain blown by the wind onto the drive.

[0007] In a perfected embodiment the through passage facing the separator panel is at least in part provided with a covering.

[0008] In a practical embodiment the covering comprises a cover element that is coupled to a part of the displacing elements that is displaceable with respect to the upright. Hereby it is prevented that for example rain may enter the upright through a part of the through opening extending between the first carrier means reaching into the upright and a downward facing outer end of the upright.

[0009] In a further perfected embodiment the covering comprises a hose part made of an elastic and/or flexible material that is arranged around a part of the pressure element of the first carrier means reaching into the through passage. Hereby it is possible to shield off the hinge formed by a downward facing outer end of the displacing elements and first carrier means reaching into the upright from the influence of the weather.

[0010] In a splash water proof embodiment the covering comprises a further cover element made of many hair shaped plastic elements attached along an edge part of the through passage. Hereby it is prevented that for example rain may enter the upright through a further part of the through opening extending between the first carrier means reaching into the upright and in upward facing outer end of the upright.

[0011] In an embodiment a first outer end of the pressure element is pivotally connected to an edge part of the separator panel and that a second outer end of the pressure element facing away from the first outer end is positioned shiftably displaceable along the upright. Hereby a very short pressure element is enabled that leaves side ward faces with respect to the kiosk of the space under a separating panel being in the second position substantially free. The pressure element further hardly forms a visual and/or physical obstacle for attracting persons to the kiosk.

[0012] In a constructional very attractive embodiment the first outer end of the displacing elements is attached to an outer end of the upright facing upward and that a second outer end of the pressure element facing away from the first outer end is pivotally connected to the second outer end of the pressure element. Hereby it is possible that due to the placement of the hydraulic cylinder a force arises in line with the uprights that contributes to a self supporting construction. That makes the device according to the invention substantially independent of the building construction of which the kiosk forms a part. Additionally the device is independent of the height of the kiosk due to the upper attachment of the hydraulic cylinders. The reference surface of the drive is substantially determined by the height of the upper passage edge of the kiosk. The upright furthermore can be adjusted in a flexible manner in longitudinal direction of the upright depending on the height of the upper passage edge of the kiosk.

[0013] In a robust and safe embodiment the upright is provided with locking means that are arranged for maintaining the separator panel in the first and/or in the second position and the locking means are provided with at least one opening present in the upright and with a locking pin cooperating with the opening for blocking a downward displacement of the separator panel. This feature provides reliable, robust and simply operable locking means for substantially lifting the load on the cylinders by taking up the weight of a separator panel that is in the second position, through the locking means in the upright.

[0014] In an advanced, safe embodiment the at least one opening comprises first contacting means and the locking pin comprises second contacting means cooperating with the first contacting means for optionally blocking the drive when the first and second contacting means are connected and for activating the drive when the first contacting means are at a distance from the second contacting means. Hereby it is prevented that the drive is activated upon a given command to the control unit for driving the separator panel from the first position to the second position during which driving the device might be damaged.

[0015] In a practical embodiment the displacing elements comprise an actuator. In an embodiment the displacing elements a hydraulic cylinder and the at least one part of the displacing elements comprises a piston rod.

[0016] The invention will now be described in more detail referring to a number of embodiments referring to the figures.

Figure 1 schematically shows a perspective view of a kiosk that is provided with a device according to preferred embodiment of the invention, which device is provided with a separator panel, that is movable with respect to the kiosk, that provide the kiosk with a fully opened passage.

Figures 2, 3 and 4 show a self supporting construction for supporting the separator panel of the device

according to the invention, wherein the separator panel respectively takes up a first position, an intermediate position, that lies between the first and the second position, and a second position.

Figure 5 schematically shows a perspective view of a side of an upright of the device according to the invention facing away from the kiosk.

[0017] In all figures equal reference numerals denote equal parts. Figure 1 shows a preferred embodiment of a device 1 according to the invention. The device 1 is intended for displacing and positioning a separator panel 2 of a building or an object, such as a kiosk 10. The separator panel 2, such as a hatch, 2, or a window shutter 2, is placed with respect to a passage 3 for access to the kiosk 10 from a path 70 to the kiosk 10, such as a traffic path 70, arranged for streams of traffic and passage of for example pedestrians, bikers, cars, vans, and trucks.

[0018] The separator panel 2 is arranged for optionally opening and maintaining in open position, and closing and maintaining in closed position of the passage 3 of the kiosk 10. In a first position the separator panel 2 substantially closes the passage 3 and in a second position the separator panel 2 provides a substantially open passage 3 of the kiosk 10, in which second position the separator panel 2 takes up a last position substantially transversely directed to the passage 3 of the kiosk 10 and provides shelter to visitors of the kiosk 10 during rain and sunshine.

[0019] Figure 3 shows the device according to the invention, wherein the separator panel 2 is between the first and second position, in which intermediate position the separator panel 2 is in an access area of the kiosk.

[0020] The separator panel 2 of the device 1 according to the invention covers a surface that corresponds to a surface of the passage 3 that, in this example, extends over the entire width of the kiosk 10. Due to this size the separator panel 2 is heavily equipped, for example in case the separator panel 2 is in the first position for closing the kiosk 10 from the traffic path 70, in which position the separator panel 2 should at least be resistant against vandalism. Consequently, the heavy design of the device 1 according to the invention requires a predetermined strength and stiffness of the building construction of the building, wherein the kiosk 10 is to be build.

[0021] For displacing the separator panel 2 between the first and the second position the device 1 is provided with a drive 6, such as a hydraulic generator 6, which drive 6 is provided with generally elongated displacing elements 9, that in this example comprise an actuator 91, 92, such as a hydraulic cylinder 91 and a piston-rod 92 displaceable with respect to the hydraulic cylinder 91. In an alternative embodiment the elongated displacing element 9 comprises an elongated mechanical transmission, such as a chain transmission or a belt transmission.

[0022] The device 1 is provided with operating means 4 for operating and/or activating the drive 6. The operating means 4 comprise a control unit 40, and preferably

a remote control as described in a Dutch patent application that is filed on the same day as this patent application by the same applicant, which application is entirely incorporated in this application.

[0023] For supporting at least the separator panel 2 the device 1 is provided with first carrier means 8 for supporting substantially at least the separator panel 2, which first carrier means 8 are pivotally connected to the elongated displacing elements 9, in this example through a pressure element 60.

[0024] For attaching the device 1 according to the invention in a building or for an alternative use, the device 1 is provided with second carrier means 7, that extends substantially along edges 31, 32 of the passage 3, as in this example a substantially vertically directed side 31 of the passage 3 and a substantially transversely to the side 31 extending upper side 32.

[0025] The second carrier means 7 are provided with an attachment of at least the drive 6 near the passage 3, in this example along the upper side 32. The second carrier means 7 are provided with an elongated upright 80 near the passage 3 along the side 31, which passage is arranged for guiding the first carrier means 8, and especially for guiding the pressure element 60 that is pivotally connected with a first outer end 61 to an edge part 27 of the separator panel 2 and with a second outer end 62 is positioned shiftably along the upright 80, which second outer end 62 faces away from the first outer end 61. The carrier means 8, the pressure element 60 and the actuator 9 are arranged to be loaded by at least the weight of the separator panel 2 in situations wherein the separator panel 2 is in the first position, in an intermediate position between the first and the second position and in the second position, that are respectively shown in figures 2, 3 and 4.

[0026] Figure 5 shows a side of the upright 80 that in use faces the path 70. In the preferred embodiment a hollow space H extends in the longitudinal direction of the upright 80 for displacing in the hollow space H in the longitudinal direction with respect to the upright 80 at least a part 92 of the displacing elements 9. The displacing elements 9 are arranged in the hollow space H rendering the size of the device 1 according to the invention minimal dimensions. Additionally device 1 according to the invention provides a safe use, since the parts that are movable with respect to the kiosk 10 are as much as possibly shielded to prevent the danger of entrapment and oppression. The device 1 according to the invention additionally provides an aesthetic advantage, since the drive 6 essentially remains out of sight of the audience present in the kiosk 10.

[0027] The second carrier means 7 of the device 1 according to the invention comprise a substantially self supporting construction 80 that substantially can be built-in independently of the building construction. The upright 80 of the device 1 is provided with a floor part 71 for positioning the kiosk 10. The floor part 71 is preferably anchored to the floor, for example by means of anchor

bolts and nuts (not shown) that are attachable in the floor part 71. After positioning of the floor part 71 an outer part 81 of the upright 80 faces away from the floor part 71 and is arranged for attachment to construction elements of the kiosk 10 or the building. The outer end 21 of the upright 80 facing away from the floor part 71 after positioning, being the upwardly facing outer end 81 of the upright 80, is in an embodiment provided with a couple element 84 that is provided with attaching means 85 for attaching to the construction elements of the kiosk 10 of the building.

[0028] The weight of separator panel 2 to be carried by the upright 80 of the device 1 according to the invention is substantially guided to the floor part 71 in the longitudinal direction of the upright 80 through the displacing device. The bending moment to be absorbed by the upright 80 of the device 1 according to the invention due to the weight of the separator panel 2 is guided substantially transverse to the longitudinal direction of the upright 80, through the couple element 84 present near the upward facing outer end 81 of the upright 80 as a transverse force to the construction of the building in the building. Consequently it is possible that a load caused by the separator panel 2, that is for example in the second position, exerts a substantially horizontally directed transverse force, i.e. a force that is directed substantially transverse of the passage 3, on the building, in which direction the building can be favourably loaded. This prevents a construction part of the building that is for example present along the side 31 of the passage 3 to be subjected to a bending load due to the weight of the separator panel 2. Generally the upright 80 in this embodiment is denoted as a self supporting construction.

[0029] The elongated displacing elements 9 that are incorporated in the upright 80 are attached near the upward facing outer end 81 to a first outer end of the hydraulic cylinder 91 near a fixed point of the upright 80. The piston rod 92 that is displaceable with respect to the hydraulic cylinder 91 is arranged for downward displacement for closing the passage 3 by the separator panel 2. At an upward displacement of the piston rod 92 with respect to the hydraulic cylinder 91, the separator panel 2 opens the passage 3 of the kiosk 10. In a lifting movement of the separator panel 2 the piston rod 92 is drawn into the cylinder 91, which actuator 9 in this case is a pulling cylinder 9 known per se in the art. A second, downward facing outer end of the hydraulic cylinder 9 connected to the piston rod 92 is pivotally connected to the second outer end 62 of the pressure element 60. During displacement of the separator panel between the first and the second position the second outer end of the pressure element 60 runs through an elongated through opening 100 that extends in the upright 80, in a side thereof facing the part 70, in the longitudinal direction of the upright 80.

[0030] The elongated through opening 100 is provided with a covering 45, 46, 47 to prevent for example dust or rain influenced by wind to be blown through the through opening to protect the elongated displacing element 9

incorporated in the upright 80. A cover element 45 is shiftably arranged between the second outer end 62 of the pressure element 60 and the downward facing outer end 82 over the side of the upright 80 facing the path 70 for at least partially covering a downward running part of the through opening 100.

[0031] Between the second outer end 62 of the pressure element 60 and the upward facing outer end 81 of the upright 80, in an embodiment, a fixed covering 46 is arranged along an edge part 49 of the through opening 100 for at least partially and/or substantially splash proof covering an upward running part of the through opening 100. In this example the fixed covering 46 is formed by many hair shaped elements 46 that are present along the edge part 49 and that are attached to the edge part 49 with a single outer end. In this example the hair shaped elements 46 are made of a plastic and the hair shaped element 46 form a covering for the through opening 100.

[0032] Between a second outer end 62 of the pressure element 60 and the upward facing outer end 81 of the upright 80, in an alternative embodiment (not shown), a further cover element 45 is shiftably arranged over the side of the upright 80 facing the path 70 for at least partially covering an upward running part of the through opening 100.

[0033] For further covering an opening present, such as a crack, around the pressure element 60 near the second outer end 62 thereof, around the connection between the second outer end 62 of the pressure element 60 and the second outer end 92 of the elongated displacing means 9 an envelope 47 is arranged, for example a hose or a hose part 47 that is made of an elastic and/or flexible material.

[0034] The displacing means 9 attached near the upward facing outer end 91 in the upright 80, near the fixed point of the upright 80, provide a design that is substantially independent of the building height of the kiosk 10 of the device according to the invention, wherein the length of the upright 80 near the outer end 82 of the upright 80 facing the floor part 71 optionally eventually in functioning, is adjustable.

[0035] The upright 80 is provided with locking means 65 arranged for maintaining the separator panel 2 in the second position. The locking means 65 comprise an opening 66 present in the upright 80, and a locking pin (not shown) for cooperation with the opening 66 present in the upright 80 for blocking a downward displacement of the second outer end 92 of the piston rod of the hydraulic cylinder 9. Consequently a load of at least the weight of the separator panel 2 is guided to the upright 80 through the locking means 65.

[0036] The opening 66 present in the upright 80 comprises in this example first contacting means, and the locking pin for cooperation with the opening 66 present in the upright 80 comprises second contacting means cooperating with the first contacting means for blocking the drive 6. When the second contacting means connect with the first contacting means, for example when the

locking pin is put into the opening 66, a signal becomes active that adapts the control means 40 such that the remote control 40 is not active, even though the remote control 40 is substantially present in the zone Z.

[0037] The invention is of course not limited to the described and shown preferred embodiment, but relates generally to any embodiment falling within the scope of protection as defined in the claims and as seen in the light of the foregoing description and accompanying drawings.

Claims

1. Device (1) for opening and/or closing a passage (3) in a building or in an object, such as a kiosk (10), comprising:

- a separator panel (2), that in a first position substantially closes the passage (3), and that in a second position substantially leaves the passage (3) open,
 - a drive (6), for displacing the separator panel (2) between the first and the second position, which drive (6) is provided with longitudinal displacing elements (9),
 - first carrier means (8) for substantially carrying at least the separator panel (2), which carrier means (8) are pivotally connectable to the longitudinal displacing elements (9),
 - second carrier means (7) that are connectable to the kiosk (10) near the passage (3) for attachment of at least the drive (6), which second carrier means (7) are arranged for guiding at least a part of the first carrier means (8),
- characterized in that** the second carrier means (7) comprise at least one elongated stiff upright (80) intended to extend along a side (31) of the passage (3), that a hollow space (H) extends in longitudinal direction of the upright (80) for displacing at least a part of the displacing elements (9) in the hollow space (H) in the longitudinal direction with respect to the upright (80), and that the displacing elements (9) are arranged in the hollow space (H).

2. Device according to claim 1, **characterized in that** the upright (80) is provided with an elongated through passage (100) to the hollow space (H), which through passage faces the separator panel (2), for a displacement of a pressure element (60) reaching into the upright (80), which pressure element forms part of the first carrier means (8).

3. Device according to claim 2, **characterized in that** the through passage (100) facing the separator panel (2) is at least in part provided with a covering (45, 46, 47).

4. Device according to claim 3, **characterized in that** the covering (45, 46, 47) comprises a cover element (45) that is coupled to a part of the displacing elements that is displaceable with respect to the upright (80). 5
5. Device according to claim 3 of 4, **characterized in that** the covering (45, 46, 47) comprises a hose part (47) made of an elastic and/or flexible material, that is arranged around a part (62) of the pressure element (60) of the first carrier means (8) reaching into the through passage (100). 10
6. Device according to claim 3, **characterized in that** the covering (45, 46, 47) comprises a further cover element (46) made of many hair shaped plastic elements (46) attached along an edge part (49) of the through passage (100). 15
7. Device according to one of the preceding claims 2-6, **characterized in that** a first outer end (61) of the pressure element (60) is pivotally connected to an edge part (27) of the separator panel (2) and that a second outer end (62) of the pressure element (60) facing away from the first outer end (61) is positioned shiftingly displaceable along the upright (80). 20 25
8. Device according to claim 5, **characterized in that** first outer end (91) of the displacing elements (9) is attached to an outer end (81) of the upright facing upward and that a second outer end (92) of the pressure element (90) facing away from the first outer end (91) is pivotally connected to the second outer end (62) of the pressure element (60). 30 35
9. Device according to one of the preceding claims, **characterized in that** the upright (80) is provided with locking means (65) arranged to maintain the separator panel (2) in the first and/or second position and **in that** the locking means (65) comprise at least one opening (66) present in the upright (80) and a locking pin cooperating with the opening (66) for blocking a downward displacement of separator panel (2). 40 45
10. Device according to claim 7, **characterized in that** the at least one opening (66) comprises first contacting means and **in that** the locking pin comprises second contacting means cooperating with the first contacting means for optionally blocking the drive (6) when the first and second contacting means are connected and for activating the drive (6) when the first contacting means are at a distance from the second contacting means. 50 55
11. Device according to one of the preceding claims, **characterized in that** the displacing comprise an actuator (9).
12. Device according to one of the preceding claims, **characterized in that** the displacing elements (9) comprise a hydraulic cylinder (9) and that the at least one part of the displacing elements (9) comprises a piston rod.

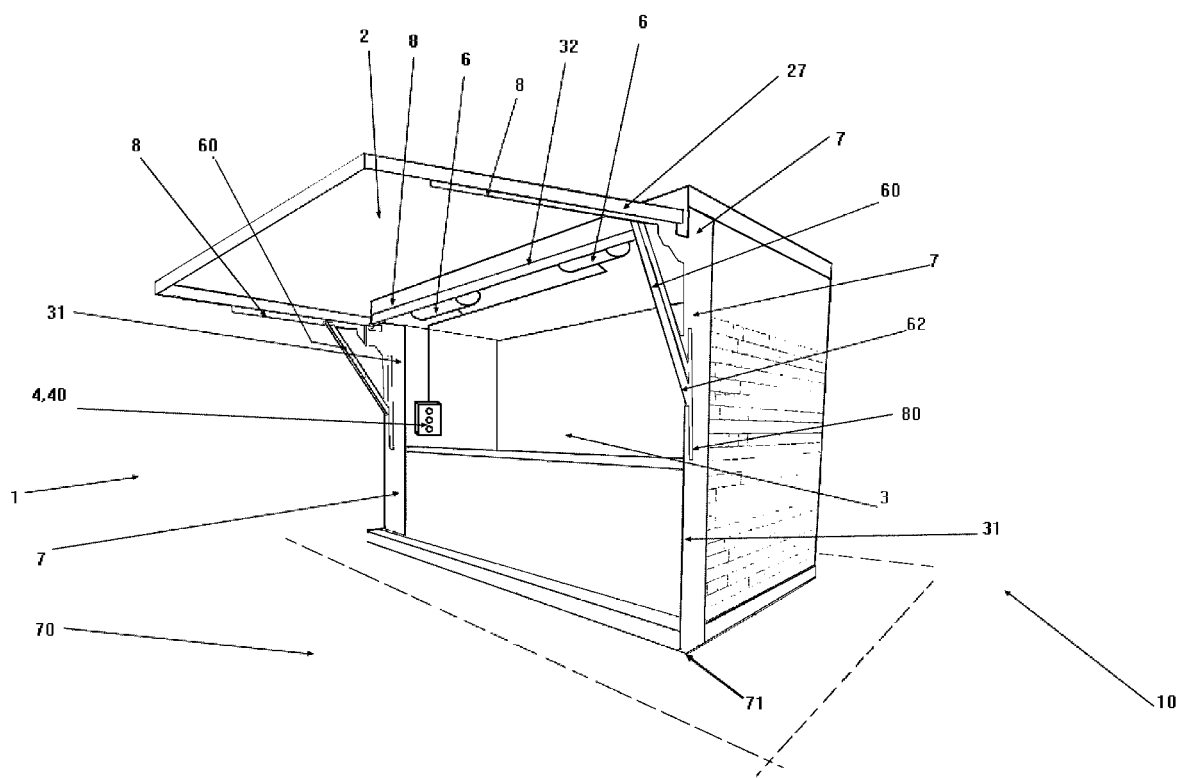
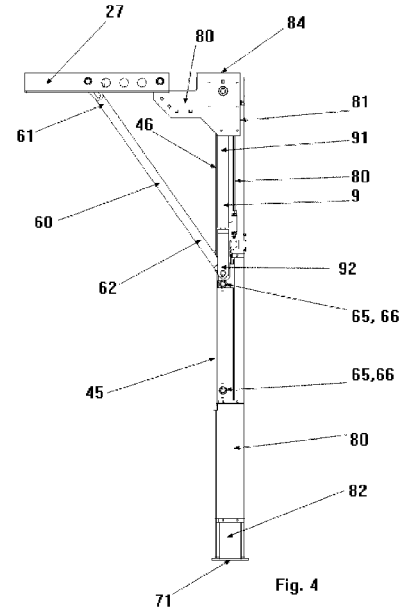
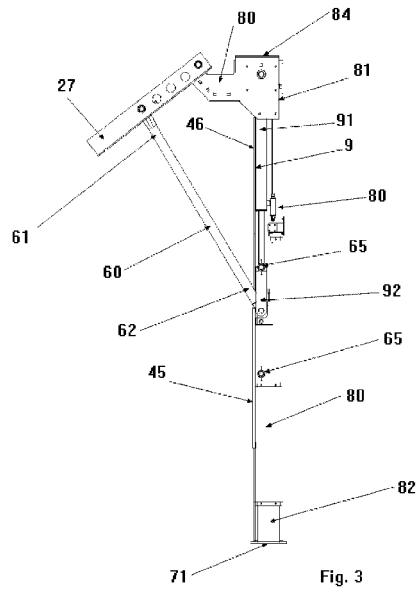
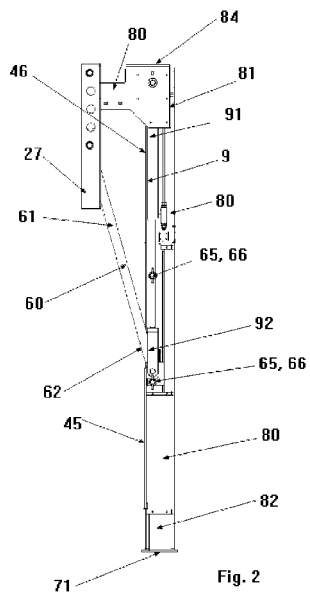
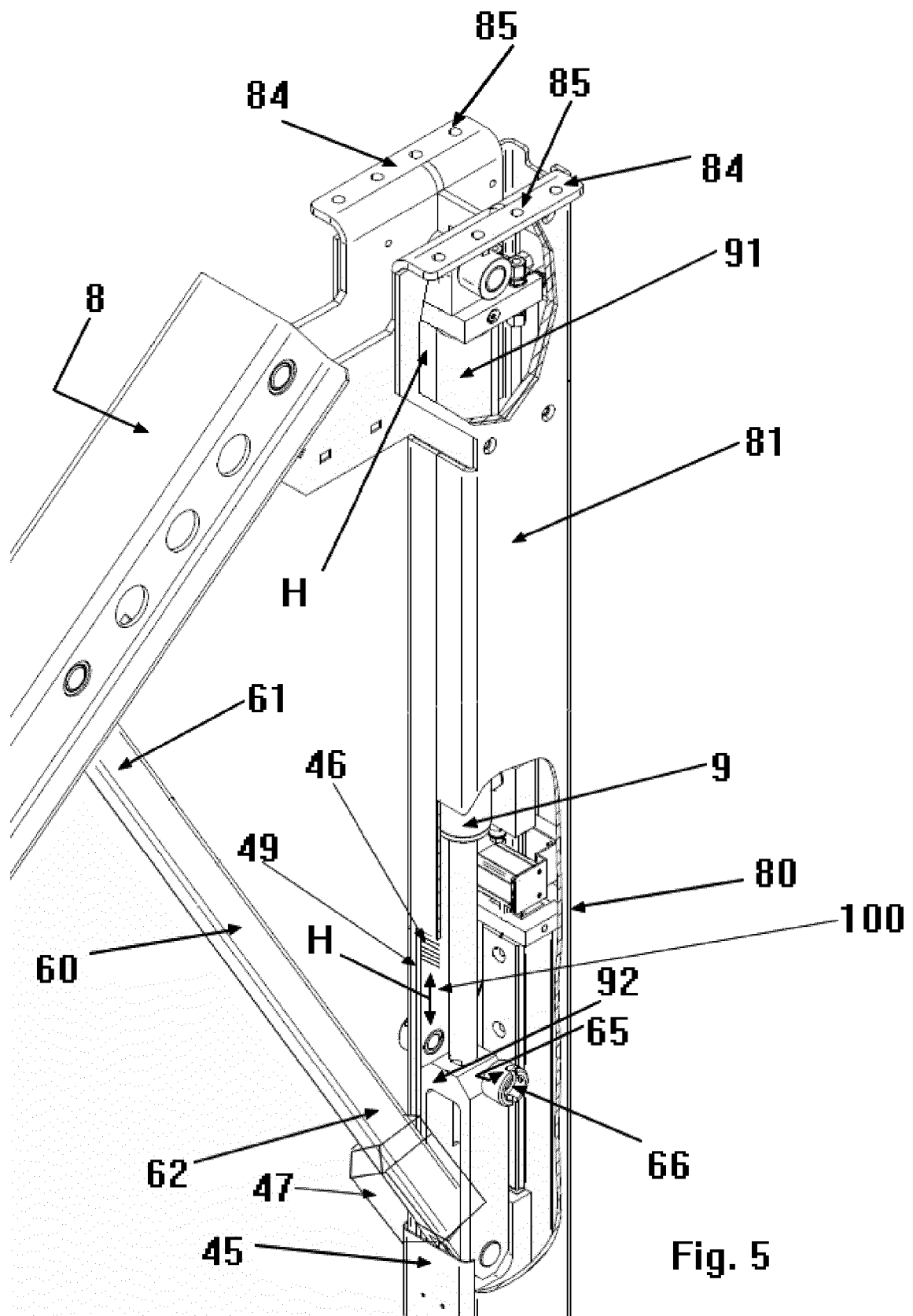


Fig. 1







EUROPEAN SEARCH REPORT

Application Number
EP 12 16 4762

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 10 66 908 B (ADOLF STULZ) 8 October 1959 (1959-10-08) * column 2, line 49 - column 3; figures * & DE 10 26 659 B (ADOLF STULZ) 20 March 1958 (1958-03-20) * the whole document * -----	1-4,6-9, 11,12	INV. E05F15/04
			TECHNICAL FIELDS SEARCHED (IPC)
			E05F E06B E04H
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 5 July 2012	Examiner Van Kessel, Jeroen
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	

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

EP 12 16 4762

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
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05-07-2012

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 1066908	B	08-10-1959	NONE

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82