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(54) **Device for operating a separator panel**

(57) The invention concerns a device for opening and/or closing a passage of 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, drive elements and operating means for displacing the separator panel between the first and the second position,
- Carrier means for substantially supporting at least the separator panel,
wherein the drive is arranged for displacing and positioning the separator panel relative to the passage and wherein the operating means are provided with a remote control and a key system for activating the remote control whereby it is necessary to place the control unit for operation of the separator panel at least near the key system.

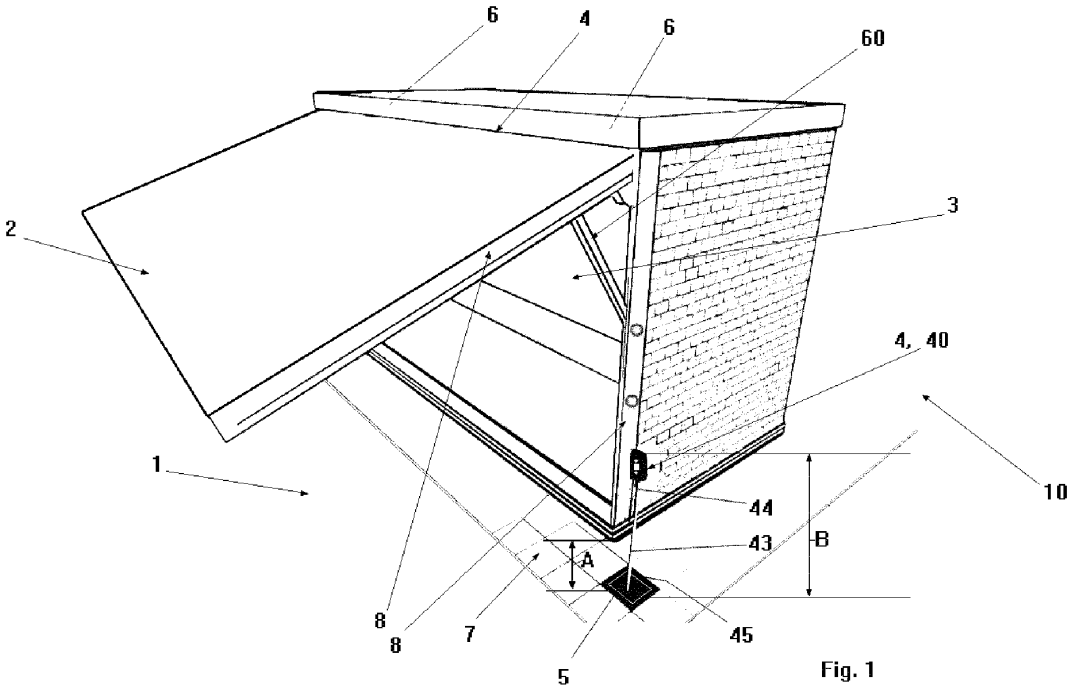


Fig. 1

EP 2 515 278 A2

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
  the first and the second position,
- Operating means for controlling the drive, wherein the
  operating means are provided with a control unit, and a
  key system for activation of the control unit,
- Carrier means for substantially carrying at least the separator panel, which carrier means are connectable to the kiosk near the passage, wherein the drive is arranged on the 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 protected against for example rain or sunshine.

[0003] It is a disadvantage of such devices that during displacement of the separator panel between the first and the second position, the separator panel traverses a publicly accessible space such as a traffic path, wherein collisions can occur with accidentally passing objects or persons. The present invention has for its object to eliminate this disadvantage.

[0004] The device according to the invention has therefore, according to a first aspect, the characterising feature that the key system is intended for use at a first distance outside the building or the object, said key system being arranged in such a way that around the key system a connection zone extends for releasing the control unit as a remote control upon presence of at least one part of the control unit in the connection zone and for blocking the control unit as a remote control upon absence of the at least one part of the control unit in the connection zone. For controlling the separator panel it is necessary to orient the control unit at least near the key system, from which location the operator is able to oversee whether objects and/or persons are present in the space in which the separator panel moves or that objects and/or people are approaching the space. With the device according to the invention means are provided to operators of separator panels of kiosks for determination of the presence and/or approach of objects and/or persons, so that collisions are avoided.

[0005] In a safe and practical embodiment at least one part of the remote control is provided with first communication means and the key system is provided with second communication means, wherein the first communication means are arranged for remote and wireless communication with the second communication means. This measure makes good use of the remote control possibility whereby the risk of tripping of the operator over for example cabling is removed, so that the operator has an unobstructed view over the traffic path.

[0006] In a further practical embodiment the first communication means are provided with a transmitter for transmitting a code containing signal to the second communication means, the second communication means are provided with a receiver for receiving the code containing signal from the first communication means, the key system is provided with a processing unit for processing the code containing signal and for providing a further code containing signal for making the control unit operable, the second communication means are provided with a transmitter for transmitting the further code containing signal to the first communication means, and the first communication means are provided with a receiver for receiving the further code containing signal from the second communication means. As a result it is possible under the influence of communication between the remote control and the key system to active the remote control for operating the drive for displacing the separator panel between the first and the second position, whereby activation takes place in case the key system recognizes a signal transmitted by the remote control, and whereby the key system transmits back a signal corresponding with the recognition to the remote control that recognizes the signal transmitted by the key system as release of the remote control and thereby switches on the operation of the remote control.

[0007] In a flexible, reliable and compact embodiment the code containing signal and the further code containing signal comprise a radio signal and the processing unit is provided with at least a RFID-tag. This enables placement of the second communication means without a separate power source at a distance of the kiosk. Absence of its own power source makes it further possible to arrange the key system flexibly around the kiosk without the need for underground construction of cabling from the kiosk.

[0008] In a safe and flexible embodiment the key system is arranged in a traffic path that is adjacent to the building or the object and the key system is located outside a projection of a separator panel that is in the second

position, which projection is aimed at the traffic path. This enables operation from a predetermined position from which the operator in terms of visibility on the traffic path has the most optimal view. Even after it appears that the position of the key system is less optimal, simple adjustment of the position of the key system is possible by displacement of the key system to a further position next to the projection of a separator panel that is in the second position, which is aimed at the traffic path.

[0009] In an embodiment the traffic path comprises a path element, such as a brick or a tile, which path element is provided with the key system. The integration of the second communication means in the path element, such as a brick of tile, provides an unobtrusive presence near the kiosk and is attractive for publicly accessible spaces and prevents vandalism of such a device. In a user-friendly embodiment for the operator the key system is provided with a marking near a side of the kiosk facing the access space for observation by the operator from the position wherein the remote control is operable.

[0010] In an embodiment the separator panel is provided with signalling means for alerting the presence of the separator panel in a space the separator panel traverses between the first and the second position. In an embodiment the signalling means comprise at least one light that is arranged on a substantially free edge of the separator panel. In an embodiment the signalling means comprise at least one sound source that is arranged on a substantially free edge of the separator panel. This allows for a striking signal during operation of the separator panel which can be clearly and almost immediately seen respectively heard by bystanders.

[0011] The invention has, according to a second aspect, the characterizing feature that a path element, such as a brick or a tile, is provided with the key system of the device according to one of the preceding embodiments. This allows for a path element in which in a discrete manner the key system for the device according to the invention is arranged.

[0012] The invention has, according to a third aspect, the characterizing feature that a traffic path is provided with the key system of the device according to one of the preceding embodiments. This allows for a traffic path wherein at least one key system is arranged for operating the separator panel in a safe manner with the remote control that is operable from an optimal position.

[0013] The invention has, according to a fourth aspect, the characterizing feature that a kiosk is provided with the device according to one of the preceding embodiments, wherein the separator panel traverses a space between the first and the second position during movement.

[0014] The invention will now be described in more detail on the basis of (a) single embodiment (and) with reference to the figures.

Figure 1 shows in a schematic manner a perspective view of a kiosk that is provided with a device according to a preferred embodiment of the invention, which device is provided with a separator panel that is moveable with respect to the kiosk.

Figure 2 shows in a schematic manner the device according to Figure 1 with a fully open kiosk.

Figure 3 shows a connection scheme for cooperation of operator means for the device according to Figure 1 of Figure 2.

Figure 4 shows the separator panel of the device according to the invention according to one of the preceding figures, wherein the separator panel is in a second position.

Figures 5A, 5B, and 5C show a self-supporting construction for supporting the separator panel of the device according to the invention, wherein the separator panel is respectively in a first position, a second position and an intermediate position situated between the first and the second position.

[0015] 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.

[0016] 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. Figure 1 shows the separator panel 2 in an intermediate position lying between the first and the second position.

[0017] For moving the separator panel 2 between the first and the second position the device 1 is provided with a drive 6 as shown in Figure 2, such as a hydraulic generator 6, drive elements 60, and operator means 4. For supporting at least the separator panel 2 the device 1 is provided with carrier means 8 for substantially supporting at least the separator panel 2.

[0018] According to a preferred embodiment the operator means 4 are provided with a control unit 40, such as a remote control 40, that is located on a comfortable height B for an operator (not shown) with respect to the traffic path 7 during use, such that the operator has the remote control in his hands while standing. In the traffic path 7 on a first distance A of the kiosk 10 a key system 5 is applied that is arranged for activating the remote control 40. By placing the key system 5 outside the kiosk

10, such as on, in, or under the traffic path 7, the operator is forced to take position outside the kiosk 10 for operating the device 1 according to the invention with the remote control 40, so that the operator has a good visibility on both the traffic path 7 and the separator panel 2 to be moved.

[0019] The remote control 40 is provided with first communication means 41 and the key system 5 is provided with second communication means 52. Around the key system 5 a connection zone Z extends as shown in Figure 2 in which connection zone Z the remote control 40 is freely connectable with the key system 5, in this case through the first and the second communication means 41, 52. By placing the remote control 40 at least in part within the zone Z, the remote control 40 gets operational for controlling the drive 6 from substantially any random position within the zone Z, that during operation sets and/or keeps the drive elements 60 for displacing the separator panel 2 moving.

[0020] In this example, with reference to Figure 3, the first communication means 41 are arranged for wireless communication with the second communication means 52 within the zone Z. Starting from the place where the key system 5 is located during use, the zone Z extends substantially transverse to the traffic path 7, that in this example is substantially domed, wherein by the presence of at least the first communication means 41 the remote control 40 gets unlocked and remains in actived condition, at least as long as at least the first communication means 41 are in or near the zone Z.

[0021] The first communication means 41 are provided with a transmitter 46 for sending a code containing signal 47, such as a radio signal 47, to the second communication means 52. The second communication means 52 are provided with a receiver 56 for receiving the code containing radio signal 47 of the first communication means 41. The second communication means 52 are provided with a processing unit 57 that is arranged for activating a further code containing signal 48 when the processing unit 57 identifies the code containing radio signal 47 as a signal for start up of the remote control 40.

[0022] The second communication means 52 are provided with a transmitter 58 for sending a further code containing signal 48, such as a radio signal 48, to the first communication means 41. The first communication means 41 are provided with a receiver 49 for receiving the further code containing radio signal 48 of the second communication means 52.

[0023] The second communication means 52 comprise in this example at least a RFID-tag that is arranged for converting a recognizable received code containing radio signal 47 in the further code containing radio signal 48. In this example so-called passive tags are applied that do not need their own power source and use the electromagnetic field of the first communication means 41 to induce a current in a coil in the second communication means 52, which feeds a chip which is present in the second communication means 52. A reply signal 48 such as the further code containing radio signal 48 hereby stretches over a small distance of for example a few centimetres to about five meters.

[0024] By placing the remote control 40 at least in part within the zone Z, and by transmitting of the code containing radio signal 47 by the remote control 40, the RFID-tag receives the code containing radio signal 47. Subsequently the RFID-tag transforms this signal and provides, through recognition of a code containing signal 47 which is pre-programmed in the remote control 40, in response to this transmitting the further code containing radio signal 48, that, when the remote control 40 is at least in part on a random position within the zone Z, is received by the remote control 40 and makes it operational for controlling the drive 6, that during operation gets and/or maintains the drive elements 60 moving for displacing the separator panel 2.

[0025] The key system 5 comprising the second communication means 52 is placed next to a projection P aimed at the traffic path 7 of a separator panel 2 that is in the second position, and according to Figure 2 the key system 5 is located on a second distance C of the projection P. In this example the zone Z stretches outside a space that extends under separator panel 2 which is in the second position, so that during operation the operator stands next to the space under the separator panel 2 which is in the second position, so that the operator has good visibility on both the traffic path 7 and the moving separator panel 2.

[0026] In this example the key system 5 comprising the second communication means 52 is placed in a path element 75, such as a brick, a tile, or an element of concrete or plastic. By carrying out the path element 75 in the same style and/or with the same parts, an unobtrusive finish of the traffic path 7 is achieved.

[0027] Placement in a brick or tile, or concrete plate of the key system 5 comprising a RFID-tag, and in particular a passive RFID-tag that is operational without external power source, limits the size of the zone Z, as well as the range within wireless communication is possible between the first and the second communication means 41, 52. For activating the remote control 40 the remote control 40 is equipped, in this example, with a wire 43 whose first outer end 44 is connected with the remote control 40, and whose second outer end 45 that is facing away from the first outer end 44 is arranged to loosely hang onto the remote control. In this example the first communication means 41 are arranged near the second outer end 45 of the wire 43, such as the transmitter 46 for sending a code containing radio signal 47 to the second communication means 52, and the receiver 49 for receiving the further code containing radio signal 48 of the second communication means 52.

[0028] In an alternative embodiment the second communication means 52 comprises an active RFID-tag that is provided with a power source, such as a battery or an element that is arranged for converting energy from light or from sunlight to electrical energy. In a further alterna-

tive embodiment the RFID-tag is connected by an electrical cable which can be connected to the electricity grid, to a power outlet which is present in the kiosk 10.

[0029] For safety during operation of the drive for displacing the separator panel 2, the separator panel 2 is provided with signalling means 23 as shown in Figure 4 for alerting the presence of the separator panel 2 in a space that the separator panel 2 traverses between the first and the second position. The signalling means 23 comprise at least a light 21 for visually displaying the presence of the separator panel 2, wherein the at least one light 21 is arranged on a substantially free edge 27, 28 of the separator panel 2.

[0030] In an embodiment the signalling means 23 comprises at least a sound source 22 for acoustically displaying the presence of the separator panel 2 in the space that the separator panel 2 traverses between the first and the second position. In this example the at least one sound source 22 is arranged on a substantially free edge 27, 28 of the separator panel 2. The at least one light 21 and/or the at least one sound source alert persons located on and/or moving through the traffic path 7 that the separator panel 2 is located in or displacing through the space that extends under separator panel 2 which is in the second position.

[0031] 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. The heavy design of the device 1 according to the invention requires consequently a predetermined strength and stiffness of the building construction of the building, wherein the kiosk 10 is to be build. The carrier means 8, the pressure element 60 and the actuator 9 are arranged for carrying 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 located between the first and the second position and in the second position, that are respectively shown in figures 5A, 5B, and 5C. The carrier means 8 of the device 1 according to the invention comprises a substantially self-supporting construction that can be substantially built in independent of the building construction.

[0032] For independently building in the device 1 according to the invention the drive 6 comprises a hydraulic cylinder 9, in which device 1 the carrier means 8 are provided with a elongated stiff upright 80 that extends along a substantially vertical side 31 of the passage 3 as shown in Figure 2. A first outer end 61 of a pressure element 60 is pivotally connected to a side 27 of the separator panel 2. A second outer end 62 of the pressure element 60 facing away from the first outer end 61 is displaceably positioned shiftable along the upright 80. A first outer end 91 of the hydraulic cylinder 9 is connected to an upwardly facing end 81 of the upright 80. A second outer end 92 of the piston rod of the hydraulic cylinder 9 facing away from the first outer end 91 of the hydraulic cylinder 9 is pivotally connected to the second outer end 62 of the pressure element 60.

[0033] 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.

[0034] 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.

[0035] The carrier means 8 comprise preferably an upright 80 such 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 the present application.

[0036] 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. The code containing signals 47, 48 can for instance be interchanged by radio waves, but as an alternative also by waves with a frequency different from radio waves. Also imaginable are of course connections with electricity cables, whereby an electricity cable extends from the kiosk 10 to the key system 5 with a length that substantially corresponds to at least the first distance A.

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 the first and the second position,

- Operating means (4) for controlling the drive (6), wherein the operating means (4) are provided with a control unit (40), and a key system (5) for activation of the control unit (40),
- Carrier means (8) for substantially carrying at least the separator panel (2), which carrier means (8) are connectable to the kiosk (10) near the passage (3), wherein the drive (6) is arranged on the carrier means (8), **characterized in that** the key system (5) is intended for use at a first distance (A) outside the building or the object (10), said key system (5) being arranged in such a way that around the key system (5) a connection zone (Z) extends for releasing the control unit (40) as a remote control (40) upon presence of at least one part of the control unit (40) in the connection zone (Z) and for blocking the control unit (40) as a remote control (40) upon absence of the at least one part of the control unit (40) in the connection zone (Z).

2. Device as claimed in claim 1, **characterized in, that** the at least one part of the remote control (40) is provided with first communication means (41) and the key system (5) is provided with second communication means (52), wherein the first communication means (41) are arranged for communicating on a second distance (B) with the second communication means (52).

3. Device according to claim 2, **characterized in that** the first communication means (41) are provided with a transmitter (46) for transmitting a code containing signal (47) to the second communication means (52), and that the second communication means (52) are provided with a receiver (56) for receiving the code containing signal (47) of the first communication means (41), and that the key system (5) is provided with a processing unit (57) for processing the code containing signal (47) and for providing a further code containing signal (48) for making the control unit (40) operable and that the second communication means (52) are provided with a transmitter (58) for transmitting the further containing code signal (48) to the first communication means (41) and that the first communication means (41) are provided with a receiver (49) for receiving the further code containing signal (48) from the second communication means (52).

4. Device according to claim 3, **characterized in that** the code containing signal (47) and the further code containing signal (48) comprise a radio signal, and that the processing unit (57) is provided with at least one RFID-tag.

5. Device according to one of the preceding claims, **characterized in that** the key system (5) is arranged in a traffic path (7) that is adjacent to the building or the object (10), and that the key system (5) is located outside of a projection (P) of a separator panel (2) that is in the second position, which projection is aimed at the traffic path (7).

6. Device according to claim 5, **characterized in that** the traffic path (7) comprises a path element (75), such as a brick or a tile, which path element (75) is provided with the key system (5).

7. Device according to one of the preceding claims, **characterized in that** the separator panel (2) is provided with signalling means (23) for alerting the presence of the separator panel (2) in a space that the separator panel (2) traverses between the first and the second position.

8. Device according to claim 7, **characterized in that** the signalling means (23) comprises at least one light (21), wherein the least one light (21) is arranged on a substantially free edge (27, 28) of the separator panel (2).

9. Device according to claim 7 of 8, **characterized in that** the signalling means (23) comprises at least one sound source (22), wherein the least one sound source (22) is arranged on a substantially free edge (27, 28) of the separator panel (2).

10. Path element (75), such as a brick or a tile, provided with the key system (5) of the device according to one of the preceding claims.

11. Traffic path (7) provided with the key system (5) of the device according to one of the preceding claims 1-9.

12. Kiosk (10) provided with the device (1) according to one of the preceding claims 1-9, **characterized in that** the separator panel (2) traverses a space between the first and the second position during movement.

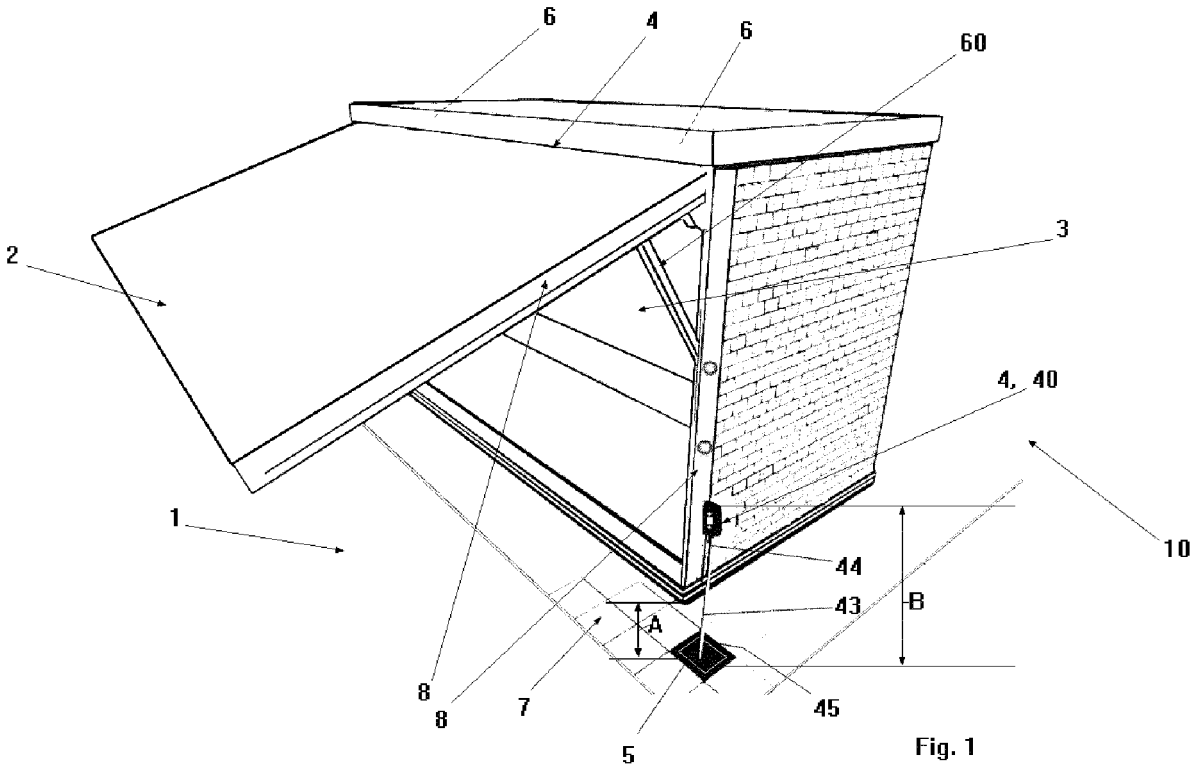


Fig. 1

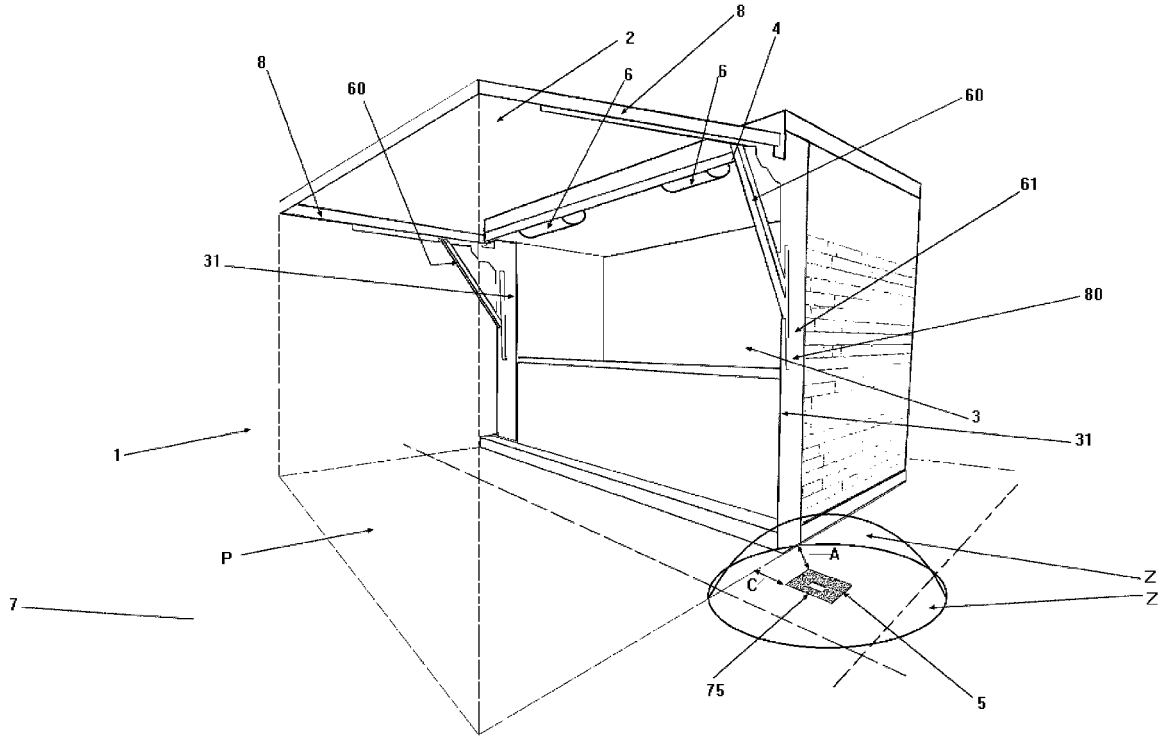


Fig. 2

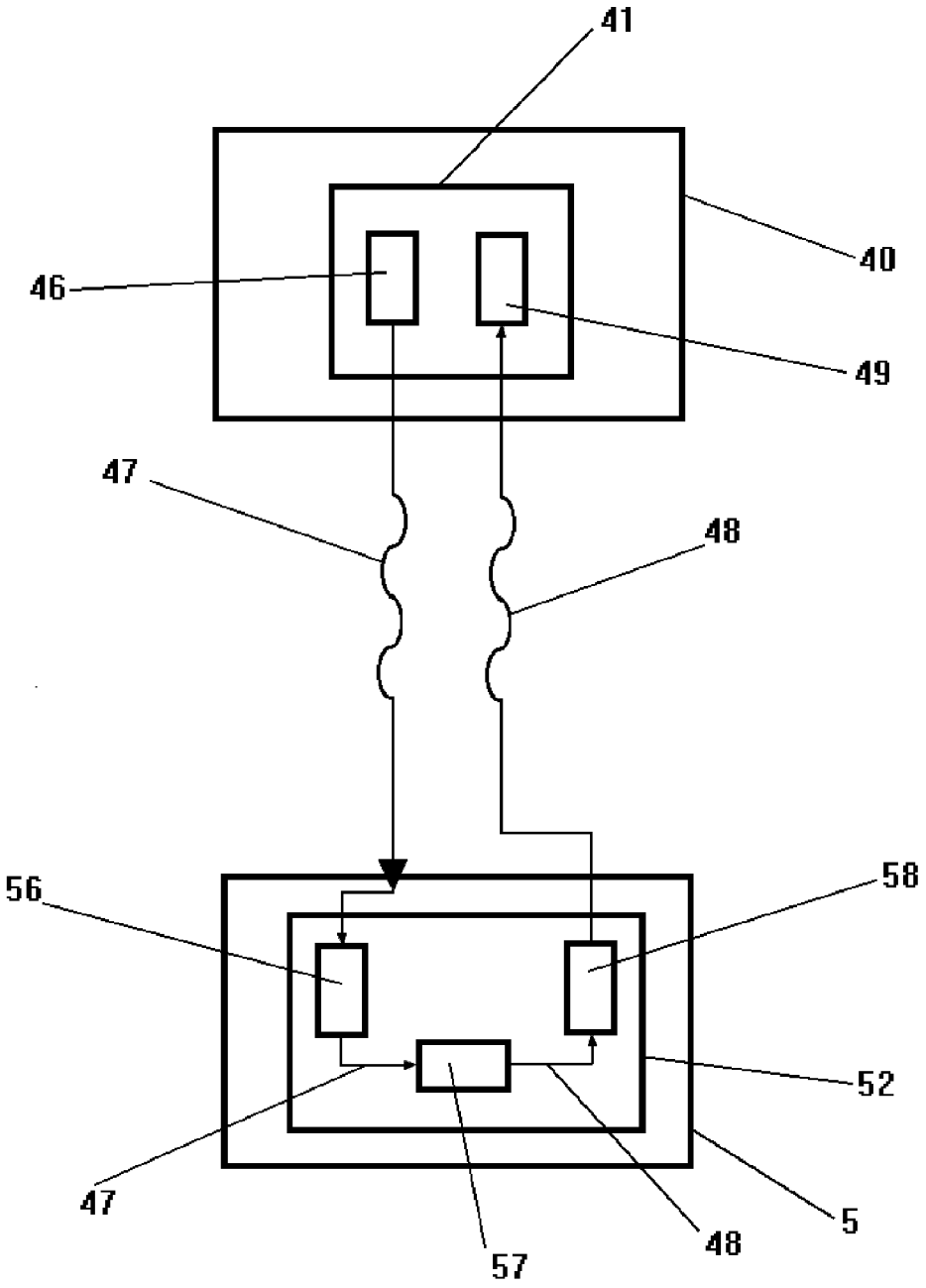


Fig. 3

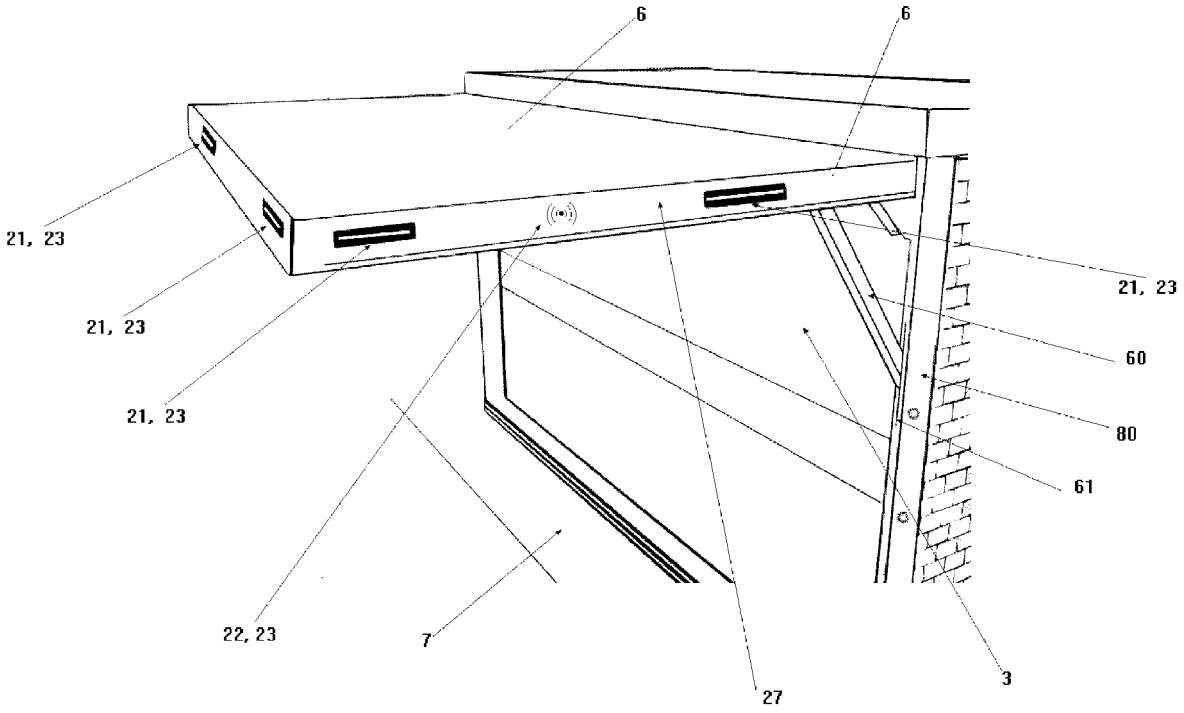


Fig. 4

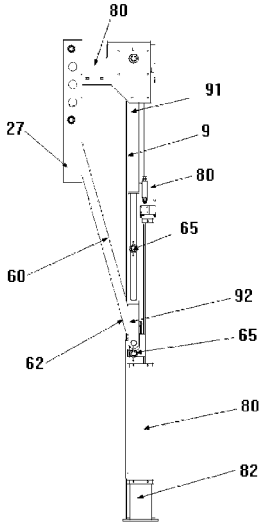


Fig. 5A

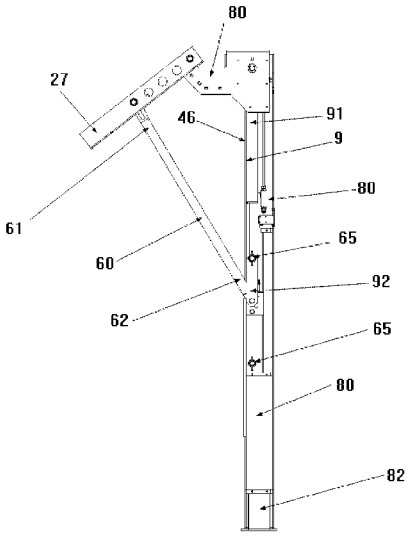


Fig. 5B

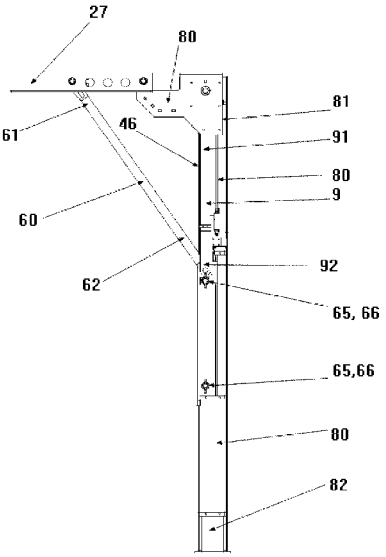


Fig. 5C