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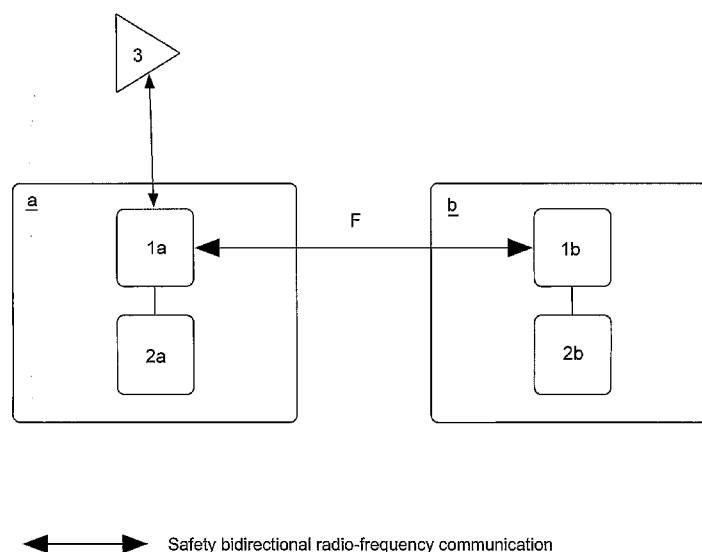
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(54) Title: COMMUNICATION SYSTEM BETWEEN THE OPERATORS OF POWERED CLOSING DEVICES WITH TWO MOVING PARTS



(57) Abstract: The invention concerns an automatic two operator type powered closing system for the individual operating of two moving parts of closing systems such as gates, doors or two wing main doors, sliding gates with a moving double part, automatic double barriers operating contemporaneously, shutters and the like. The system comprises a safety radio-frequency communication system between the control unit of a first motor provided for the operation of a first moving part and the control unit of a second operation motor of the other mobile part, so that the second motor carries out and can validate the manoeuvre that from time to time is requested and which must be carried out, with the first motor operating system.



“COMMUNICATION SYSTEM BETWEEN THE OPERATORS OF
POWERED CLOSING DEVICES WITH TWO MOVING PARTS”

Field of the Invention

The invention concerns in general the powered closing devices and refers in particular to those automatic closing devices that require two motors to run them.

5 **State of the technique**

Some powered closing devices, such as gates, doors or two wing main doors, sliding gates with a moving double part, automatic double barriers operating contemporaneously and the like, are generally equipped with two operators/drive motors, one for each moving part of
10 the closing device and controlled by a central control unit.

For their installation each of these closing device require to be connected electrically at least between the two operators at a distance one from the other with relative excavation work, time and expenses for the wiring, plus some additional circuits for the control and safety
15 connections which are required to be able to start the two motors both individually and at the same time.

Objective and Summary of the Invention

One objective of this invention, instead, is to create the conditions for an installation and a control of the operation of the
20 powered closing device with dual motors of the abovementioned type without having to use electric connections between the two relative

operators, without having to provide additional circuits and, therefore, with the advantage of simplifying the execution guarantying however the functionality and reliability.

Such an objective is reached, in accordance with the invention,
5 by providing the automatic closing device, having two moving parts each driven by a respective motor run by a central control unit, a radio communication safety system between the control unit of a motor provided to operate a first moving part and the second operating motor of the other moving part, so that this second motor carries out and can
10 validate the manoeuvre which is requested from time to time and has to be carried out by the first motor.

Therefore, the control unit of a first motor, instead of being set up to supply a feed to the second motor by using electric cables as carried out up to now, will be set up to communicate with the control
15 unit of the second motor by using radio frequency signals to enable it to start and to stop according to needs and to be able to coordinate both the opening and closing and the slowing down, acceleration, stopping, etc, phases of the two moving parts of the control device of an access..

The radio communication between the two operators of the
20 system can be two-way to send and receive signals from one to the other and vice versa, or also only one-way so as to send a radio signal from a first operator to a second.

The invention therefore represents an important innovation in that it is aimed at adopting the use of a radio communication with a
25 frequency which will be appropriately chosen, in a field, such as the

powered closing devices with two moving parts with two respective operators, in which they have never been applied.

Detailed Description of the Invention

Further details of the invention will become evident in the following description made in reference to the attached drawing, in which
5 the only figure shows a block diagram of the device proposed herein.

In said drawing are shown a first operator a and a second operator b each intended for the operating of a respective moving part of an automatic powered closing device—not shown-, however provided
10 with two fully moveable parts between opening and closing positions of an access.

Each operator a and b comprise in combination, furthermore in a known way, an operating and control unit 1a, 1b and an electric operation motor 2a, 2b of the respective mobile part of the device. The
15 operating and control unit 1a of one of the two operators can be associated with the usual auxiliary control devices, the protection and signalling devices indicated generically by 3.

Now, in accordance with the invention, the operating and control unit 1a, 1b of the two operators are provided with a two-way radio
20 communication system according to the F arrows, so that one of them can send radio frequency signals to the other unit and receive from the latter signals in reply to confirm that the two operators have both been activated to control the two mobile parts of the same closing device.

As an alternative, one-way radio communication system can be
25 provided between a first operator and the other, in which case the first

operating and control unit, for example 1a, will only send a radio signal to the control unit of the second operator without a return answer.

In both cases the radiofrequency signal between the two operators of a closing system of the type described above will be coded
5 to guarantee the safety of the system according to the rules and directives in force.

Both operators can be fed electrically through their connection to the network or to an external electric source, however without the need for an electric connection between them thanks to the communication
10 between one and the other by radio. However, by providing the operators with an autonomous feed using batteries connected to a photovoltaic electric source it will be possible to eliminate also the connections to an electric network.

“COMMUNICATION SYSTEM BETWEEN THE OPERATORS OF
POWERED CLOSING DEVICES WITH TWO MOVING PARTS”

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C L A I M S

1. Automatic two operator type powered closing device for the individual operating of two moving parts of closing devices such as gates, doors or two wing main doors, sliding gates with a moving double part, automatic double barriers operating contemporaneously, shutters
5 and the like, where each operator comprises an operating and control unit and a motor working with each moving part, characterised by a safety radio-frequency communication system between the operating and control unit of a first motor provided for the operation of a first moving part and the operating and control unit of the second operation
10 motor of the other mobile part, so that the second motor carries out and can confirm to the control unit of the first motor, the manoeuvre that from time to time is requested and which must be carried out.

2. Automatic closing system according to claim 1, wherein the radio-frequency communication between the operating and control unit
15 of a first motor and the operating and control unit of the second motor is bidirectional.

3. Automatic closing system according to claim 1, wherein the radio-frequency communication between the operating and control unit of a first motor and the operating and control unit of the second motor is
20 unidirectional.

4. Automatic closing system according to any of the claims 1-3,

wherein the operating and control units of said operators are not electrically connected to each other, but to a network or an external electrical feed source.

- 5 5. Automatic closing system according to any of the claims 1-3, wherein the operating and control units of said operators are not electrically connected to each other, and each of them is provided with, or incorporates, an individual supply source.

