(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 3 369 883 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
11.08.2021 Bulletin 2021/32

(21) Application number: **16859484.4**

(22) Date of filing: **03.10.2016**

(51) Int Cl.:
E05F 15/74 *(2015.01)* ***E05F 15/43*** *(2015.01)*
E05F 15/665 *(2015.01)* ***E05F 15/77*** *(2015.01)*
E06B 9/68 *(2006.01)* ***E05F 15/73*** *(2015.01)*

(86) International application number:
PCT/JP2016/079321

(87) International publication number:
WO 2017/073247 (04.05.2017 Gazette 2017/18)

(54) OPENING AND CLOSING DEVICE CONTROL SYSTEM

STEUERUNG EINER ÖFFNUNGS- UND SCHLIESSVORRICHTUNG

SYSTÈME DE COMMANDE DE DISPOSITIF D'OUVERTURE ET DE FERMETURE

(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

(30) Priority: **29.10.2015 JP 2015213364**

(43) Date of publication of application:
05.09.2018 Bulletin 2018/36

(73) Proprietor: **Bunka Shutter Co., Ltd.**
Bunkyo-ku
Tokyo 113-8535 (JP)

(72) Inventor: **TAKAI Kuniharu**
Tokyo 113-8535 (JP)

(74) Representative: **Wood, Graham**
Bailey Walsh & Co LLP
1 York Place
Leeds, LS1 2DR (GB)

(56) References cited:
EP-A2- 1 026 354
DE-A1-102006 038 933
JP-A- S62 291 385
JP-A- 2001 152 749
JP-A- 2015 004 185
JP-B2- 3 671 833
US-A- 4 843 639
US-A1- 2006 077 035

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

EP 3 369 883 B1

Description

[Technical Field]

[0001] The present invention relates to an opening and closing device control system which is appropriate for controlling an opening and closing device such as a garage shutter device.

[Background Art]

[0002] As a prior art example of this type of invention, there is the garage shutter device described in PTL 1. In this garage shutter device, at the time of exit of a vehicle from a garage, when the engine of the vehicle is started by operating an ignition key, an automatic transmitting signal is automatically wirelessly transmitted from a controlling side wireless device in the vehicle in conjunction with the operation. The shutter device opens a shutter upon receiving the automatic transmitting signal using a controlled side wireless device and automatically closes the shutter when the vehicle travels away and the automatic transmitting signal is no longer received. It should be noted that the automatic transmitting signal continues to be sent as long as the ignition key is in an on state.

[0003] On the other hand, at the time of entry of the vehicle into the garage, when the automatic transmitting signal transmitted from the controlling side wireless device of the vehicle approaching the shutter device is received by the receiver of the shutter device, the shutter devices opens the shutter. When the vehicle enters the garage and the engine of the vehicle is stopped by the operation of turning back the ignition key, the automatic transmitting signal is no longer transmitted from the controlling side wireless device. Consequently, the shutter device automatically closes the shutter after a predetermined time has elapsed since the automatic transmitting signal was no longer received by the controlling side wireless device.

[Citation List]

[Patent Literature]

[0004] [PTL 1] Japanese Patent Application Publication No. 2001-152749

[Summary of Invention]

[Technical Problem]

[0005] In a case where the vehicle has traveled a certain distance from the shutter device, whether or not the automatic transmitting signal transmitted from the controlling side wireless device in the vehicle is received by the controlled side wireless device of the shutter device depends on the environment in which the shutter device is placed such as the condition of the building having the garage or the positional relationship between the shutter device and the building. Accordingly, with the prior art technique, the communicative distance between the controlling side wireless device and the controlled side wireless device may vary. US4843639, DE102006038933 and EP1026354 disclose garage door opening system in which one signal is used to commence opening or closing of the garage door.

[0006] In view of such a problem, the present invention includes the following configuration. An opening and closing device control system, comprising an opening and closing device which opens and closes an opening of a garage by an opening and closing body; a transmitter which is provided in a vehicle and turns on/off sending of an automatic transmitting signal in conjunction with turning on/off of a start switch of the vehicle; and there is provided an inside-garage sensor which outputs a vehicle sensing signal upon contactlessly sensing the vehicle in the garage; an outside-garage sensor which outputs the vehicle sensing signal upon contactlessly sensing the vehicle in a specified area outside the garage; and a controller which controls the opening and closing device, wherein a receiver is connected to the controller and wherein the controller causes the opening and closing device to perform an open operation when either a condition, under which the vehicle sensing signal from the inside-garage sensor is present and the automatic transmitting signal is received by the receiver, or a condition, under which the vehicle sensing signal from the outside-garage sensor is present and the automatic transmitting signal is received by the receiver, is satisfied. The "start switch" is the switch operated so as to start the engine of the vehicle. The start switch includes an ignition key, a card key, another electronic key, and the like. Another of the characteristic features is that, to further improve the operability of the opening and closing device, the controller is configured to cause the opening and closing device to perform the open operation and then cause the opening and closing device to perform a close operation on condition that either the vehicle sensing signal or the automatic transmitting signal is absent. Advantageously the opening and closing device control system further includes an obstacle sensing device which senses an obstacle in an opening and closing path of the opening and closing body and outputs an obstacle sensing signal. The controller is configured to cause the opening and closing device to perform the open operation and then cause the opening and closing device to perform a close operation on condition that either the vehicle sensing signal or the automatic transmitting signal is absent and the obstacle sensing signal is absent.

[Advantageous Effects of Invention]

[0007] Since the present invention is configured as described above, it is possible to further improve the operability of the shutter device when the shutter device is automatically opened and closed.

[Brief Description of Drawings]

[0008]

Fig. 1 is a schematic diagram obtained by viewing an example of an opening and closing device control system according to the present invention in a lateral direction.

Fig. 2 is a schematic diagram obtained by viewing the example of the opening and closing device control system in a front-to-rear direction from within a garage.

[Fig. 3]

Fig. 3 is a schematic diagram showing an operation during exit of a vehicle from the garage in order of (a) to (c).

[Fig. 4]

Fig. 4 is a schematic diagram showing an operation during entry of the vehicle into the garage in order of (a) to (c).

[Fig. 5]

Fig. 5 is a flow chart showing an example of the process performed by a controller.

[Fig. 6]

Fig. 6 is a flow chart showing another example of the process performed by the controller.

[Description of Embodiments]

[0009] Next, a detailed description will be given of preferred embodiments having the characteristic features on the basis of the drawings.

[0010] An opening and closing device control system 1 includes an opening and closing device 20 which opens and closes an opening 11 of a garage 10 by an opening and closing body 21, a transmitter 40 which turns on/off sending an automatic transmitting signal in conjunction with turning on/off of the start switch of a vehicle 30, an inside-garage sensor 22e which outputs a vehicle sensing signal upon contactlessly sensing the vehicle 30 in the garage 10, and an outside-garage sensor 22f which outputs the vehicle sensing signal upon contactlessly sensing the vehicle 30 in a specified area E outside the garage 10. Using the controller of the opening and closing device 20, the open and close operations of the opening and closing body 21 are controlled.

[0011] The garage 10 in the illustrated example is formed in a cuboid shape having an opening 11 in the outwardly facing surface thereof, and is formed at the first floor portion of a building or the like. Above the opening 11, a storage part 22 of the opening and closing device 20 is disposed.

[0012] The opening and closing device 20 includes the opening and closing body 21 which performs open and close operations in a vertical direction so as to define a space and open the space, the storage part 22 which stores and unwinds out the opening and closing body 21 in the opening direction thereof, and guide rails 23 which surround the respective end portions of the opening and closing body 21 in a lateral width direction and guide the opening and closing body 21 in opening and closing directions (see Fig. 2).

[0013] The opening and closing body 21 includes an opening-and-closing-body main body 21a having a generally rectangular shape in plan view and a bottom plate member 21b to be brought into contact with a contact target portion P (such as a floor surface, the ground surface, or a frame member) which is connected to the lower end of the opening-and-closing-body main body 21a (see Fig. 2). The opening and closing body 21 is wound up and unwound out by a winding shaft 22h (see Fig. 1) in the storage part 22 to perform open and close operations.

[0014] The storage part 22 includes a store case 22a having a generally cuboid shape elongated in the lateral width direction of the opening and closing body, the winding shaft 22h which winds up and unwinds out the opening and closing body 10 in the store case 22a, and an opening and closing machine 22b which drives the winding shaft 22h to rotate via power transmission means (not shown) such as a chain or a sprocket.

[0015] The opening and closing machine 22b includes an electric motor which rotates the winding shaft 22h in a winding direction and an unwinding direction, a braking mechanism which brakes the rotation of the electric motor, and the like.

[0016] The controller 22c is an electric circuit including, e.g., a microcomputer, a memory device, a relay circuit, and the like and operates on the basis of a program stored in advance. To the controller 22c, a receiver 22d, the inside-garage sensor 22e, the outside-garage sensor 22f, an opening and closing position detector 22g, an obstacle sensing device 22i, and the like are connected.

[0017] The receiver 22d is an electric circuit which receives the transmitting signal transmitted from the transmitter 40 and transfers a control instruction included in the transmitting signal to the controller 22c and is formed of a specified low-power wireless module or the like.

[0018] The inside-garage sensor 22e is the sensor which contactlessly senses the vehicle 30 when the vehicle 30 is stored in the garage 10 and outputs the resulting vehicle sensing signal. In the illustrated example, the inside-garage sensor 22e is formed of a phototube sensor including a light emitter and a light receiver which are disposed on both sides of the vehicle 30 in the garage 10. The inside-garage sensor 22e transmits the vehicle sensing signal to the controller 22c by wire or wireless.

[0019] As another example of the inside-garage sensor 22e, it is possible to use a contactless sensor of another type such as a vehicular ultrasonic sensor, a magnetism detection sensor or the like.

[0020] The outside-garage sensor 22f is an area sensor of a near infrared reflection type which is configured to form a three-dimensional specified area E using a near infrared beam emitted toward the outside of the garage 10 and collect the reflected beam of the infrared beam. The outside-garage sensor 22f senses the entry of the

vehicle 30 into the specified area E on the basis of a change in the reflected beam and transmits the resulting vehicle sensing signal to the controller 22c.

[0021] In the specified area E, a boundary e1 in a direction approaching the opening and closing body 21 is set to be located in the vicinity of the outwardly facing surface of the opening and closing body 21, as shown in Fig. 1. In the specified area E, a boundary e2 in a direction away from the opening and closing device 20 is set to be located within a communicative range between the transmitter 40 and the receiver 22d.

[0022] As another example of the outside-garage sensor 22f, it is also possible to use a microwave Doppler sensor designed to obtain a sensing signal proportional to the moving speed of the vehicle 30 through a frequency comparison between the microwave sent therefrom and the reflected wave thereof, a laser sensor which emits a laser beam into a curtain-like configuration and senses the vehicle which enters the laser beam, or the like.

[0023] The opening and closing position detector 22g is formed of a counter limit switch which outputs a contact signal when the number of rotations of the output shaft of the opening and closing machine 22b reaches a predetermined value. In another example, the opening and closing position detector 22g may also be formed of an encoder device designed to count the number of rotations of the output shaft or winding shaft 22h, a proximity switch designed to sense the position of the bottom plate member 21b, or the like.

[0024] The obstacle sensing device 22i may be any sensing device as long as the sensing device senses an obstacle in the opening and closing path of the opening and closing body 21 and transfers an obstacle sensing signal to the controller 22c.

[0025] The obstacle sensing device 22i illustrated by way of example in Fig. 2 is an infrared sensor having an emitter provided closer to the lower end of one of the guide rails 23 and a collecting collector provided closer to the lower end of the other guide rail 23 so as to sense the interruption of the path of an obstacle sensing medium (which is an infrared beam in the present example) which is emitted from the emitter and collected by the collector by an obstacle.

[0026] In another example, the obstacle sensing device 22i may also be formed of an infrared sensor provided closer to the lower end of the opening and closing body 21, a pyroelectric sensor provided in the outer surface of the store case 22a to face downward, or the like.

[0027] The transmitter 40 includes a wireless transmission circuit using a specified power saving wireless method in a case (not shown) which is attachable/detachable to/from the cigarette lighter socket of the vehicle 30. Upon receiving a power supply from the cigarette lighter socket, the transmitter 40 continues to transmit the automatic transmitting signal including a control signal in a predetermined format. The control signal includes a specific ID code set for each of the transmitters 40, an instruction to start the open operation of the opening and closing device 20, and the like.

[0028] When the start switch of the vehicle 30 is turned on, the transmitter 40 operates upon receiving a power supply from the vehicle 30 and continues to transmit the automatic transmitting signal. In the vehicle 30, when the start switch of the vehicle 30 is turned off, the power supply from the vehicle 30 is also cut off, and consequently transmission of the automatic transmitting signal stops.

[0029] In Fig. 2, the reference numeral 24 denotes a push button switch for effecting the opening and closing, stopping, or the like of the opening and closing body 21. The push button switch 24 is disposed at a position within reach of a person on the inner wall surface of the garage 10 and connected to the controller 22c by wire or wireless.

[0030] Next, a control operation performed by the opening and closing device control system 1 having the configuration will be described in detail along the flow chart shown in Fig. 5.

[0031] First, in an initial state, the opening and closing body 21 is assumed to be in a fully closed state.

[0032] The controller 22c determines whether or not the vehicle sensing signal from the inside-garage sensor 22e is input thereto and the automatic transmitting signal received by the receiver 22d is input thereto (Step 1). When the both signals are input thereto, the controller 22c advances the process to Step 2 or otherwise moves the process to Step 1a.

[0033] In Step 1a, it is determined whether or not the vehicle sensing signal from the outside-garage sensor 22f is input thereto and the automatic transmitting signal received with the controller 22c is input thereto. When the both signals are input thereto, the controller 22c advances the process to Step 2 and otherwise returns the process to Step 1.

[0034] In Step 2, the controller 22c activates the opening and closing machine 22b to cause the winding shaft 22h to rotate in the winding direction and thus cause the opening and closing body 21 to perform the open operation. The open operation is stopped when it is determined that the opening and closing body 21 is at a fully opened position on the basis of the sensing signal from the opening and closing position detector 22g.

[0035] As a result, at the time of exit of the vehicle from the garage, when the engine of the vehicle 30 is started in the state where the vehicle 30 in the garage 10 is sensed by the inside-garage sensor 22e and the automatic transmitting signal is transmitted from the transmitter 40 and received by the receiver 22d as shown in, e.g., Fig. 3(b), Step 1 and Step 2 are performed so that the opening and closing body 21 performs the open operation.

[0036] On the other hand, at the time of entry of the vehicle into the garage, when the vehicle 30 outside the garage 10 is sensed by the outside-garage sensor 22f and the automatic transmitting signal from the transmitter 40 is received by the receiver 22d as shown in, e.g., Fig. 4(b), Step 1a and Step 2 are performed so that the opening and closing body 21 performs the open operation.

[0037] Next, in Step 3, the controller 22c waits until the vehicle sensing signal from the outside-garage sensor 22f is no longer input thereto and the automatic transmitting signal from the transmitter 40 is no longer input thereto. When the both signals are no longer input thereto, the controller 22c advances the process to Step 4.

[0038] In Step 4, the controller 22c determines whether or not an obstacle is sensed by the obstacle sensing device 22i. When there is no sensed obstacle, the controller 22c advances the process to Step 5 or otherwise returns the process to Step 3.

[0039] In Step 5, the controller 22c determines whether or not a predetermined time has elapsed after Step 4. When the predetermined time has elapsed, the controller 22c advances the process to Step 6 subsequent thereto or otherwise returns the process to Step 3.

[0040] In Step 6, the controller 22c activates the opening and closing machine 22b to cause the winding shaft 22h to rotate in the unwinding direction and thus cause the opening and closing body 21 to perform the close operation. The close operation is stopped when it is determined that the opening and closing body 21 is at a fully closed position on the basis of the sensing signal from the opening and closing position detector 22g or when an obstacle is sensed by the obstacle sensing device 22i.

[0041] Accordingly, when the vehicle 30 that has exited from the garage travels out of the specified area E formed by the outside-garage sensor 22f as shown in, e.g., Fig. 3(c), Steps 3 to 6 described above are performed, and the opening and closing body 21 performs the close operation after a predetermined time has elapsed since the absence of an obstacle was recognized.

[0042] On the other hand, when the vehicle 30 that has entered the garage turns off the start switch (such as an ignition key) and consequently the automatic transmitting signal is no longer transmitted from the inside-garage sensor 22e as shown in, e.g., Fig. 4(c), the opening and closing body 21 performs the close operation after a predetermined time has elapsed since the absence of an obstacle was recognized.

[0043] The predetermined time is set appropriately on the basis of the time required by a driver in the vehicle 30 to move out of the vehicle 30 after the entry of the vehicle into the garage.

[0044] Then, after Step 6, the process performed by the controller 22c is returned to Step 1.

[0045] Thus, with the opening and closing device control system 1 having the configuration, even when the communicative distance between the transmitter 40 and the receiver 22d varies at the time of exit of the vehicle from the garage depending on the environment in which the shutter device is placed, the vehicle 30 that has traveled away from the specified area E allows the opening and closing body 21 to be closed.

[0046] Also, even when the communicative distance between the transmitter 40 and the receiver 22d varies at the time of entry of the vehicle into the garage, the vehicle 30 that has entered the specified area E allows the opening and closing body 21 to be opened.

[0047] Also, even when the vehicle 30 has entered the vehicle 30, it is possible to cause the opening and closing body 21 to promptly perform the close operation.

[0048] Therefore, it is possible to improve the operability and reliability of the opening and closing device 20 when the opening and closing device 20 is automatically opened and closed.

[0049] Next, a description will be given of another example (see Fig. 6) of control performed by the controller 22c.

[0050] Since the following example of control is obtained by partly modifying the flow chart (see Fig. 5) of the example of control described above, the modified portion thereof will be mainly described in detail, while a repeated detailed description thereof is omitted appropriately.

[0051] In the example of control (see Fig. 6), the controller 22c first waits until the vehicle sensing signal from the inside-garage sensor 22e or the vehicle sensing signal from the outside-garage sensor 22f is input thereto (Step 11). When at least either one of the vehicle sensing signals is input thereto, the controller 22c advances the process to Step 12 subsequent thereto.

[0052] In Step 12, the controller 22c determines whether or not the automatic transmitting signal is input thereto. When the automatic transmitting signal is input thereto, the controller 22c advances the process to Step 13 subsequent thereto or otherwise returns the process to Step 11.

[0053] In Step 13, the controller 22c activates the opening and closing machine 22b to cause the winding shaft 22h to rotate in the winding direction and thus cause the opening and closing body 21 to perform the open operation.

[0054] As a result, at the time of exit of the vehicle from the garage, when the start button of the vehicle 30 is operated in the state where the vehicle 30 in the garage 10 is sensed by the inside-garage sensor 22e and the automatic transmitting signal transmitted from the transmitter 40 is received by the receiver 22d as shown in, e.g., Fig. 3(b), Steps 11 to 13 are performed to cause the opening and closing body 21 to perform the open operation.

[0055] At the time of entry of the vehicle into the garage, when the vehicle 30 outside the garage 10 is sensed by the outside-garage sensor 22f and the automatic transmitting signal from the transmitter 40 is received by the receiver 22d as shown in, e.g., Fig. 4(b) also, Steps 11 to 13 are performed to cause the opening and closing body 21 to perform the open operation.

[0056] Then, in Steps 14 to 17, the controller 22c performs the same process as in Steps 3 to 6 described above.

[0057] Next, in Step 18, the controller 22c determines whether or not the vehicle sensing signal from the inside-garage sensor 22e is input thereto. When the vehicle

sensing signal is input thereto, the controller 22c advances the process to Step 19 or otherwise moves the process to Step 18a.

[0058] In Step 19, an entry notification notifying that the vehicle 30 has entered the garage 10 is made. On the other hand, in Step 18a, an exit notification notifying that the vehicle 30 has exited from the garage 10 and traveled away therefrom is made.

[0059] More specifically, each of the entry notification and the exit notification is a wireless or wired signal transmitted from the controller 22c to a notification device in the building where the opening and closing device control system 1 is placed.

[0060] Upon receiving the signal, the notification device notifies a person in the building of the situation of entry into the garage or exit from the garage using a sound or voice and light emission, image display, or the like.

[0061] In another example, it is also possible to omit Steps 18, 18a and 19 described above from the flow chart in Fig. 6 and keep the notification from being made or add Steps 18, 18a and 19 described above to the flow chart in Fig. 5 and allow the notification to be made.

[0062] In the embodiment described above, after the opening and closing body 21 is caused to perform the open operation, the opening and closing body 21 is caused to perform the close operation on condition that either one of the vehicle sensing signal from the outside-garage sensor 22f and the automatic transmitting signal from the transmitter 40 is absent (Steps 3 and 14). However, in another example, it is also possible to cause the opening and closing body 21 to perform the close operation on condition that each of the two signals is absent.

[0063] The present invention is not limited to the embodiments described above and can appropriately be modified within the scope of the invention as defined by the claims.

[Reference Signs List]

[0064]

1	Opening and closing device control system
10	Garage
11	Opening
21	Opening and closing body
20	Opening and closing device
22c	Controller
22e	Inside-garage sensor
22f	Outside-garage sensor
30	Vehicle
40	Transmitter
E	Specified area

Claims

1. An opening and closing device control system (1), comprising:

an opening and closing device (20) which opens and closes an opening (11) of a garage (10) by an opening and closing body (21);
a transmitter (40) which is provided in a vehicle (30) and turns on/off sending of an automatic transmitting signal in conjunction with turning on/off of a start switch of the vehicle (30);
an inside-garage sensor (22e) which outputs a vehicle sensing signal upon contactlessly sensing the vehicle (30) in the garage (10);
an outside-garage sensor (22f) which outputs the vehicle sensing signal upon contactlessly sensing the vehicle (30) in a specified area (E) outside the garage (10); and
a controller (22c) which controls the opening and closing device (20), **characterised in that**
a receiver (22d) is connected to_the controller (22c) and wherein the controller causes the opening and closing device (20) to perform an open operation when either a condition, under which the vehicle sensing signal from the inside-garage sensor (22e) is
present and the automatic transmitting signal is received by the receiver (22d), or a condition, under which the vehicle sensing signal from the outside-garage sensor (22f) is present and the automatic transmitting signal is received by the receiver (22d), is satisfied.

2. The opening and closing device control system (1) according to claim 1, **characterised in that** the controller (22c) is configured to cause the opening and closing device (20) to perform the open operation and then cause the opening and closing device (20) to perform a close operation on condition that either the vehicle sensing signal or the automatic transmitting signal is absent.

3. The opening and closing device control system (1) according to claim 1, **characterised in that** there is provided:

an obstacle sensing device which senses an obstacle in an opening and closing path of the opening and closing body (21) and outputs an obstacle sensing signal, wherein
the controller (22c) is configured to cause the opening and closing device (20) to perform the open operation and then cause the opening and closing device (20) to perform a close operation on condition that either the vehicle sensing signal or the automatic transmitting signal is absent and the obstacle sensing signal is absent.

Patentansprüche

1. Steuersystem für Öffnungs-/Schließvorrichtung (1), umfassend:

   eine Öffnungs-/Schließvorrichtung (20), die eine Öffnung (11) einer Garage (10) durch einen Öffnungs-/Schließkörper (21) öffnet und schließt;
   einen Sender (40), der in einem Fahrzeug (30) bereitgestellt ist und das Senden eines automatischen Sendesignals in Verbindung mit dem Ein-/Ausschalten eines Startschalters des Fahrzeugs (30) ein-/ausschaltet;
   einen Sensor innerhalb der Garage (22e), der bei kontaktlosem Erfassen des Fahrzeugs (30) in der Garage (10) ein Fahrzeugerfassungssignal ausgibt;
   einen Sensor außerhalb der Garage (22f), der bei kontaktlosem Erfassen des Fahrzeugs (30) in einem vorgegebenen Bereich (E) außerhalb der Garage (10) das Fahrzeugerfassungssignal ausgibt; und
   einen Steuerteil (22c), der die Öffnungs-/Schließvorrichtung (20) steuert, **dadurch gekennzeichnet, dass**
   ein Empfänger (22d) mit dem Steuerteil (22c) verbunden ist und wobei der Steuerteil die Öffnungs-/Schließvorrichtung (20) zum Durchführen eines Öffnungsvorgangs veranlasst, wenn entweder eine Bedingung, unter der das Fahrzeugerfassungssignal vom Sensor innerhalb der Garage (22e) vorhanden ist und das automatische Sendesignal vom Empfänger (22d) empfangen wird, oder eine Bedingung, unter der das Fahrzeugerfassungssignal vom Sensor außerhalb der Garage (22f) vorhanden ist und das automatische Sendesignal durch den Empfänger (22d) empfangen wird, erfüllt ist.

2. Steuersystem für Öffnungs-/Schließvorrichtung (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** der Steuerteil (22c) ausgestaltet ist, um unter der Bedingung, dass entweder das Fahrzeugerfassungssignal oder das automatische Sendesignal abwesend ist, die Öffnungs-/Schließvorrichtung (20) zum Durchführen des Öffnungsvorgangs zu veranlassen und dann die Öffnungs-/Schließvorrichtung (20) zum Durchführen eines Schließvorgangs zu veranlassen.

3. System für Öffnungs-/Schließvorrichtung (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** Folgendes bereitgestellt ist:

   eine Hinderniserfassungsvorrichtung, die ein Hindernis in einem Öffnungs-/Schließweg des Öffnungs-/Schließkörpers (21) erfasst und ein Hinderniserfassungssignal ausgibt, wobei der Steuerteil (22c) ausgestaltet ist, um unter der Bedingung, dass entweder das Fahrzeugerfassungssignal oder das automatische Sendesignal abwesend ist und das Hinderniserfassungssignal abwesend ist, die Öffnungs-/Schließvorrichtung (20) zum Durchführen des Öffnungsvorgangs zu veranlassen und dann die Öffnungs-/Schließvorrichtung (20) zum Durchführen eines Schließvorgangs zu veranlassen.

Revendications

1. Système de commande de dispositif d'ouverture et de fermeture (1), comprenant :

   un dispositif d'ouverture et de fermeture (20) qui ouvre et ferme une ouverture (11) d'un garage (10) grâce à un corps d'ouverture et de fermeture (21) ;
   un émetteur (40) qui est prévu dans un véhicule (30) et qui active/désactive l'envoi d'un signal d'émission automatique en conjonction avec l'activation/la désactivation d'un commutateur de démarrage du véhicule (30) ;
   un capteur d'intérieur de garage (22e) qui délivre en sortie un signal de détection de véhicule lors de la détection en mode sans contact du véhicule (30) dans le garage (10) ;
   un capteur d'extérieur de garage (22f) qui délivre en sortie le signal de détection de véhicule lors de la détection en mode sans contact du véhicule (30) dans une zone spécifiée (E) à l'extérieur du garage (10) ; et
   un organe de commande (22c) qui commande le dispositif d'ouverture et de fermeture (20), **caractérisé en ce que**
   un récepteur (22d) est connecté à l'organe de commande (22c) et dans lequel l'organe de commande amène le dispositif d'ouverture et de fermeture (20) à effectuer une opération d'ouverture lorsque soit une condition, en vertu de laquelle le signal de détection de véhicule provenant du capteur d'intérieur de garage (22e) est présent et que le signal d'émission automatique est reçu par le récepteur (22d), soit une condition, en vertu de laquelle le signal de détection de véhicule provenant du capteur d'extérieur de garage (22f) est présent et que le signal d'émission automatique est reçu par le récepteur (22d), est satisfaite.

2. Système de commande de dispositif d'ouverture et de fermeture (1) selon la revendication 1, **caractérisé en ce que** l'organe de commande (22c) est configuré pour amener le dispositif d'ouverture et de fer-

meture (20) à effectuer l'opération d'ouverture et ensuite pour amener le dispositif d'ouverture et de fermeture (20) à effectuer une opération de fermeture à condition que soit le signal de détection de véhicule, soit le signal d'émission automatique, est absent.

3. Système de commande de dispositif d'ouverture et de fermeture (1) selon la revendication 1, **caractérisé en ce qu'**est prévu :

un dispositif de détection d'obstacle qui détecte un obstacle dans un trajet d'ouverture et de fermeture du corps d'ouverture et de fermeture (21) et délivre en sortie un signal de détection d'obstacle, dans lequel
l'organe de commande (22c) est configuré pour amener le dispositif d'ouverture et de fermeture (20) à effectuer l'opération d'ouverture et ensuite pour amener le dispositif d'ouverture et de fermeture (20) à effectuer une opération de fermeture à condition que soit le signal de détection de véhicule, soit le signal d'émission automatique, est absent et que le signal de détection d'obstacle est absent.

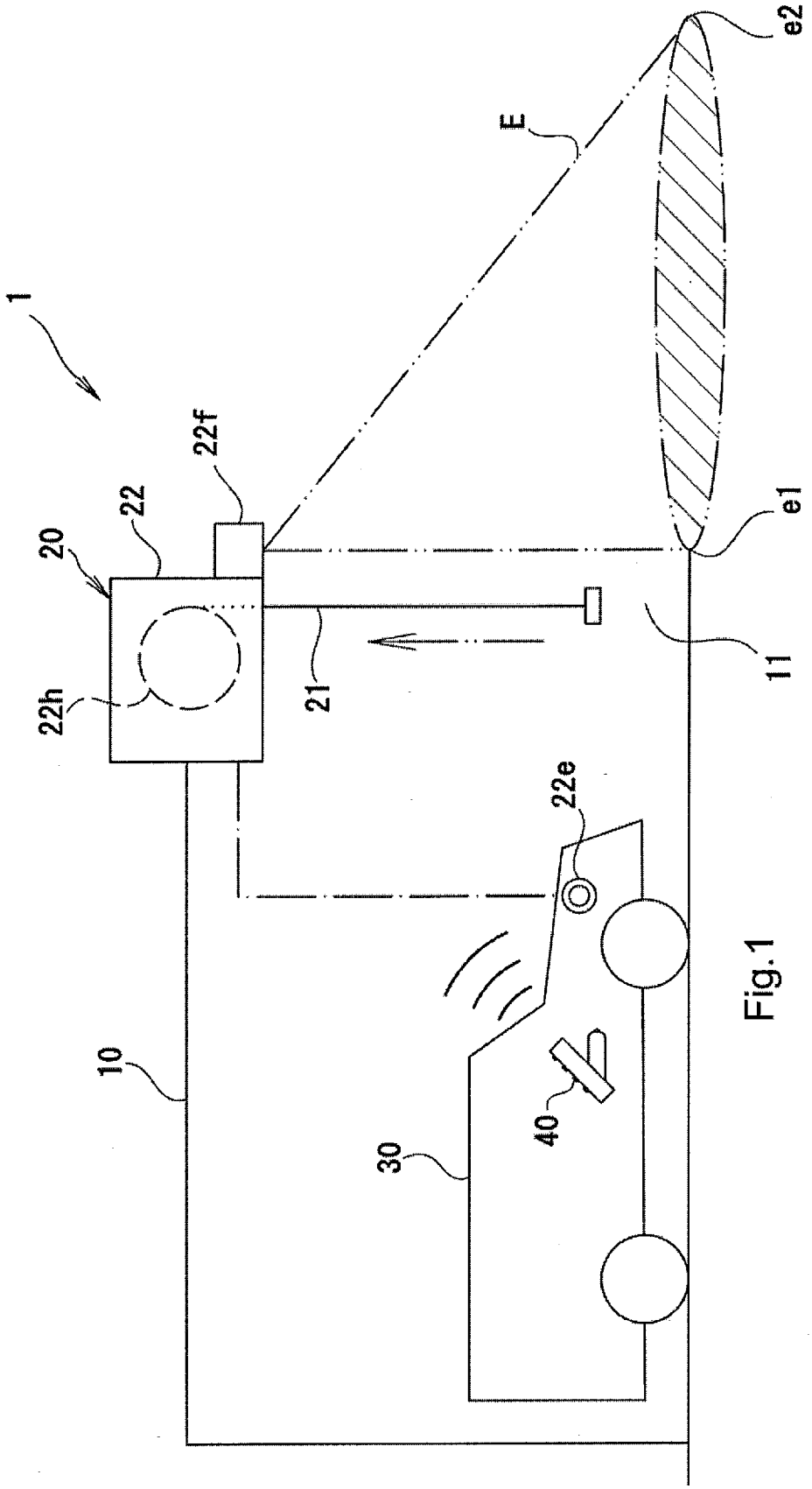


Fig.1

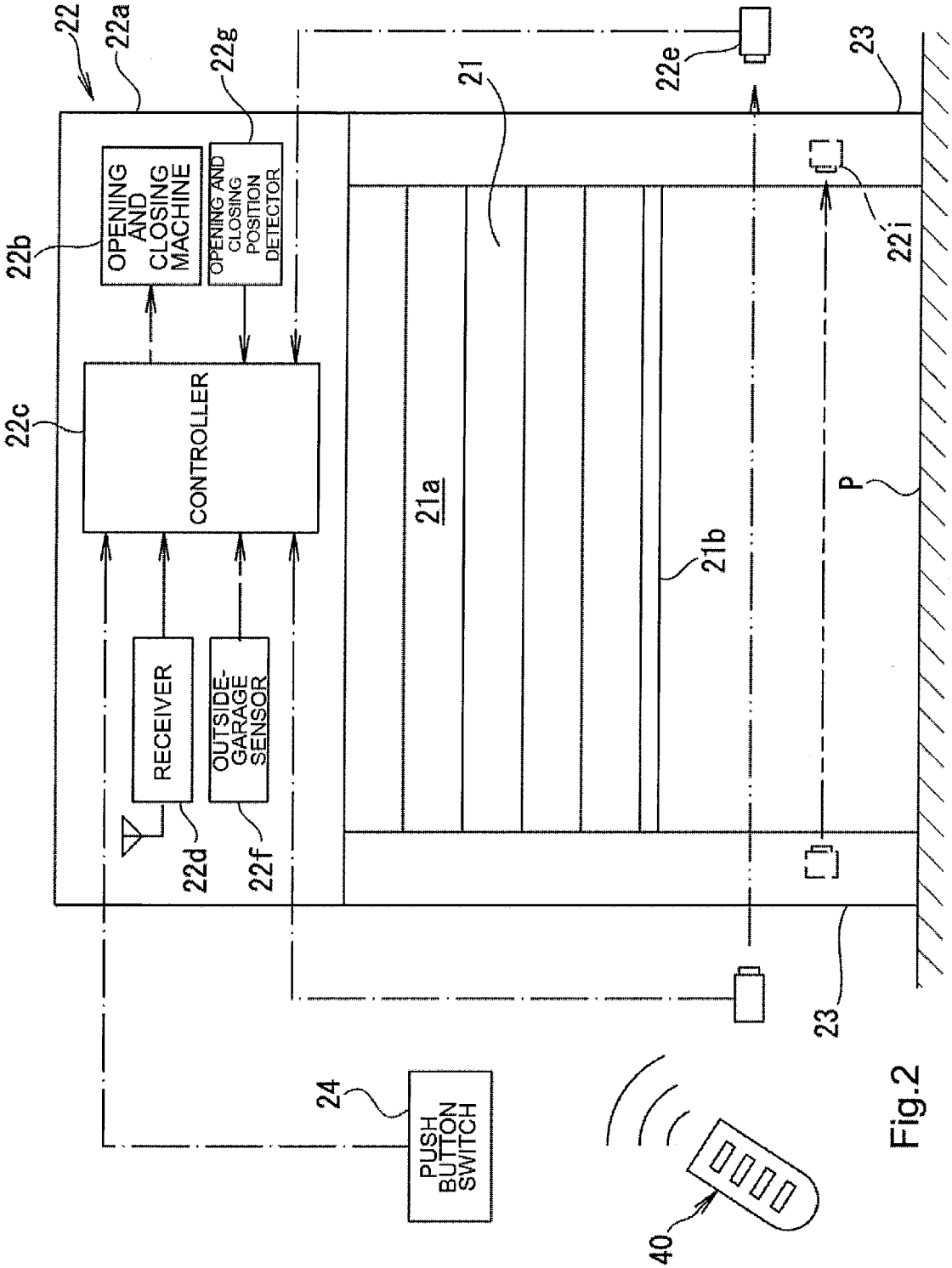

22
22a
22g
22e
23
21
OPENING AND CLOSING MACHINE
OPENING AND CLOSING POSITION DETECTOR
22b
22i
CONTROLLER
22c
21a
21b
P
RECEIVER
OUTSIDE-GARAGE SENSOR
22d
22f
23
24
PUSH BUTTON SWITCH
40

Fig.2

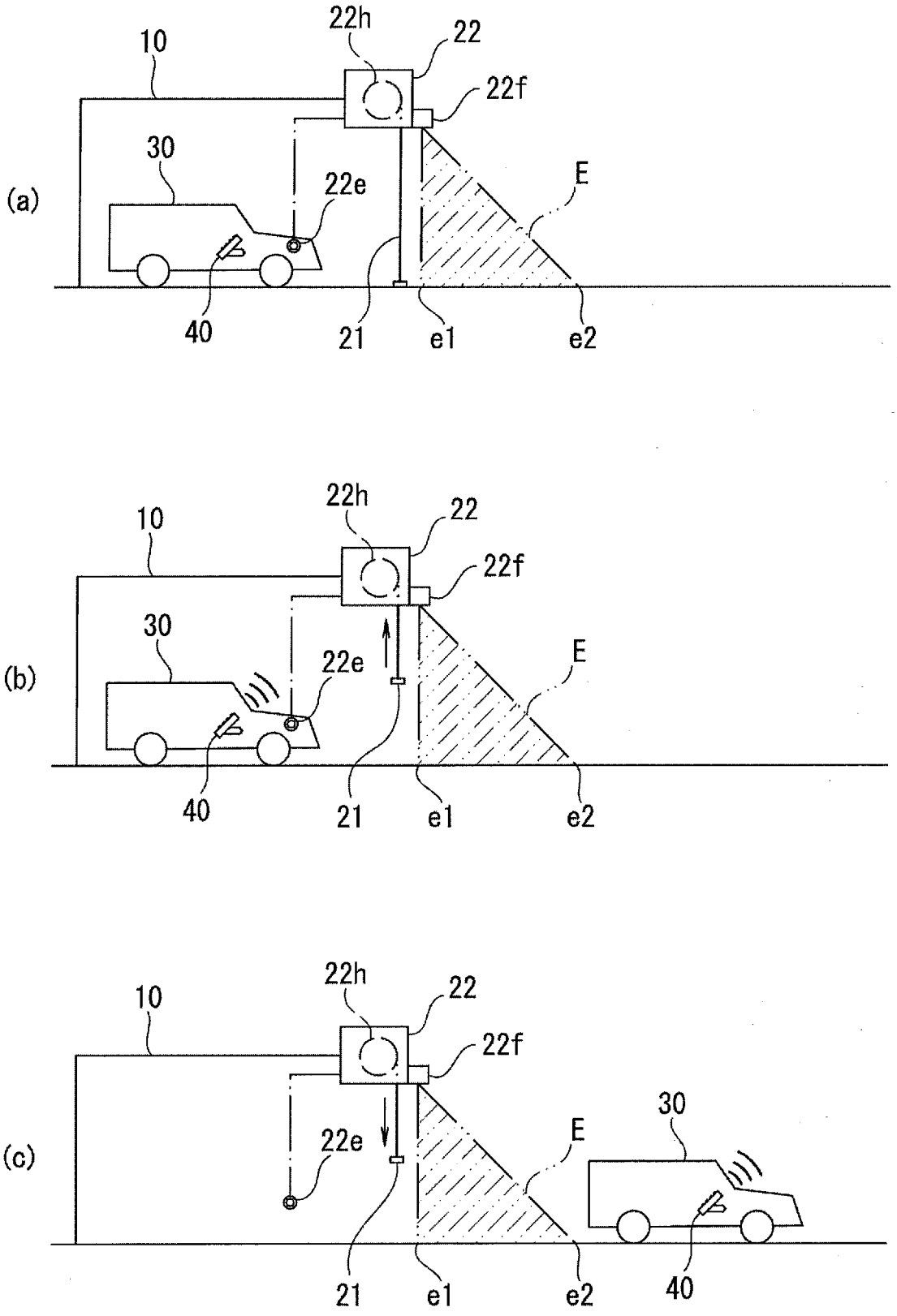

(a)
10
22h
22
22f
30
22e
E
40
21
e1
e2
(b)
10
22h
22
22f
30
22e
E
40
21
e1
e2
(c)
10
22h
22
22f
22e
E
30
21
e1
e2
40

Fig.3

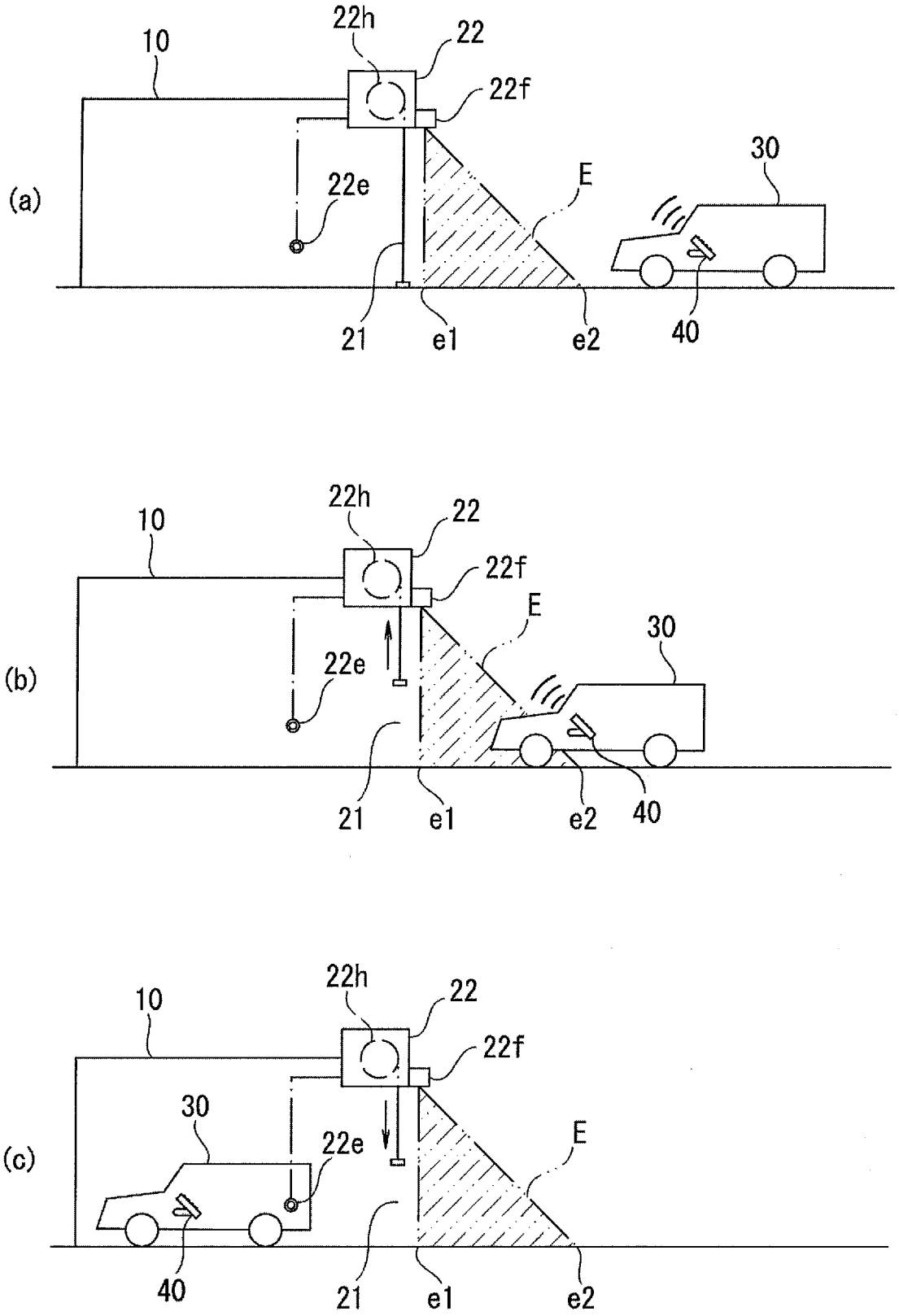

(a)
10
22h
22
22f
22e
E
30
21
e1
e2
40
(b)
10
22h
22
22f
22e
E
30
21
e1
e2
40
(c)
10
22h
22
22f
30
22e
E
40
21
e1
e2

Fig.4

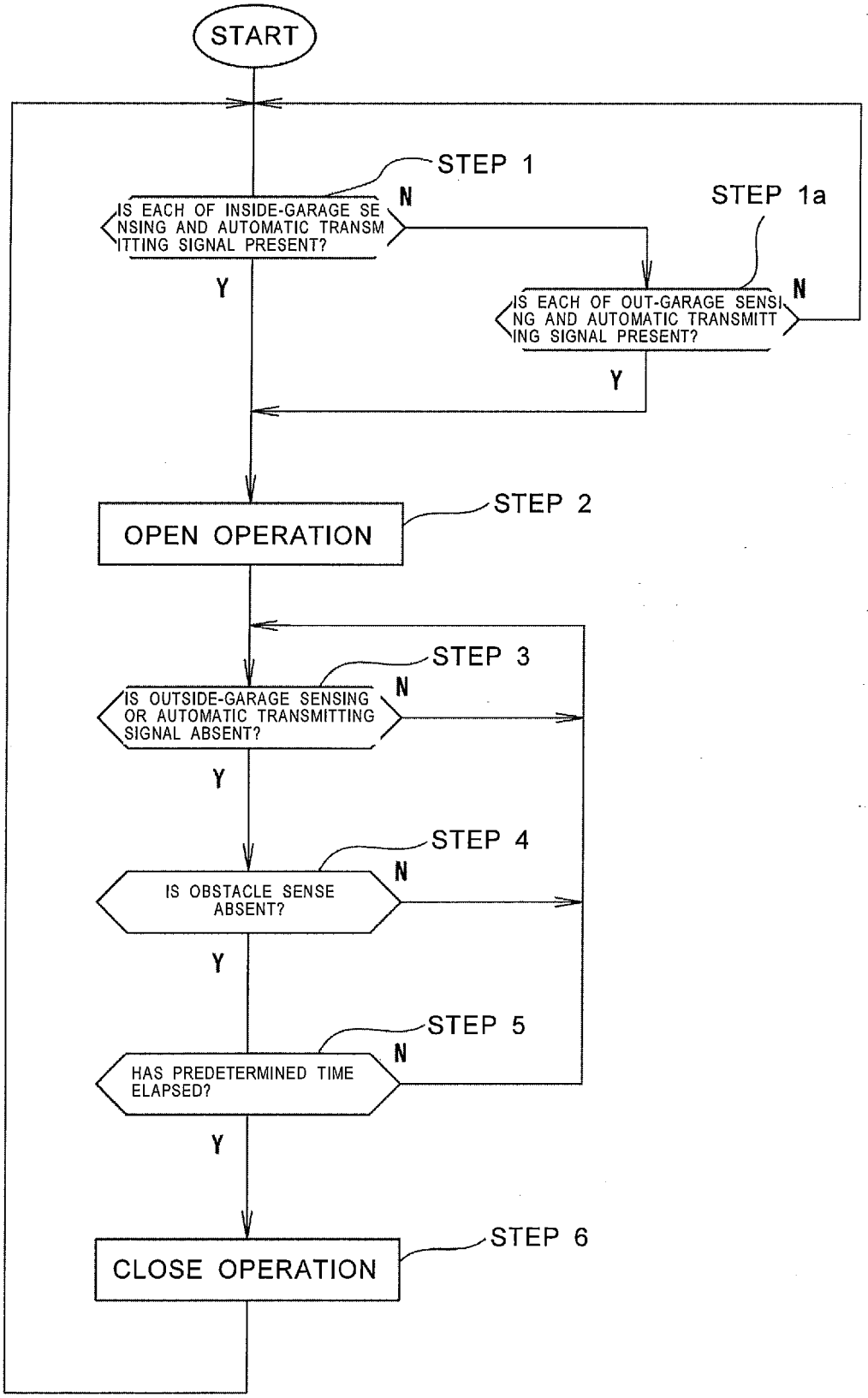

START
STEP 1
IS EACH OF INSIDE-GARAGE SENSING AND AUTOMATIC TRANSMITTING SIGNAL PRESENT?
N
Y
STEP 1a
IS EACH OF OUT-GARAGE SENSING AND AUTOMATIC TRANSMITTING SIGNAL PRESENT?
N
Y
OPEN OPERATION
STEP 2
STEP 3
IS OUTSIDE-GARAGE SENSING OR AUTOMATIC TRANSMITTING SIGNAL ABSENT?
N
Y
STEP 4
IS OBSTACLE SENSE ABSENT?
N
Y
STEP 5
HAS PREDETERMINED TIME ELAPSED?
N
Y
CLOSE OPERATION
STEP 6

Fig.5

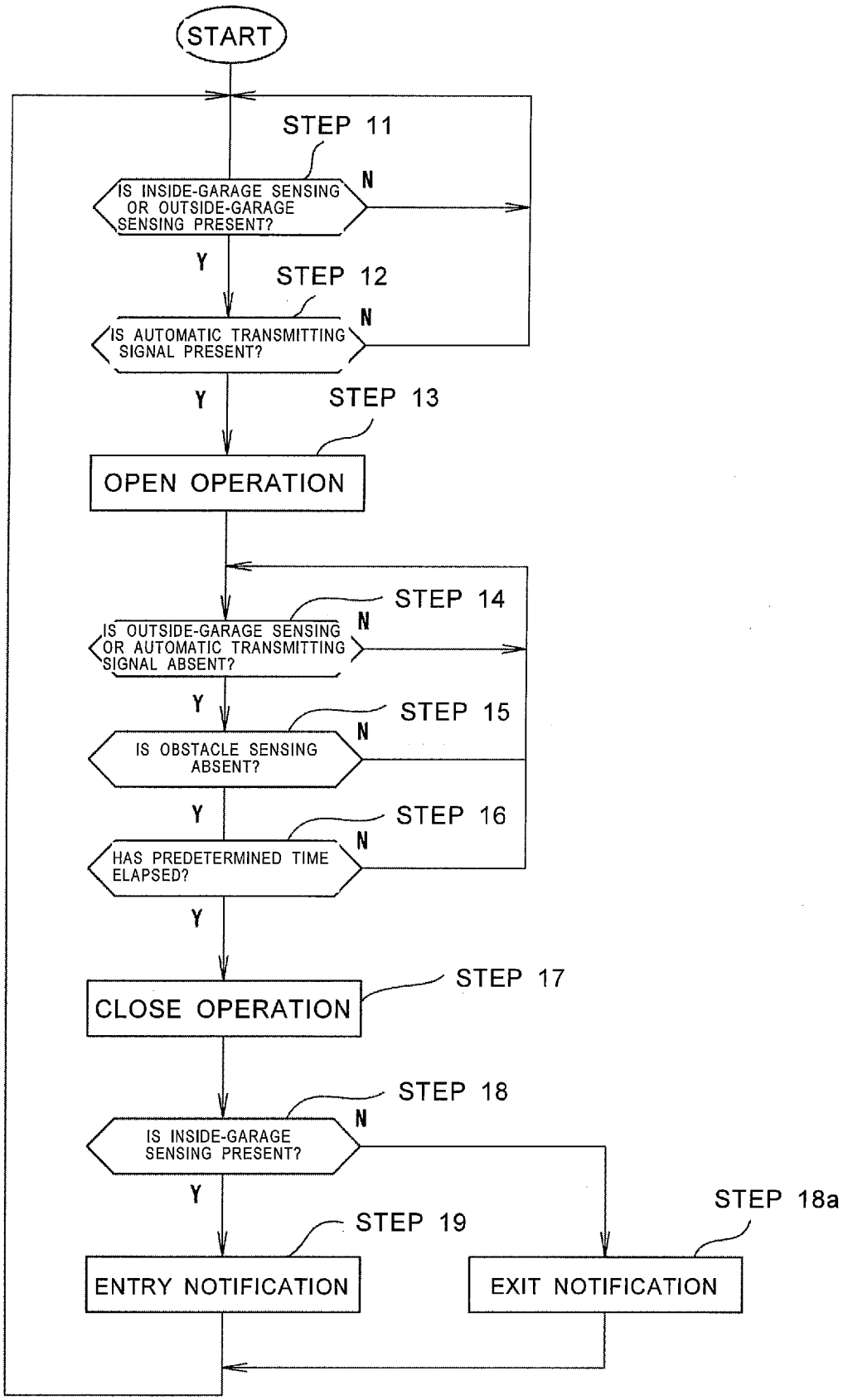

START
STEP 11
IS INSIDE-GARAGE SENSING OR OUTSIDE-GARAGE SENSING PRESENT?
N
Y
STEP 12
IS AUTOMATIC TRANSMITTING SIGNAL PRESENT?
N
Y
STEP 13
OPEN OPERATION
STEP 14
IS OUTSIDE-GARAGE SENSING OR AUTOMATIC TRANSMITTING SIGNAL ABSENT?
N
Y
STEP 15
IS OBSTACLE SENSING ABSENT?
N
Y
STEP 16
HAS PREDETERMINED TIME ELAPSED?
N
Y
CLOSE OPERATION
STEP 17
STEP 18
IS INSIDE-GARAGE SENSING PRESENT?
N
Y
STEP 18a
STEP 19
ENTRY NOTIFICATION
EXIT NOTIFICATION

Fig.6

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- JP 2001152749 A **[0004]**
- US 4843639 A **[0005]**
- DE 102006038933 **[0005]**
- EP 1026354 A **[0005]**