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(54) **Burglary prevention apparatus particularly for protecting apartments and the like**

Einbruchhemmende Vorrichtung, insbesondere zum Schutz von Wohnungen

Dispositif anti-intrusion, en particulier pour protéger les appartements

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US-A- 5 198 974

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Description

[0001] The present invention relates to a burglary prevention apparatus particularly for protecting apartments and the like.

[0002] It is known that in order to provide protection against burglary at roll-up elements and the like, the solutions of the prior art usually adopt retention elements which are connected to the internal surface of the roll-up element and enter, or otherwise couple to, elements which are connected to the fixed structure.

[0003] These solutions have failed to prove themselves effective in many cases, since it is not difficult to remove or otherwise bypass these retention elements, accordingly making them entirely ineffective.

[0004] In the current state of the art no alarm indicator elements are provided which are directly connected on the roll-up element, since it is preferred to apply said sensors to door and window frames, with installations which however allow to easily bypass the protection characteristics of the sensor.

[0005] The document DE 298 07 881 U1 discloses an anti-burglary device with roller shutter alarm system, the alarm consisting of two switches or sensors attached to different positions on the blinds and connected with an alarm display apparatus via the power line.

[0006] The document US-A-5 198 974 discloses a safety device for motorised rolling shutter comprising a generator of a signal reprenting the display cement of the rolling shutter and a logic processing unit for triggering an alarm in the case of an attempted break-in.

[0007] The aim of the present invention is to solve the above problem by providing a burglary prevention apparatus particularly for protecting apartments and the like which can be connected directly to the roll-up element, allowing to have an alarm indication when an attempt to fraudulently open the roll-up element occurs.

[0008] Within the scope of this aim, a particular object of the present invention is to provide a burglary prevention apparatus which does not cause particular installation problems but can also be connected directly to the electric lifting unit of the roll-up element.

[0009] Another object of the present invention is to provide a burglary prevention apparatus particularly for protecting apartments and the like which, thanks to its particular constructive characteristics, is capable of giving the greatest assurances of reliability and safety in use.

[0010] Another object of the present invention is to provide a burglary prevention apparatus which can be easily obtained starting from commonly commercially available elements and materials and is also competitive from a purely economical point of view.

[0011] This aim, these objects and others which will become apparent hereinafter are achieved by a burglary prevention apparatus as defined by claim 1.

[0012] Further characteristics and advantages of the present invention will become apparent from the following detailed description of a preferred but not exclusive embodiment of a burglary prevention apparatus particularly for protecting apartments and the like, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

Figure 1 is a schematic perspective view of the burglary prevention apparatus according to the present invention, applied to a roll-up element;
Figure 2 is a view of the radio transmitter and of the electric actuation unit of the roll-up element, according to the present invention;
Figures 3 and 4 are views of the radio transmitter arranged in the roll-up element, respectively in the deactivated position and in the activation position;
Figure 5 is a block diagram of the operating logic of the apparatus of the invention;
Figure 6 is a schematic view of the burglary prevention apparatus according to the invention, applied to a roll-up element which can be remotely operated by means of a remote control.

[0013] With reference to the above figures, the burglary prevention apparatus particularly for protecting apartments and the like, according to the invention, comprises a radio transmitter, generally designated by the reference numeral 1, which can be arranged inside a dummy slat 2 of a roll-up element which is generally designated by the reference numeral 3.

[0014] The radio transmitter 1 is provided with an activation button 4 which protrudes through an opening 5 from the dummy slat 2 and rests against the window-sill or in any case against a fixed structure, designated by the reference numeral 6, when the roll-up element is in the closed position; in this condition the radio transmitter is inactive.

[0015] When the roll-up element 3 is lifted, as shown in Figure 4, the button 4, which no longer abuts against the fixed structure 6, assumes the extracted position; in this condition it activates the radio transmitter, which emits a signal which can be received by a radio receiver 10 which is accommodated inside a tubular gearmotor 11 which is arranged inside the octagonal tube for supporting the roll-up element 3.

[0016] The radio receiver 10 is connected to an antenna 12 which is arranged at the end of the gearmotor 11.

[0017] The gearmotor 11 is internally provided with a stroke limiting assembly 15 which is meant to control the maximum stroke of the roll-up element and is adjusted during installation.

[0018] In the gearmotor 11 there is a motor 16 which is connected to the electric mains with a capacitor 17 interposed, allowing the single-phase motor to have the appropriate starting torque when the actuation of the roll-up element begins.

[0019] The motor 16, by means of a brake 18, drives a reduction unit 19 which is connected to an octagonal

actuation pulley or actuation pivot 20, which is arranged inside the octagonal tube in order to produce rotation.

[0020] In the specific embodiment, therefore, the transmitter 1 is operatively connected to the radio receiver, which is also meant to drive the upward and downward actuation of the roll-up element.

[0021] The transmitter is connected, by means of a controller described in greater detail hereinafter, to a centralized alarm indication unit of the apartment, designated by the reference numeral 30, which can be arranged anywhere and is provided with a siren 31 or optionally with luminous indicator means and is provided with a switch 32 for deactivating the centralized unit.

[0022] The arrangement of the radio receiver inside the gearmotor for actuating the roll-up element is an optimization factor for the assembly, but the receiver can of course be otherwise arranged in any strategic point of the apartment.

[0023] In the case of a receiver located inside the gearmotor, said receiver is composed of a small electronic circuit which is miniaturized and is powered directly by the electric mains of the apartment, without any voltage transformer.

[0024] Its small size and direct mains supply allow insertion in the gearmotor and unlimited continuity of operation over time.

[0025] The connection between the radio receiver and the centralized unit 30 is provided by interposing a controller whose block diagram is shown in Figure 5.

[0026] In particular, if the sensor is pressed, no alarm indication is given; if the sensor is not pressed, the radio control is transmitted and subsequently received by the radio receiver, which is operatively connected to the sensor for actuating the lifting or lowering of the roll-up element, so that if the roll-up element has been actuated appropriately, i.e., by means of an opening or closure action actuated by the user, the command toward the alarm is deactivated automatically, so that no alarm indication is given.

[0027] If instead the actuation of the roll-up element has been performed improperly, i.e., due to fraudulent opening from outside, the alarm command is not blocked, and as soon as the dummy slat is no longer resting on the resting element of the window it activates the transmitter, which sends the signal to the radio receiver located in the gearmotor.

[0028] In this case, the controller, by detecting that the lifting command has not been activated, correctly interprets the opening signal as an alarm condition and closes the electric circuit that activates the alarm indicator of the apartment.

[0029] It should be added to the above that control of the motor 16 can be provided not only by means of the switch 40, as shown in Figure 1, but also by means of a radio transmitter or remote control 41, as shown in Figure 6.

[0030] In this case, the radio receiver 10 located inside the tubular gearmotor can receive two kinds of signal, i.e., a signal which arrives from the remote control 40 for the opening and closing actuation of the roll-up element and a signal which arrives from the radio transmitter 1 in order to issue the alarm indication.

[0031] From the above description it is therefore evident that the invention achieves the intended aim and objects, and in particular the fact is stressed that the particularity of the invention is constituted by the fact that the transmitter is constituted by a sensor which is hidden and concealed in the dummy slat of the roll-up element, whereas the radio receiver is hidden and inaccessible because it is installed directly inside the gearmotor, which is in turn inserted in the octagonal blind roll-up drum or tube, thus allowing to couple the burglary prevention apparatus directly to the unit that allows radio control of the lifting and lowering of the roll-up element.

[0032] The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the inventive concept as defined by the appended claims.

[0033] All the details may furthermore be replaced with other technically equivalent elements.

[0034] In practice, the materials employed, as well as the contingent shapes and dimensions, may be any according to requirements.

[0035] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A burglary prevention apparatus for protecting apartments and the like, comprising a radio transmitter (1) which is inserted in a dummy slat (2) of a roll-up or equivalent element (3) in order to transmit, when said roll-up element is actuated, a signal, a radio receiver (10) for receiving said signal, and a controller for providing the connection between said radio receiver (10) and a centralized alarm indication unit (30) and for activating said centralized alarm indication unit (30) exclusively if said roll-up element is operated improperly.

2. The burglary prevention apparatus according to claim 1, **characterized in that** said radio transmitter comprises a body which can be inserted in said dummy slat and is provided with an activation button which protrudes, through an opening of said dummy slat, and rests against the sill or a fixed abutment, when the roll-up element is in the closed position, said button being able to protrude when said roll-up element is raised, activating said radio transmitter.

3. The burglary prevention apparatus according to claim 1, **characterized in that** said radio receiver is accommodated in a tubular gearmotor which is arranged inside the octagonal tube for supporting a roll-up element.

4. The burglary prevention apparatus according to claim 1, **characterized in that** it comprises a receiver antenna which is connected to said radio receiver.

5. The burglary prevention apparatus according to claim 2, **characterized in that** said gearmotor is internally provided with a motor which is connected to the electric mains by interposing a capacitor, said motor being associated, by means of a brake, with a reduction unit which is connected to an actuation pivot or actuation pulley located inside said octagonal tube, said motor being controllable by means of said radio receiver.

6. The burglary prevention apparatus according to claim 5, **characterized in that** said controller that drives said centralized alarm indicator unit has a stage which is operatively connected to a lifting or lowering actuation sensor of the roll-up element in order to block the transmission of the signal to the centralized alarm unit if the movement of the roll-up element is determined by said motor.

7. The burglary prevention apparatus according to claim 1, **characterized in that** said radio receiver is located at a distance from said roll-up element.

8. The burglary prevention apparatus according to claim 1, **characterized in that** said centralized alarm indication unit is connected to an acoustic indication unit and to a luminous indication unit.

Patentansprüche

1. Einbruchhemmende Vorrichtung zum Schutz von Wohnungen und ähnlichem, die einen Funksender (1), der in eine Scheinlatte (2) eines Aufrollelements (3) und ähnliches eingebracht ist, um ein Signal auszusenden, wenn das Aufrollelement betätigt wird, einen Funkempfänger (10) zum Empfang des Signals und eine Steuerung aufweist zum Bereitstellen der Verbindung zwischen dem Funkempfänger (10) und einer zentralisierten Alarmanzeigeeinheit (30) und zum Aktivieren der zentralisierten Alarmanzeigeeinheit (30), ausschließlich wenn das Aufrollelement unsachgemäß betätigt wird.

2. Einbruchhemmende Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** der Funksender ein Gehäuse aufweist, das in die Scheinlatte eingebracht werden kann, und mit einem Aktivierungsknopf versehen ist, der durch eine Öffnung der Scheinlatte hervorragt, und der an der Fensterbank oder einer festen Angrenzung anliegt, wenn das Aufrollelement in der geschlossenen Position ist, wobei der Knopf hervorragen kann, wenn das Aufrollelement aufgezogen wird, wodurch der Funksender aktiviert wird.

3. Einbruchhemmende Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** der Funkempfänger in einem röhrenförmigen Getriebemotor untergebracht ist, der innerhalb der achtkantigen Röhre zur Abstützung des Aufrollelements angeordnet ist.

4. Einbruchhemmende Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** es eine Empfangsantenne aufweist, die mit dem Funkempfänger verbunden ist.

5. Einbruchhemmende Vorrichtung nach Anspruch 2, **dadurch gekennzeichnet, dass** der Getriebemotor intern mit einem Motor versehen ist, der mit den elektrischen Leitungen durch Dazwischenschalten eines Kondensators verbunden ist. wobei der Motor mittels einer Bremse mit einer Reduzierungseinheit verbunden ist, die mit einem innerhalb der achtkantigen Röhre angeordneten Antriebszapfen oder Antriebsrad verbunden ist, wobei der Motor mittels des Funkempfängers ansteuerbar ist.

6. Einbruchhemmende Vorrichtung nach Anspruch 5, **dadurch gekennzeichnet, dass** die Steuerung, die die zentralisierte Alarmanzeigeeinheit antreibt, einen Arbeitsgang hat, der wirkend mit einem Heben- oder Senkensensor des Aufrollelements verbunden ist, um das Aussenden des Signals an die zentralisierte Alarmanzeigeeinheit zu unterbinden, wenn die Bewegung des Aufrollelements durch den Motor festgestellt wird.

7. Einbruchhemmende Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** der Funkempfänger in einer Entfernung von dem Aufrollelement angeordnet ist.

8. Einbruchhemmende Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die zentralisierte Alarmanzeigeeinheit mit einer akustischen Anzeigeeinheit und mit einer leuchtenden Anzeigeeinheit verbunden ist.

Revendications

1. Appareil de prévention de cambriolage pour la protection d'appartements et autres, comprenant un émetteur radio (1) qui est inséré dans une lamelle

factice (2) d'un dispositif à enroulement (3) et autres afin d'émettre un signal quand ledit dispositif à enroulement est actionné, un récepteur radio (10) destiné à recevoir ledit signal et un dispositif de commande permettant d'établir la connexion entre ledit récepteur radio (10) et une unité d'indication d'alarme centralisée (30) et d'activer ladite unité d'indication d'alarme centralisée (30) uniquement si ledit dispositif à enroulement est actionné de manière incorrecte.

2. Appareil de prévention de cambriolage selon la revendication 1, **caractérisé en ce que** ledit émetteur radio comprend un corps qui peut être inséré dans ladite lamelle factice et est équipé d'un bouton d'activation qui fait saillie à travers une ouverture de ladite lamelle factice et est en appui contre la traverse ou une butée fixe quand le dispositif à enroulement est dans la position fermée, ledit bouton pouvant faire saillie quand ledit dispositif à enroulement est relevé, ce qui active ledit émetteur radio.

3. Appareil de prévention de cambriolage selon la revendication 1, **caractérisé en ce que** ledit récepteur radio est logé dans un motoréducteur tubulaire qui est agencé à l'intérieur du tube octogonal destiné à supporter un dispositif à enroulement.

4. Appareil de prévention de cambriolage selon la revendication 1, **caractérisé en ce qu'**il comprend une antenne de récepteur qui est connectée audit récepteur radio.

5. Appareil de prévention de cambriolage selon la revendication 2, **caractérisé en ce que** ledit motoréducteur est équipé de manière interne d'un moteur qui est connecté au réseau électrique en intercalant un condensateur, ledit moteur étant associé à l'aide d'un frein à une unité de réduction qui est connectée à une poulie d'actionnement ou à un pivot d'actionnement placé à l'intérieur dudit tube octogonal, ledit moteur pouvant être commandé à l'aide dudit récepteur radio.

6. Appareil de prévention de cambriolage selon la revendication 5, **caractérisé en ce que** ledit dispositif de commande qui commande ladite unité d'indication d'alarme centralisée a un étage qui est connecté de manière fonctionnelle à un détecteur d'actionnement par relèvement ou abaissement du dispositif à enroulement afin de bloquer la transmission du signal à l'unité d'alarme centralisée si le mouvement du dispositif à enroulement est déterminé par ledit moteur.

7. Appareil de prévention de cambriolage selon la revendication 1, **caractérisé en ce que** ledit récepteur radio est situé à distance dudit dispositif à enroulement.

8. Appareil de prévention de cambriolage selon la revendication 1, **caractérisé en ce que** ladite unité d'indication d'alarme centralisée est connectée à une unité d'indication acoustique et à une unité d'indication lumineuse.

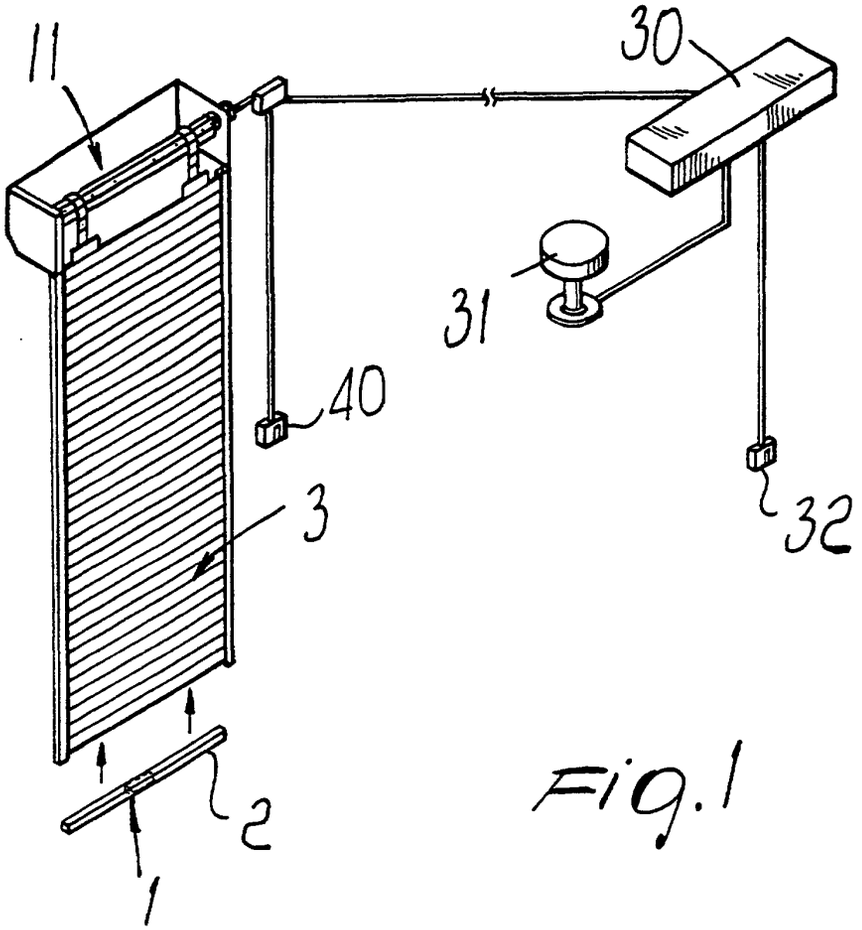


Fig.1

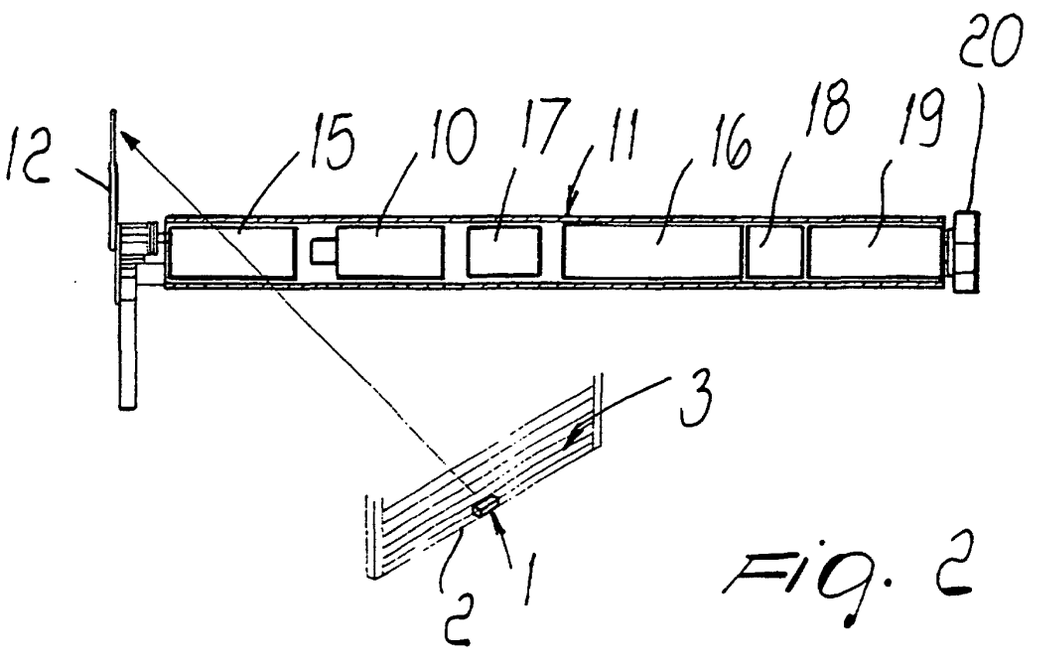


Fig. 2

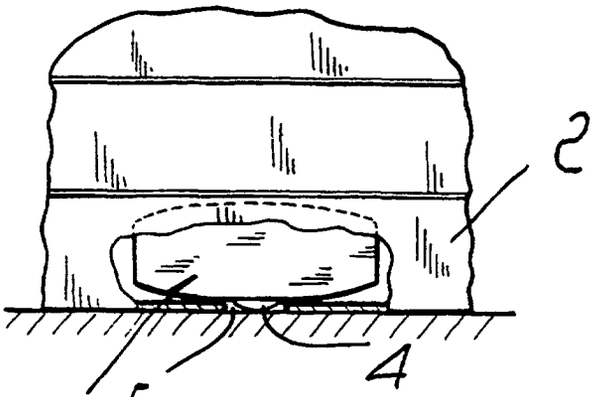


FIG. 3

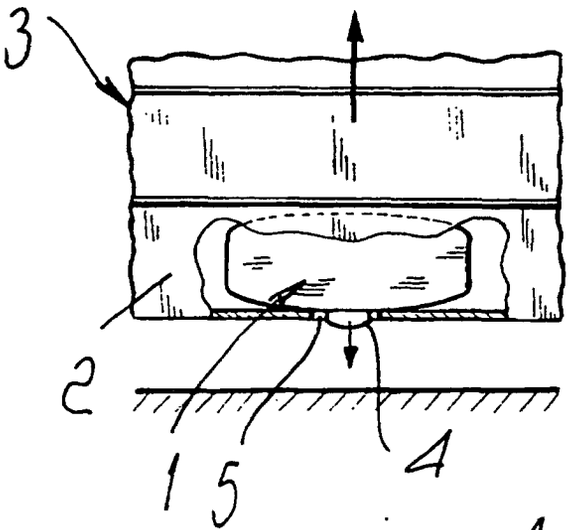


FIG. 4

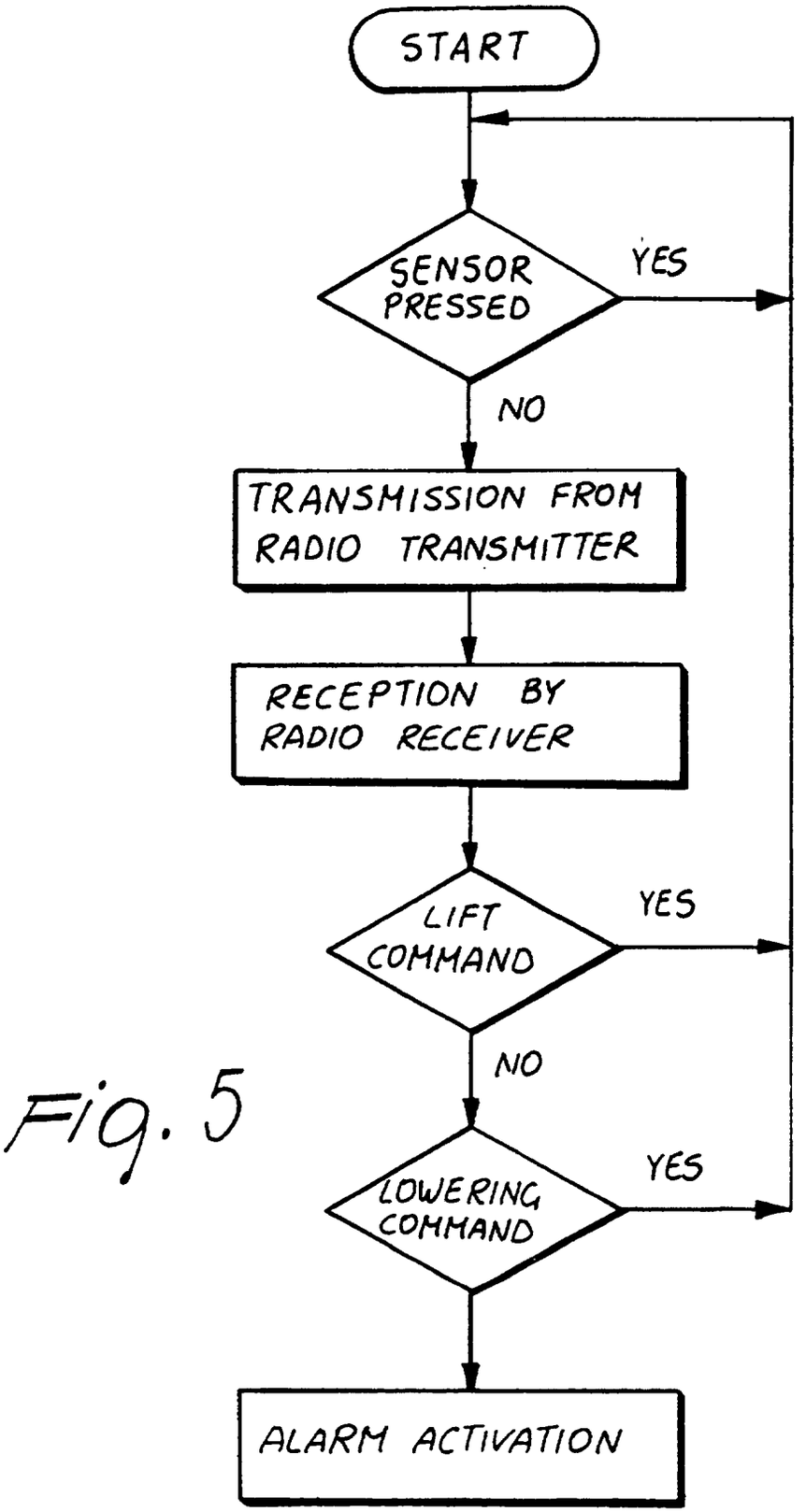

START
SENSOR PRESSED
YES
NO
TRANSMISSION FROM RADIO TRANSMITTER
RECEPTION BY RADIO RECEIVER
LIFT COMMAND
YES
NO
LOWERING COMMAND
YES
ALARM ACTIVATION

Fig. 5

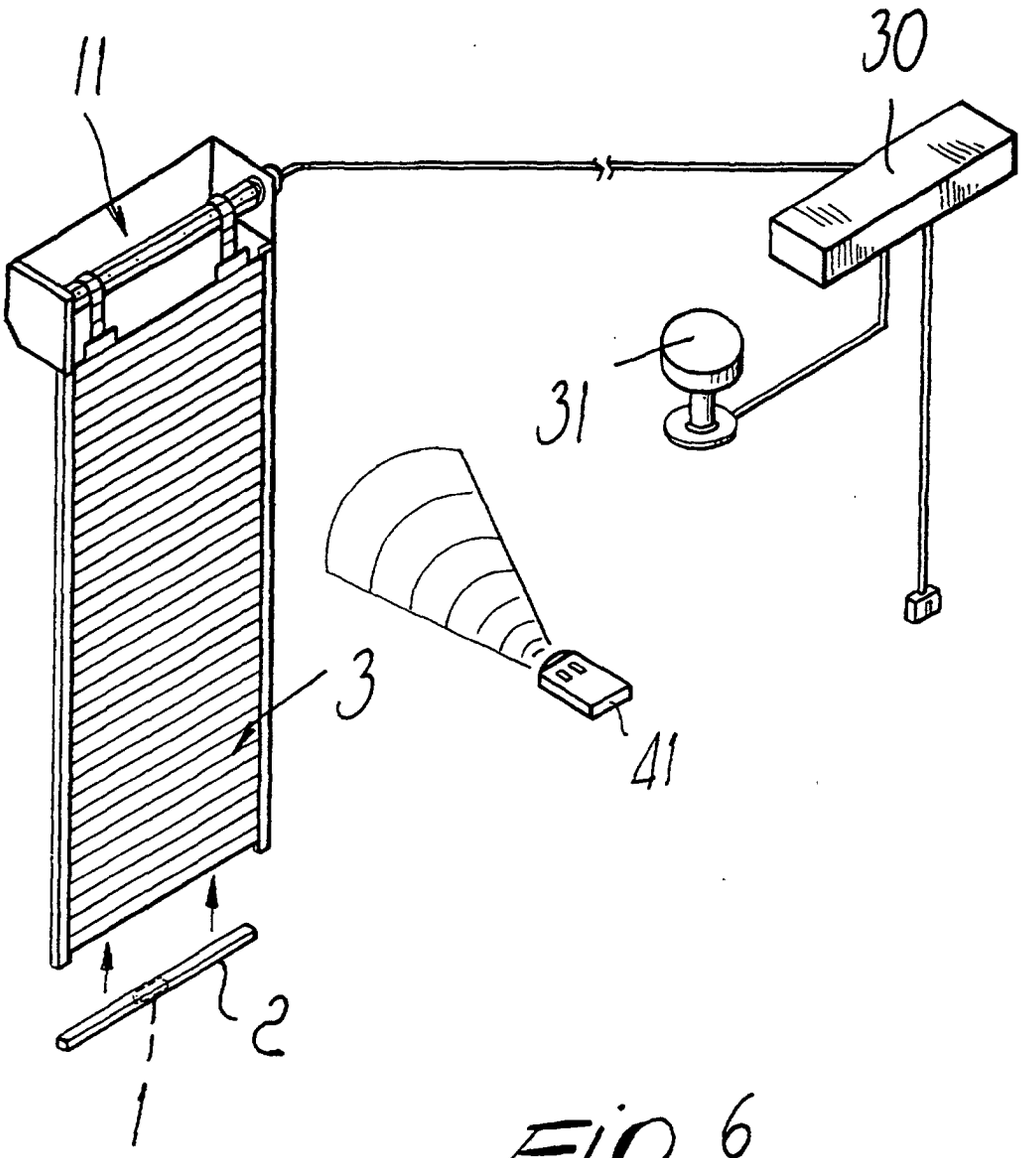


Fig. 6