

The invention presently being introduced is an electromechanical precision alarm applicable to floors. It is extremely efficient in its operation, durability, maintainance and, above all, it is very difficult to detect and to adulterate without being noticed.

This burglar alarm includes an alarm electromechanical mechanism appliance which can be used on the floor and is linked to its internal part in such a way a that a passer-by does not notice it.

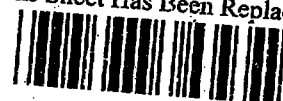
Several electromechanical alarms are known of the kind that are activated when somebody involuntarily alters or affects its stability, producing a mechanical movement that activates the alarm electrical circuit.

Even though this alarm belongs to the group previously defined, it has been designed to work in any type of floor or surface, that is, where the irregularity is produced as a result of a pressure exerted on it from top to bottom.

Its innovation lies in its construction conception that results from a combination of means of which there is no antecedent. Its special structure has been designed to work with high precision, detecting any variation in the stability of the floor, oscillating between 800 to 1,200 microns and thus activating an electric alarm.

This conception has the advantage of solving several problems. It prevents obstructions resulting from undesired movements especially when it is used in floors whose exposed surface is spacious and it has also been designed to prevent action directed towards deactivation or malfunctioning.

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Essentially, this device works on the internal surface of floor plates and it is not possible to notice it. This internal surface rests on a special firm structure which gives the unit strength and resistance. The plate support on this firm structure includes springs and similar devices meant to maintain an adequate and normal position.

Likewise, in the internal surface of the plate and orderly distributed, there are electrical contactors which face similar ones in the firm structure so that if the plate moves due to some pressure exerted on it, the electrical circuit is closed and the alarm is activated.

At the same time, the plate also rests on a special structure that is deformable and whose principal purpose is to ensure that if pressure is exerted on the floor surface, the deformable structure moves rectilinearly and perpendicularly to it, avoiding angular deviations that may affect its normal working.

To be more explicit about the advantages of this alarm, a preferential realization example is described, schematically and without a special scale, in the drawings that follow. It is important to state that this is just an example meant to explain the basic conception on which this invention is based.

DIAGRAM 1 shows, lengthwise, the basic elements that define the alarm.

DIAGRAM 2 shows the lower plant which complements the previous one and which shows the position and distribution of the basic elements mentioned before.



DIAGRAM 3 shows the means that activate the electrical circuit of the alarm when its operation is altered.

DIAGRAM 4 shows two confronted contactors.

DIAGRAM 5 shows, schematically, the electrical circuit used.

In all diagrams numbers correspond with each other, that is, each number corresponds with the same number in different diagrams.

Diagrams 1 and 2 show a floor plate -1- and its structure that rests over an intermediate deformable structure on its four equidistant points (2 - 3 - 4 - 5) where special means allow the stretching and retraction of lateral bars (6 - 7 - 8 - 9).

An indeformable inferior structure (10), parallel to the floor, supports the stop means for the descent of the plate (1) shown by 11 and 12 with intercalated elastic springs (13 -14) which maintain an ascending tendency. In this same structure there are pairs of electrical terminal contactors (19-20-21- 22) parallel to the inside part of the plate (1).

By analysing Diagrams 1 and 2 it is possible to understand one of the innovating characteristics of the alarm: the bars 6-7-8 and 9 project obliquely from their supports to the central rolling means constituted by the transversal shafts (23 - 24), which are linked by means of helical wheels (25-26) to equivalent angular movements in the remaining bars.

This explanation is of vital importance as to the precision and security of the alarm because any pressure on the plate (for example the one shown by arrow F in Diagram 1, will transmit a uniform descent of equal magnitude and direction to the whole plate.

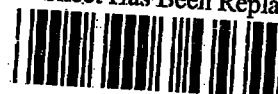


This produces a doublefold advantage. The first one is that it impedes obstructions resulting from marginal pressure that may decompose it in lateral displacements; the second advantage is that the closure of the electrical circuit of alarm is immediate due to the position and distribution of the terminal contactors.

To continue with the explanation of this resource to obtain uniformity and precision in forward and backward movements of plate 1 as the alarm mechanical activating means, it is to be emphasised that the supports -2-3-4-5 anticipate the movement that must be carried out to transmit it to the bars 6-7-8-9; this bond: floor-bar-oblique plane, is articulate as shown in 4 and 5, Diagram 1, and these articulations absorb the transversal movement that the floor should carry out in each ascending and descending movement.

In case the floor plate is forced, the alarm includes a specially designed means whose function is to activate the alarm when the floor plate presents an upward movement. As can be seen in Diagrams 1 and 3, in shaft 24 there is a bar -27- which rotates freely and whose free extremity rests on the internal surface of the floor plate. It maintains a pressure tendency towards the floor, as a consequence of the action of a traction spring -28- , in such a way that if the floor moves slightly (Diagram 3), in direction F2, bar -F3- rotates, closing the alarm electrical circuit as shown in Diagram 3.

Diagram 4 shows the conformation of the terminal contactors in detail. In this case, terminal contactor 19 is only shown. It belongs to the group that is parallel to the floor plate -1- and the one in front of it -15- that belongs to the group parallel to the firm



structure -10-. All these pairs of terminal contactors -19-20-21-22- are linked by means of conducting strings 29-30-; it is a parallel instalment (as also shown by the electrical circuit in Diagram 5). The terminal contactors -15-16-17-18- are linked among themselves by means of conductors -31-. It is clear from Diagram 4 that with the slightest displacement of the floor plate -1- , filament -29-, will contact the free extremity -32- of terminal contactor -15-, closing the alarm electrical circuit.

This is shown in Diagram 5 which also includes the emergency means foreseen to prevent anyone from removing the floor in order to adulterate the alarm.





R E P L E V I N

Having described and illustrated the nature and principal aim of this invention, as well as the way in which it can be put into practice, it is replevied as of exclusive rights and property:

1. ELECTROMECHANICAL PRECISION ALARM APPLICABLE TO FLOORS, of the kind that consists of an electrical system, which belongs to a sounding and/or auditory alarm resource, intercalated with a mechanical means capable of producing the closure of the electrical circuit when an undesired movement is produced in the place where this device has been installed, being this device installed on the floor of the place, and characterised because it consists of a flat plate whose superficial exterior configuration is the same as those of the rest of of the plates that intervene for the floor conformation; its internal surface rests on a rigid and strong tubular structure, with the intercalation of elastic stop means equidistantly distributed; on the same internal surface there are electric terminal contactors orderly distributed and interrelated among them, all of them forming part of the alarm electric circuit; each contactor facing another group of electric solidary contactors of the rigid tubular structure; this floor plate rests on an intermediate deformable structure, formed by four oblique bars that converge in pairs to the end of their respective transversal shafts with which they are associated; these shafts are interrelated by means of helical wheels.

2. ALARM DEVICE, as replevied in 1, characterised by the fact that the supports of the floor plate on the deformable intermediate structure is produced in the free ends of the oblique bars where there is an extensible section related to a group of connecting rods that limit the courses of expansion and retraction of each bar.

3. ALARM DEVICE, as replevied in 1, characterised by the fact that the elastic stop means include expansion springs.

4. ALARM DEVICE, as replevied in 1, characterised by the fact that both the terminal contactors parallel to the floor plate and those corresponding to the firm structure are aligned in pairs.

5. ALARM DEVICE, as replevied in 1, characterised by the fact that if set in a freely rotating condition, there is a bar in one of the mentioned transversal shafts which projects obliquely till it rests, by exerting a pushing pressure, on the internal face of the floor plate, being this pressure exerted by a traction spring; this bar is linked to the electrical circuit of alarm.

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