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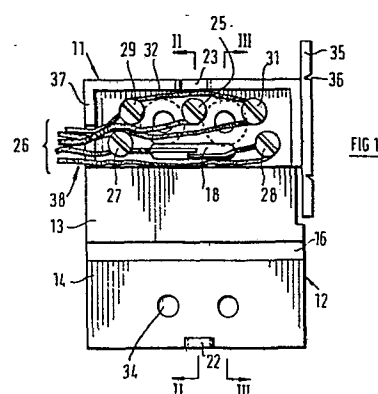
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54 Security system sensor.

57 A security system sensor unit incorporates a plastics moulding with a main body (11) incorporating a recess for a magnetic reed contact set (18) and a depression in one surface for a series of electrical connector screws such as (25), of which only two (27,28) are connected to the contact set (18). The plastics moulding incorporates a two part integral flanged cover (12) one part (13) which can be pivoted away from the recess to provide good access thereto.



79.025/ABC

Security System Sensor

The invention relates to magnetic sensors for security systems.

One type of security system for doors or windows incorporates an electrical circuit including an alarm bell and a set of electrical contacts responsive to the open or closed condition of the door or window. The electrical contact set may be a magnetic read contact set, set into a door frame or window frame in which case the door or window is provided with a magnet assembly which comes into close proximity with the contact set when the door or window is closed but moves away from the contact set when the door or window is opened. The contact set is such that the contacts are closed when the door or window is closed due to the proximity of the magnet but the contacts are automatically opened as the door or window is opened. In this way it is possible for the contact set to signal that the door or window has been opened and to sound the alarm.

In a modification of this arrangement the electrical contact set is surface mounted on the door or window frame and co-operates with a magnet which is also surface mounted.

It is desirable for the sensor unit to be as small as possible to facilitate a neat and unobtrusive installation. A small unit can be difficult to work with if the installer of the security system has to connect several wires to the unit. One known solution to this problem is to connect short wires permanently into the unit during manufacture so that the installer of the system merely connects one set of wires to another set. The connectors involve some cost, introduce a further possibility for faulty connections and can help an intruder to foil the security system.

An object of the invention is to provide a small sensor unit to which wires can be connected more easily.

According to the invention there is provided a security system sensor unit of the kind incorporating a magnetic read
5 contact set and electrical connections to the sensor unit characterised in that the sensor unit comprises a single plastics moulding which has a recess incorporating the contact set and a plurality of electrical terminal locations for establishing connection between the contact set and the
10 electrical leads to the contact set and for other electrical leads to the sensor unit and which has an integral cover pivotal between an open position in which access is available to the terminal locations and a closed position in which the cover covers the terminal locations. This arrangement can
15 result in a compact and versatile assembly.

Preferably the terminal locations are apertures in which screws are received.

The plastics moulding with the cover in the closed condition may be of square section and have an end flange to
20 facilitate mounting of the unit in a mounting hole with the flange flush with the surface in which the hole is drilled. The flange may be removeable to facilitate an alternative means of mounting. With the cover in its closed position the main body of the moulding and the cover may have mutually
25 aligned mounting holes for mounting the sensor on a surface.

An embodiment of the invention will now be described by way of example with reference to the accompanying drawings in which:

Figure 1 is a side elevation of the sensor with the
30 cover in an open condition;

Figure 2 is a section on line II-II of Figure 1; and

Figure 3 is a section on the line III-III of Figure 3.

The sensor is constituted primarily by a single plastics moulding which has a main body 11 which is elongated and of generally square section. An integrally moulded cover 12 is constituted by an inner flap 13 and an outer flap 14. Flap 13 is pivoted to the main body 11 and flap 14 is pivoted to the flap 13 by means of thin sections of the moulding which act as hinges 15 and 16 respectively. The main body 16 has a recess 17 in its lower surface in which is located a conventional magnetic read contact set 18. Recess 17 communicates with a large depressed surface region 19 which is provided for the purpose of electrical connections to the sensor.

Flap 13 can be pivoted from the position shown to a closed position where it lies against the undersurface 21 of the main body 11 and closes the underside of the recess 17. When flap 13 is in this closed condition, flap 14 can be pivoted to close the depressed contact area 19. A lug 22 with a reverse taper then engages in a corresponding slot 23 to hold both flaps 13 and 14 of the cover 12 in the closed position. Five blind screw holes such as the hole 24 shown in Figure 2 are provided in the depressed region 19 to receive self tapping screws such as the screw 25. The screw holes act as terminal locations for the screws which are used as electrical terminals. The arrangement of electrical connections is conventional. There are five wires 26 leading into the sensor. Two of these wires lead to screws 27 and 28 to which the leads from the contact set 18 are also connected. Two further wires 26 lead to screws 29 and 31 respectively which are connected together by a bridging wire 32. A fifth wire leads to and terminates in an open circuit at screw 25. This arrangement of wiring provides additional security because it ensures that even if an intruder has access to the run of the wires 26 he would have difficulty in identifying and short circuiting the two wires leading to the contact set so that he could render the sensor inoperative.

Cutting or joining together the wrong wires should result in an alarm being sounded.

The main body 11 is also provided with two countersunk mounting holes 33 best seen in Figure 3 and these mounting
5 holes align with corresponding holes 34 in the cover flap 14 when the cover is in the closed position. Thus, in the absence of an end flange 35 (which will be described subsequently) the complete sensor can be mounted by two wood screws passing through the mounting holes and these wood
10 screws also help to hold the cover in the closed position.

Flange 35 is notched at 36 around a line corresponding to the cross section of the main body 11 and closed cover 12 so that the flange can be removed for surface mounting of the sensor by means of screws in the mounting holes. An altern-
15 ative mounting arrangement is to drill a hole of a diameter substantially equal to the diagonal dimension of the square section main body plus closed cover and to mount the sensor in this hole with the aid of the flange 35. Flange 35 may incorporate appropriately positioned screw holes (not shown)
20 to enable it to be screwed to a surface.

The end wall 37 remote from the flange 35 incorporates an opening 38 through which the wires 26 extend.

The sensor described above can be used in a versatile manner in that it can be mounted with very little adaptation
25 either in a hole drilled in a surface or on a flat surface. The unit is also compact and is constituted primarily by a single moulding, both of which factors tend to reduce the cost of the sensor. The commonality between a surface mounting and recess mounting sensor also has economic
30 advantages because it reduces the requirement for an installer to carry stocks of different types of sensors.

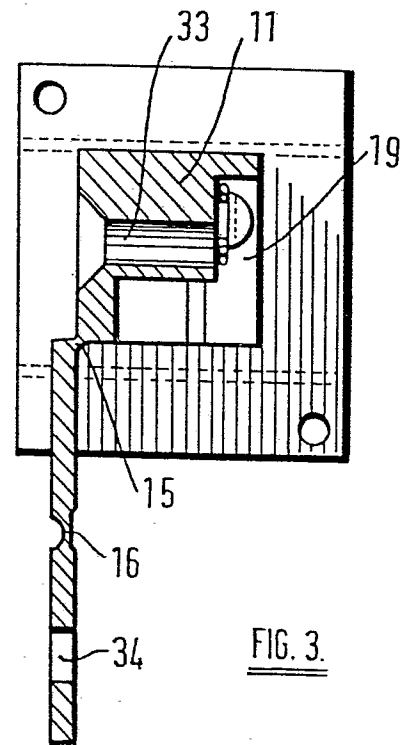
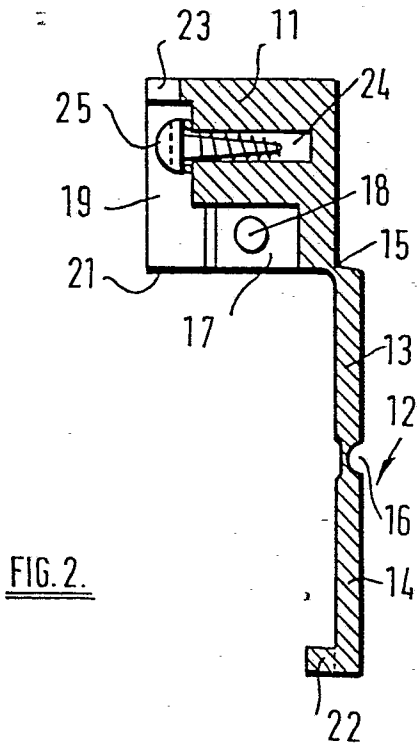
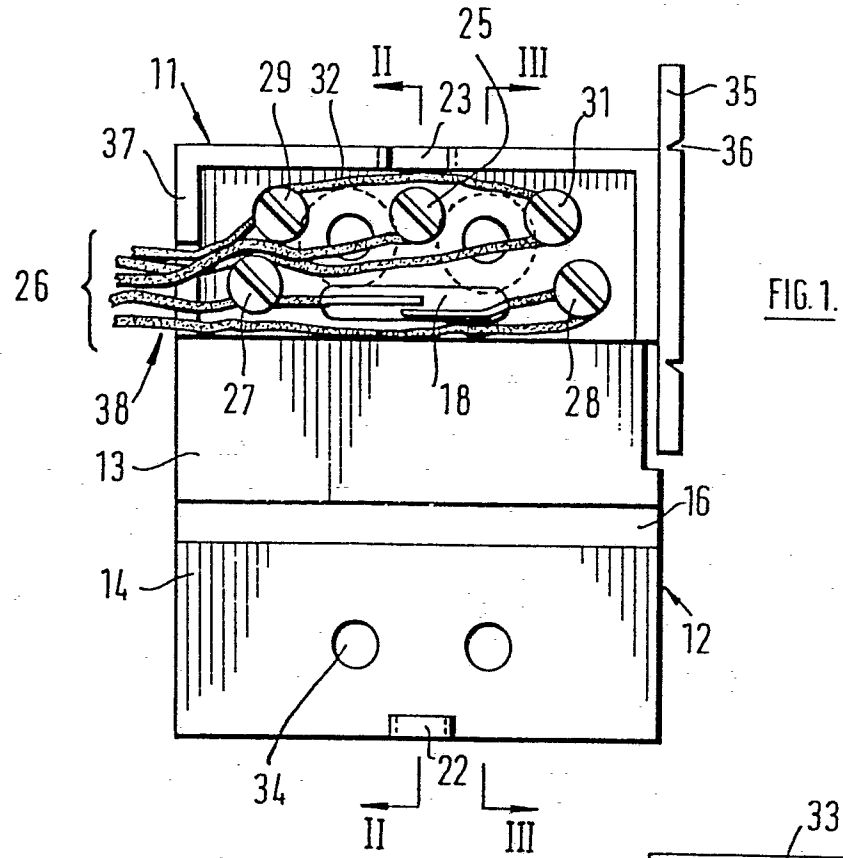
CLAIMS

1. A security system sensor unit of the kind incorporating a magnetic read contact set and electrical connections to the sensor unit, characterised in that the sensor unit comprises a single plastics moulding which has a recess incorporating the contact set and a plurality of electrical contact locations for establishing connection between the contact set and the electrical leads to the contact set and for other electrical leads to the sensor unit and which has an integral cover pivotal between an open position in which access is available to the terminal locations and a closed position in which the cover covers the terminal locations.
2. A security system sensor unit as claimed in Claim 1 wherein the cover is constituted by two integrally moulded flaps hinged to each other and one of which is hinged to the body of the unit whereby the flap which is hinged to the body of the unit can be moved to open up a side of the recess.
3. A security system as claimed in Claim 1 or Claim 2 in which the terminal locations are apertures in which screws are received.
4. A security system sensor unit as claimed in Claim 3 wherein the plastics moulding with the cover in a closed condition is of square section and has an end flange to facilitate mounting of the unit.
5. A security system sensor unit as claimed in Claim 4 in which the flange is removeable.
6. A security system sensor unit as claimed in Claim 1 or Claim 2 or Claim 5 wherein with the cover in its closed position the main body of the moulding and the cover have

mutually aligned mounting holes for mounting the sensor on a surface.

7. A security system sensor unit substantially as described with reference to and as illustrated by the accompanying 5 drawings.

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European Patent
Office

EUROPEAN SEARCH REPORT

0021611

Application number

EP 80 30 1742

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl. 3)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
	GB - A - 1 396 874 (E.M.I.) * Page 4, lines 108-121; page 5, lines 12-17; figures 6,7 * -- GB - A - 1 278 646 (SHORROCK) * Page 1, lines 28-42 * -- US - A - 3 975 723 (BOWLING) * Column 4, line 44 - column 5, line 2; figures 7-9 * -- US - A - 4 018 981 (HAWKINS) * Column 1, lines 18-20, 53-58; column 3, lines 3,4; column 4, line 11; figure 5 * -----	1,6 1 1 2	G 08 B 13/08 TECHNICAL FIELDS SEARCHED (Int.Cl. 3) G 08 B 13/08 H 01 R 13/50 CATEGORY OF CITED DOCUMENTS X: particularly relevant A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons &: member of the same patent family, corresponding document
The present search report has been drawn up for all claims			
Place of search	Date of completion of the search	Examiner	
The Hague	12-09-1980	BARRACO	