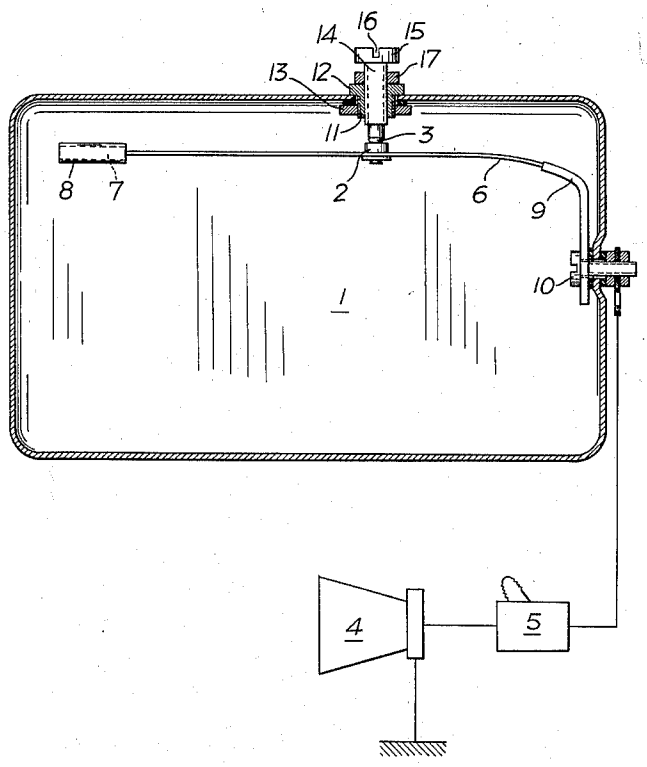
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THEFT ALARM FOR MOTOR VEHICLES

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THEFT ALARM FOR MOTOR VEHICLES

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The invention relates to a theft alarm for motor vehicles and has as its object a vibration sensitive switch controlling a visual or audible in response to vibration caused by unauthorized contact with the motor vehicle.

The vibration sensitive switch used in the alarm system of the invention comprises an elongated leaf spring one end of which is free, the other end being fixedly secured to an insulated terminal of the alarm circuit. The leaf spring extends upwardly from the terminal and is curved through an arc of 90 degrees so that it is substantially horizontally to its free end, the opposite end portions of the spring being mutually perpendicular. A movable contact is located in the horizontally extending portion of the leaf spring and cooperates with a stationary contact the position of which is adjustable for controlling the sensitivity of the switch. The leaf spring is enclosed within a metal housing. The terminal which mounts the leaf spring extends through a vertical wall of the housing. The free end of the leaf spring carries a weight which is covered by insulation to prevent electrical contact between the weight and the housing. The fixed end portion of the leaf spring is enclosed within a flattened metal sleeve which is connected to the terminal along with the leaf spring and which extends toward the free end through at least a major portion of the 90 degree curve. The soft metal sleeve constrains the leaf spring to be curved without imparting a permanent deformation to the spring itself, thereby avoiding failure of the spring due to fatigue at a bend.

The stationary contact is mounted in a threaded bushing instead of the usual threaded hole in the wall of the housing. The bushing provides a large number of threads and thus permits a precise positioning of the stationary contact with relation to the movable contact, thereby accurately predetermining the normally open gap therebetween. The magnitude of the gap is permanently fixed by a lock nut thereby providing a stabilized sensitivity for the switch.

Details of the invention will be explained more fully with reference to the accompanying drawing, which illustrates by way of example a theft alarm diagrammatically in a side view, partly shown in section.

A metal housing **1** is mounted on the motor vehicle to be protected in a concealed position and contains normally open movable and stationary contacts **2** and **3**, respectively, which are serially included in the circuit of a visual or audible signalling device **4**, which may be switched on and off, e.g., by a switch **5**. The contact **2** is carried by a leaf spring **6**, which carries a weight **7** at its free end. To prevent a short-circuiting contact between the vibrating leaf spring **6** and the housing **1**, an insulator **8** is fitted on the weight **7**. A flattened sleeve **9** of soft metal, such as copper, is fitted over the end of the leaf spring **6** and the leaf spring **6** together with the soft metal sleeve **9** is then so bent that the contact **2** is located on a substantially horizontal part of the leaf spring **6**. The leaf spring **6** and sleeve **9** are then secured to the housing wall by means of a screw **10** which forms part of an insulated terminal.

To adjustably secure the contact **3** to the housing **1**, a bushing **11** is inserted through an opening in the top horizontal wall of the housing. This bushing carries a flange **12** and is provided with external and internal screw threads. By means of a nut **13** the bushing **11** is secured to the housing. An adjustable contact screw **14** is in threaded engagement with the internal screw thread of the bushing **11** carries the contact **3** at its lower end. The contact screw **14** carries a head **15** of hexagonal shape, which is shown provided with a screwdriver slot **16**. A lock nut **17** is provided for holding the contact **3** in its adjusted position.

I claim:

1. A vibration sensitive alarm system comprising: an elongated leaf spring having mutually perpendicular substantially straight end portions, said spring being curved through an arc of 90 degrees intermediate said end portions; an elongated flat sleeve of soft metal enclosing one of said end portions and extending toward the other end portion through at least a major portion of said arc, said sleeve constraining said spring to assume a curved configuration within a portion of said arc through which said sleeve extends; means fixedly positioning said one end portion of said sleeve together with said one end portion of said spring which is enclosed therein; weight means carried by said other end portion of said spring; movable contact means carried by said spring intermediate said weight means and said arc; fixed contact means positioned for cooperation with said movable contact means; and an alarm circuit controlled by said contact means.

2. An alarm system according to claim 1, further comprising a metal housing enclosing said spring and insulating means carried by said weight means for preventing electrical contact between said weight means and said housing.

3. An alarm system according to claim 1, further comprising a housing having at least one wall and within which said spring, said weight means, both of said contact means and said sleeve are enclosed, said means fixedly positioning said one end of said sleeve comprising an insulated terminal passing through said wall, said terminal being included in said alarm circuit.

4. An alarm system according to claim 3, wherein said housing comprises a further wall perpendicular to said first-named wall, and in which said stationary contact means comprises a threaded bushing passing through said further wall, an axially extending contact screw in threaded engagement with said bushing, said screw having a head portion located exteriorly of said housing and a contact portion positioned within said housing for engagement with said movable contact means, the position of said contact portion being adjustable by turning said head portion.

5. An alarm system according to claim 1, wherein said one end portion of said spring is vertical and said other end portion is horizontal.

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