Oct. 25, 1966 T. BLUMISH 3,281,735

MAGNETIC SWITCH HAVING SWINGABLY SUPPORTED PERMANENT MAGNET ACTUATING MEANS

Filed April 14, 1965

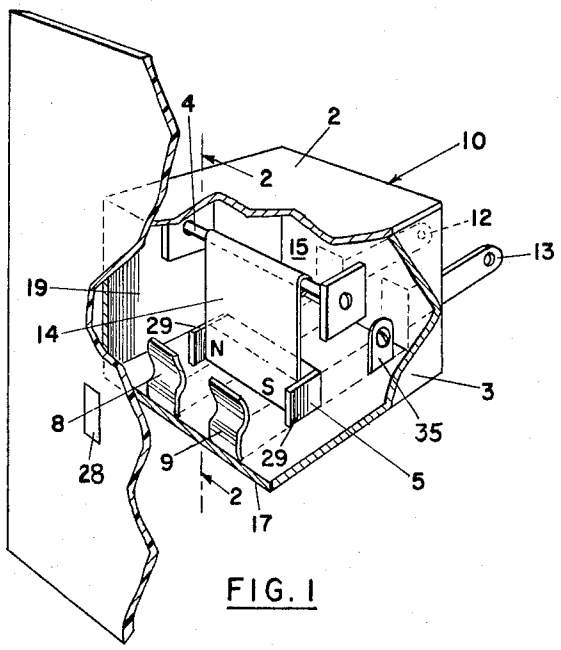


FIG. 1

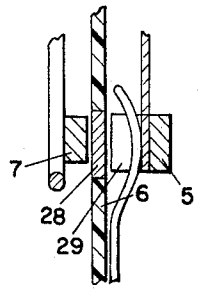


FIG. 4

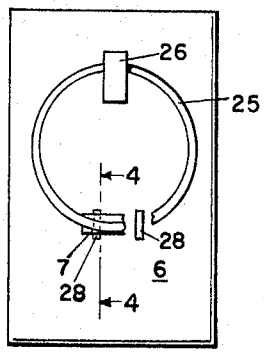


FIG. 3

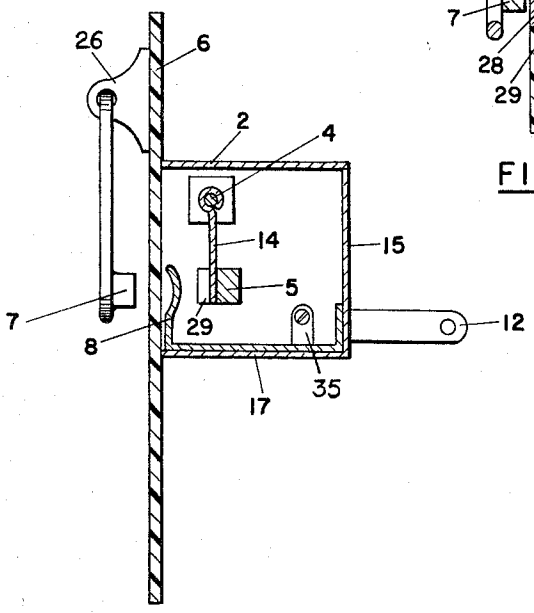


FIG. 2

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MAGNETIC SWITCH HAVING SWINGABLY SUPPORTED PERMANENT MAGNET ACTUATING MEANS

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4 Claims. (Cl. 335—207)

This application is a continuation in part of patent application, Serial No. 290,060, filed June 24, 1963, now abandoned.

This invention relates to magnetic operated switches and, more particularly, to a switch which can be concealed from view inside any type of wall or partition and can be sealed against damage by fluids or the like and, also, can be operated by a magnet which is swingably attached to the switch.

The invention has particular utility in connection with the operation of light fixtures which are to be operated from either the inside or outside of a building structure. Also, domestic and industrial equipment and appliances can be operated by the switch disclosed, including door opening and closing mechanisms, home circuit breakers for child safety, steam bath vent fans, and the like. The switch can be permanently installed or it may be made portable.

The switch according to the present invention further has the advantage that it can be completely concealed from sight as, for example, by sealing it inside a wall. Thus, the mechanism will not be susceptible to disturbance by unauthorized persons or affected by weather.

It is, accordingly, an object of the present invention to provide an improved switching mechanism.

Another object of the invention is to provide an improved magnetically actuated switch.

A further object of the invention is to provide a switch which is simple in construction, economical to manufacture, and simple and efficient to use.

With the above and other objects in view, the present invention consists of the combination and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawing and more particularly pointed out in the appended claims, it being understood that changes may be made in the form, size, proportions, and minor details of construction without departiing from the spirit or sacrificing any of the advantages of the invention.

In the drawing:

FIG. 1 is a view partly broken away showing a switch according to the invention;

FIG. 2 is a cross sectional view taken on line 2—2 of FIG. 1;

FIG. 3 is a front view of the switch; and

FIG. 4 is a cross sectional view taken on line 4—4 of FIG. 3.

Now with more particular reference to the drawing, the switch shown is enclosed in a body which is shown by way of illustration as having the form of a square box which is indicated at 10. The box 10 may be made of electrical insulating material such as plastic or the like. It has a rear wall 15, bottom wall 17, and top wall 2.

Inside the box and pivotally supported between the ends 3 and 19 is an axle 4. The axle 4 is journalled at its end in the ends 3 and 19 of the box so that a switch member 14 may swing to and fro. The axle 4 may be made of electrical non-conducting material or conducting material as desired.

The axle 4 supports the switch member 14. The switch member 14 has the permanent bar magnet 5 fixed to its lower end. The magnet 5 is made of electrical conducting material. If a ceramic magnet is used, it must be bridged by a non-magnetic, metallic bar or wire. When the permanent bar magnet 5 is in its undisturbed suspended position, it is separated and spaced from contact terminal members 8 and 9 and it engages them and completes the circuit through the terminal plugs 12, 13, and 35. Terminal plugs 12 may be broken off if they are not used so that the device may fit into a wall.

The terminal members 8 and 9 are made of resilient electrical conducting material and they can be forced toward the plate 6 as they are engaged by the permanent magnet 5 so that a wiping action takes place between the magnet 5 and terminal members 8 and 9, thereby providing a clean electrical contact between the terminal members 8 and 9 and magnet 5.

A ring 25 is swingably supported by a lug at 26 to the plate 6. The ring itself may be made of non-magnetic material and it has a second bar magnet 7 fixed to its lower end. Inserts 28 are set into the plate 6 and pole pieces 29 are fixed to each end of the permanent magnet 5. Thus, when the ring 25 is swung to the position shown in FIGS. 2, 3, and 4, the bar magnet 7 will act through the inserts 28 and to the pole pieces 29 and thereby provide a complete, efficient magnetic circuit between the two magnets 5 and 7.

The foregoing specification sets forth the invention in its preferred practical forms but the structure shown is capable of modification within a range of equivalents without departing from the invention which is to be understood is broadly novel as is commensurate with the appended claims.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A switch comprising
a container,
spaced terminals in said container,
an armature swingably supported in said container and adapted to swing into engagement with said spaced terminals to complete a circuit therebetween,
a permanent magnet,
means above said terminals and spaced laterally therefrom swingably supporting said permanent magnet on the opposite side of said spaced terminals from said armature,
and means to complete a magnetic circuit from said permanent magnet to said armature whereby said armature is urged to swing into engagement with said spaced terminals when said permanent magnet is swung toward said armature whereby an electrical circuit is completed between said terminals,
said permanent magnet and said armature being adapted to be swung by gravity from said terminals when said permanent magnet is swung away from said terminals.

2. A switch comprising
a container,
a plate on said container,
an axle in said container spaced from said plate,
a first permanent bar magnet swingably supported on said axle,
laterally spaced terminals in said container adjacent said plate and below said axle,
spaced magnetic inserts in said plate spaced from said terminals,
a second permanent bar magnet,
means swingably supporting said second permanent magnet on the opposite side of said plate from said first permanent magnet,

said permanent bar magnets being adapted to swing toward each other in parallel relation to each other with said inserts therebetween,

and means completing a circuit between said terminals when said magnets swing toward each other.

3. The switch recited in claim 2 wherein

said spaced terminals are resilient and are forced toward said plate when said permanent bar magnets swing toward each other.

4. The switch recited in claim 3 wherein

said bar magnets are disposed in generally parallel relation to each other and magnetized with unlike poles adjacent each other.

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