

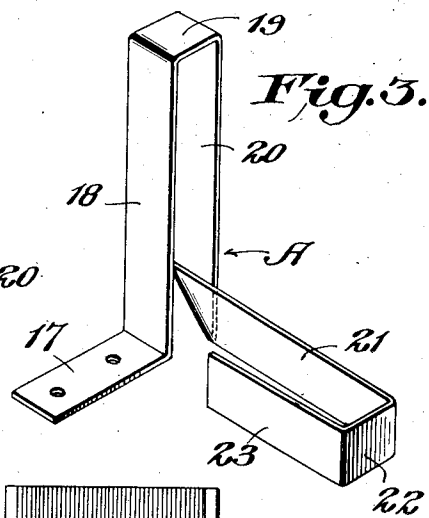
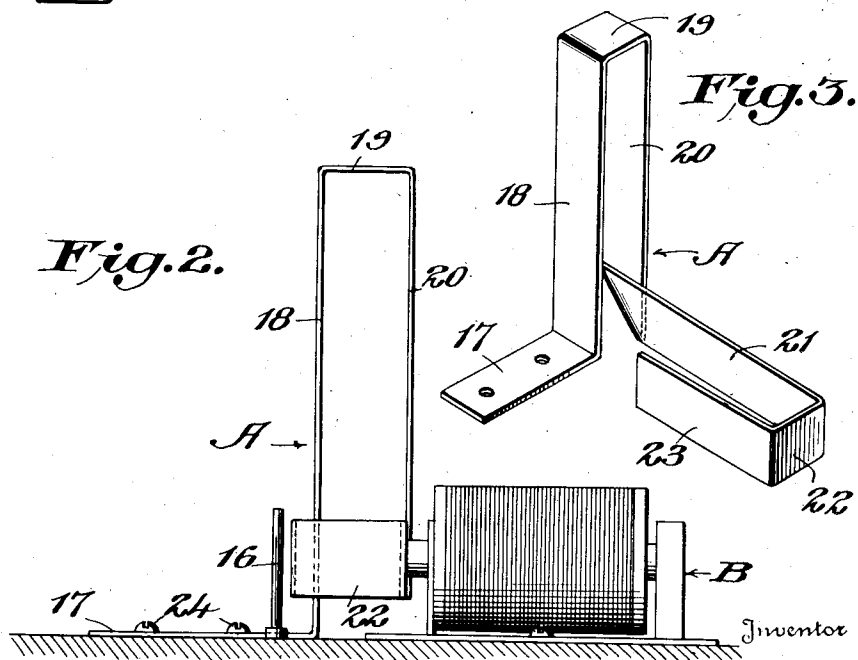
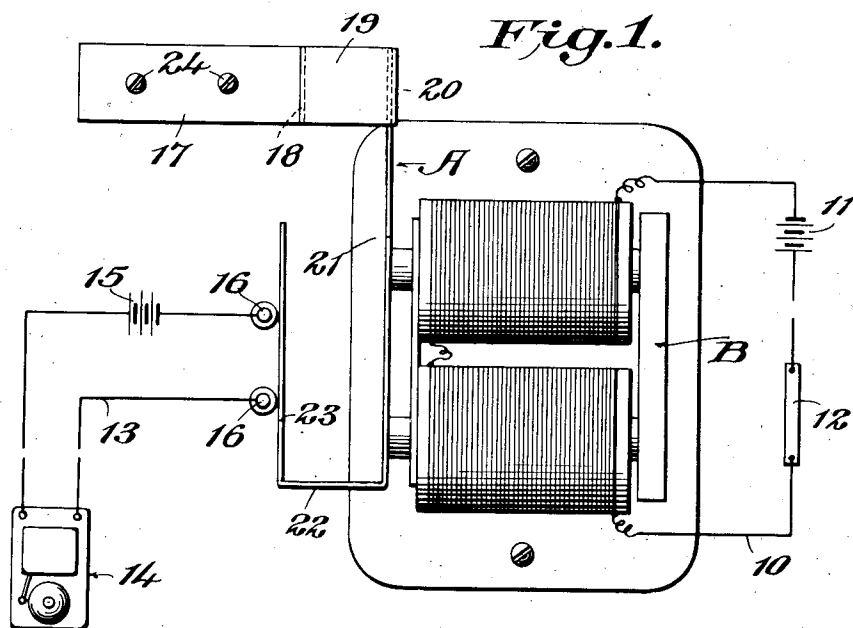
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C. B. BARNETT

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ARMATURE FOR RELAYS

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Inventor
C. B. Barnett,

By *R. P. Wolhaupter*
Attorney

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ARMATURE FOR RELAYS

Charles B. Barnett, Jonesboro, Ark.

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5 Claims. (Cl. 200—87)

This invention relates to relays adapted for use in burglar alarms or other electrical systems employing normally closed relay circuits which may remain closed over long periods of time, and has for its general object to provide an extremely sensitive armature for use with holding electro-magnets in such circuits, whereby only very feeble currents are required to maintain the circuits closed. This is of special importance in the case of installations in rural and other districts where dependence must be placed in dry cell batteries or the like as a source of current.

Another object of the invention is to provide an extremely sensitive armature which may be relied upon to spring against back contacts to close an alarm or similar circuit when the holding circuit is interrupted.

Another object of the invention is to provide an extremely sensitive armature which is of very simple construction and may be produced at very low cost.

With the foregoing and other objects in view, which will become more fully apparent as the nature of the invention is better understood, the same consists in the novel features of construction and arrangement as will be hereinafter more fully described, illustrated in the accompanying drawing and defined in the appended claims.

In the drawing, wherein like characters of reference denote corresponding parts in the different views:

Figure 1 is a plan view of the present armature and a holding electro-magnet therefor, illustrating diagrammatically a normally closed relay circuit in which the electro-magnet is included, and a normally open alarm circuit under the control of the armature.

Figure 2 is a front elevation of the electro-magnet and the armature; and

Figure 3 is a perspective view of the armature.

Referring to the drawing in detail, A designates, generally, the present armature and B designates a holding electro-magnet therefor.

The electro-magnet B may be of any known or suitable type and is included in a normally closed circuit 10 which also includes a source of current 11 and an element 12 which is rupturable to break the circuit. As is usual in burglar alarm or similar electrical systems, the element 12 may comprise a strip of tin foil, or a fine strand of wire or the like, placed where it will be broken by a burglar or other person gaining unauthorized access to an enclosure through a window, door or the like.

A normally open alarm circuit is designated

as 13 and includes a bell or other alarm device 14, a source of current 15 and a pair of contacts 16, 16, disposed adjacent to the electro-magnet B and to the opposite side of the armature A as said electro-magnet so that when the armature holding circuit is interrupted the armature may spring against said contacts 16, 16 and thus close the alarm circuit. In this connection, it is understood, of course, that the armature tends constantly to move against the contacts 16, 16 and that it is held by the electro-magnet B normally spaced from said contacts.

In order to provide an armature which, because of its inherent resiliency, will engage the contacts 16, 16 and which, at the same time, is exceedingly sensitive so that only a very small current is required to hold the same disengaged from said contacts, a special construction is employed. As illustrated, a relatively narrow strip of suitable thin sheet metal is bent near one end thereof to provide a terminal, horizontally disposed fastening portion 17 and a vertically disposed leg 18. The leg 18 is of considerable height and at the top thereof the strip again is bent to extend horizontally, as indicated at 19, in a direction opposite the fastening portion 17. The portion 19 is of relatively short length and at the end thereof opposite the leg 18 the strip again is bent to extend downwardly, as indicated at 20, in parallel or substantially parallel spaced relationship to the leg 18. The leg 20 is of slightly shorter length than the leg 18 so as to have clearance at its bottom from the support on which the fastening portion 17 is mounted, and at the lower end of said leg 20 the strip again is bent, this time along a diagonal line, to provide a horizontal arm 21 disposed at a right angle or substantially a right angle to the portions 17 and 19. The arm 21 is of considerable length and at its outer end the strip again is bent to extend, as indicated at 22, laterally outward or in the direction of the fastening portion 17. The portion 22 is of relatively short length and at the end thereof opposite the arm 21 the strip again is bent to extend horizontally inward, as indicated at 23, in parallel or substantially parallel relationship to the arm 21, the arm 23 terminating in spaced relationship to the leg 18.

The fastening portion 17 is apertured and is secured by screws 24 or by other suitable means to a suitable support to one side of the electro-magnet B so that the arm 21 is disposed for cooperation with the pole pieces of said electro-magnet and the arm 23 is disposed for cooperation with the alarm circuit contact posts 16, 16. In

other words, the horizontally disposed U-shaped formation of the armature comprised by the arms 21 and 23, and their connecting portion 22, is interposed between the pole pieces of the electro-magnet and the alarm circuit contact posts 16, 16, and the disposition of the armature relative to said electro-magnet and said contact posts is such that the arm 23, because of the inherent resiliency of the armature, tends constantly to engage the contact posts 16, 16 and to close the alarm circuit.

Because of the armature being formed from thin sheet metal and comprising a vertically disposed U-shaped formation one of the legs of which is free and has extending laterally therefrom one of the arms of a second U-shaped formation, the other arm of which is free, it is manifest that only a very small amount of inherent resiliency in said armature is required to cause the arm 23 to engage the contact posts 16, 16 when the arm 21 is released by the electro-magnet B and that, therefore only a very small force is required to hold said arm 23 disengaged from said contact posts. Accordingly, the electro-magnet need be supplied with only a very feeble current and current consumption therefore, is exceedingly small.

Without further description it is thought that the features and advantages of the invention will be readily apparent to those skilled in the art, and it will of course be understood, that changes in the form, proportion and minor details of construction may be resorted to, without departing from the spirit of the invention or scope of the appended claims.

I claim

1. In combination with an electro-magnet and back contacts, an armature comprising a pair of U-shaped formations disposed at substantially right angles to each other, one leg of one of said U-shaped formations being fastened and the other leg of said U-shaped formation being free and supporting the other U-shaped formation,

the last mentioned U-shaped formation being interposed between the electro-magnet and the back contacts.

2. In combination with an electro-magnet and back contacts, an armature comprising a substantially U-shaped strip including a pair of legs one of which is fastened and the other of which is free, and an arm extending from the free end of the last mentioned leg at substantially right angles thereto and interposed between the electro-magnet and said back contacts.

3. In combination with an electro-magnet and back contacts, an armature including a substantially U-shaped sheet metal formation disposed between said electro-magnets and said contacts, and a second substantially U-shaped formation one of the legs of which is fastened and the other leg of which is free and at its free end is connected with the end of one of the arms of the first mentioned U-shaped formation to support the latter, the other arm of the first mentioned U-shaped formation being free.

4. In combination with an electro-magnet and back contacts, an armature including a vertically disposed inverted substantially U-shaped sheet metal formation having one of its legs fastened and its other leg free, and a second substantially U-shaped formation disposed horizontally between the electro-magnet and said back contacts, one arm of said second mentioned U-shaped formation forming a lateral continuation of the free end of the free leg of the first mentioned U-shaped formation and the other arm of said second mentioned U-shaped formation being free.

5. The combination as set forth in claim 4 in which the first mentioned arm of the second mentioned U-shaped formation is disposed for direct cooperation with the electro-magnet, and the second mentioned arm of said second mentioned U-shaped formation is disposed between said first mentioned arm and the back contacts for direct cooperation with the latter.

CHARLES B. BARNETT.