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J. M. AUFIERO

2,089,157

RELAY

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Fig. 1.

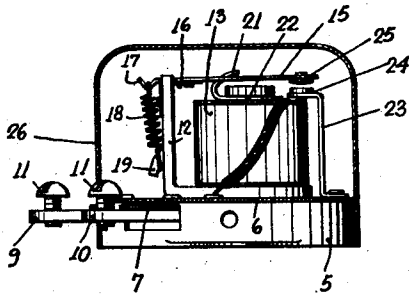


Fig. 2.

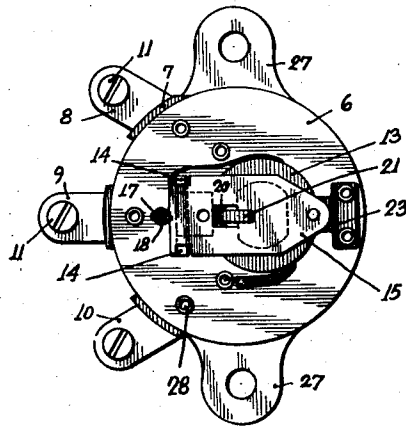
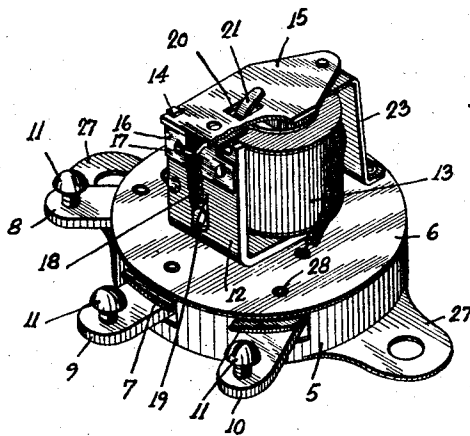


Fig. 3.



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UNITED STATES PATENT OFFICE

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RELAY

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1 Claim. (Cl. 175—336)

This invention relates to a structurally and functionally improved form of relay.

It is an object of the invention to provide a device of this character which will embody relatively few parts each relatively simple and rugged in construction, these parts being each capable of manufacture by automatic or semi-automatic machinery, and of assembly by relatively unskilled labor to furnish a unitary mechanism functioning over long periods of time with freedom from mechanical and electrical difficulties.

A further object of the invention is that of furnishing a relay which will be extremely positive in operation and which moreover will withstand extremely rough usage as well as heat without failure or deterioration.

With these and other objects in mind, reference is had to the accompanying drawing in which:

Fig. 1 is a sectional side view of a relay;

Fig. 2 is a plan view thereof, and

Fig. 3 is a perspective view of the apparatus.

In these views the numeral 5 indicates a base which may be formed of any desired material and which mounts upon its upper face a disc 6 of suitable insulating material. Applied to the lower face of the base is a similar disc 7 and the flange of the base is formed with openings through which fingers or terminals 8, 9 and 10 extend. These arms are connected in the usual manner with a suitable electrical source and/or to circuits which are to be energized by the relay. To this end each of them may mount a screw 11 so that a lead or connector may be suitably coupled thereto.

An L-shaped member 12 is mounted to have one of its arms lie flat against the upper face of the disc 6, its other arm extending perpendicularly therefrom. Mounted upon the first named arm of such member is an electromagnet 13. The edge of the upwardly-extending arm is notched so that upwardly extending portions 14 are provided. A plate 15 is mounted to extend across the edge of the upwardly extending arm and has rocking engagement therewith. This plate is notched to accommodate the upwardly extending portions 14, it being noted that by this construction a displacement of the parts is prevented. A spring strip 16 is applied to the outer face of the upwardly extending arm and projects through a notch provided for its accommodation and is secured to the under face of the plate 15. Consequently this plate is always urged upwardly.

To enhance the action of the spring strip 16, the plate may terminate in a hook-shaped portion 17 which accommodates one end of a coil spring 18. The opposite end of this spring is looped around a hook-shaped portion 19 struck from the outer wall of the plate. In order to limit the upward movement of the plate, it is formed with an opening 20. Through this opening there projects an extension 21 forming a part of a plate 22, which latter is secured against movement with respect to the electromagnet 13.

Also mounted upon the disc 6 is a strip 23 which extends upwardly adjacent the electromagnet and carries at its upper end a contact 24 underlying a contact 25 attached to the outer end of plate 15, it being thus obvious that when the electromagnet is thus energized, the contacts 24 and 25 will engage to close the circuit.

Obviously, the parts may be blanked out and shaped by ordinary methods and machinery. Thereafter the strip 16 is secured to the upwardly extending arm 12 and to the underface of plate 15. In this manner the electrical connection is established and a mechanism is furnished which will serve at all times to urge the contacts 24 and 25 to positions at which they are separated. However, should the strip 16 break, the apparatus will still function in that the spring 18 will assure the necessary separation. Also, while a less satisfactory form of electrical connection might result, it is apparent that mere contact of the plate with the upwardly extending arm will be sufficient to assure a more or less satisfactory connection. The strip 16, of course, lies within a notch or recess extending below the edge against which plate 15 bears. It is apparent that with the parts connected in the manner described, relative displacements thereof will be prevented. The insulating discs 6 and 7 are blanked out and care should be taken to have the lower disc present extensions projecting beyond the flange of the base 5 as has been especially shown in Figures 2 and 3. In this manner a shorting of the arms 8, 9 and 10, incident of the application of the cover 26 or otherwise, will be precluded. The base may, of course, additionally provide a mounting lug 27 and while the parts may be secured to each other in any desired manner, it is preferred that in all instances rivets 28 be employed. After the parts are mounted the various leads may be connected and the cover is pushed home to engage the flange of the base.

It is apparent that numerous changes in construction and rearrangement of the parts might

be resorted to without in any sense departing from the spirit of the invention as defined by the claim.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

5 A relay including a base, an arm extending upwardly from said base and having its upper edge centrally notched whereby to provide upwardly projecting portions adjacent its side edges,
10 an electromagnet positioned upon said base and extending adjacent said arm, a plate rockingly bearing against and supported upon the upper edge of said arm, said plate being formed with
15 notches in its side edges to accommodate said projections and to prevent displacement of said plate, the body of said plate normally extending

substantially parallel to said base and overlying said electromagnet, a hook shaped projection at the end of said plate beyond said notches, a hook shaped and downwardly extending projection struck out from said arm, a spring having its opposite ends coupled to said projections whereby normally to tend to rock the body of said plate upwardly, the notch in the upper edge of said arm being centrally deepened and a spring strip auxiliary to said spring and having one of its ends secured to the outer face of said arm, its body extending through the centrally deepened portion of said notch, its opposite end being secured to the underface of said plate.

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