Sept. 1, 1936. R. L. PALMER 2,053,102

RELAY

Filed Feb. 24, 1934

FIG. 1

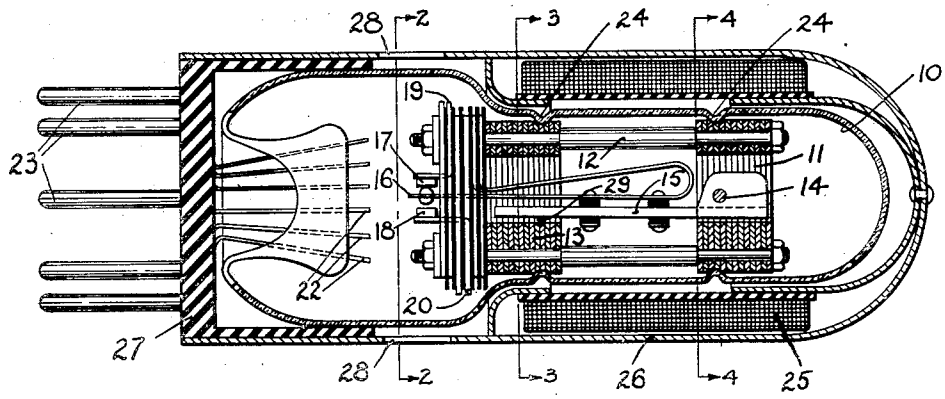


FIG. 2

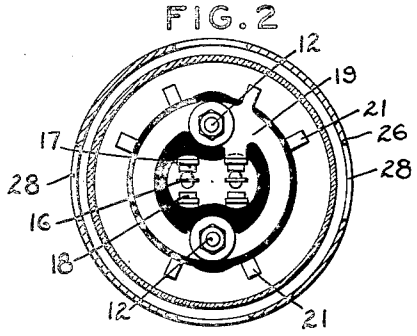


FIG. 3

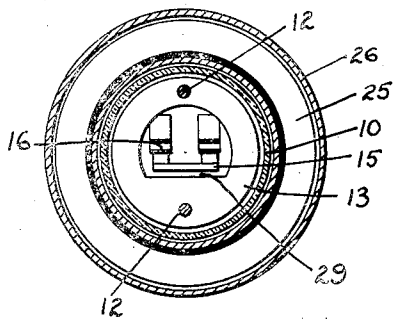
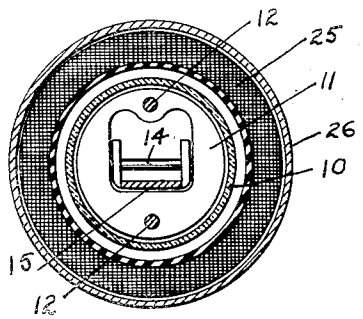


FIG. 4



INVENTOR
Ralph L. Palmer
BY
W. M. Hudson
ATTORNEY

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RELAY

Ralph L. Palmer, Endicott, N. Y., assignor to International Business Machines Corporation, New York, N. Y., a corporation of New York

Application February 24, 1934, Serial No. 712,688

1 Claim. (Cl. 200—87)

This invention relates to relays and more particularly relays of the type used in controlling the operation of electric accounting machines.

The main object of the invention is to provide a relay structure having a greater degree of reliability than relays that have heretofore been found in such machines. To this end, the contact points are enclosed within an evacuated tube or envelope and the coil or winding is positioned around the outside of the tube. With this arrangement, the contact points are effectively protected against dirt, oil, etc., which might otherwise accumulate on the contact points and interfere with the proper operation. This arrangement also serves to reduce the possibility of arcing at the contacts and, due to the absence of gases within the tube, there is no wear on the contact points themselves.

Various other objects and advantages of the invention will be obvious from the following particular description of one form of mechanism embodying the invention or from an inspection of the accompanying drawing; and the invention also constitutes certain new and novel features of construction and combination of parts hereinafter set forth and claimed.

In the drawing:

Fig. 1 is a central section of the complete relay.

Figs. 2, 3, and 4 are sectional views taken on lines 2—2, 3—3, and 4—4, respectively, of Fig. 1.

The contacts and cores of the relay are enclosed within the glass tube 10. Core 11 comprises a number of metallic rings supported on one end of rods 12 and core 13 comprises a number of rings secured at the opposite ends of rods 12.

A rod 14 mounted in core 11 serves as a pivot for armature 15 upon which are mounted spring contact blades 16, which normally occupy the position shown. The free end of blade 16 cooperates with fixed contact points 17 and 18. These contacts are integral with insulated disks 19 and 20, respectively, which are supported by rods 12 and insulated from one another. In Fig. 2, two sets of contact points are shown and separate insulated disks are provided for the separate points. Each of the disks is provided with a terminal 21 which is wired to leads 22 extending through the seal of the tube to contacting prongs 23 through which connections are made to the machine devices to be controlled. After the contact assembly has been inserted in the tube 10, it may be secured in place by spot blasting at several points, such as 24, to hold the parts in position within the tube. The coil or winding is indicated at 25 and is contained within a casing 26 which is adapted to fit over the base 27 as shown. Windows or openings 28 are provided so that the contact points may be observed without removing the casing 26. The leads from the winding 25 may also be arranged to terminate in two of the prongs 23 so that all connections between the relay and the circuits of the machine with which it is to be associated are made through this medium and the inclusion of the relay in the machine circuits is reduced to a simple matter of inserting the prongs 23 in a suitable socket. The rings of core 13 (Fig. 3) have a flat surface which is spaced from the free end of armature 15 to provide an air gap 29.

While there has been shown and described and pointed out the fundamental novel features of the invention as applied to a single modification, it will be understood that various omissions and substitutions and changes in the form and details of the device illustrated and in its operation may be made by those skilled in the art without departing from the spirit of the invention. It is the intention therefore to be limited only as indicated by the scope of the following claim.

What is claimed is as follows:

A replaceable relay comprising in combination, an evacuated tube, a casing enclosing said tube, contact prongs extending from said casing, a pair of spaced pole pieces within said tube, an armature pivoted to one of said pole pieces, the free end of said armature being adapted to extend within an opening in the other of said pole pieces, contact points carried by said armature, said contacts being connected to said prongs, and a winding encircling said tube and lying within said casing.

RALPH L. PALMER.