March 22, 1932. F. BOSH 1,850,374

RELAY

Filed Aug. 23, 1929

Fig. 1.

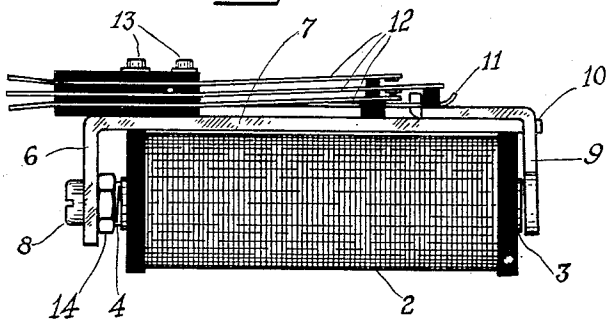


Fig. 2.

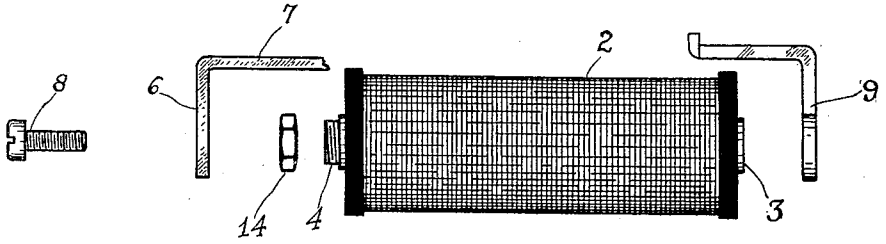
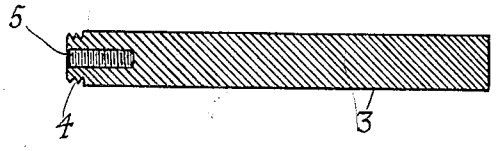


Fig. 3.



Inventor
Frank Bosh
By G. A. Yanochowitz
Attorney

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UNITED STATES PATENT OFFICE

FRANK BOSH, OF LA GRANGE, ILLINOIS, ASSIGNOR TO KELLOGG SWITCHBOARD AND SUPPLY COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS

RELAY

Application filed August 23, 1929. Serial No. 387,907.

My invention relates to electromagnets or driving for use in electrical circuits, and as shown has to do more particularly with relays such as used in telephone circuits, although electromagnets of this type are also applicable for other uses.

In relays of the present type as commercially used, difficulties are experienced in positioning the armature at the proper distance from the iron core, so that interaction between these two may take place to the best possible advantage.

To overcome this difficulty I have arranged a simple, but efficient device permitting a ready adjustment of the width of the gap between the armature and the iron core through the instrumentality of an externally and internally threaded portion of the iron core, and a nut and a screw engaging therewith. The screw maintains the iron core at the desired distance from the iron heel upon which the armature is fulcrumed.

A further object of my invention is to provide the driving magnet of my device with adjusting means individual thereto and so arranged that said magnet may be adjusted towards or away from its supporting member.

For a better understanding of my invention reference may be had to the accompanying drawings, in which I have illustrated a preferred embodiment of my invention and in which like reference characters in the several views denote like parts, and in which

Fig. 1 is a plan view of the relay of my invention;

Fig. 2 is essentially the same as Fig. 1 but with the component parts disassembled in their respective order; and

Fig. 3 is a sectional view through the iron core.

Referring now more in detail to my invention as illustrated, the relay comprises an energizing winding 2 wound upon a suitable core 3 which core 3 is provided with a screw-threaded extension 4 and a tapped hole 5. The core 3 and the winding 2 are suitably held in place or secured upon the angular extension 6 of the iron heel 7 by means of the screw 8 passing through a suitable opening in the angular extension 6 of the heel 7 and engaging the tapped hole 5 of core 3.

The armature 9 is fulcrumed upon the iron heel 7 by means of the lugs 10 forming an integral part of the heel 7 and passing through suitable orifices in the armature 9. The said orifices are not shown in the drawings. The armature 9 is held in its normal position by the spring 11 secured to the heel 7 by means of suitable screws not shown in the drawings. The spring contacts 12 are secured to the iron heel 7 by means of the screws 13 so as to be properly acted upon by the attracted armature 9.

For the purpose of regulating the gap between the armature and the core, the nut 14 is provided, which nut 14 has a screw-threaded engagement with the extension 4 of the core 3, resting also laterally against the angular extension 6 of the heel 7.

Depending upon the depth to which the nut 13 is screwed into the extension 4 of the core 3, the iron heel 7 and consequently the armature 9 fulcrumed upon the latter are brought nearer or farther from the iron core 3.

To adjust the core towards or away from the armature the screw 8 is loosened and the nut 14 turned to move the armature and heel, as a unit, towards or away from the core. When this adjustment is made the screw 8 is tightened to secure the heel in adjusted position.

While I have shown my invention as applied to an ordinary telephone relay, it is apparent that it finds great utility when adapted to driving magnets of motor mechanisms, such as step by step mechanisms. Therefore, I aim to cover changes and modifications as come within the spirit and scope of the appended claims.

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

1. A relay structure of the class described including a heel iron, an armature supported by the said heel iron, and an electromagnet adjustably secured upon the heel iron by means of a nut screw-threaded on the core of said electromagnet between said heel iron

and the coil of said electromagnet and a screw in threaded engagement with an axial orifice in said core.

2. A relay structure of the class described including a heel iron, one of the arms of the said heel iron extending longitudinally along an electromagnet and having an armature supported thereby, the core of said electromagnet being threaded externally and internally, said electromagnet secured adjustably to the said heel iron by means of an adjusting nut in threaded engagement with said external threads and between said heel iron and said electromagnet, and a locking screw in threaded engagement with said internal threads.

3. A relay structure of the character described including a heel iron and an armature supported thereby, an electromagnet supported by said heel iron by means of an externally and internally screw-threaded extension in the iron core, an adjusting nut between said heel iron and said electromagnet and engaging with the external thread of said extension, and a locking screw engaging with the internally tapped axial hole in said extension.

4. An electromagnet structure including a supporting member, an electromagnet, an armature actuated by said electromagnet, a core for said electromagnet, means having screw-threaded engagement with said core between the said supporting member and the said electromagnet for adjusting the electromagnet relative to said supporting member, and means for securing the electromagnet to said supporting member.

5. A structure including a supporting member, an electromagnet, an armature operated by said electromagnet, an adjustable member secured to said electromagnet between the said supporting member and the said electromagnet winding for adjusting the electromagnet relative to said supporting member and means for securing the electromagnet to said supporting member.

Signed by me, at Chicago, in the county of Cook and State of Illinois, this 21st day of August, 1929.

FRANK BOSH.