

No. 822,193.

PATENTED MAY 29, 1906.

J. P. DOWNS.
RELAY DEVICE.
APPLICATION FILED OCT. 14, 1904.

Fig. I

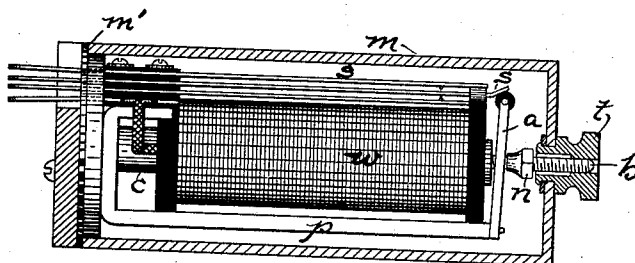
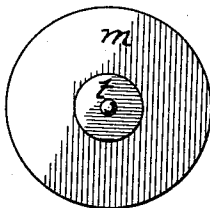


Fig. II



Witnesses:

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By V. O. Lawrence

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UNITED STATES PATENT OFFICE.

JOHN PHILIP DOWNS, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE
NORTH ELECTRIC COMPANY, OF CLEVELAND, OHIO, A CORPORATION
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RELAY DEVICE.

No. 822,193.

Specification of Letters Patent.

Patented May 29, 1906.

Original application filed May 1, 1902, Serial No. 105,529. Divided and this application filed October 14, 1904. Serial No. 228,479.

To all whom it may concern:

Be it known that I, JOHN PHILIP DOWNS, a citizen of the United States of America, and a resident of Boston, in the county of Suffolk, State of Massachusetts, have invented certain new and useful Improvements in Relay Devices, of which the following is a specification, a division of my application, Serial No. 105,529, filed May 1, 1902.

My invention relates to certain features of improvement previously set forth in my said application as applied to relay devices, and has for its object the simplification and cheapening of the construction, particularly of electromagnetic devices, such as relays, wherein a surrounding shell or analogous part is attached rearwardly to said electromagnetic device. I will, as in my prior application, set forth the said improvements as applied to a highly-efficient telephone-relay, embodying other features of my invention. In appliances of this character it has been customary to employ surrounding or protective shells, the mouths of which, being interiorly threaded, afford means for attaching to a co-acting threaded part provided forwardly upon the relay device itself or upon its mounting-strip, as in United States Patent No. 650,915. In my improved construction, however, I have dispensed with this feature, simplifying and cheapening the same to the extent of employing a rearward tapped part adapted to extend through the shell and engage a thumb-nut or threaded part which I preferably, although not necessarily, attach rotatably to the shell, so that it will neither be displaced nor lost and will always be in position to secure or release the shell, as desired. This shell, as in prior constructions, serves to maintain the contained parts securely against injury and free from magnetic disturbances from external sources and from entrance of dust or foreign particles. These and other details of my invention will be made more apparent by reference to the accompanying drawings, wherein—

Figure I is a view in side elevation and partially in section, illustrating the relay device embodying my several improvements. Fig. II is an end view of the cylindrical shell.

The same character of reference is used to indicate similar parts in each of the figures.

I shall endeavor herein to explain the construction to the extent required for making

the details of my improvements herein claimed clear and easily understood.

The core *c* of the relay is provided with the usual windings *w*. Superposed thereon by means of insulating-strips contact-springs *s* are mounted in position to be actuated by the rearwardly-disposed armature *a*, carrying a roller part which engages the extended end of one of said springs. The springs are secured in position upon the upwardly-turned end of the return pole-piece *p*, which also supports the armature.

Entirely surrounding the above-described parts is the well-known metallic shell or shield *m*, fitting closely upon a seat *m'* at the forward or mounting-strip end of the relay. This shell is secured in position by means of a brass screw *b* inserted within the end of the core, which carries as well the adjusting-nut *n* for the armature and the thumb-nut, or tapped retaining part *t*, centrally positioned at the end of the shell. The thumb-nut, as indicated, is interiorly flanged or upset within the shell and provided with a washer to retain said parts in position, while permitting it to be readily turned on and off the retaining-screw *b*. The relay and its casing are thus made very readily separable and are easily secured together through the medium of the screw, serving the double function of securing the armature adjustment and of receiving the retaining part for the shell. Moreover, the thumb-nut is always in position to be passed over its retaining-screw when the shell is replaced upon the relay and cannot be lost or displaced by carelessness. With the shell thus secured an electromagnetic device of this general character is found to be more convenient, simple, and cheaper in construction than devices of the prior art.

Having described a relay the details of which may be gathered, if desired, from my original application, and having set forth particularly the features of improvement I desire herein to cover, I now make claim to the following:

1. In an electromagnetic appliance, the combination with an electromagnet, of a protective shell or casing therefor, and a thumb-nut permanently and rotatably secured to said shell, and adapted to secure the same movably in position over the parts of said appliance, substantially as set forth.

2. In an electromagnetic appliance of the

general character described, the combination with electromagnetic apparatus, of a protective shell or casing therefor, a forwardly-positioned flanged seat for one end thereof, a rearwardly-positioned screw, and a thumb-nut or tapped retaining part permanently and rotatably secured to said shell and adapted to removably hold the same in position over the parts of said appliance, substantially as set forth.

3. In an electromagnetic telephone appliance, the combination with an electromagnet, an armature controlled thereby, a threaded adjusting-screw and nut therefor, a protective shell or casing and a thumb-nut adapted removably to secure the shell in position over said parts, the said thumb-nut engaging the extremity of the threaded adjusting-screw, substantially as set forth.

4. In an electromagnetic appliance of the general class described, the combination with an electromagnet, an armature controlled thereby, a threaded screw extending rearwardly from said electromagnet, an adjusting-nut thereon, a protective shell or casing, and a thumb-nut rotatably mounted therein,

adapted removably to secure the shell in position over said parts, the thumb-nut and adjusting-nut being mounted upon said rearwardly-extending screw, substantially as set forth.

5. In an electromagnetic appliance of the general class described, the combination with electromagnetic apparatus, including an armature movable thereby, a combined adjusting and retaining screw extending rearwardly from the core of said electromagnet, an adjusting-nut thereon for the armature, a cylindrical shell or casing surrounding the parts, and a threaded retaining part or thumb-nut thereon adapted removably to secure the shell in position, the threaded part and adjusting-nut being mounted upon the screw extending rearwardly from the magnet, substantially as set forth.

Signed at Cleveland, this 27th day of September, A. D. 1904, in the presence of two subscribing witnesses.

JOHN PHILIP DOWNS.

Witnesses:

JOHN F. McDONNELL,

ALBERT LYNN LAWRENCE.