No. 811,996. PATENTED FEB. 6, 1906.

J. C. BARCLAY.

RELAY.

APPLICATION FILED JULY 11, 1905.

Fig. 1.

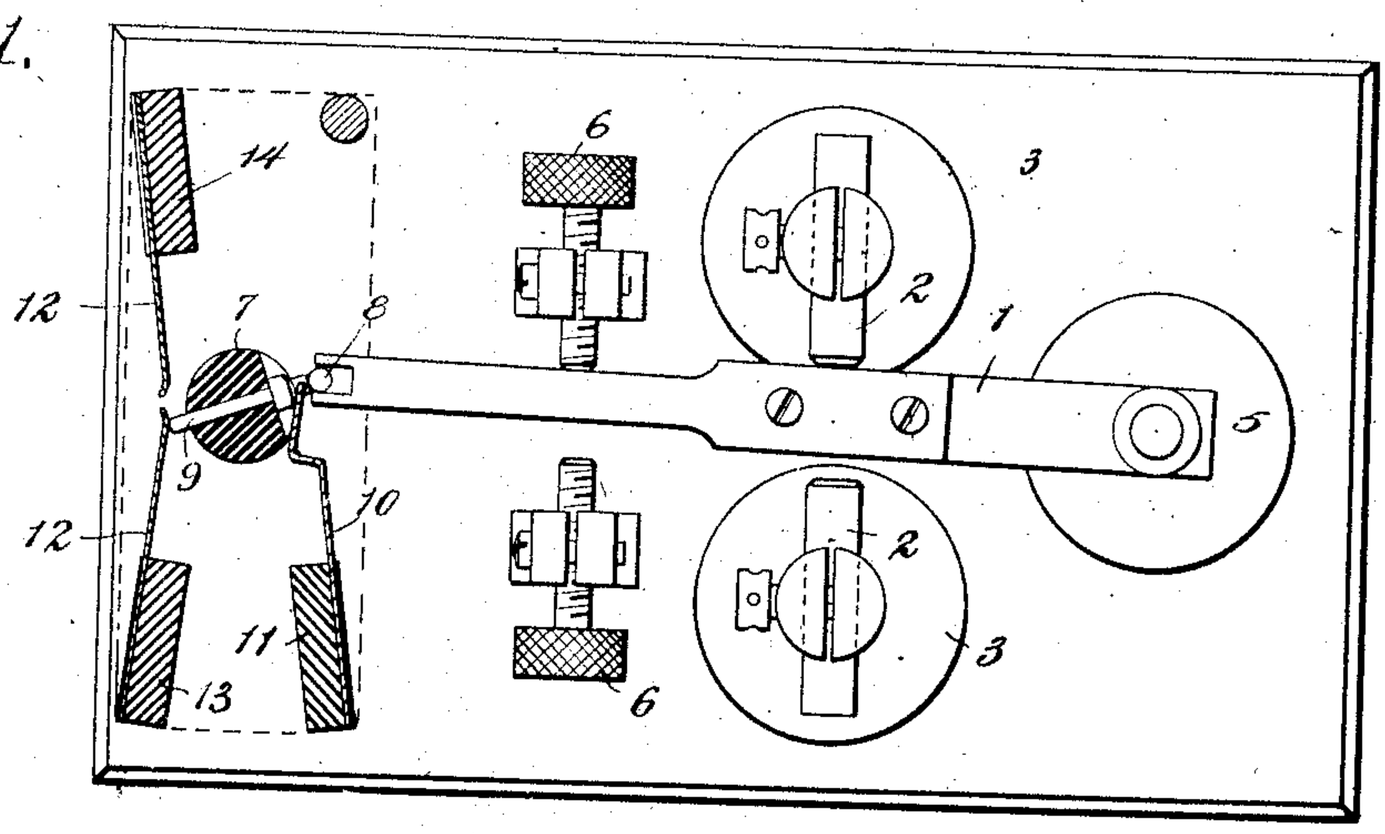


Fig. 2.

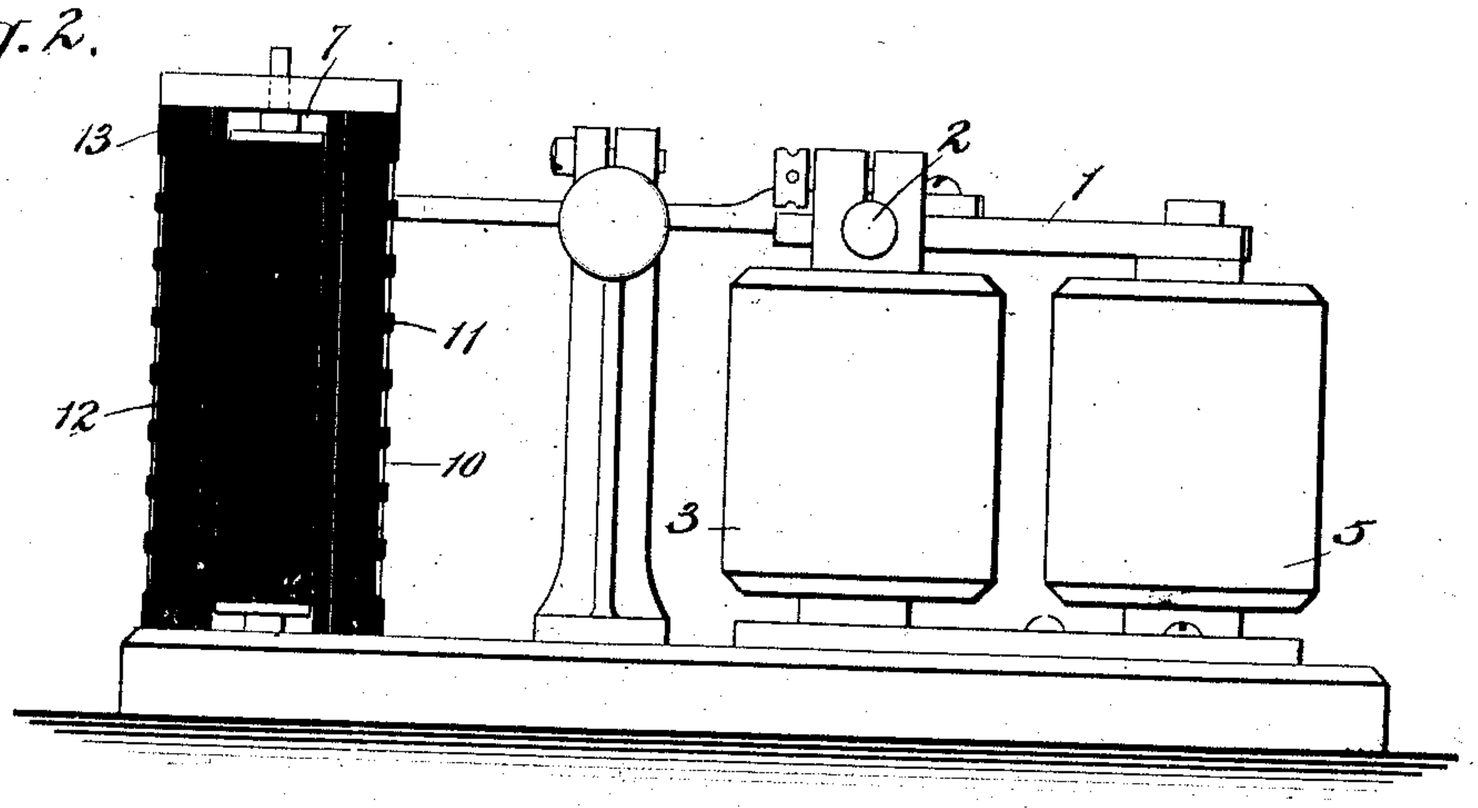
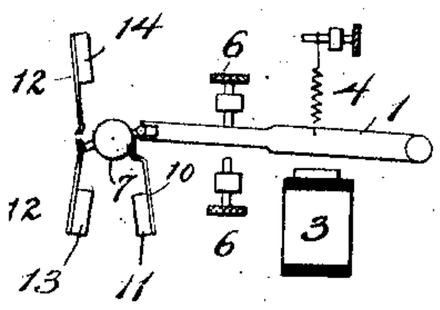


Fig. 4.



WITNESSES:

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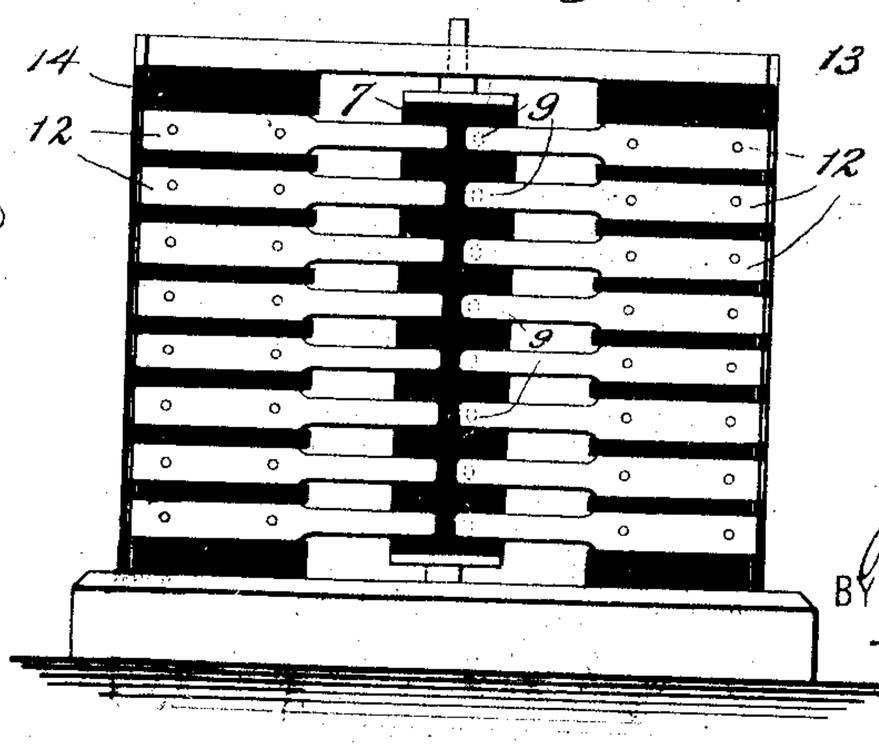
Fig. 3.



INVENTOR

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UNITED STATES PATENT OFFICE.

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RELAY.

No. 811,996. Specification of Letters Patent. Patented Feb. 6, 1906.

Application filed July 11, 1905. Serial No. 269,164.

To all whom it may concern:

Be it known that I, JOHN C. BARCLAY, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Relays; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates generally to circuit-closers of the class commonly termed "relays," and relates particularly to relays adapted for controlling a large number of circuits.

The relay herein described is particularly intended for use in the printing-telegraph system set forth in my Patent No. 758,732, dated May 3, 1904, and in subsequent patents and applications for patents, but is adapted for use wherever a relay is required to control a number of circuits.

The objects of my invention are to improve and simplify relays for controlling a number of circuits, to adapt such relay for operation as a polar relay, to provide for ready adjustment of the contact-points, and generally to make the relay simple, inexpensive, durable, and sensitive in operation.

I will now proceed to describe my invention with reference to the accompanying drawings, in which one embodiment of my invention is illustrated, and will then point out the novel features in claims.

In the said drawings, Figure 1 shows a top view and partial section of one form of my improved relay arranged to operate as a polar relay. Fig. 2 shows a side view thereof. Fig. 3 shows a front view of the relay. Fig. 4 shows, on a smaller scale, the said relay as adapted for operation as a neutral relay, the view being a top view similar to Fig. 1.

Referring now to the drawings, numeral 1 designates the armature-lever of the relay, which lever is arranged between the opposed field-pieces 2 2 of operating-magnets 3 3 and is arranged to vibrate from side to side between said field-pieces. The relay shown in Figs. 1, 2, and 3 being a polar relay, its armature is magnetized or polarized by a suitable magnet, in this instance by an electromagnet 5. Suitable stop-screws 6 6 are provided.

In order that all of the contacts operated by the relay may operate under similar conditions and may be readily accessible for adjustment, inspection, &c., and in order to avoid the use of a long armature-lever, and, further, in order to avoid the mechanical and structural complication which is unavoidable in case a number of contact-points are mounted on the armature-lever itself I mount the movable contact-pieces of the relay not on the armature-lever itself but upon a rocker 7, mounted to vibrate or oscillate, as shown, and provided at its back with a pin 8, the rounded head of which works within a recess in the end of the armature-lever, so that as said lever moves back and forth the rocker is oscillated about its axis.

The rocker 7 is constructed in the main of insulating material, as indicated, and is provided with a plurality of contact-pins 9, projecting through the rocker from back to front thereof and constituting the movable contact-pieces of the relay. For each of these pins 9 there is a corresponding spring-brush 10, which, as shown, is arranged to be in electrical contact with its corresponding pin 9 continuously, serving to connect the same to a convenient terminal, while permitting motion of the rocker. These brushes 10 are mounted on a suitable block of insulating material 11, and to them circuit-wires may be connected as desired. For each of the pins 9 there are also one or more other brushes 12, adapted to make contact with the front ends of the pins. As shown, these brushes 12 are arranged in two groups on opposite sides of the central position of the pins 9, one group arranged to make contact with their respective pins when the armature-lever is to one side of its central position, the other group arranged to make contact with their respective pins when the armature-lever is on the other side of its central position. These springs are mounted on suitable blocks of insulating material 13 and 14, and are thereby insulated from each other. Circuit-wires may be connected to them in any convenient or suitable manner. They are exceedingly flexible and may be adjusted as desired by simply bending them. As appears from the drawings, they are readily accessible for inspection and adjustment by reason of their location. The movement of

the pins 9 over the brushes 10 and 12 being a sliding movement, the contact-points are kept clean automatically and require little inspection.

Since all of the pins 9 have the same angular movement, all of the contacts of the relay operate under precisely similar conditions in this respect, and differences in their operation, if any, are due to the adjustment of the brushes and may be varied or regulated as desired. The rocker 7 is light and the arrangement of the magnets is such as to insure powerful and relatively rapid operation of the relay.

It will be obvious that the arrangement of contact devices embodied in my relay is not dependent upon any particular arrangement of magnets and that said magnets are not necessarily so arranged as to make the device a polar relay. To the contrary, any suitable or customary arrangement of magnets may be employed.

Fig. 4 illustrates a neutral relay constructed according to my invention, there being no polarizing-magnet 5, the field-magnet 3 being on one side only of the armature and a retractile spring 4 being provided, as is customary in neutral relays.

What I claim is—

1. In a relay, the combination with an armature-lever and means comprising an electromagnet for operating the same, of a vibrating member separately mounted but having a driving connection with said armature-lever, and a plurality of projecting contact-pieces carried thereby and insulated from each other, and other contact devices against which said contact-pieces of the vibrating member play as the latter vibrates, thereby making and breaking contact.

2. In a relay, the combination with an armature-lever and means comprising an electromagnet for operating the same, of a vibrating member separately mounted but having a driving connection with said armature-lever, a plurality of projecting contact-pieces carried thereby and insulated from each other, contact devices against which said contact-pieces of the vibrating member play as the latter vibrates, thereby making and breaking contact, and other contact-pieces in permanent electrical connection with said vibrating contact-pieces, arranged to make connection therewith while permitting motion thereof.

3. In a relay, the combination with an armature-lever and means comprising an electromagnet for operating the same, of a rocker of insulating material mounted to oscillate and having a driving connection with said armature-lever, contact-pins carried thereby extending through said rocker, and each projecting therefrom at one end, contact-brushes permanently in contact with said pins and serving to convey electric current thereto, and other contact-brushes arranged in proximity to the said projecting ends of said pins and arranged to make and break contact therewith as the rocker oscillates.

In testimony whereof I affix my signature in the presence of two witnesses.

JOHN C. BARCLAY.

Witnesses:
H. M. MARBLE,
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