H. B. TAYLOR.

HOLDING AND RELEASING DEVICE FOR ELECTRICAL INSTRUMENTS.

APPLICATION FILED AUG. 16, 1910.

1,008,571. Patented Nov. 14, 1911.

Fig. 1

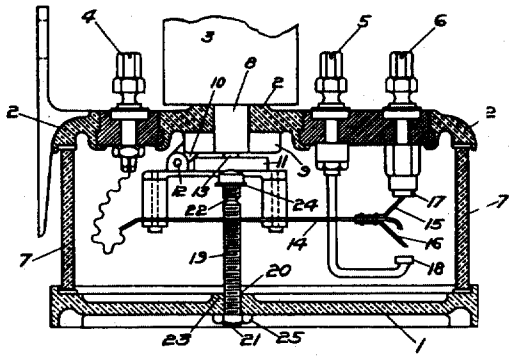



Fig. 3

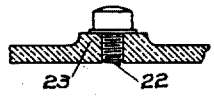
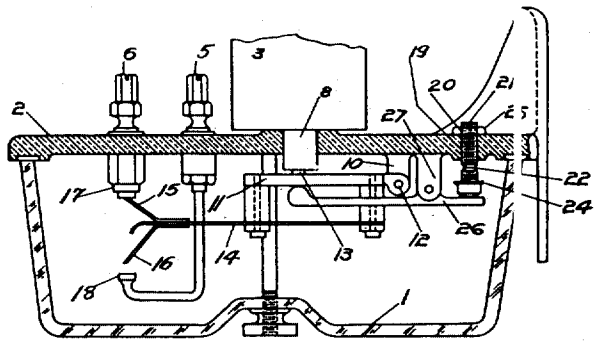



Fig. 2




Witnesses

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# UNITED STATES PATENT OFFICE.

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## HOLDING AND RELEASING DEVICE FOR ELECTRICAL INSTRUMENTS.

1,008,571. Specification of Letters Patent. Patented Nov. 14, 1911.

Application filed August 16, 1910. Serial No. 577,446.

*To all whom it may concern:*

Be it known that I, HERBERT B. TAYLOR, a citizen of the United States of America, residing at 149 Lancaster street, in the city of Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Holding and Releasing Devices for Electrical Instruments, of which the following is a specification.

My invention relates to holding and releasing devices for electrical instruments, and the object of my invention is to provide a new and useful improvement in devices for sustaining electrical instruments, armatures and the like against shock and derangement, together with such other elements and combinations as are hereinafter more particularly set forth and claimed.

This improvement relates to that class of electrical instruments in which a movable member is pivoted to the mechanism and which is adapted to become misplaced, deranged or broken during transit. Moreover, this improvement relates to such instruments as are hermetically sealed before shipment, particularly relays of the inclosed type. Such relays are generally constructed with a pivoted armature on which are mounted one or more contact fingers, which are delicately adjusted before the instrument is sealed. These contact fingers are constantly getting out of adjustment during shipment, making it necessary to break the seal and readjust the parts, and as manufacturers will not be responsible for damaged instruments if the seals are broken, it is very often necessary to return such damaged instruments to the makers which is a source of annoyance, delay and of considerable expense.

The object of this invention therefore is to provide means for preventing the shifting of movable parts of the instrument during transit and of removing the said means after the instrument is installed, and at the same time still leaving the instrument hermetically sealed. The following specification supplemented by the accompanying drawing plainly describes and illustrates such a device.

Figure 1 of the drawing illustrates my improvement attached to a relay such as ussed in railway signaling and is constructed with a metal base plate. Fig. 2 illustrates my improvement attached to a similar type of relay but which is inclosed with a glass bottom or shield. Fig. 3 illustrates how the supporting device appears after releasing the moving parts and the relay is in service.

Similar numbers refer to similar parts throughout the several views.

In both types of relay the same device is applicable and although I have shown it only as applied to relays, I do not wish to be limited in its use to this class of instrument.

In Fig. 1, 1, is the bottom or base plate of the relay, 2 is the relay top plate on which is mounted the coils, 3, and the insulated binding posts, 4, 5 and 6. 7, is a transparent glass frame inclosing the parts which are mounted on the under side of the relay top, 2, and separating the base plate, 1, and the top plate, 2. These base and top plates are suitably secured together with suitable screws which are sealed after the relay has been tested and adjusted. Two pole pieces, 8, of the magnets 3, project through the top plate, 2. To these pole pieces is attached the yoke, 9, on which are formed two lugs, 10, an armature, 11, is hinged at joint, 12, on these lugs, 10, and is adapted to move toward and away form the pole pieces, 8. Pins, 13, are fixed in the pole pieces, 8, to prevent the armature, 11, from coming in contact with the said pole pieces. Suitably mounted on the armature, 11, are one or more fingers such as, 14. These fingers are supplied with an upper and lower wiper, 15, and 16, which are adapted to engage the upper and lower contact buttons, 17 and 18. An ordinary machine screw 19 passes through the tapped hole, 20, in the base plate, 1. This screw is provided with a slot, 21, at its lower end so that it can be turned from the outside of the relay inclosure. A V or other shaped notch, 22, is turned in the screw, 19, a short distance below its head. This notch is cut at a point below the screw head equal to the thickness of the base plate at point, 23, for a purpose that will be explained later. A washer, 24, of leather or rubber may be placed under the head if desired, but is not absolutely necessary. This screw, 19, constitutes my invention which is the subject of this application.

The operation of the device is as follows:—When the relay is being assembled,

the screw, 19, is threaded through the tapped hole, 20, any suitable distance, say half its length, after which the relay is adjusted, tested and hermetically sealed. The screw, 19, is then screwed upward by means of the slot, 21, until its head or upper end is brought in contact with the under side of the armature, 11. The armature, 11, is then forced firmly against the stop pin, 13, thus holding the said armature and all the parts attached thereto rigidly in position which will prevent the said armature and parts from shifting during shipment. After the screw is so adjusted the jam nut, 25, on the under side of the base plate, 1, is tightened up, thus preventing the screw, 19, from becoming loose. After the relay is installed and ready to be put in service, the jam nut, 25, is removed and the screw, 19, is unscrewed by means of the slot, 21, with an ordinary screw driver. After a few turns of the screw, 19, the armature, 11, will be released allowing it to swing freely on its trunnions or hinges, 12. The screw, 19, may if desired remain in this position, but as it might through thoughtlessness be again screwed up against the armature, I consider that it would be more practical to prevent this. I therefore prefer that the screw, 19, be screwed downward until the head or the washer, 24, comes firmly in contact with the boss, 23, of the base plate, 1. After the head has forced the washer, 24, down tight still more pressure is exerted on the screw by means of a screw driver or a pair of pliers until the long end of the said screw breaks off at the notch, 22, which is the weakest point in the said screw. After the screw, 19, is thus broken off, as shown in Fig. 3, it is obvious that the portion which remains firmly screwed into the base plate, 1, cannot again be moved unless the seals of the relay are broken and the screw removed from the inside of the inclosure. It will also be seen that the tapped hole, 20, is perfectly sealed up preventing any tampering with the moving parts of the relay.

Fig. 2 represents a glass inclosed relay in which 1, is the inclosing case or bottom. In this type of relay, however, it is necessary to thread the armature supporting screw, 19, through the top plate, as it is not practicable to arrange it in the glass, 1, and as it is impossible to directly force the armature, 11, against the stop pin, 13, I have provided a lever, 26, which is pivoted on lug, 27, attached to the under side of the top plate, 2. The long end of the lever, 26, is adapted to press against the armature, 11, when pressure is applied to the short end of the said lever by the screwing down of the screw, 19. When the screw, 19, is withdrawn and broken off as already explained and shown in Fig. 3, the lever, 26, will swing down to a nearly vertical position due to the weight of the long arm of the lever.

It will be seen that this device will operate equally well as arranged in Fig. 2 as in Fig. 1 and that the device is simple and efficient. It is not absolutely necessary to use a headed screw, although this is a standard article and would be much cheaper than any special screw.

I do not limit myself to the screw as shown in the drawing, as any means for lifting the armature which may be operated outside of the case and after its function is performed may be rendered inoperative, may be employed without departing from the spirit of my invention. I also wish it understood that the armature holding device, 19, can be arranged to engage with some other part of the moving system of the relay and at the same time support the armature, but I consider from a strictly mechanical point of view that the armature should be engaged at about its center and forced against the stop pins, thus preventing undue stress on the hinges or other delicate parts.

What I claim as my invention and desire to secure by Letters Patent, is:

1. In an instrument of the class described, the combination of a magnet and support for same; an armature for the magnet; said armature being inclosed by a suitable casing; a means projecting from the outside to the inside of said inclosing case through a suitable opening; said means being adapted to hold the armature immovable; said means provided with a sealing portion by the operation of which said opening may be closed

2. In an instrument of the class described the combination of a magnet and support for same; an armature for the said magnet contact fingers actuated by said armature a suitable casing for inclosing said armature and contact fingers; a means projecting from the outside to the inside of said inclosing case through a suitable opening for preventing the armature and contact fingers from moving and for releasing same; a sealing portion forming a part of said means which will close the said opening when the contact fingers have been released.

3. In an instrument of the class described the combination of a magnet and support for same; an armature for said magnet; sealed inclosure for said magnet; a screw passing through the opening in said inclosure; the head of said screw adapted to contact with the underside of the armature and hold it firmly and rigidly in position; a portion of said screw adapted to seal the opening in said inclosure; said screw provided with a means for being broken off after the armature has been released and the opening has been sealed.

4. In an instrument of the class described

the combination of a magnet and support for same; an armature for the magnet; said armature being inclosed by a suitable casing; of means projecting from the outside to the inside of the said inclosing case through a suitable opening; said means being adapted to hold the armature immovable to release the said armature and to seal the opening through which the said means protects; said means provided with a portion by the operation of which it will render inoperative said armature holding and releasing means after the sealing of said opening has been accomplished.

5. In an instrument of the class described, the combination of a magnet and support for same; an armature for the magnet, said armature being inclosed within a sealed casing; a screw device entering the said casing through a suitable opening and operative from the exterior of said casing; said device adapted to hold the said armature immovable, to release the said armature and to plug the said opening after releasing the said armature; with means for expeditiously preventing the after use of such screw device after said plugging has been accomplished.

6. In a device for preventing derangement of parts, the combination of a relay in which the armature and other movable parts are inclosed in a sealed casing; of means projecting from the interior of the casing and operative from the exterior only, for holding the armature and other movable parts stationary and for releasing the said armature and parts when desired, and for sealing in the interior of the casing the opening through which the said holding means projects; and means for preventing the said holding and releasing means from again being operated, by detaching the end of the holding and releasing means which projects from the interior of the casing.

In testimony whereof I have affixed my signature in presence of two witnesses.

HERBERT B. TAYLOR.

Witnesses:
FREDERICK W. CAMERON,
LOTTIE PRIOR.