Dec. 1, 1925. 1,563,578

B. F. LOLLIS

ADJUSTABLE CONTACT MEANS

Filed Feb. 14, 1924

Fig. 1.

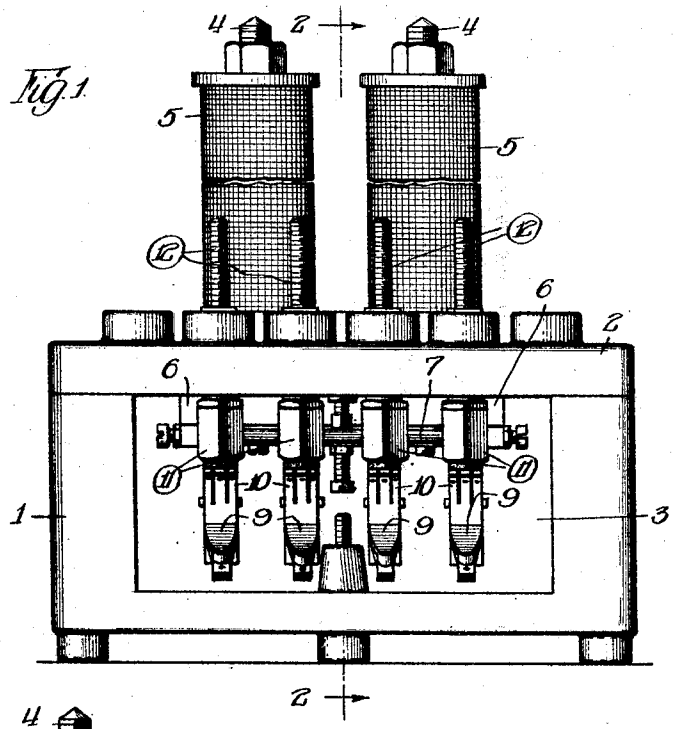


Fig. 2.

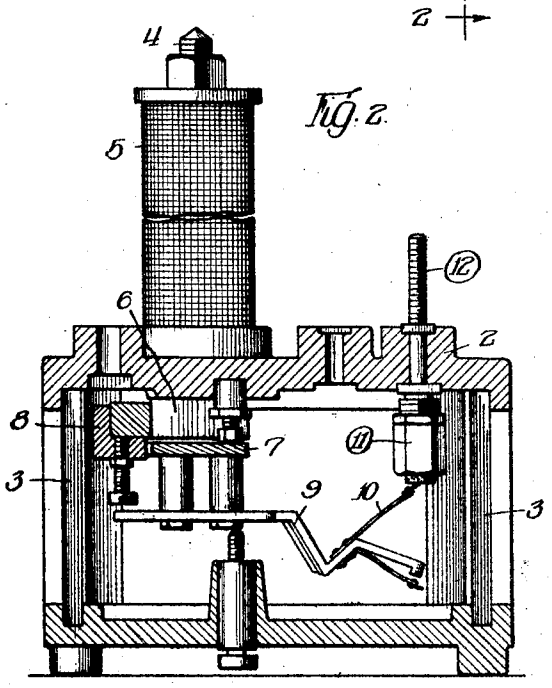
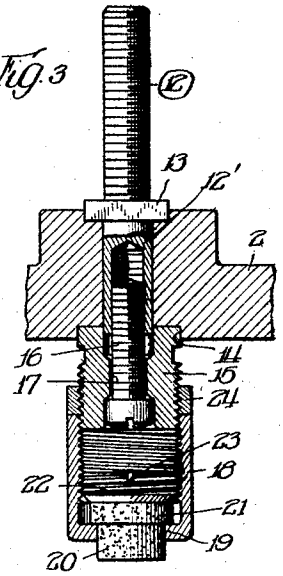


Fig. 3



Witness:
R. Burkhardt.

Inventor:
Benjamin F. Lollis,
By Wilkinson, Huxley, Byron & Knight
Attys.

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UNITED STATES PATENT OFFICE.

BENJAMIN F. LOLLIS, OF BERWYN, ILLINOIS.

ADJUSTABLE CONTACT MEANS.

Application filed February 14, 1924. Serial No. 692,933.

To all whom it may concern:

Be it known that I, BENJAMIN F. LOLLIS, a citizen of the United States, residing at Berwyn, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Adjustable Contact Means, of which the following is a specification.

The present invention relates to adjustable contact means.

The present invention is useful and will be described in connection with relay devices such as are used in railway signaling devices. Inasmuch as railway signaling devices operate on relatively low voltage, relatively fine adjustment of the parts is necessary.

An object of the present invention is to provide an adjustable contact means which may be readily adjusted and which will remain in adjusted position.

A further object is to provide electrical contact means employing carbon or similar material, which material will be securely held against displacement in service.

Further objects will appear as the description proceeds.

Referring to the drawings, Figure 1 is a view in front elevation of an electrical relay device employing contact means embodying the principles of the present invention.

Figure 2 is a sectional view taken along the plane indicated by the arrows 2—2 of Figure 1.

Figure 3 is a sectional view illustrating on an enlarged scale a contact member employing the principles of the present invention.

Numeral 1 indicates a housing which includes a wall or cover 2. Said housing 1 may be provided with a plurality of sight openings closed by means of the transparent closures 3—3. The cover 2 provides mounting means for a pair of cores 4—4, which carry solenoids 5—5. The cores 4—4 have pole pieces indicated by the numeral 6, which pole pieces are mounted within the housing 3. Co-operatively associated with the pole pieces 6—6 is the armature 7 which may be pivotally mounted by means of the bracket 8.

Carried by the armature 7 are a plurality of contact fingers 9—9, four of which are shown in the illustrated embodiment of the present invention. Each of the contact fingers 9—9 may be provided with the resilient portion 10 adapted to contact with a relatively fixed contact member 11. Four contact members 11—11 are illustrated, each contact member co-operating with one of the contact fingers 9—9. The present invention concerns itself largely with an improved construction of contact member 11 whereby the objects above referred to may be accomplished.

The numeral 12 indicates a stud having a portion 12′ fitting within a corresponding hole extending through the cover 2. Said stud is provided with a shoulder 13 which may be non-circular in cross-sectional outline and which may have abutting relation with a recessed portion of the outer side of cover 2 to prevent rotation of said stud 12. The upper extremity of the stud 12 may be screw-threaded, whereby an electrical connector may be securely and intimately fastened thereto. The under side of the cover 2 may be provided with a depression indicated by the numeral 14, which depression receives the collar 15. The collar 15 may have a non-round portion fitting within the walls of depression 14 whereby said collar is non-rotatably mounted on the inner side of cover 2. Said collar 15 slidably receives the portion 12′ of the stud 12, above referred to. Said collar 15 is tightly secured on the under side of cover 2, being held in axial alignment with the stud 12 by means of the screw 16, which may have screw-threaded engagement with the stud 12 axially of said stud. Said collar 15 is provided with a portion of reduced diameter, indicated by the numeral 17, which provides an abutment for the head of the screw 16, whereby said screw may securely hold stud 12 and collar 15 in firm engagement with the two sides of the cover 2. Rotation of stud 12 and collar 15 will be prevented by reason of the fact that, as pointed out above, the shoulder 13 and the cover engaging part of collar 15 will be non-round and will fit within corresponding depressions on the two sides of cover 2.

Numeral 18 indicates a contact holder which is adapted to securely and replaceably hold a contact button which may be of carbon or similar material. The holder 18 is interiorly screw-threaded for engagement with the exterior of collar 15. The lower end of holder 18 is inwardly flanged, as indicated by the numeral 19, to provide an abutment for the annular shoulder 21 of the contact button 20. Numeral 22 indi-

cates a nut threaded into the holder 18 adapted to abut against the button 21 to hold same firmly in position. For convenience of manipulation, the nut 22 may be provided with the transverse slot 23 for the reception of the screw driver. The numeral 24 indicates a locking collar for holding contact holder 18 in adjusted position.

It is not considered practicable to permit workmen out in the field to make adjustments on electrical relay devices, and for this reason all adjustments are made in shops equipped for the purpose, after which the relay devices are sealed up to prevent access to the interior thereof by workmen or other unauthorized persons. In the assembling of a relay device, such as illustrated and described herein, each of the contact members 11—11 will be carefully adjusted and locked in adjusted position, after which the relay mechanism will be sealed up for shipment to the railway section upon which it is to be used. The workmen in the field will have only to connect up the relay mechanism in the proper circuits.

The manner in which the contact members may be adjusted and securely held in adjusted position will be clear without detailed explanation. It may be stated, however, that after each of the studs 12 has been mounted in position with the shoulder 13 on the outer side of the cover, and the collar 15 on the inner side of the cover, said parts will be tightly secured to said cover by turning up of the screw 16. Due to the fact that the shoulder 13 and the upper portion of collar 15 are non-rotatably mounted in recessses on the two sides of the cover 2, no rotating or loosening effects in service will occur in connection with said stud 12, collar 15 and screw 16.

The contact holder 18, after having had the contact button 20 and nut 22 mounted therein, will be screw-threaded upon the collar 15 (the locking collar 24 first having been applied to said collar 15). The holder 18 may be screwed upon the collar 15 to the position desired, after which the locking collar 24 may be turned down into engagement with the upper face of the holder 18 to securely lock said holder 18 against movement.

By reason of the present invention the contact button 20 in each contact member 11 may be readily and accurately positioned in the shops by skilled mechanics. After being so positioned, said contacts will remain in adjusted position due to the fact that all the parts are securely held against rotative or other movement.

Although a preferred embodiment of the invention has been described in detail, it will be clear that many modfications will occur to those skillled in the art. It is intended in this patent to cover all such modifications that fall within the scope of the appended claims.

I claim:

1. In a relay device, a housing, a stud extending through a wall of said housing, said stud having a portion abutting against one side of said wall, a collar for said stud abutting against the other side of said wall, said stud and collar being non-rotatably fitted to said wall, screw-threaded means for holding said collar in intimate association with said stud and wall, a contact holder adjustably mounted upon said collar, and a lock nut upon said collar adapted to hold said contact holder in adjusted position.

2. In combination, a wall, a contact member extending through and securely supported by said wall, said contact member including a wall abutting member non-rotatably mounted relative to said wall, a contact holder having screw-threaded engagement with said wall abutting member, and a lock nut having screw-threaded engagement with said wall abutting member and having abutting relation with said contact holder.

3. In contact mechanism, in combination, a supporting member, a collar having sliding engagement therewith, screw-threaded means for holding said collar upon said supporting means, a contact holder having screw-threaded engagement with said collar, said contact holder having a flanged end portion, a contact button having a shouldered portion abutting against said flanged portion, and a nut within said contact holder for securing said button against said flanged portion.

4. In contact mechanism, in combination, a supporting member, a collar having sliding engagement therewith, screw-threaded means for holding said collar upon said supporting means, a contact holder having screw-threaded engagement with said collar, said contact holder having a flanged end portion, a contact button having a shouldered portion abutting against said flanged portion, a nut within said contact holder for securing said button against said flanged portion, and a lock nut on said collar adapted to abut against said contact holder to prevent same from rotative movement upon said collar.

5. In combination, a wall, a stud extending through said wall, said stud being provided with means for preventing rotation of said stud relative to said wall, a collar slidably mounted upon said stud, said collar having a portion non-rotatably fitted against one side of said wall, said collar having sliding engagement with said stud, screw-threaded means for holding said collar in co-operative relationship with said stud, and a contact holder having screw-threaded engagement with said collar.

6. In combination, a wall, a stud extending through said wall, said stud being pro-

vided with means for preventing rotation of said stud relative to said wall, a collar slidably mounted upon said stud, said collar having a portion non-rotatably fitted against one side of said wall, said collar having sliding engagement with said stud, screw-threaded means for holding said collar in co-operative relationship with said stud, a contact holder having screw-threaded engagement with said collar, and a lock nut having screw-threaded engagement with said collar and abutting relation with said contact holder for preventing said contact holder from rotative movement relative to said collar.

7. In combination, a wall, a contact member extending through and non-rotatably supported by said wall, said contact member including a wall abutting member non-rotatably mounted relative to said wall, a contact holder having screw-threaded engagement with said wall abutting member, a contact member mounted within said holder, adjustable means for holding said contact member in fixed relationship with said contact holder, and a lock nut having screw-threaded engagement with said wall abutting member and having abutting relationship with said contact holder.

Signed at Chicago, Illinois, this eleventh day of February, 1924.

BENJAMIN F. LOLLIS.