Oct. 22, 1929. M. M. SAMUELS ET AL 1,732,731

CONTACT CONSTRUCTION

Filed Aug. 16, 1924

Fig. 1.

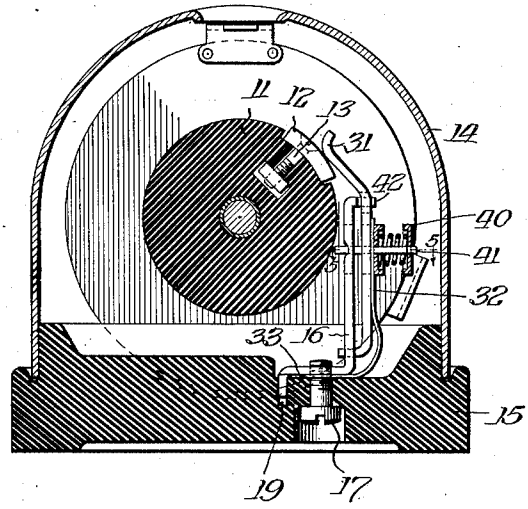


Fig. 2.

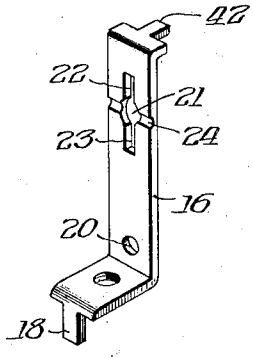


Fig. 3.

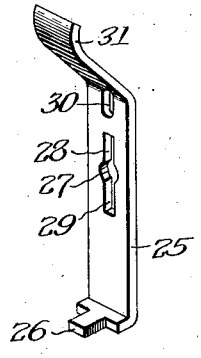


Fig. 4.

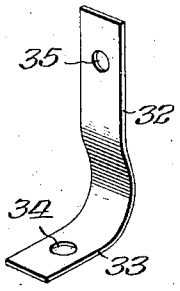
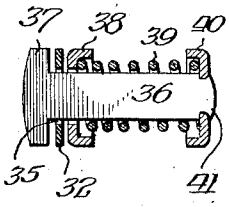


Fig. 5.



Witness

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Patented Oct. 22, 1929 1,732,731

UNITED STATES PATENT OFFICE

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CONTACT CONSTRUCTION

Application filed August 16, 1924. Serial No. 732,581.

This invention relates to a new and improved contact construction and more particularly to a yielding type of stationary contact adapted to be readily dismantled and reassembled for the purpose of replacing a worn or pitted contact element. In connection with numerous types of rotary switches and similar devices adapted to make and break electrical circuits, spring contact fingers are provided adapted to engage a rotating or moving contact to complete or break the electrical circuit. These contacts are subject to considerable wear where the circuit is broken a large number of times and it is highly desirable that they be readily replaceable without delay and without throwing the device out of use for any extended period.

It is an object of the present invention to provide a new and improved contact construction having a contact member adapted to be readily removed and replaced without disturbing the relation of the remaining parts.

It is a further object to provide a construction of this character in which dismantling and reassembling of the construction may be quickly accomplished without the use of tools.

It is an additional object to provide a construction which is simple and composed of but few parts which are adapted for commercial production.

Other and further objects will appear as the description proceeds.

We have illustrated a preferred embodiment of our invention in the accompanying drawings, in which—

Figure 1 is an elevation of the contact construction showing it applied to a circuit breaker;

Figure 2 is a perspective view of the supporting member;

Figure 3 is a perspective view of the contact member;

Figure 4 is a perspective view of the conductor member; and

Figure 5 is a section taken along line 5—5 of Figure 1, the support and contact members being omitted.

The contact construction as shown in Figure 1 is applied to a circuit breaker which is described in our copending application, Serial No. 547,748, filed March 29, 1922. This circuit breaker forms no part of the invention of the present application and need not be described in detail. It comprises, as shown, a rotating cylinder 11, carrying a rotating contact 12 secured thereto by bolt 13. This cylinder is carried in housing 14 fitted upon the base member 15.

The supporting member 16 is secured to the base member 15 by means of the machine screw 17. As best shown in Figure 2 this member 16 is provided with the downwardly extending lug 18 which passes into the slot 19 in the base member and this prevents rotation of the member 16. The member 16 is provided with the lower circular opening 20 and the upper opening 21 which latter is provided with the vertically extending portions 22 and 23. The transverse recess 24 intersects the opening 21. The upper end of the member 16 is provided with the outturned lug 42.

The contact member 25 is carried by the supporting member 16. This member 25 is provided at its lower end with the lug 26 adapted to fit into the lower opening 20 in the member 16. It is provided at an intermediate point with the opening 27, registering with opening 21 of member 16. This opening 27 has the vertically extended portions 28 and 29 corresponding to the vertically extending portions 22 and 23 of the opening 21. The member 25 is provided with the upper opening 30 which is adapted to receive the lug 42 on the supporting member. The upper end of the member 25 is provided with the curved portion 31 adapted to contact with the rotating contact 12.

The conductor member 32 has its lower portion 33 adapted to be engaged between the lower portion of the supporting member 16 and the base member 15. It is provided with the opening 34 adapted to receive the screw 17. The upper portion of the member 32 is provided with the opening 25 adapted to register with the openings 27 and 21.

The T headed plunger 36, as best shown

in Figure 5, is provided with the laterally extending head 37 and with a shank extending through the opening 35 in the conductor member 32. The cup 38 is slidably fitted upon the shank and is thrust against member 32 by the coil spring 39. The opposite end of the spring 39 engages the cup 40 which cup is fixedly secured to the shank by upsetting the end of the shank as indicated at 41. It will be noted that the T head 37 cannot pass through the opening 35 and consequently the head 36 and the spring and cups carried thereby are permanently secured to the conducting member.

In order to secure the contact member in place it is placed upon a supporting member by inserting the lug 26 in the opening 20 and by passing the lug 42 of the supporting member through the opening 30 of the contact member. The T head 37 is then turned to extend vertically by turning the cup 40. When in the vertical position this T head is passed through the openings 27 and 21, the vertically extending portions of these openings permitting its passage. After it has passed through the opening 21, the head is rotated 90 degrees and released. The spring 39 then draws it back into the transversely extending recess 24. The spring 39 presses the cup 38 against the conductor member 32 and presses the latter against the back of the contact member 25.

The spring is of such strength as to maintain the contact member firmly against the shoulders either side of the lug 24 on the supporting member. It has sufficient resilience, however, so that it yields readily to inequalities in rotating the contact member and maintains a firm contact between the fixed and rotating contact member.

When the contact member 25 becomes worn or pitted it may be readily removed by pressing inwardly on cup 40, turning it ninety degrees and withdrawing the T head through openings 21 and 27. The member 25 is then removed and the new member put in place. In the meantime the member 36 and the cups and spring are carried by the conductor member 32. The new contact member is secured in place in the manner above described.

While we have shown one preferred form of construction by way of illustration, we contemplate changes and modifications to meet varying conditions, such as may come within the spirit and scope of the appended claim.

We claim:

Contact construction comprising a supporting member having an opening therein and a lug extending therefrom, a contact member also having an opening therein and a lug extending therefrom, the lug on one member extending into the opening of the other member to limit lateral movement between the members, a conductor member, means positively securing one portion of the conductor member to the supporting member, and resilient securing means carried by the conductor member and passing through registering openings in the supporting and contact members, said securing means urging the conductor member into engagement with the contact member and resiliently and detachably securing the supporting and contact members together.

Signed at New York city, State of New York, this 15th day of July, 1924.

MAURICE M. SAMUELS.
JOSEF AMON.