

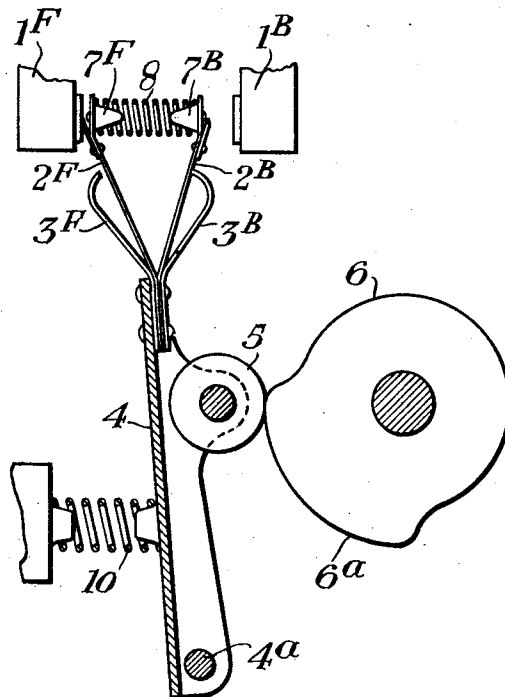
March 15, 1932.

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1,849,403

CONTACT STRUCTURE

Filed Aug. 14, 1931



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## UNITED STATES PATENT OFFICE

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## CONTACT STRUCTURE

Application filed August 14, 1931. Serial No. 556,989.

My invention relates to contact structures.

I will describe one form of contact structure embodying my invention, and will then point out the novel features thereof in claim.

The accompanying drawing is a view, partly in side elevation and partly in section, illustrating one form of contact structure embodying my invention.

Referring to the drawing, the contact structure comprises two flexible contact springs  $2^F$  and  $2^B$  which are secured to the upper end of a contact arm 4 between two rigid stop fingers  $3^F$  and  $3^B$ , and which coact respectively with two spaced and confronting fixed contact members  $1^F$  and  $1^B$  to close a contact  $1^F-2^F$  or  $1^B-2^B$  in a manner to be described hereinafter. Interposed between the free ends of the contact springs  $2^F$  and  $2^B$ , and held in place by means of two confronting studs  $7^F$  and  $7^B$  secured to the contact springs, is a coil spring 8 which biases the contact springs to the positions in which their outer faces engage the stop fingers  $3^F$  and  $3^B$ . The contact arm 4 is pivotally mounted at  $4^a$ , and is biased by means of a spring 10 in such direction as to constantly urge a roller or cam follower 5 carried by the contact arm into engagement with the periphery of a rotatable cam 6 provided with a cam swell  $6^a$ .

The operation of the contact structure is as follows: When the roller 5 rides up on the swell  $6^a$  of cam 6, as shown in the drawing, the contact arm 4 is moved to the left to a position in which the contact spring  $2^B$  is out of engagement with the fixed contact member  $1^B$  and the contact spring  $2^F$  engages with, and is flexed by, the fixed contact member  $1^F$ . Under these conditions, the contact  $1^B-2^B$  is open, and a contact  $1^F-2^F$  is closed. The flexing of the contact finger  $2^F$  compresses the spring 8, which causes the finger  $2^F$  to exert a high contact pressure on the fixed contact member  $1^F$ . The reaction of the spring 8, under these conditions, is taken by the stop finger  $3^B$  which preferably engages the con-

tact spring  $2^B$  as near the axis of the coil spring 8 as possible. When, however, the roller 5 moves off of the swell  $6^a$  of the cam 6, the contact arm 4 is moved to the right by the spring 10 to a position in which the contact spring  $2^F$  is out of engagement with the fixed contact member  $1^F$  and the contact finger  $2^B$  engages with, and is flexed by, the contact member  $2^B$ , thus opening contact  $1^F-2^F$  and closing contact  $1^B-2^B$ . The flexing of the contact spring  $2^B$  compresses the coil spring 8 in the same manner as the flexing of the contact spring  $2^F$  compressed the spring 8 when the finger  $2^F$  was engaging the fixed contact member  $1^F$ , thus causing the contact spring  $2^B$  to exert a high contact pressure on the fixed contact member  $1^B$ , the reaction of the coil spring 8 now being taken by the stop finger  $3^F$ .

It will be readily understood from the foregoing that by properly proportioning the parts, a relatively high contact pressure may be obtained with only a slight amount of bending of the contact springs  $2^F$  and  $2^B$ , thus combining the desirable features of a high contact pressure with low spring fibre stress. It will also be understood that the fingers  $2^F$  and  $2^B$  serve primarily as electrical conductors rather than as spring members for producing high contact pressure.

Although I have herein shown and described only one form of contact structures embodying my invention, it is understood that various changes and modifications may be made therein within the scope of the appended claim without departing from the spirit and scope of my invention.

Having thus described my invention, what I claim is:

A contact structure comprising two fixed, spaced, and confronting contact members; a contact arm provided with two contact springs, means for moving said arm to one position wherein one finger engages with and is fixed by one fixed member and to an-

other position wherein the other finger engages with and is flexed by the other fixed member, two stop fingers fixed to said arm and coacting with the outer faces of said two contact springs respectively, and a coiled spring located between said two contact springs and compressed when either contact spring is flexed by engagement with its associated fixed contact member.

10 In testimony whereof I affix my signature.  
GLEN V. JEFFERSON.

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