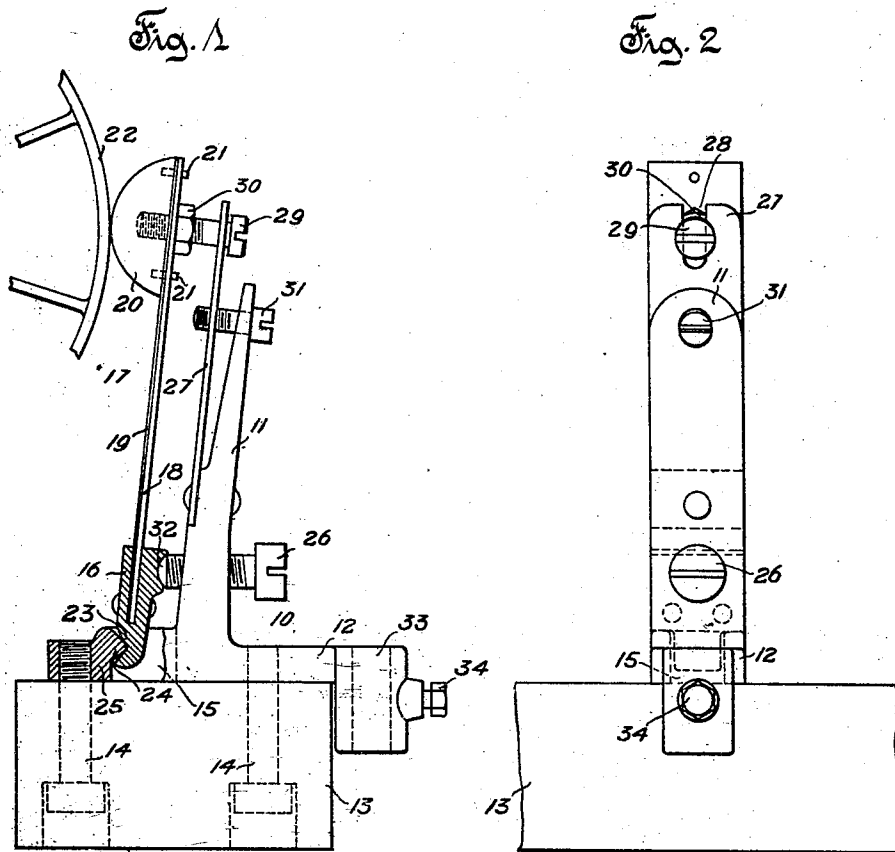


H. A. STEEN.
CONTACT FINGER.
APPLICATION FILED SEPT. 6, 1910.

991,661.

Patented May 9, 1911.



Witnesses
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UNITED STATES PATENT OFFICE.

HALFDAN A. STEEN, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO ALLIS-CHALMERS COMPANY, A CORPORATION OF NEW JERSEY.

CONTACT-FINGER.

991,661.

Specification of Letters Patent.

Patented May 9, 1911.

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To all whom it may concern:

Be it known that I, HALFDAN A. STEEN, a subject of the King of Norway, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Contact-Fingers, of which the following is a full, clear, and exact specification.

This invention relates to improvements in adjustable contact fingers to use in motor controllers, reversing switches, and similar electrical governing devices.

In contact fingers commonly used, it is necessary to make provision for adjusting them relatively to their coöperating contact members for the reason that on account of slight irregularities in the cast and machined parts and the requirements of a support of some insulating material no two fingers would otherwise receive the same alinement. It is evident that where the fingers are resilient and are spring pressed, as they must necessarily be in order to secure close and efficient contact, any change in the alinement of a finger produces a variation in the pressure, with which the finger bears against its coöperating member, a deflection from the normal in one direction producing too heavy a pressure and consequently too much friction and wear between the parts, and a deflection in the opposite direction resulting, if in any contact at all, in too light a pressure between the parts and a bad contact. Adjustability is also desirable to compensate for wear which takes place during service in order that the predetermined pressure between contacts may be maintained. It is furthermore desirable to have a plurality of means for adjusting the contact finger, one for setting the contact in the proper position relative to its coöperative contact surface, and another for regulating the pressure between the contact members.

The object of this invention is to provide a simple, inexpensive contact finger, the parts of which may be adjusted readily to meet all requirements for efficient and successful operation.

The various novel features of my invention will be described in the specification and particularly set forth in the appended claims.

This invention is illustrated on the accompanying sheet of drawings, in which—

Figure 1 is a side elevation of my im-

proved contact finger in operative engagement with its coöperative contact surface, and Fig. 2 is a front elevation of the same.

This contact finger comprises a base or main support 10 having preferably an integral projection 11 substantially at right angles to the body portion 12 of the base. The base 10, which is secured to any suitable insulating supporting member 13 by screws 14, is provided with an opening 15 for the reception of a pressure plate 16 to which the contact member 17 is connected. The contact member preferably comprises strips of steel 18, and copper 19 secured to a copper contact tip 20, the latter of which engages or is adapted to engage a coöperating contact surface 22. Dowel pins 21 driven into the tip 20 and projecting through holes in the metal strips 18 and 19 prevent the tip from turning about a screw 29.

The pressure plate 16 which receives the metallic strips 18 and 19 is provided with a V-shaped portion 23, which engages a coöperating projection 24 of the walls 25 in the base 10. The projection 24 forms a fulcrum or pivotal point about which the pressure plate 16 is adapted to be forced by a pressure adjusting screw 26, which passes through the support 10 and is adapted to change the inclination of the contact member 17 with respect to its support, thereby varying the pressure of the contact tip 20 on its coöperative contact surface 22.

Secured to the projection 11 of the support 10 is a strip of metal 27, preferably steel, forming a stiff spring. The free end of this spring is provided with a slot 28 for the reception of the screw 29, which passes through the metallic strips 18 and 19 into the contact tip 20, and which is held in a fixed position by a lock-nut 30. The relative positions of the contact finger and its coöperating contact member and the distance between the spring 27 and the projection 11 of the support 10 may be adjusted by a screw 31, which passes through said projection and spring. A lever or other similar mechanism could be used instead of the spring 27 and I do not intend to limit myself to the use of a spring.

When the contact finger is first assembled the spring 27, with which the contact member 17 is operatively connected, is properly adjusted so that the contact tip is in proper position relative to its coöperative contact

surface 22. This adjustment is accomplished by the use of the screw 31. The desired pressure between the contact tip 20 and its coöperative contact surface 22 is regulated by the screw 26, the end of which is rounded and fits in a hollowed portion 32 of the pressure plate 16.

All of the parts of the base or support are preferably formed integrally. One end of the base or support is provided with an opening 33 for the reception of an electric conductor, which may be secured therein by a screw 34. This contact finger is so constructed that the parts may be readily assembled, taken apart, or adjusted without any difficulty whatever. And further, it provides novel means whereby the contact member may be properly adjusted relative to its coöperative contact surface and also means whereby the pressure between said contact member and surface may be regulated.

It is evident that there may be many modifications of the precise form and arrangement herein shown and described and I aim in my claims to cover all such modifications which do not involve a departure from the spirit and scope of my invention.

What I claim as new is:

1. A contact finger embodying a resilient contact member, a support therefor, a spring connected to said support and operatively connected with said contact member, means for varying the distance between said spring and said support, and means for changing the inclination of said contact member with respect to said support.

2. A contact finger embodying the contact member, a support therefor, a spring connected to said support and operatively connected with said contact member, and a plurality of members for changing the inclination of said contact member with respect to said support.

3. A contact finger embodying a contact member, a support therefor, a spring connected to said support and operatively connected with said contact member, and a plurality of adjusting members for changing the inclination of said contact member

with respect to said support, all of said adjusting members engaging said support and one engaging said spring.

4. A contact finger embodying a resilient contact member, a support therefor, said contact member being adjustable about said support and pivotally arranged therewith, a spring secured to said support and operatively connected with said contact member, and a plurality of means for changing the inclination of said contact member with respect to the support.

5. A contact finger having a contact member adapted to be pressed against a coöperating contact surface, a support, a spring secured to said support, means engaging said spring for adjusting the position of said contact member relative to said contact surface, and means for varying the pressure of said contact member on said contact surface.

6. In combination, a contact surface, a contact finger having a contact member adapted to engage said contact surface, a support part of which forms a fulcrum for said contact member, a spring secured to said support and operatively connected with said contact member, means engaging said spring for adjusting the position of said contact member relative to said coöperating contact surface, and means for varying the pressure of said contact finger on said contact surface.

7. A contact finger having a contact member adapted to be pressed against a coöperating contact surface, a support, a member connected to said support, means engaging said member for adjusting the position of said contact member relative to said contact surface, and means engaging said support for varying the pressure of said contact member on said contact surface.

Milwaukee, Wisconsin, August 26, 1910.

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

HALFDAN A. STEEN.

Witnesses:

CHAS. L. BYRON,
ROB. E. STOLL.