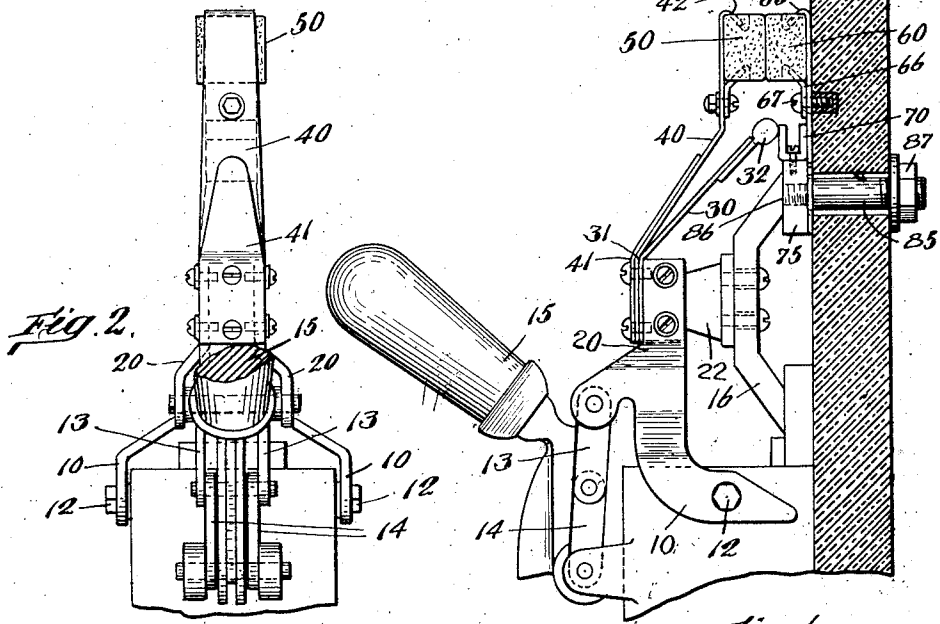
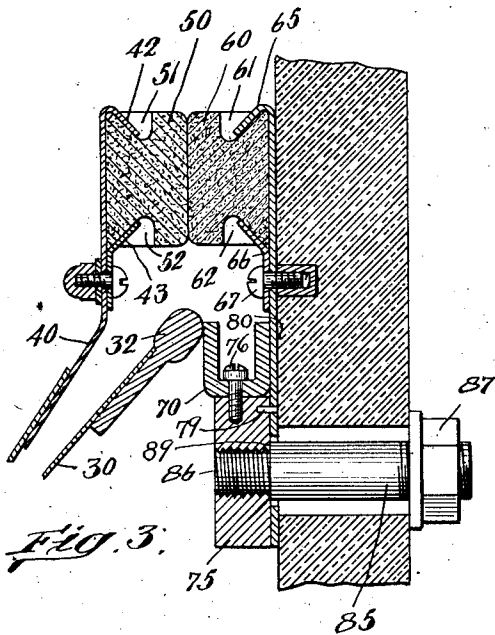
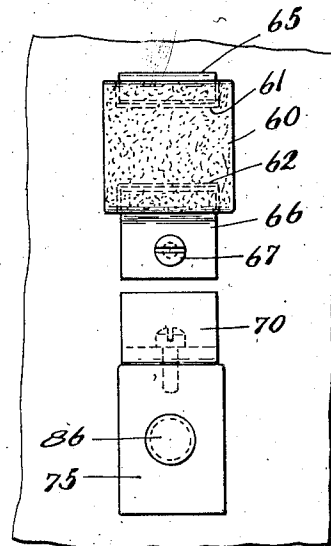


D. M. SCHIFFERT.
CIRCUIT BREAKER.
APPLICATION FILED DEC. 9, 1916.

1,312,136.

Patented Aug. 5, 1919.



Witness,
H. B. Davis.

Inventor,
Daniel M. Schiffert
by V. H. & H. H. H. H.
Attys.

UNITED STATES PATENT OFFICE.

DANIEL M. SCHIFFERT, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO S. B. CONDIT, JR.,
OF BROOKLINE, MASSACHUSETTS.

CIRCUIT-BREAKER.

1,312,136.

Specification of Letters Patent.

Patented Aug. 5, 1919.

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To all whom it may concern:

Be it known that I, DANIEL M. SCHIFFERT, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Circuit-Breakers, of which the following is a specification.

This invention relates to circuit-breakers, and has for its object improvements in the construction of the same by which the efficiency of the circuit-breaker is increased, and its capacity, taking into account its dimensions, is augmented, and which may be easily and cheaply manufactured, and in the standardizing of its component parts whereby other circuit-breakers, of other capacities, may be easily and cheaply manufactured.

My improvements reside particularly in the construction of the carbon contact-members and their supporting-means; and the construction of the stationary contact-members for the brush and for the movable secondary contact-members and their supporting-means; and the provision of a conducting element coextensive with the several stationary contact-members.

Figure 1 is a side elevation of a portion of the circuit-breaker embodying this invention.

Fig. 2 is a front elevation of a portion of the same.

Fig. 3 is an enlarged vertical sectional detail of the several contact-members.

Fig. 4 is a front view of the same.

10 represents the movable contact bearing member pivoted at 12, and 13 and 14, two toggle links connected with said member, and 15 the operating lever for the toggle connection by which the member 10 is moved into circuit-closing position. These elements together with the brush 16 are or may be all constructed in any usual or suitable manner. The upper end-portions of the side-arms of the pivoted member 10 are bent inward toward each other as at 20—20, and receive between them the flat-sided end-portion of a brush support which extends rearwardly, as at 22, beyond the member 10, and the brush 16 is rigidly secured to the extremity of said rearwardly extended portion 22. This brush support is made as a casting, of iron, but it may be otherwise made of any suitable material. By making the brush support as shown, the upper end-portion of the pivoted member 10 may be re-

duced in width to the width of the space occupied by said support, and two or more like supports may be arranged side by side on a single pole circuit breaker to form one of larger capacity without unduly increasing the width of the circuit breaker, and thus a circuit breaker of large capacity may be of narrow dimensions.

The end-portion of the brush support is adapted to be arranged flush with the front, and, if desired, with the edges of the upper end-portion of the side frames of the pivoted member, so that its full width at the outside may be utilized for attachment thereto of the supporting arms 30 and 40 for the movable secondary and carbon contact members. These supporting arms, as here shown, each consist of a narrow flat strip of brass, copper or other suitable material, having their lower end-portions bent at 31, 41, to provide flat portions for the engagement with the outside of the brush support, and they extend over the edges of the side-frames of the pivoted member, being made of a width which may correspond to the full width of the brush support and side-frames. Said arms are or may be resilient and are divergently disposed relative to each other, as shown. The arm 30 bears a detachable and reversible secondary contact-member 32, the shank portion of which extends over the under side of the upper end-portion of the arm. The arm 40 has at its upper end-portion a pair of clamping-members composed of two opposing jaws 42, 43, adapted to engage the upper and lower sides of a carbon contact-member. One of said jaws, as 42, is formed by reflexing the end-portion of the arm in a rearward downward direction to an inclined position with respect to the arm, which engages a transverse recess 51, formed in the top of the carbon contact-member 50; the other jaw as 43 is formed of a short separate piece of metal like the arm, bent intermediate its length, the lower end-portion of which flatly engages the arm, and is rigidly but detachably secured thereto, and the upper end-portion of which is extended in an upward, outward direction, inclined with respect to the arm, similar to the other jaw, and is adapted to engage a transverse recess 52, in the under side of the carbon contact-member 50. Thus it will be seen that said carbon contact-member will be rigidly held in place by said jaws.

The carbon contact-member 50 is made wider than its supporting-arm, and the transverse recesses extend only along the middle portions of the top and bottom sides thereof, so that said contact-member is prevented from lateral movement by the jaws engaging the ends of the transverse recesses. The stationary carbon contact member 60 is made similar to the carbon contact-member 50, it having transverse recesses 61 and 62, arranged in its top and bottom sides, which extend along the middle portions thereof. Opposing jaws, similar to the aforesaid jaws, are provided for stationarily engaging said member to hold it in fixed position. The upper jaw 65 is formed at the upper end-portion of a bearing plate 80 by reflexing said upper end-portion in a downwardly inclined direction, with respect to the plate, and said jaw and plate are made of a width corresponding to the length of the transverse recess 61. The lower jaw 66 is formed as a separate short piece of metal, of the same width as the upper jaw, and is bent intermediate its length to provide a flat lower end-portion for engagement and detachable connection with the plate, and the upwardly inclined portion. These two opposing jaws, therefore, hold the carbon contact-member 60 securely, the same as the opposing jaws hold the other carbon contact-member.

The screw 67 which holds the lower jaw-member may extend through the bearing plate 80, and enter a recess in the back plate of the circuit breaker. The stationary secondary contact-member 70 is made as an angularly formed plate, of a strip of copper or other material, bent substantially U-shaped, and the crown of said member 70 is arranged on top of and in engagement with the stationary contact-member 75 for the brush, and is rigidly secured thereto by a screw 76, extended through it and into said stationary contact-member 75. The rear upright arm of said U-shaped member bears against said bearing plate 80, which is extended downward and made long enough for this purpose, and the front upright arm of said U-shaped member is arranged for engagement with the movable secondary contact-member. The stationary brush contact-member 75 is adapted to rest against said plate 80, and said plate 80 is also made long enough for this purpose, its lower end terminating approximately flush with the lower end of the member. Thus the three stationary contact-members are electrically connected together by the plate 80, the latter being co-extensive therewith.

As here shown, a shouldered stud 85 extends rearward from the brush carbon contact-member 75, it having a screw-threaded portion 86 which passes through a screw-threaded hole extended entirely through said

member 75, and said stud extends through a hole in the back plate of the circuit-breaker and has a screw-threaded end which receives upon it a nut 87. A shoulder 89 is or may be formed at the junction of the screw threaded end-portion 86 and the shank which shoulder engages the back of the contact-member, the plate 80 having a hole through it large enough in diameter to admit of the shank of the stud extending through it. To assist in holding the contact-member 75 in place, particularly while the nut on the screw-bolt is being tightened, said contact member 75 may have a steady pin 79 projecting rearward from it adapted to enter a hole in the back plate.

I claim:—

1. A circuit breaker including stationary switch members, a pivoted contact-bearing member composed of two side frames, a block rigidly secured between the upper end-portions of said frames and substantially flush with the forward edges thereof, and extended rearwardly of said upper end portions, a brush contact member for cooperation with certain of said stationary switch-members rigidly fixed to said block, and auxiliary contact-members secured to the front side of said block and extended thereabove for contact with others of said stationary switch members.

2. In a circuit breaker, a carbon contact-member formed with two opposed recesses in the top and bottom walls thereof, each recess having an inwardly inclined wall adapted for engagement by supporting jaws, said recesses being of less width than the width of the block and positioned within the opposite side walls of the block, said side walls adapted to be engaged by the supporting jaws when disposed within said recesses to thereby prevent lateral displacement of said block from the jaws.

3. A circuit-breaker having as independent units, a stationary brush contact-member, a stationary secondary contact-member, and a stationary carbon contact-member, and a contact-member supporting plate of conducting material extended beneath and in contact and coextensive with said members, thus to electrically connect and support said members.

4. A circuit-breaker having a stationary brush contact-member, a stationary secondary contact-member, and a stationary carbon contact-member having opposed recesses, and a contact-member supporting plate of conducting material made coextensive with said members arranged beneath and in engagement therewith to connect and support said members, said plate having opposing jaws at its upper end for engaging said recesses in the carbon contact-member and said recesses being of less width than said carbon member whereby said member

is secured to said supporting plate against lateral displacement therefrom.

5 5. In a circuit-breaker, a carbon contact member, a supporting arm therefor, said contact member having a width greater than the width of said supporting arm and having recesses therein of a width substantially equal to the width of said supporting arm, and said supporting arm having an end thereof reflexed into a recess in said contact member whereby said contact member is secured to said arm and restrained from lateral movement therewith, and a jaw member detachably secured to said supporting arm and extended into a recess of said contact member for clamping engagement therewith.

20 6. A circuit-breaker having a stationary brush contact-member, a stationary secondary contact-member, and a stationary carbon contact-member, and a separate plate of conducting material made coextensive with the said members arranged in engagement therewith, thus to electrically connect said members, and a stud for attaching said stationary contact-member to the back-board, its inner screw-threaded end-portion extending through the plate and stationary brush

contact-member, and a steady pin arranged on the back of the stationary brush contact member adapted to enter a hole in the back-board to prevent rotation of said brush contact member as said stud is clamped to the back-board. 30

7. A circuit-breaker having stationary contact-members for the brush and the secondary contact-member, and having a stationary carbon contact-member, and a separate plate of conducting material made coextensive with the said members arranged in engagement therewith, said plate bearing a pair of opposing jaws for the carbon contact-member, one of said jaws being detachably connected to the plate by means extended through and projecting rearwardly from the plate and adapted to enter a hole in the back-board and assist in holding the plate in position thereon. 35 40 45

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses. 50

DANIEL M. SCHIFFERT.

Witnesses:

RUSSELL J. NEAGLE,
H. A. CALDER.