

F. W. HARRIS.
CIRCUIT BREAKER.

APPLICATION FILED JULY 28, 1909.

975,421.

Patented Nov. 15, 1910.

Fig. 1.

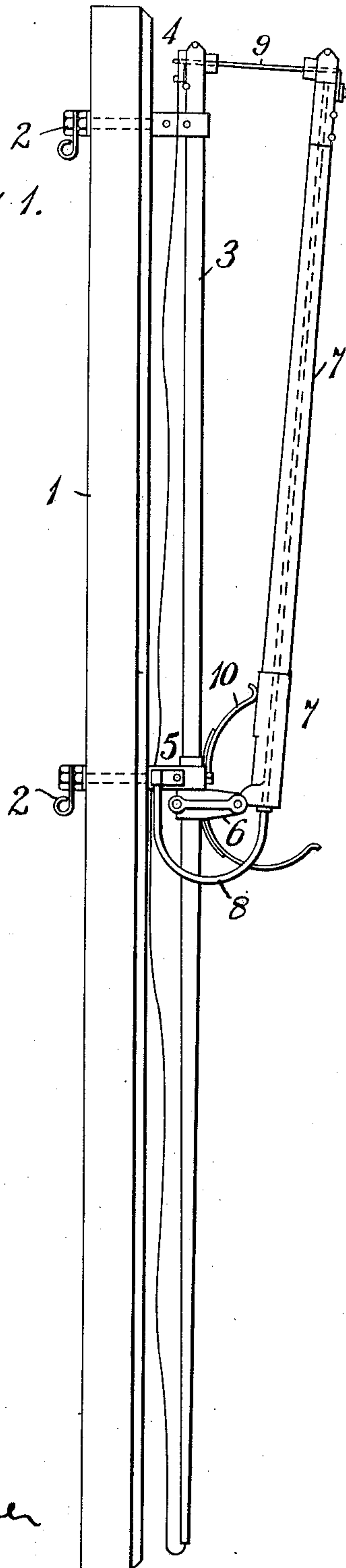
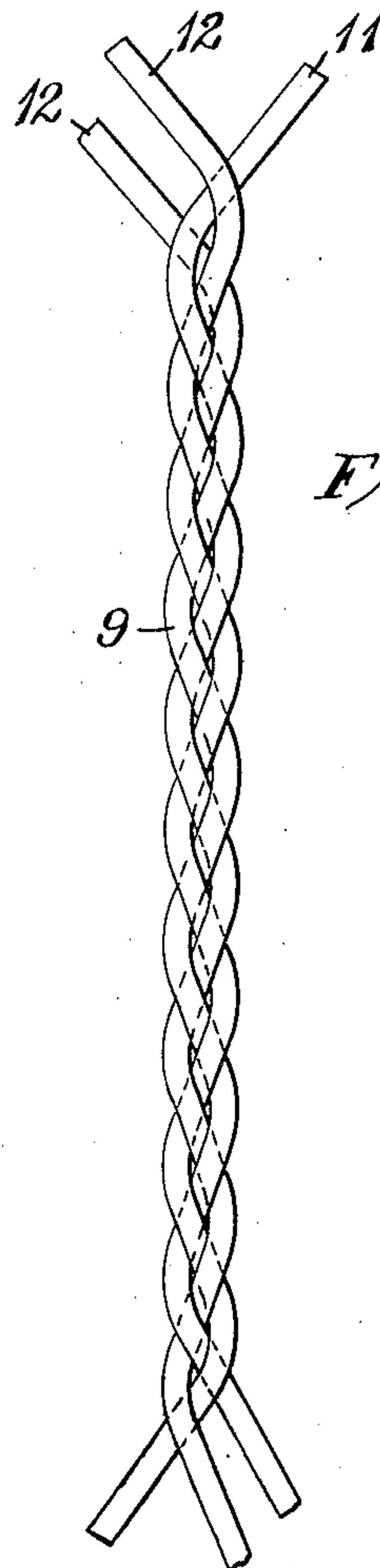


Fig. 2.



WITNESSES:

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CIRCUIT-BREAKER.

975,421.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FORD W. HARRIS, a citizen of the United States, and a resident of Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Circuit-Breakers, of which the following is a specification.

My invention relates to electrical fuses, and it has for its object to provide a fuse structure for use in relations where it is subjected to a considerable tensile strain, as, for example, in connection with a circuit breaker of the type set forth in Patent No. 622,885.

Trouble has heretofore been experienced with the above mentioned apparatus in high-potential service by reason of the difficulty of utilizing a sufficiently small fuse wire to properly protect the translating devices and, at the same time, to maintain the movable element of the circuit breaker in proper operative relation to the stationary member on account of the tendency of such small wire to break under tensile strains.

In order to avoid the above mentioned difficulty, I propose to employ a multiple or double strand fuse, one or more of the strands of which are formed of fibrous material impregnated with an explosive or readily combustible compound.

In the accompanying drawing, Figure 1 is a side elevation of a circuit breaker of the type above referred to and Fig. 2 is a view of a fuse member constructed in accordance with my invention.

The structure shown in Fig. 1 comprises a switch board panel or other insulating base plate 1 provided with terminals 2 which project through the panel or base plate and support a rod 3 having suitable cooperating terminals 4 and 5 and provided with a casting 6 adjacent to the terminal 5 to which is hinged the lower end of a hollow arm 7 to contain a conductor 8, the upper end of which is connected to the terminal 4 by means of a fuse 9, the combination and arrangement of parts being such that, when an excessive current flows through the circuit in which this device is connected, the fuse 9 will be ruptured and the arm 7 will be actuated by gravity and a spring 10 to move quickly outward upon the hinge

formed between its lower end and the casting 6.

As stated above, difficulty has been experienced in the use of apparatus like that just described, in connection with high-potential circuits, by reason of the slight mechanical strength of the fuse wires 9 which are suitable for such potentials. I, accordingly propose to use for the device 9 a multiple strand structure, such as that shown in Fig. 2, in which a fuse wire 11 is associated with one or more strands 12 (two being shown in this instance) of fibrous material which is impregnated with some explosive or highly combustible compound but which has sufficient tensile strength to hold the arm 7 securely in position until a predetermined excessive current flows through the circuit. It will be readily understood that, with this structure, the tensile strength of the fuse will be ample for the intended purpose and that an excessive current will not only blow the fuse but the action of such current upon the fuse will serve to ignite the compound with which the strands 12 are impregnated and thus destroy or rupture the said strands and permit the circuit breaker to operate in the desired manner.

I claim as my invention:

1. A fusible device adapted to resist tensile strains and comprising a fuse wire and a combustible fibrous strand having greater tensile strength than said fuse wire.

2. A fusible cord adapted to resist tensile strains and comprising a fuse wire and a strand or strands of combustible fibrous material.

3. A circuit breaker, the separable members of which are normally electrically and mechanically connected by a multiple strand fuse, one of the strands of which is fuse wire and the other strand or strands of which are of combustible fibrous material.

4. A fusible member for circuit breakers comprising a plurality of interwoven strands of fuse wire and combustible fibrous material.

In testimony whereof, I have hereunto subscribed my name this 19th day of July, 1909.

FORD W. HARRIS.

Witnesses:

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