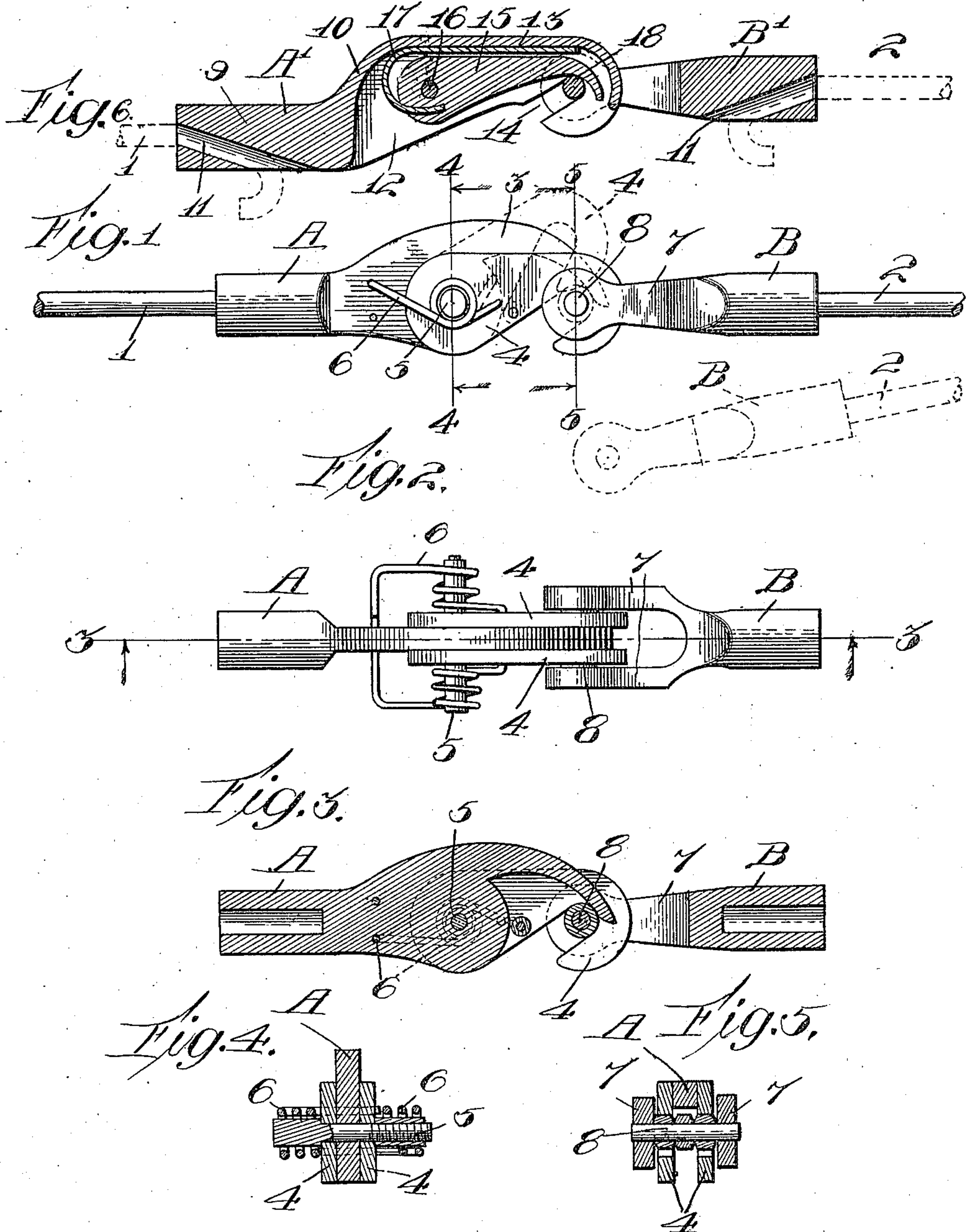


P. F. WILLIAMS:  
WIRE CONNECTOR.  
APPLICATION FILED NOV. 7, 1904.

976,111.

Patented Nov. 15, 1910.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

PAUL F. WILLIAMS, OF CHICAGO, ILLINOIS.

## WIRE-CONNECTOR.

976,111.

Specification of Letters Patent.

Patented Nov. 15, 1910.

Application filed November 7, 1904. Serial No. 231,646.

*To all whom it may concern:*

Be it known that I, PAUL F. WILLIAMS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Wire-Connectors, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to devices for connecting electrical conductors or wires.

In electrical power and lighting systems difficulty is often encountered and damage done by the breaking of overhead electrical conductors and the dropping of the separated ends of such conductors. For instance, if an overhead power wire should snap between the poles suspending it, the two parts in falling often drop upon other electrical conductors such as telephone and telegraph wires, or upon houses or buildings or the ground, either causing crosses with the other conductors, or injuring or setting fire to the houses or buildings, or injuring persons who may happen to be passing beneath the conductors.

The object of my invention is to avoid these bad results in case of the breakage of such conductors carrying high tension currents.

In accordance with my invention I provide a device for connecting the ends of wires or conductors, which device is constructed to automatically separate the wires which it connected, in the event of the breakage of either one of such conductors. Thus in its use on power or lighting circuits, for example, each overhead conductor will be provided near its point of attachment with the poles, with a device of this kind, so that there is an intermediate portion of conductor connected with the ends near the poles by such devices, which normally hold the intermediate conductor in suspension and properly connected, but which tend to separate it from the ends to which it is connected. So long as the intermediate or suspended section of conductor remains intact, its tension is sufficient to overcome the tendency to separate it from the conductors to which it is attached, but when it becomes

broken its tension is relieved, thereby allowing the devices to separate its ends from said conductors to which it is attached, so that it is automatically disconnected therefrom, preferably at both ends. Its parts therefore are completely separated and freed from the ends to which they were connected, and fall to the ground; but inasmuch as they are entirely disconnected, they are "dead" and can cause no damage or injury to other wires, to buildings or persons.

In the accompanying drawings, Figure 1 is a side elevation of a connector embodying my present invention, showing the ends of wires or conductors connected thereto; Fig. 2 is a plan view of the same, without the wires; Fig. 3 is a section on line 3—3 in Fig. 2; Figs. 4 and 5 are sections on lines 4—4 and 5—5 respectively in Fig. 1; and Fig. 6 is a view of a modified form of device.

Referring first to the device shown in Figs. 1 to 5 this device consists of two parts, one a hook portion A and the other a yoke portion B, both of which are constructed with sockets to receive the conductors 1 and 2 to be connected together. The hook portion A comprises a central finger 3 and a pair of hooks 4, 4, pivoted to the finger 3 by a pin 5 and arranged on opposite sides thereof. The hooks 4, 4 are subjected to the action of a spring 6 which tends normally to elevate them. The yoke portion B consists of a yoke 7 having a pin 8 with which the hooks 4, 4 are adapted to engage.

When the conductors 1 and 2 are attached to the parts A and B, the latter are engaged with one another by causing the hooks 4, 4 to engage the pin 8, and the tension upon the conductors 1 and 2 maintains the two parts of the device in engagement with one another. They remain in this condition under ordinary circumstances. If, however, one of the conductors 1 or 2 becomes broken, its tension is removed or substantially removed, so that the hooks 4, 4 are released, whereupon they spring upwardly and withdraw themselves from engagement with the yoke B, thereby disconnecting the two parts of the device and permitting a complete separation of the two conductors. Ordinarily the conductor 1 will be a short wire of a foot or two in length, extending to a



pole, and the conductor 2 will be a long overhead conductor. Thus when the device operates, the part B and conductor 2 will fall to the ground, while the part A will remain suspended at the end of its short wire. If the opposite end of the conductor 2 is connected to a similar device, as is preferably the case, the entire conductor 2 falls to the ground. Thus broken and dangling live wires dropping to the ground or to other conductors or houses are entirely avoided and injury and damage thereby prevented. The broken conductor can, of course, be either repaired or replaced or a new one can be substituted.

The device shown in Fig. 6 consists of two parts A' and B', whereof the part A' consists of a socket portion 9, and a hook portion 10. The end of the socket 9 is provided with a diagonally disposed aperture 11 which runs through its outer end to one of its sides, whereby the wire 1 can be brought out at the side and bent over to hold it in position without soldering. The hook portion 10 is made in the form of a casing or housing, having side walls 12, and a top 13 which is bent downwardly at its end, the side walls 12 being provided with slots 14 to form a hook member. Within this housing is a spring-controlled tongue 15 pivoted on a pin 16 and subject to a spring 17 which tends to throw the free end of said tongue downwardly. The yoke B' is constructed with a diagonally disposed aperture 11 for the conductor 2, and with a cross pin or bar 18 adapted to fit into the slots 14, 14 in the walls 12, 12.

When the two parts of the device are in engagement, the pin 18 is held in the slots 14, 14, by the tension of the conductor 2 and against the tendency of the tongue 15 to eject it. When the conductor 2 is broken, however, and its tension thereby relieved, the tongue 15 is actuated by the spring 17 so as to eject the pin 18 and thereby separate the two parts of the device and permit the conductor 2 or its broken end to fall. It will be seen that this form of device is advantageous, because the spring-actuated tongue 15 is covered and practically inclosed, thereby preventing access of rain and sleet to it.

It will be understood that modifications and changes can be made in the device, without departing from the spirit of the invention.

What I claim is:—

1. A device for use in connecting aerial wires, comprising two members to which said wires may be attached, and having provisions for detachably engaging one another, whereby the wires may be connected, and also having provisions for separating said members from one another.

2. A device for use in connecting aerial wires, comprising two members to which the wires to be connected may be attached, and having provisions whereby said members may detachably engage each other, and also having mechanism tending normally to separate said members from one another, but held against action by the tension of the connected wires.

3. A device for use in connecting aerial wires, comprising two members to which the wires to be connected may be attached, and having provisions for detachably engaging one another, said members being held in engagement by the tension of said wires, and mechanism whereby said members are separated from one another upon the release of such tension.

4. A wire connector comprising a pair of separable members adapted to engage directly with one another, and provided with means for the permanent attachment of the wires to be connected, one of said separable members having spring means arranged to act upon the other member to separate the two as soon as the tension of the wire is relieved.

5. A wire connector comprising two separable members only having provisions for permanently attaching wires to be connected, one of said members having a hook and the other means for engaging such hook, and spring means for disengaging said hook device when the connected wires are in substantially their normal position.

6. A wire connector comprising two separable members only having provisions for permanently attaching the wires to be connected, one of said members having a guideway and the other having a pin adapted to slide in said guideway, and spring means for ejecting said pin from said guideway.

7. A wire connector comprising two separable members only having permanent connection with the wires to be connected, one of said members having inclined slots whose open ends are remote from the other member and said other member having a yoke whose cross piece or pin fits in said slots and is held by the closed ends thereof, and a spring acting upon the yoke member to eject its cross piece from the slots when the tension of the wires is relieved.

8. A wire connector in two parts comprising a hook part A' constructed with a casing or housing provided with slots 14, 14, and containing a spring-actuated tongue 15, and a yoke part B' adapted to engage said hook part A' the said parts having associated means for permanently connecting the ends of the wires thereto.

9. A wire connector comprising two parts only, one of which consisting of a hook member constructed with a housing pro-

vided with slots to form a hook, a spring  
actuated tongue in the housing, and the  
other part constituting an engaging mem-  
ber to which the first mentioned part is de-  
5 tachably connected, and means whereby the  
wires to be connected are permanently con-  
nected one to each of said parts.

In witness whereof, I hereunto subscribe  
my name this fifth day of November A. D.  
1904.

PAUL F. WILLIAMS.

Witnesses:

A. MILLER BELFIELD,  
I. C. LEE.