Oct. 7, 1924. 1,510,977

W. T. CLARK

DETACHABLE COUPLING FOR ELECTRIC WIRES

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Fig. 1.

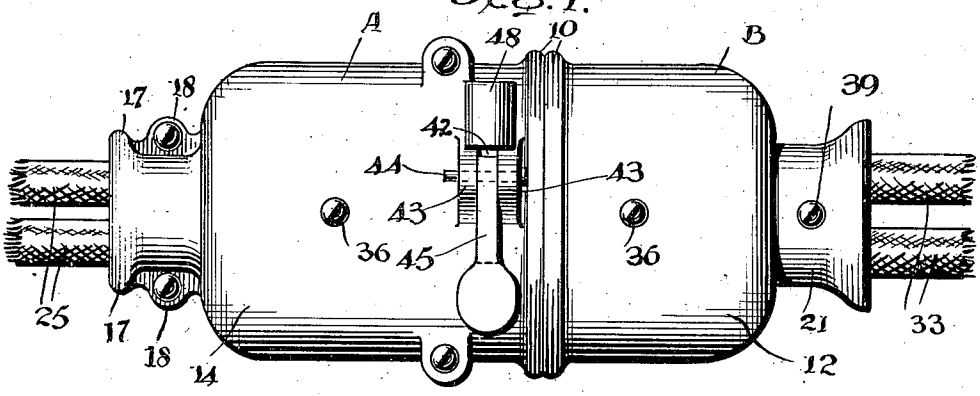


Fig. 2.

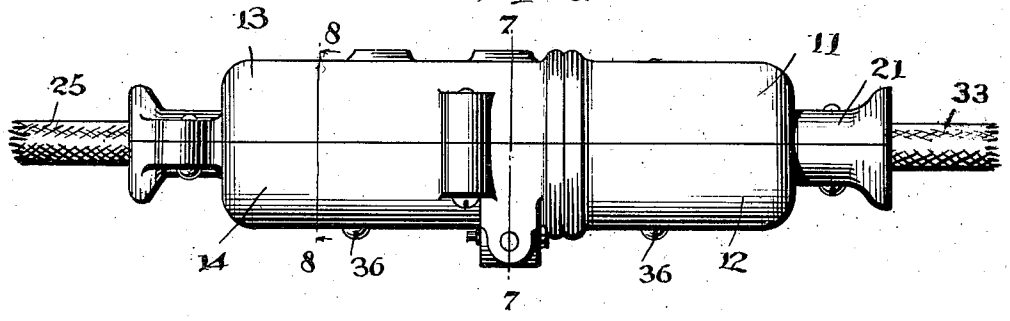


Fig. 3.

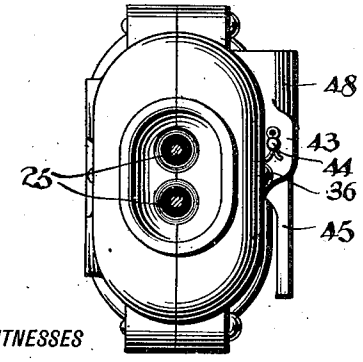
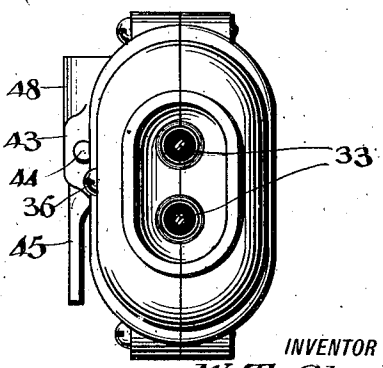


Fig. 4.



WITNESSES

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Fig. 5.

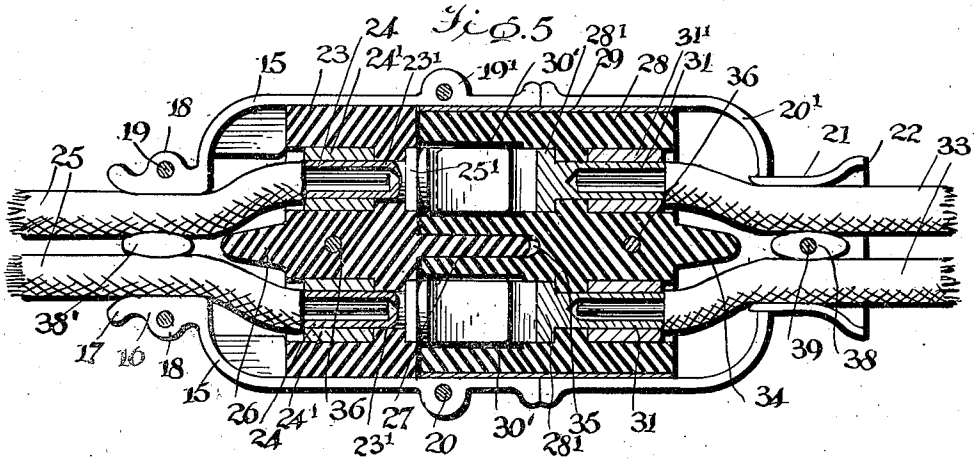


Fig. 6.

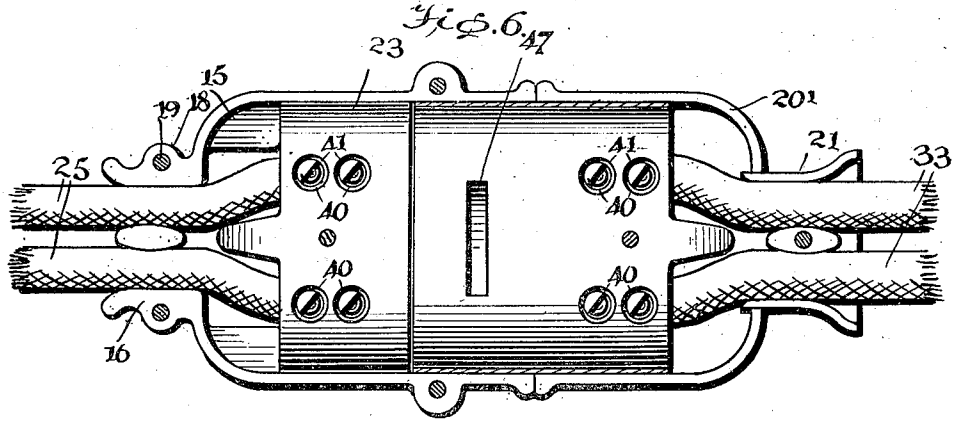


Fig. 8.

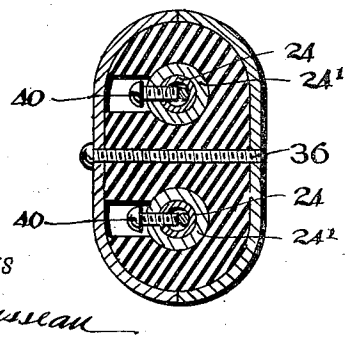
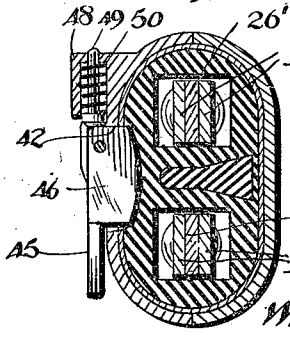


Fig. 7.



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UNITED STATES PATENT OFFICE.

WILLIAM TIMBULLE CLARK, OF MILWAUKEE, WISCONSIN.

DETACHABLE COUPLING FOR ELECTRIC WIRES.

Application filed April 11, 1921. Serial No. 460,216.

To all whom it may concern:

Be it known that I, WILLIAM T. CLARK, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Detachable Couplings for Electric Wires, of which the following is a specification.

This invention relates to a detachable coupling for electric terminal wires.

The object of the invention is to provide a coupling by which one or more terminals may be connected or disconnected in a quick and positive manner.

It is also an object of the invention that the coupling be of few numbered parts and inexpensive to manufacture.

It is also an object of the invention that the wire terminals be connected in such a manner that any possibility of heating of said terminals while current is passing therethrough is entirely eliminated.

Other objects relating to details of construction, combination and arrangement of parts will hereinafter appear.

The invention is illustrated by way of example in the accompanying drawings, in which:

Figure 1 is a top plan view of the coupling when assembled,

Figure 2 is a side elevation of the same,

Figures 3 and 4 are opposite end elevations of the coupling as shown in Figures 1 and 2,

Figure 5 is a central longitudinal vertical section of Figure 1,

Figure 6 is a side elevation similar to that shown in Figure 1, but with the corresponding side casing of the plug removed,

Figure 7 is a transverse section taken substantially on the line 7—7 of Figure 2, and

Figure 8 is a transverse section taken substantially on the line 8—8 of Figure 2.

Referring to the drawings more particularly A indicates generally a casing or housing which encloses what I term the male member of the coupling and B likewise indicates the casing or housing for the female member of the coupling. The casings in each instance have a cylindrical body portion at the inner end of which there is formed an enlargement or bead as indicated at 10. Each casing is divided into two equal sections; 13 and 14 representing the sections of the male casing A and 11 and 12 representing the sections of the female casing B. The outer ends of the sections 13 and 14 curve inwardly as at 15 and each terminate in a semi-cylindrical neck as at 16. Each neck section is also formed with an outwardly disposed lip 17 and a pair of lugs 18 through which openings are provided for receiving screws 19 for securing together the outer ends of the casing sections. Also near the inner ends of the casing sections 13 and 14 there is formed a lug 19′; on each side thereof, through which openings are made for receiving the clamping bolts or screws 20, and thereby binding or securing the forward ends of the sections 13 and 14 together.

The female casing sections 11 and 12 are likewise curved inwardly at their outer ends as at 20′ and form a reduced end opening or passage when assembled. Into this opening or passage there is introduced a pair of semi-cylindrical members 21, the inner ends of which are suitably secured to the associated female casing section. When the female casing members 11 and 12 are assembled or secured together the members 21 form a neck similar in cross section to the neck formed by the portions 16 of the male casing sections 13 and 14. The neck sections 21 are also formed with a lip as at 22.

Within the male casing sections there is fitted a cylindrical insulating member 23. The member 23 is provided with a pair of openings 23′ and in each opening there is positioned a tubular member 24. The openings 23′ are enlarged at their outer ends suitably for accommodating a sleeve 24′. The inner ends of the tubular members 24 terminate in a square portion 25′ which is counter-sunk in the end of the member 23 as shown in Figure 5; and centrally from each square portion 25′ there extends a rectangular portion 26′. The tubular members 24 receive the ends of a pair of terminal wires 25 which otherwise extend through the neck formed by the male casing section. A projection 26 is formed on the outer end of the insulating member 23 and adapted to hold apart the wires 25; also a tongue like member 27 extends from the inner end of the insulating member 23 for the purpose of which will later become apparent.

An insulating member 28 is also fitted into the female casing sections, said member being surrounded by a metal sleeve 29.

A portion of the member 28 extends from the female casing and is adapted to slide within the male casing. This extended portion is formed with a pair of recesses 30′ in its inner end which are in register with the extended portions 26′ of the tubular members 24. A pair of tubular members 31 are positioned in suitable openings formed in the insulating member 28, the inner ends of which terminate in a square portion 28′, and extending from this portion is a pair of spring jaws 30 and said jaws being adapted to receive between them the extension portions 26′ of the tubular members 24. Each tubular member 24 is surrounded with a sleeve 31′. The ends of a pair of terminal wires 33 are properly extended into the tubes 31, said wires otherwise extending through the neck formed by the sections 21 of the female casing. An extension 34 is also formed on the outer end of the insulating member 28 adapted to separate the wires 33 and on the inner end of said member 28 there is formed an elongated slot 35 adapted to receive the tongue 27 of the member 23.

A suitable bolt is employed for binding together the companion casing sections in each instance as at 36. Also in each neck section 21 of the female casing there is centrally secured an oblong shaped member 38 by the means of a screw or bolt, indicated at 39. The purpose of the members 38 is to bind the pair of wires 33 against being pulled from their connection with the coupling. The screws 39 also aid to hold together these two sections of the casing. An oblong lug 38′ is likewise formed upon the inner surface of each neck section 16 of the male casing for a like purpose with respect to the wires 25.

Also to further secure the pairs of wire terminals against removal, I provide a pair of set screws for each wire as at 40. Each screw is preferably positioned in recesses formed in the insulating members as at 41, Figure 8, and threaded into the tubular members 24 and 31 as likewise shown in the same figure.

In order to detachably lock the female and male members of the coupling together when assembled, there is formed in the casing section 14 a slot 42 near its inner end and on each side of this slot there is formed a lug 43, said lugs being formed with registering openings adapted to journal the pin 44. Upon this pin there is secured a lever 45 which has formed on its one end a curved plate like portion 46 which is adapted to enter the slot 42 of the casing section 14 and extend into a recess 47 formed in the sleeve 29 and insulating member 28. The lever 45 is carried by the casing section 14 and the plate 46 extending into the recess 47 which is formed in the members 29 and 28 is carried by the casing sections 11 and 12, locks the female and male members of the coupling together. In order to hold the lever 45 in its locking position, I form a cylindrical lug 48 on the exterior of the casing section 14 and in this lug, I mount a spring controlled plunger 49. The spring 50 tends to force the plunger 49 against the adjacent end of the lever 45 and thereby holds the lever in its locking position; also in case the lever is swung upwardly to withdraw the plate 46 from the recess 47 the plunger 49 will engage the top edge of said lever and thus yieldingly hold it in its unlocking position.

From the description heretofore given it is believed the operation of the present coupling can be clearly understood. The male and female members are easily separated from one another after the locking lever 45 has been placed in its unlocking position. It may be pointed out that in order for the locking lever 45 to engage the slot 47 the male and female members of the coupling must be properly positioned.

While I have shown and described the preferred form of my invention it is to be understood that I am aware of the fact that the construction, arrangement and combination might be slightly changed by those skilled in the art without departing from the spirit of the invention as indicated by the appended claim.

I claim:—

In a coupling member of the character described, a pair of telescopic coupling members having registering recesses, a lever fulcrumed at its one end upon one of said members and having a lug formed at its fulcrumed end adapted to be brought into said recesses for locking the members together, and a spring pressed pin adapted to engage the fulcrumed end of said lever at a point adjacent its upper edge when said lug is within the recesses of said coupling member and thereby to yieldingly hold said lever in its locking position, said pin being also adapted to permit the lever to be manipulated to bring the lug out of said recesses and unlock said coupling members and when in this position the pin is adapted to engage upon the upper edge of the lug and thereby to yieldingly hold the lever in its inoperative position.

WILLIAM TIMBULLE CLARK.