

P. C. WILD.
ELECTRIC COUPLING.
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1,014,108.

Patented Jan. 9, 1912.

Fig. 1.

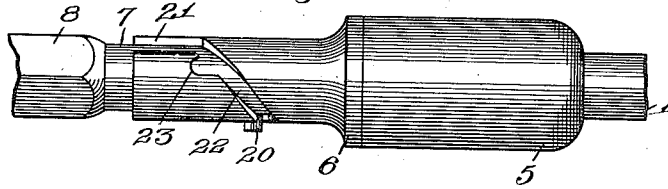


Fig. 2.

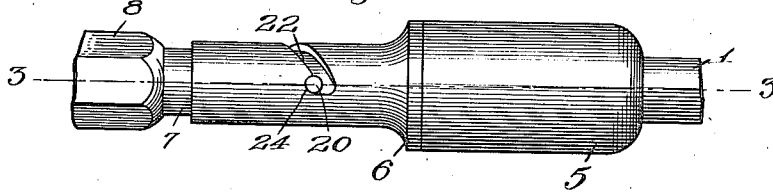


Fig. 3.

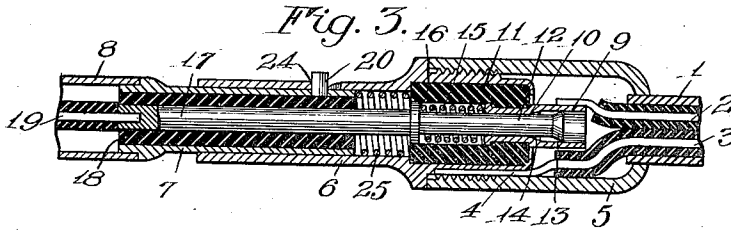
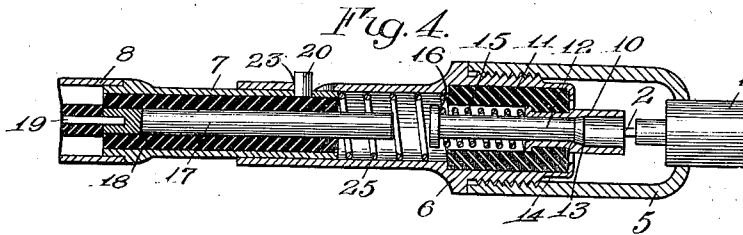


Fig. 4.



Witnesses

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ELECTRIC COUPLING.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, PAUL C. WILD, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Electric Couplings; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference-numerals marked thereon.

The present invention relates to electricity and it has for its object to provide a simple and economically constructed, though efficient and conveniently operable switch or coupling for use in making and breaking electrical circuits.

The improvements are further directed toward producing a construction of this nature suitable for use in connection with the manipulation of electrically operated hand tools or implements.

To these and other ends the invention consists in certain improvements and combinations of parts all as will be hereinafter more fully described, the novel features being pointed out in the claim at the end of the specification.

In the drawings: Figure 1 is an elevation of a switch or coupling constructed in accordance with and illustrating one embodiment of my invention, the parts being shown in the positions which they occupy when the circuit is established through the coupling; Fig. 2 is a similar view from another side; Fig. 3 is a central longitudinal section taken substantially on the line 3—3 of Fig. 2, and Fig. 4 is a similar section taken in a similar plane on Fig. 1.

Similar reference numerals throughout the views indicate the same parts.

In the present embodiment 1 indicates a preferably flexible conductor comprising the circuit wires 2 and 3, suitably insulated, one of which leads, at 4, to a casing 5 constituting the major portion of one of the coupling members and into which is preferably threaded a tubular barrel 6 which also receives the current at 4 forming an extension of the casing that receives the preferably cylindrical plug 7 associated with a part 8 that may represent herein a part of the implement or other device to which the current is supplied or a member suitably connected therewith. The other wire 2 of the conductor 1 leads, at 9, to a core piece

10 held by an insulator 11 within the tubular extension 6 of the casing 5 and operating within the core piece is a contact member 12 preferably in the nature of a plunger which is made to project within the barrel 6 to a degree limited by cooperating shoulders 13 and 14 on the core piece and plunger, respectively, under the influence of a helical spring 15 acting against a shoulder 16 on the latter and the end of the core piece 10. The plug 7 is provided with a centrally arranged projecting contact member 17 insulated at 18 from the outer shell, forming the body of the plug, and which leads through a wire 19 to the implement or device to which current is supplied. As the plug 7, constituting the other coupling member, is moved longitudinally within the barrel 6 of the first its contact member 17 is correspondingly moved into and out of engagement with the contact member 12 opening or closing the circuit. With the arrangements shown, the current may be conducted through the coupling and back again by entering through the wire 2 to the core piece 10, to the contact member 12 and from thence to the contact member 17 and the wire 19 returning through the part 8 to the plug 7, barrel 6, casing 5 and wire 3 but, of course, if it is more desirable for the purposes to be attained the current may be run only through the wire 2 and back from the implement or engine along another course. In either event, the circuit may be broken by moving the coupling members longitudinally and separating the contacts 12 and 17.

In the practice of my invention, I provide one of the coupling members, preferably the plug 7, with a stop 20 preferably projecting laterally therefrom in the form of a pin, as shown, and when the members are joined this stop is introduced through an opening 21 in the barrel 6 and occupies a segmental, helical slot 22 in the latter, the walls of which slot serve the purpose of a cam guide so that when the coupling members are given a relative rotary movement they will also be moved longitudinally and the contact members 12 and 17 will be brought into or out of engagement. At either end of the slot 22 is a recess forming abutments 23 and 24 that are thus spaced apart both circumferentially and longitudinally of the barrel 6 and with which the stop 20 is adapted to cooperate. It cooperates with the abutment 24, as shown in Fig. 2, when the contact

members are in engagement, as shown in Fig. 3, and with the abutment 23 when the contact members are separated, as shown in Fig. 4. In either case it is held in coöperation with the abutment by a helical spring 25 arranged within the barrel 6 to surround the contact member 17 and interposed between the coupling members to have a bearing in the present instance against the plug 7 and the insulator 11 within the casing 5 at its respective ends. The tendency of this spring is to separate the coupling members, but as they are rotated relatively and the stop 20 passes from the abutment 24 to the abutment 23, the spring causes its engagement with the latter, because of the nature of the recess by which the abutment is formed, before it can operate to thrust the stop through the opening 21 and allow the total separation of the coupling members. Thus, if the operator wishes to break the circuit, he pushes the coupling members together sufficiently to disengage the stop 20 from the abutment 24 (the contact member 12 being for this reason resiliently held in engagement with the other by the spring 15) and then rotates them so that they move apart and the stop engages the abutment 23. The coupling is then intact, that is, its parts are still associated though the contact members are out of engagement. Thus, if a tool or implement is being supplied through the coupling, the current can be turned off and it can be laid aside without disconnecting it, but if it is desired to disconnect the tool or implement, of which the plug or member 7 forms a part, and connect up another tool or implement having a similar plug 7, as a part thereof, the stop may be disengaged from the abutment 23 against the tension of the spring 25 and passed out through the opening 21 permitting the total separation of the members of

the coupling. As before indicated, however, the coupling may be utilized merely as a switch in a circuit of any character for though it is particularly useful when used along the lines followed in the above description its broadest characteristic of improvement aside from matters of structural design lies in the fact that it may be made to conveniently make and break a circuit without entailing a total separation of the component parts of the coupling.

I claim as my invention:

In an electric coupling, the combination with two separable coöperating coupling members, one of which embodies a tubular barrel and the other a plug fitting in said barrel, the said members being provided with terminal contacts movable into and out of engaging position by the relative longitudinal movement of the plug within the barrel, of a cam guide on one of the members, a pair of abutments thereon spaced longitudinally and circumferentially thereof along the guide, a stop on the other coöperating with one abutment when the contacts are out of engagement to prevent total separation of the members and with the other abutment when the contacts are in engagement to prevent relative movement of the members longitudinally and disengagement of the contacts, said stop and guide coöperating to cause a relative longitudinal movement of the members when they are given a relative rotary movement and the stop moves from one abutment to the other, and a spring interposed between the members and tending to separate them and to hold the stop in coöperative relation with either abutment.

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Witnesses:

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