

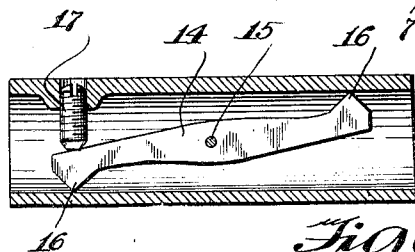
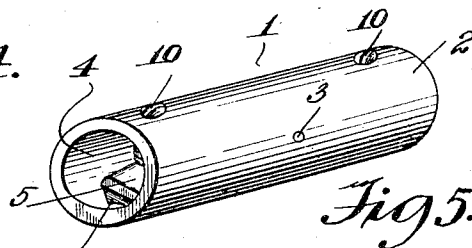
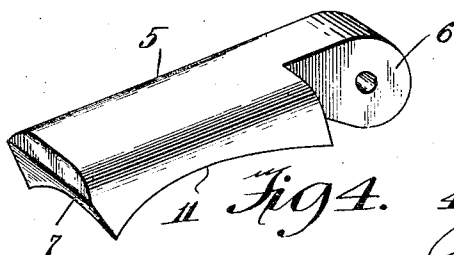
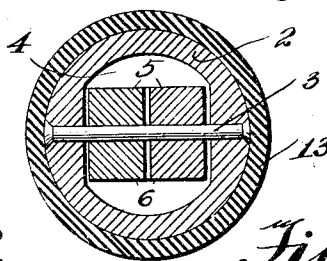
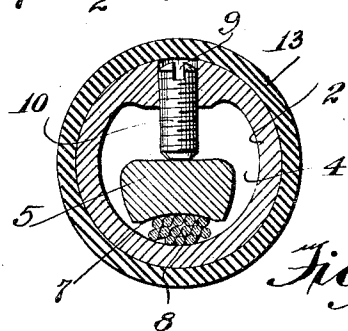
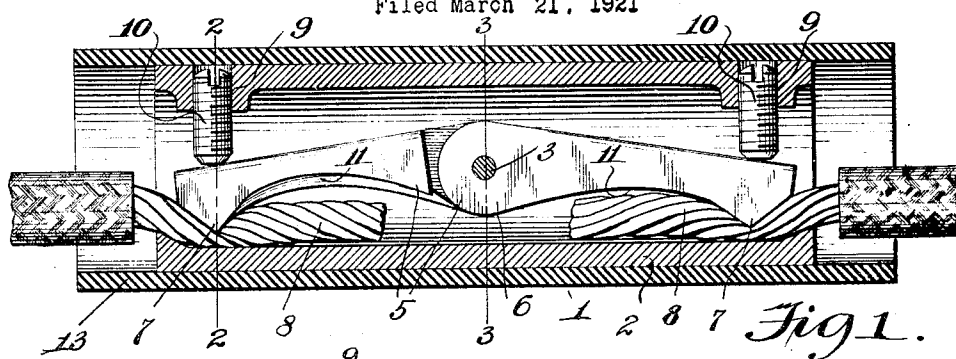
Sept. 4, 1923.

1,466,735

R. O. WILLIAMS

CABLE CONNECTOR

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UNITED STATES PATENT OFFICE.

ROY O. WILLIAMS, OF COLUMBUS, OHIO.

CABLE CONNECTOR.

Application filed March 21, 1921. Serial No. 453,923.

To all whom it may concern:

Be it known that ROY O. WILLIAMS, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, has invented certain new and useful Improvements in Cable Connectors, of which the following is a specification.

This invention relates to an improved cable connector, and consists in the provision of a connector which may be efficiently employed for the purpose of uniting the adjoining ends of a pair of continuing electric conductors, or other equivalent cables, in a substantial and positive manner so as to provide a connection of high mechanical strength, and to also permit of the uniting of the electrical conductors without the use of solder or the like and yet to secure a connection between such conductors which will be very efficient from a standpoint of electrical conductivity and elimination of undue resistance.

In carrying out the invention use is made of a connector of the character aforesaid which includes a tubular metallic member having a centrally disposed pivot rod passing therethrough, the said rod being provided with a pair of oppositely extending pivoted connector arms, which terminate at their free ends in knife edges, between which and the inner walls of the tubular member the ends of a pair of adjoining cable members are adapted to be inserted, whereby upon the actuation of binding screws, which are carried by the tubular member and are disposed for engagement with the free ends of the arms, the said arm may be actuated so as to be brought into firm frictional engagement with the cable ends to effectively secure the latter in united relationship with the tubular member, the knife edges provided by said arm serving to tightly grip the ends of the cables and to prevent slipping thereof when normal tensile stresses are imparted to the cables.

Another object of the invention resides in the provision of a cable connector which will be of extremely simple construction yet positive and effective in operation and to enable one of the cable members to be disconnected therefrom without interfering with the connection between the connector and the other cable.

For a further understanding of the invention, reference is to be had to the following description and to the accompany-

ing drawing, in which similar characters of reference denote like and corresponding parts throughout the several views thereof.

In said drawing:

Figure 1 is a vertical longitudinal sectional view taken through the improved connector comprising the present invention,

Figure 2 is a vertical transverse sectional view taken on the line 2—2 of Figure 1,

Figure 3 is a similar view taken along the line 3—3 of Figure 1,

Figure 4 is a detail perspective view of one of the binding arms,

Figure 5 is a perspective view of the connector, the casing thereof being removed, and

Figure 6 is a detail view showing a modified form of the invention.

Referring more particularly to the details of the invention, my improved connector consists essentially of a structure whereby the ends of a pair of cables may be efficiently connected together both as regards mechanical strength and absence of undue resistance when the cables are employed as electrical conductors. To this end, the connector, which is designated generally by the numeral 1 includes as an essential element thereof a tubular member or sleeve 2, which is preferably formed from metal of such a nature as to be capable of transmitting and permitting of the flow therethrough of electric current, the said sleeve being in the nature of a casing or container, and may be referred to in these terms if desired. Arranged to pass transversely and ordinarily horizontally through the sleeve is a pivot pin 3, which is disposed substantially midway of the length of the sleeve and is adapted to be suitably retained in its applied position in connection with the sleeve in any desired fixed manner. Arranged to be pivotally carried by the pin and disposed to extend longitudinally of the bore 4 of the sleeve is a pair of oppositely extending pivotally mounted connector arms 5. These arms are shown in detail in Figure 4 and are formed to include apertured and relatively enlarged inner ends 6, which are pivotally received by the pin 3, in order that said arms will be permitted to oscillate to a limited extent within the confines of the bore 4. The outer ends of these arms are somewhat attenuated, and are formed to include on the lower surfaces thereof knife edges 7, which are utilized to enhance the

grip which the arms are adapted to exercise upon the adjacent ends of a pair of cable members 8. These cable members are adapted to have their ends situated within the bore 4, substantially as shown in Figure 1, the extreme ends of the cable members being disposed to terminate near the pin 3. Then, it will be manifest that by forcing the free ends of the arms downwardly, the ends of the cables will be gripped and thus retained in fastened relation with the connector as a whole.

In order to operate the arms 5 so as to maintain the latter in holding engagement with the cable ends, the connector has its sleeve formed to include a plurality of threaded bores 9, which are situated immediately adjacent to the outer ends of the arms 5 and the said bores 9 are adapted to receive set screws or their equivalents 10, which have their inner ends terminated so as to engage with the upper edges of the arms 5. Manifestly, by tightening the screws 10, through the use of any ordinary implement, a very great pressure may be brought to bear upon the outer ends of the arms, which will be forced into secure engagement with the cable ends so as to positively and securely retain such ends in united relationship with the connector. As shown in Figure 1 the under portions of the arms are provided with convex depressions 11. These depressions are adapted to receive the extreme ends of the cables 8, when the latter are tightly gripped by the arms 5. It will be apparent that when the arms are forced into biting engagement with the ends of the cables, the latter will be slightly distorted so that the extreme ends thereof will become enlarged, the depressions 11 allowing for such unnatural enlargement of the cable ends and in this manner to enable the arms to exercise their greatest binding pressure without receiving undue resistance on the part of the cable ends. Also, by enlarging the cable ends the mechanical grip afforded by the connector will be augmented.

It will thus be observed that the present invention provides means whereby the cable ends will be securely united and that not only mechanical strength will be present in a large degree but also a union of high electrical efficiency is present. The device may be simply and quickly operated by means of the set screws 10, which will be capable of holding their adjusted positions in cooperation with the arms 5. If desired an insulator casing 13 may surround the sleeve 2, in order to permit the latter to be readily handled when current is passing there-through, the said casing also serving to prevent loss of adjustment on the part of the screws 10. It will be observed that the arms 5 are capable of being selectively actuated, thus allowing the cables to be independently

connected or disconnected without affecting the remaining cable or cables. It will be understood that the invention may include means whereby two or more of the cables may be connected without departing from the principle set forth. Also, if desired the oppositely extending arms may be integrally formed as shown in Figure 6. In this construction the arm 14 is of one piece construction and is pivotally mounted as at 15, the knife edges 16 thereof being located at its opposite ends and on opposite surfaces of the arm. In this form of the invention a single set screw 17 will suffice in effecting the operation of the arm.

In view of the forgoing it is believed that the operation, construction and advantages of the invention will be readily understood by those versed in the art, and therefore a more extended explanation has been accordingly omitted.

What is claimed is:

1. A cable connector comprising a casing having a longitudinally extending opening provided therein, a pair of connector arms arranged to be positioned within said opening and having the inner adjoining ends thereof pivotally connected with substantially the intermediate portion of said casing, the outer ends of said arms being situated for oscillation within said opening, whereby the ends of a pair of cable members may be positioned between the outer ends of said arms and the walls of said opening, and manually operated pressure exerting means carried by said casing and disposed for engagement with the outer ends of said arms to force the latter into frictional gripping relationship with the ends of said cable members.

2. A cable connector comprising a sleeve, a pair of oppositely extending arms arranged within said sleeve, means carried by said sleeve and serving as a pivotal mounting for the inner ends of said arms, the outer ends of said arms being situated for rocking movement within said sleeve and to be capable of permitting the ends of a pair of cable members to be inserted therebetween and the inner wall of said sleeve, and independently mounted selectively operable binding screws carried by said sleeve and co-operative with the outer ends of said arms to maintain the latter in gripping relationship with said cable ends.

3. A cable connector comprising a sleeve, a pin passing transversely to the intermediate portion of said sleeve, a pair of arms mounted for oscillation within said sleeve and having the inner ends thereof pivotally connected with said pin, the outer ends of said arms being capable of engaging the adjoining ends of a pair of cables entering said sleeve, and independently mounted selectively operable binding screws carried by

said sleeve and capable of engaging with said arms to force the latter into holding engagement with the cable ends.

4. In a cable connector, a sleeve, a pair
5 of arms pivotally mounted within said sleeve and capable of receiving between the outer ends thereof and the inner wall of said sleeve

the adjoining ends of a pair of cable members, the outer ends of said arms being formed to include knife edges, and manually 10 operated means for forcing said edges into gripping relationship with said cable ends.

In testimony whereof I affix my signature.

ROY O. WILLIAMS.