

W. R. GREENWAY.
PLUG CONNECTOR.
APPLICATION FILED MAY 5, 1911.

1,034,910.

Patented Aug. 6, 1912.

2 SHEETS-SHEET 1.

Fig. 1

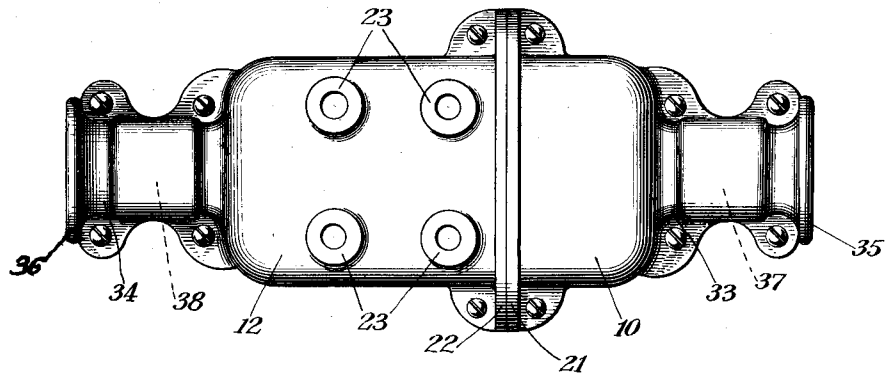


Fig. 2

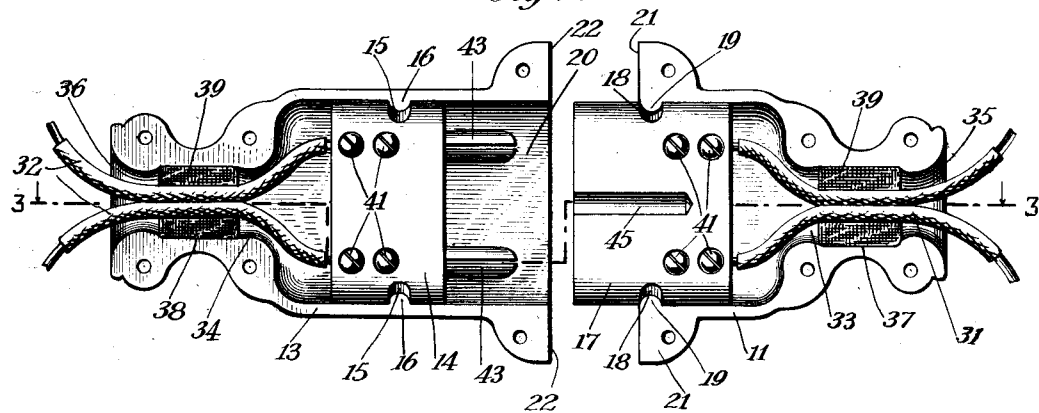
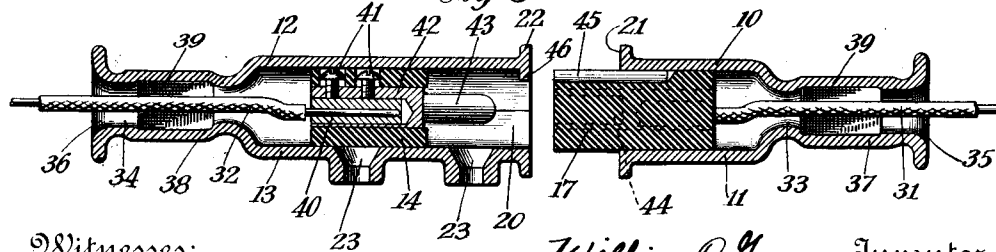


Fig. 3



Witnesses:
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Fig. 4

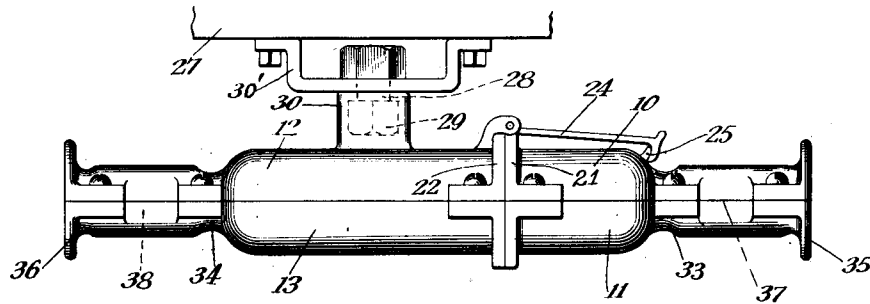


Fig. 5

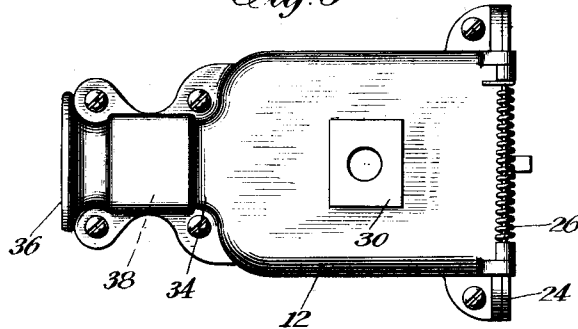
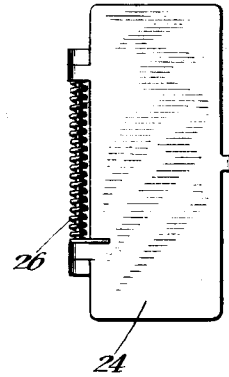


Fig. 6



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UNITED STATES PATENT OFFICE.

WILLIAM R. GREENWAY, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF TO
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PLUG-CONNECTOR.

1,034,910.

Specification of Letters Patent.

Patented Aug. 6, 1912.

Application filed May 5, 1911. Serial No. 625,317.

To all whom it may concern:

Be it known that I, WILLIAM R. GREENWAY, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Plug-Connectors, of which the following is a specification.

The invention relates to electrical coupling devices, and more particularly to a plug connector having one or more contacts.

It has for its object a plug connector in which the inclosing casing or shell is readily separable and the insulating blocks held by the same readily removable; to so secure these blocks to their respective shells that no screws or the like pass through the same into the inclosing casing; and to provide means to positively determine the polarity of the contacts where a plurality of contacts are made by means of the connector.

A further object of the invention is to relieve the conductors, connected to the blocks, of strain in withdrawing the plug.

The nature of the invention will be best understood when described in connection with the accompanying drawings, in which—

Figure 1 is a plan of the connector. Fig. 2 is a plan of the connector with the upper shells removed. Fig. 3 is a section taken on the line 3—3, Fig. 2. Fig. 4 is an elevation, and Fig. 5 a plan illustrating a modification in the connector. Fig. 6 is an end view of the cover employed in connection with the modification illustrated in Figs. 4 and 5.

Similar characters of reference designate corresponding parts throughout the several views.

Referring now to the drawings, 10 and 11 designate respectively upper and lower shells forming the inclosing casing of the plug member of the connector; and 12 and 13 respectively the upper and lower shells, similarly forming the inclosing casing for the socket member of the connector. The shells are adapted to be secured to each other in any well-known manner, for example by means of screws, as shown. Within, and held between the said shells 12 and 13, is a block of insulating material 14 provided on each side with a vertical groove 15 adapted to fit corresponding lugs 16 extending inwardly from the sides of the shells. A block 17 of insulation is similarly held be-

tween the shells 10 and 11 through vertical grooves 18 and lugs 19, the said block, however, extending beyond the end of the said shells. The part thus extending is adapted to fit a socket 20 at the end of the shells 12 and 13. By means of the grooves in the blocks of insulation and the corresponding lugs extending inwardly from the shells, the said blocks are located and held against movement in their own plane, but may be readily removed by lifting the same. No other means to secure the blocks are required; and if, it be desired to fix the socket member as a whole, this may be readily effected by providing one of its shells, for example the shell 12, with suitable bosses 23 through which screws or bolts may pass. The inner ends of the shells forming the corresponding casings of the plug and socket member are provided with abutting flanges 21 and 22 to determine the extent of the insertion of the plug block 17 into the socket 20.

As shown in Figs. 4, 5 and 6 a suitable spring pressed latch in the form of a cover may be pivoted to the shell 12 and engage a lug 25 on the shell 10 to prevent accidental separation of the members where considerable vibration is present. When the plug member is withdrawn from the socket 20, the cover 24 under the action of its spring will drop down to close the said socket 20 and insure against accidental contact with the live terminals therein. The socket member may, furthermore, be connected to a support 27 in such a manner as to be capable of turning. This is accomplished by means of the bolt 28 whose head 29 is locked in a boss 30 of the shell 12, said bolt passing through a bracket 30' secured to the support 27.

The plug may be provided with one or more contacts to which suitable cables 31 and 32 are brought through the outer or neck portion 33 and 34 of the plug and socket member. These neck portions are provided with flaring outlets 35 and 36 respectively to reduce wear on cables, and are of an enlarged diameter for a portion of their length to provide cavities 37 and 38 respectively. About the portions of the cables passing through these cavities suitable flexible material 39, such as insulating tape, is wound about the said cables to an extent sufficient to fill the said cavities, whereupon when a strain is put on the cable

as in withdrawing a member, the same will be taken up to a large extent by the said flexible material and not be communicated to the terminal connections. These connections may be made by sweating the ends of the cable into suitable sleeves 40 adapted to fit within hollow terminal pieces 42 mounted within the insulating blocks 14 and 17, and are positively secured thereto by means of set screws 41 passing through a portion of the insulating material and into the hollow metal terminals 42. From the outer end of block 14 extend split contact plugs 43, and within the block 17 are provided suitable receptacles 44 to receive the said plugs. To insure the polarity of the connection, the block 17 is provided with a suitable groove 45 in its upper surface, said groove being adapted to fit a lug 46 extending downwardly from the shell 12 of the socket member.

I claim:—

1. An electrical connector comprising: a socket member and a plug member, each member consisting of two separable shells or casings, and means to secure the two casings of each member to each other; removable insulating blocks held between the respective sets of shells, and locking means to hold the same against movement in the plane of the blocks, but permitting freedom of movement in a different direction, the insulating block of one of said members being provided with a suitable receptacle or receptacles, and conductors connected thereto; a contact plug or plugs, and conductors connected thereto, the said plug or plugs being carried by the insulating block of the other of said members and adapted to fit the said receptacle or receptacles to establish electrical connection therewith.

2. An electrical connector comprising: a socket member and a plug member, each member consisting of two separable shells or casings, and means to secure the two casings of each member to each other; removable insulating blocks held between the respective sets of shells, and locking means to hold the same against movement in the plane of the blocks, but permitting freedom of movement in a different direction, the insulating block of one of said members being provided with suitable receptacles, conductors connected thereto; contact plugs, and conductors connected thereto, said plugs being carried by the insulating block of the other of said members and adapted to fit the said receptacles to establish electrical connection therewith; and means to positively determine the polarity of said connection.

3. An electrical connector comprising: a socket member and a plug member, each member consisting of two separable shells or casings, and means to secure the two

casings of each member to each other; lugs extending inwardly from the sides of said shells; removable insulating blocks held between the respective sets of shells and provided with vertical grooves in their sides fitting the lugs of the corresponding shells, the insulating block of one of said members being further provided with suitable receptacles, and conductors connected thereto; contact plugs, and conductors connected thereto, said plugs being carried by the insulating block of the other of said members and adapted to fit the said receptacles to establish electrical connection therewith.

4. An electrical connector comprising: a socket member and a plug member, each member consisting of two separable shells or casings, and means to secure the two casings of each member to each other; removable insulating blocks held between the respective sets of shells, and means to hold the same against movement in the plane of the blocks, the insulating block of one of said members being provided with suitable receptacles, and conductors connected thereto; contact plugs, and conductors connected thereto, said plugs being carried by the insulating block of the other of said members and adapted to fit the said receptacles to establish electrical connection therewith, the surface of one of said blocks being provided with a groove; and a lug upon the inner surface of the inclosing shell of the other block adapted to fit said groove to positively determine the polarity of the connection between said plugs and receptacles.

5. An electrical connector comprising: a socket member and a plug member, each member consisting of two separable shells or casings, and means to secure the two casings of each member to each other; lugs extending inwardly from the sides of said shells; removable insulating blocks held between the respective sets of shells and provided with vertical grooves in their sides fitting the lugs of the corresponding shells, the insulating blocks of one of said members being further provided with suitable receptacles, and conductors connected thereto; contact plugs, and conductors connected thereto, said plugs being carried by the insulating block of the other of said members and adapted to fit the said receptacles to establish electrical connection therewith, the surface of one of said blocks being provided with a groove; and a lug upon the inner surface of the inclosing shell of the other block adapted to fit said groove to positively determine the polarity of the connection between said plugs and receptacles.

6. An electrical connector comprising: a socket member and a plug member, each member consisting of two separable shells or casings, and means to secure the two casings of each member to each other; abut-

ting flanges at the inner ends of said shells;
a neck portion at the outer end of each mem-
ber, enlarged for a portion of its length and
at its end flared outwardly; removable in-
5 sulating blocks held between the respective
sets of shells, and locking means to hold the
same against movement in the plane of the
blocks, but permitting freedom of movement
in a different direction, the insulating block
10 of one of said members being provided with
suitable receptacles, and conductors con-
nected thereto; contact plugs, and con-

ductors connected thereto, said plugs being
carried by the insulating block of the other
of said members and adapted to fit the said 15
receptacles to establish electrical connection
therewith.

Signed at New York, in the county of
New York and State of New York this
20th day of April, A. D. 1911.

WILLIAM R. GREENWAY.

Witnesses:

JEANNETTE STORK,
FREDK. F. SCHUETZ.