

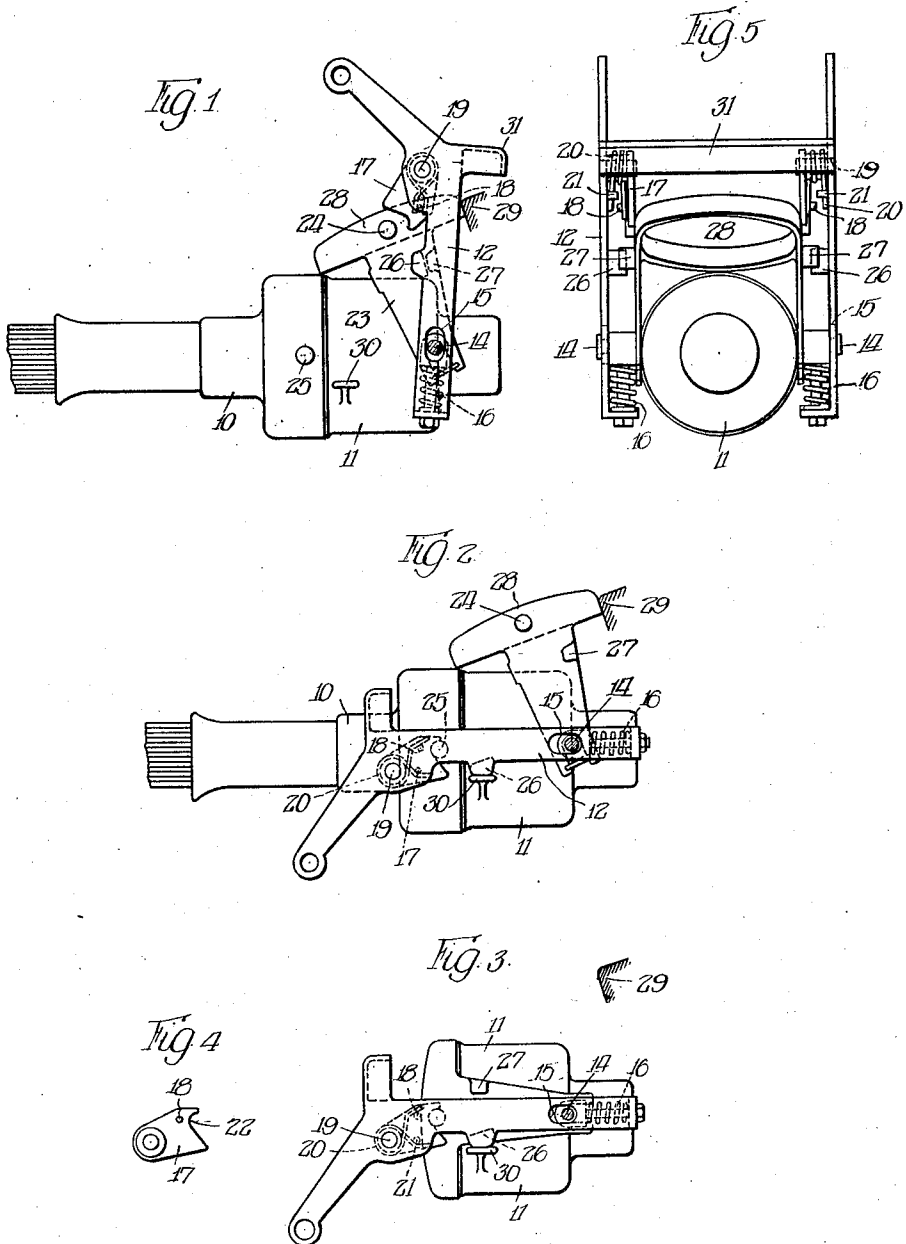
May 12, 1931.

A. WICHERT

1,804,908

SOCKET CONNECTION FOR ELECTRICAL CONDUCTORS

Filed April 23, 1927



Witness:  
P. Burkhardt

Inventor:  
Alfred Wichert,  
By *Cornelius Heit*  
attys

## UNITED STATES PATENT OFFICE

ALFRED WICHERT, OF MANNHEIM-NEUSTHEIM, GERMANY, ASSIGNOR TO AKTIEN-GESELLSCHAFT BROWN BOVERI & CIE., OF BADEN, SWITZERLAND, A JOINT-STOCK COMPANY OF SWITZERLAND

## SOCKET CONNECTION FOR ELECTRICAL CONDUCTORS

Application filed April 23, 1927, Serial No. 186,113, and in Germany May 1, 1926.

This invention relates to devices in which connections are made between electrical conductors by the joining of two terminal members, such as a socket and a plug adapted for mechanical connection to hold contacts of the connected lines in engagement.

The general object of the invention is the provision of a connecting device of this type which is of simple construction, reliable in operation, and which requires a minimum number of operations for forming a secure mechanical connection between the connected contact-carrying members.

Another object is the provision of a device of the sort described which is effective both to hold the contact-carrying members connected, and to operate and secure a suitable movable cover for closing the open end of the socket member when the plug member is not connected thereto.

Other and further objects will be indicated or pointed out hereinafter, or will appear to one skilled in the art upon an understanding of the invention and its employment in use.

In the drawings forming a part of this specification, I illustrate two constructions in which the invention may be embodied, but it is to be understood that the illustrative forms here shown are susceptible of variation and modification without departing from the spirit of the invention or the scope of the appended claims.

In said drawings, Fig. 1 represents a side elevational view of the socket member with the plug member in place and the operating mechanism in elevated position;

Fig. 2 represents a similar side elevational view with the operating mechanism in securing position;

Fig. 3 represents a similar side elevation of the socket member with the cover in closed position and the operating means in securing position;

Fig. 4 is a detail of the catch pawl; and

Fig. 5 is a rear elevational view showing a modified form of operating mechanism.

In various connecting devices for connecting electrical conductors, it is important

that the terminal contact-carrying members be susceptible of connection and disconnection from each other quickly and with minimum effort, and that while connected they be securely retained in the proper cooperation. One use of such connecting devices, in which these requirements are of particular importance, is for the connection of electrical conductors between coupled cars in a railway train. The present invention affords a device in which the coupling and uncoupling operations may be performed with ease and simplicity, thus contributing to certainty that the contact-carrying members will be positively held when desired, and completely freed from each other when it may be desired to separate the two conductors. The nature of the invention will be quickly ascertained from the illustrative form shown in the drawings. Here the plug member, which carries the electrical terminals or contact members of a conductor or set of conductors, is designated 10, and the socket part of the connector is designated 11. An operating lever 12 is pivoted on the socket member at 14, and it is capable of a longitudinal movement on the pivot along the slot 15, against the action of a spring 16. This lever carries a catch pawl 17, pivoted at 19, which pawl carries a pin 18. The catch pawl is held normally in the position shown in Fig. 1 by a spring 20 which bears against the pin 18 and a second pin 21 attached to the lever. The catch pawl is provided with a recess 22 adapted to engage with either pin 24, carried on the supporting arm 23 of cover 28, or a pin 25 projecting radially from the plug 10. Two stops 26 and 27 are provided on the operating lever 12 and cover 28 respectively and adapted for engagement in certain relative positions of these members. The cover is pivoted at 14 and may swing to an elevated position as illustrated in Figs. 1 and 2 or to a lowered position as in Fig. 3, in which latter position it closes the end of the socket member. The upward movement of the cover is limited by a stop 29, and the downward movement of both operating lever 12 and cover 28 is similarly limited by a stop 30.

In operation of the device, when it is desired to connect the plug and socket members, the operating lever 12 is first swung upwardly to the position shown in Fig. 1 and plug 10 inserted into the socket member. The operating lever 12 is then swung downwardly, which brings the catch pawl 17 into engagement with the pin 24 on the cover 28, but owing to the elasticity of the spring 20 and the fact that the cover is held against downward movement by the plug 10, the catch pawl will be allowed to pass over the pin 24, during which action a corresponding outward and return movement of the lever will take place, as provided by the pin and slot mounting 14—15 therefor and the associated spring 16. Further movement of the operating lever brings the catch pawl into engagement with the pin 25 on the plug 10, so that the latter is forced into close engagement with the socket. The force transmitted through the catch pawl 17 is transmitted to the lever 12 and causes it to take a longitudinal movement on the pivot 14 and compress the spring 16, the pressure of said spring thus being exerted through the lever and upon the plug in a direction holding it in position. After the dead point of the toggle, that is, the position in which the points 19, 25 and 14 are in a straight line, is passed, then the lever 12 will be held in its limit position against the stop 30 by the force exerted by the spring 16. To release the plug, operating lever 12 is raised to the position shown in Fig. 1, after which the plug may be withdrawn. When the plug is not in place in the socket member, the cover may be moved to and from closed position by operation of the operating lever. To effect a closure, the lever 12 is swung downwardly, bringing the catch pawl 17 into engagement with the pin 24, and swinging the cover downwardly by virtue of that engagement. The cover is forced on to the socket 11 and held in position in exactly the same way as above described for the plug. On the raising of the lever 12, the catch pawl releases from the pin 24, and on further movement of the lever, the stop 26 comes into contact with stop 27 on the cover, whereupon the latter may be raised by the continued upward movement of the lever, until it again rests against stop 29.

In the form illustrated in Figs. 1, 2, and 3, the lever is shown at one side of the coupling, but it may be duplicated at the other side and the two levers connected by a cross yoke 31. This permits operation of the device with facility from either side.

What I claim is:

1. A connecting device for electrical conductors comprising, in combination, a socket member, a movable plug member for cooperation therewith, a movable cover for the

socket member, and an operating member for cooperation with the plug member to hold it in position and for cooperation with the cover member to move it to and from closed position.

2. A connection for electrical conductors comprising, in combination, a socket member, a plug member, a cover member, an operating member common with respect to said plug and cover members and being operable to effect movement of said plug member into connecting association with said socket member and to effect closing movement of said cover member, and spring means associated with said operating member and being operable to influence operating action thereof.

3. A connection for electrical conductors comprising, in combination, a socket member, a plug member for connection therewith, a movable cover member for the socket member, and an operating member for engagement with the cover member to move it to closed and open positions, said operating member being adapted for holding engagement with the plug member.

4. A connection for electrical conductors comprising, in combination, a socket member, a plug member disposed for movement into and out of connecting association with said socket member, a closure member for said socket member and means common with respect to said plug and closure members and being operable to effect connecting movement of said plug member and closing movement of said closure member and including an operating member, a pawl carried by said operating member and disposed for engagement with either said plug member or said closure member, and spring means for influencing operating action of said pawl.

In testimony whereof I have hereunto subscribed my name this 11th day of April, A. D. 1927, at Munich, Germany.

ALFRED WICHERT. 110

70

75

80

85

90

95

100

105

115

120

125

130