F. A. WENDLER.

DRAWBRIDGE CIRCUIT CONTROLLER.

APPLICATION FILED MAY 17, 1907.

903,927. Patented Nov. 17, 1908.

Fig. 1

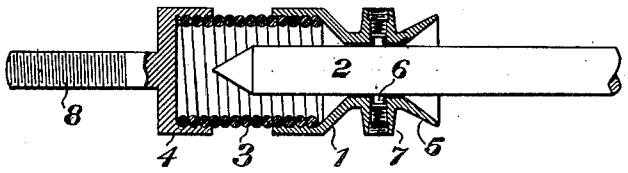


Fig. 2

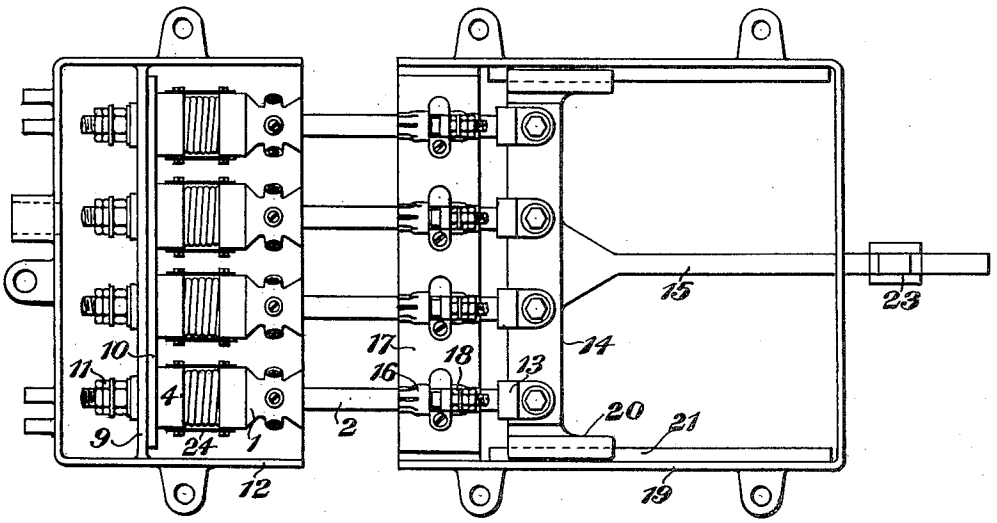
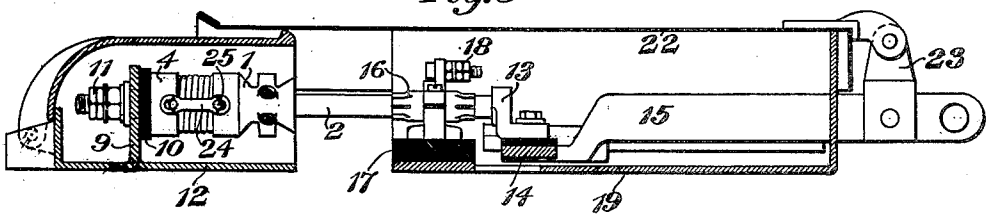


Fig. 3



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UNITED STATES PATENT OFFICE.

FREDERICK A. WENDLER, OF ELIZABETH, NEW JERSEY, ASSIGNOR TO THE HALL SIGNAL COMPANY, A CORPORATION OF MAINE.

DRAWBRIDGE CIRCUIT-CONTROLLER.

No. 903,927. Specification of Letters Patent. Patented Nov. 17, 1908.

Application filed May 17, 1907. Serial No. 374,140.

To all whom it may concern:

Be it known that I, FREDERICK A. WENDLER, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented a certain new and useful Improvement in Drawbridge Circuit-Controllers, of which the following is a specification, reference being had therein to the accompanying drawings, forming a part thereof.

My invention relates to electric couplings for use in connection with electric circuits passing over drawbridges or structures of similar character where the electric circuits must be frequently interrupted and closed.

The chief object of the invention is to produce a device of this character having provision for yielding readily to relative movements of the parts of the structure on which the coupling is used, so as to avoid injury to the coupling or unintentional interruption of the circuit, and to this end the invention comprises a coupling of which one member is resiliently mounted so as to yield to relative lateral and angular movements of the parts connected by the coupling.

The invention has the further object of improving the construction and operation of devices of this character in various details which will be hereinafter pointed out.

I will now describe the embodiment of my invention illustrated in the accompanying drawings and will thereafter point out my invention in claims.

In the drawings, Figure 1 is a vertical section of the coupling members of a coupling embodying my invention, and Figs. 2 and 3 are, respectively, a plan view and a vertical section of a drawbridge coupling in which the coupling members are used, the covers being omitted from the housings in Fig. 2.

The illustrated embodiment of the invention comprises a socket member 1 and a plug 2 which enters a socket in the socket member to close the circuit. The socket member is fixed to one end of a close-wound helical spring 3, and the other end of the spring is fixed in a cup 4 by which it is supported. The socket member has a flaring mouth 5 to facilitate the entrance of the plug, and to secure a good contact spring-pressed plungers 6 are mounted in sleeves 7 on the socket member and engage the plug 2 resiliently when it is in the socket. The cup 4 has a threaded stem 8 by which the cup and the spring and socket member are secured in place and connected with the electric circuit.

The spring 3 holds the socket member normally in position to be engaged by the plug, but when the parts are in engagement a substantial relative movement of the parts of the drawbridge may occur without derangement of the coupling since the spring 3 will yield to permit the socket member to move with the plug.

In the construction shown in Figs. 2 and 3 the cups 4 are mounted on a plate 9, with insulating material 10 interposed, and binding nuts 11 are mounted on the stems 8 to connect the circuit wires with the cups. The plate 9 forms part of a housing 12 in which the socket members are protected against injury. The plugs 2 are connected by brackets 13 with a bar 14, but insulated therefrom, as shown in Fig. 3, and, by means of a rod 15 connected with suitable actuating mechanism, the plugs may all be simultaneously moved into or out of the sockets. Electrical connection is made with the plugs by split contact sleeves 16 mounted on a bar 17 of insulating material and connected with the circuit wires by binding posts 18.

The plug mechanism is inclosed in a housing 19, and the bar 14 is guided therein by grooved slides 20, on the ends of the bar, engaging guides 21 in the housing. The housing 19 has a cover 22 which is hinged to a bracket 23 on the rod 15 so that when the plugs are moved forward to engage the sockets the cover is moved forward and covers the space between the housings.

To prevent the springs from being accidentally stretched, owing to sticking of the plugs when they are withdrawn, links 24 are loosely pivoted on pins 25 projecting from the sides of the socket members and the spring cups, and these links serve to prevent undue elongation of the springs without interfering with their normal movements.

It is obvious that various modifications may be made in the construction shown and above particularly described within the nature and scope of my invention.

I claim:

1. An electric coupling comprising, in

combination with two portions of an electric circuit having relative lateral movement, two separable members adapted to have sliding longitudinal engagement with each other and to move together bodily in lateral directions when engaged.

2. An electric coupling comprising, in combination with two portions of an electric circuit having relative lateral movement, two separable members adapted to have sliding longitudinal engagement with each other and to move together bodily in lateral directions when engaged, and supporting means permitting lateral movement of one of said members.

3. An electric coupling comprising two separable members adapted to have sliding longitudinal engagement with each other and to move together bodily in lateral directions when engaged, and supporting means arranged to permit lateral movement and to prevent backward movement of one of said members.

4. An electric coupling comprising two separable members adapted to have sliding longitudinal engagement with each other and to move together bodily in lateral directions when engaged, and resilient supporting means arranged to permit lateral movement and to prevent backward movement of one of said members.

5. An electric coupling comprising two separable members arranged to have sliding longitudinal engagement with each other and to move together bodily laterally when engaged, and spring supporting means adapted to permit lateral movement and to prevent backward movement of one of said members.

6. An electric coupling for connecting two relatively movable parts comprising two separable members formed to have a sliding longitudinal engagement and arranged to move together bodily in lateral directions, and a normally helical tension spring arranged substantially in longitudinal alinement with one of said members and forming the sole support of such member when the members are disengaged.

7. An electric coupling for connecting two relatively movable parts comprising two separable members formed to have a sliding longitudinal engagement and arranged to move together bodily in lateral directions, a normally helical tension spring arranged substantially in longitudinal alinement with one of said members and forming the sole support of such member when the members are disengaged, and means to limit the extent of expansion of the spring.

8. An electric coupling for connecting two relatively movable parts comprising a plug, a socket member provided with a socket-bore formed to receive the plug with a sliding longitudinal engagement, and flexible supporting means for permitting bodily lateral displacement of the socket member to correspond with any lateral movement of the plug.

9. An electric coupling for connecting two relatively movable parts comprising a plug, a socket member provided with a socket-bore formed to receive the plug with a sliding longitudinal engagement, flexible supporting means for permitting bodily lateral displacement of the socket member to correspond with any lateral movement of the plug, and a spring-pressed contact-terminal in the bore of the socket and with which the plug has a sliding engagement.

10. An electric coupling for connecting two relatively movable parts comprising a plug, a socket member provided with a socket-bore formed to receive the plug with a sliding longitudinal engagement, flexible supporting means for permitting bodily lateral displacement of the socket member to correspond with any lateral movement of the plug, and a spring-pressed plunger extending transversely into the bore of the socket and with which the plug has a sliding engagement.

11. An electric coupling for connecting two relatively movable parts comprising two separable members formed to have a sliding longitudinal engagement and arranged to move together bodily in lateral directions, and a helical spring laterally unconfined arranged substantially in longitudinal alinement with one of said members and forming flexible supporting means for permitting lateral displacement of such member, and means to limit the longitudinal extension of the spring.

12. An electric coupling for connecting two relatively movable parts comprising a longitudinal movable cylindrical plug, a socket having a cylindrical bore and provided with a flaring mouth for guiding and making a longitudinally sliding engagement with the plug, a plurality of radial spring-pressed plungers extending transversely into the bore of the socket for making sliding electrical contact with the plug, and a helical tension spring in line longitudinally with the socket and supporting and forming a laterally flexible electrical connection for the socket member.

13. An electric coupling for connecting two relatively movable parts comprising a longitudinal movable cylindrical plug, a socket having a cylindrical bore and pro-

vided with a flaring mouth for guiding and making a longitudinally sliding engagement with the plug, a plurality of radial spring-pressed plungers extending transversely into the bore of the socket for making sliding electrical contact with the plug, a helical tension spring in line longitudinally with the socket and supporting and forming a laterally flexible electrical connection for the socket member, and limiting-links for limiting the extension of the spring.

In testimony whereof I have affixed my signature in presence of two witnesses.

FREDERICK A. WENDLER.

Witnesses:
BERNARD COWEN,
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