

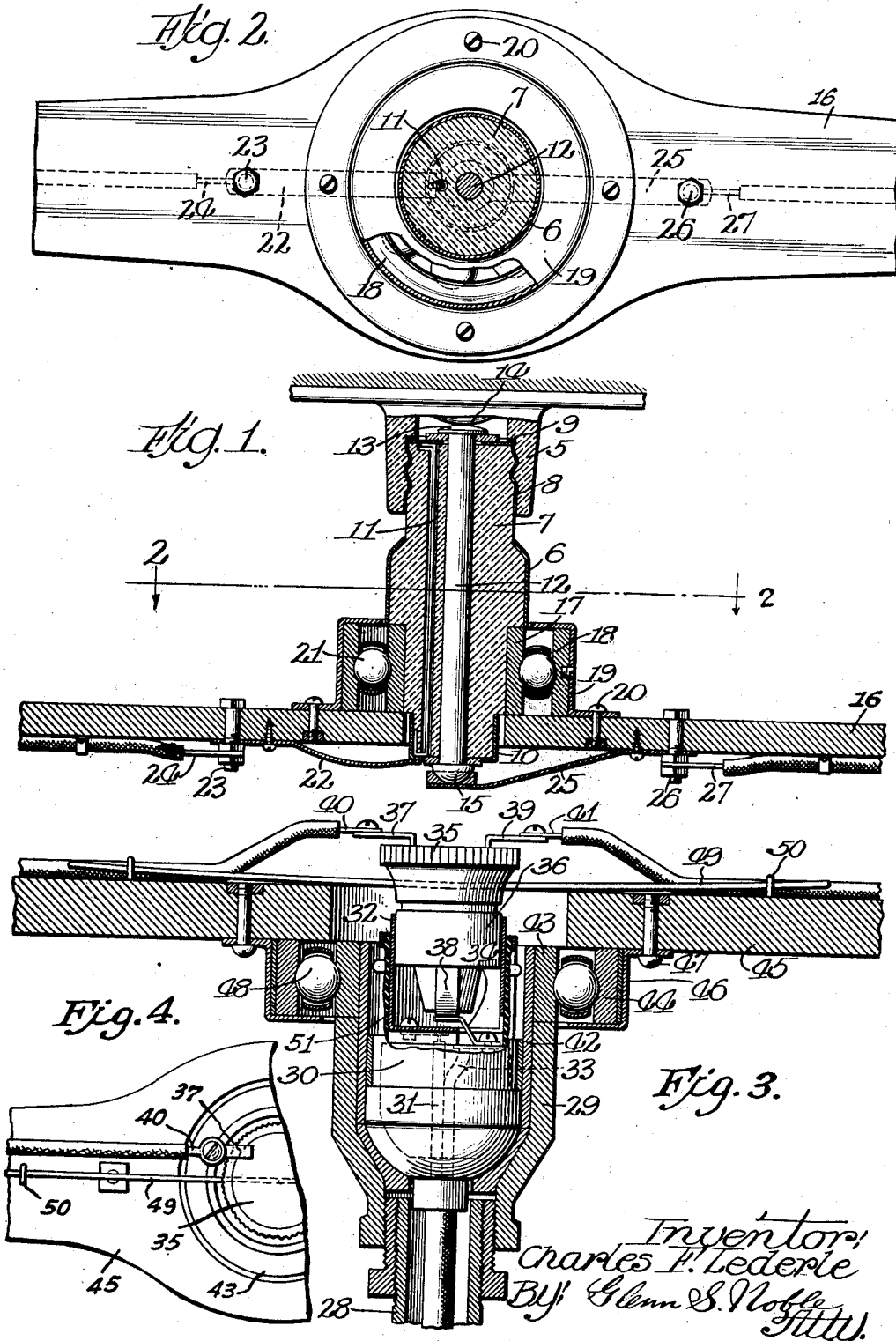
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ELECTRIC SWIVEL CONNECTION

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ELECTRIC SWIVEL CONNECTION

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This invention relates to means for conducting or transmitting electric current from stationary or relatively fixed contacts or terminals to rotatable or relatively movable contacts or terminals. While my improved device or connection may be used for any purpose for which it is applicable an example of such use is the supplying of current from a relatively fixed socket or base to a rotatable arm or member, as for instance, one adapted for carrying motor driven appliances such as airplanes to provide a toy or display apparatus.

The objects of this invention are to provide a simple and efficient rotatable electric connection or swivel; to provide an electric connection having one member adapted to engage with a socket and another member rotatably carried thereby with means for maintaining circuit contacts between the two members; to provide a plug adapted to engage with a socket, a member rotatably mounted on said plug and means for conducting electricity from the plug to the rotatable member; and to provide such other advantages and details of construction as will appear more fully from the following description.

In the accompanying drawings illustrating this invention,

Figure 1 is a vertical sectional view showing one form of my invention;

Figure 2 is a sectional view taken on the line 2-2 of Figure 1; and

Figure 3 is a vertical sectional view showing a modified form of construction.

Figure 4 is a plan view of the form shown in Fig. 3.

As shown in these drawings, the relatively fixed member 5 preferably comprises an ordinary electric lamp socket of any suitable construction. The plug or supporting member 6 comprises a substantially cylindrical body or core 7 formed of insulating material with a metal cap or sleeve 8 on the inner end which is adapted to make contact with the contact ring or terminal 9 of the socket which is connected with one of the supply wires (not shown) in the usual manner. The core 7 and sleeve 8 are thread-

ed in the usual manner in order to engage with the threads of the socket. The sleeve or terminal 8 is connected with a conductor ring or sleeve 10 at the lower end of the core by means of a wire 11.

The plug 6 has a center pin or rod 12 having a head 13 at its upper end which contacts with the center contact or terminal 14 of the socket 5. The lower end of the rod 12 projects below the core 7 and is preferably provided with a head 15 to form a suitable terminal.

A rotatable member 16 which is shown as being in the form of a bar but which may be of any suitable shape is pivoted to the lower end of the support or plug 6 being preferably mounted on anti-friction bearings. For this purpose a ball race 17 is secured to the plug 6 and another race 18 is secured to the arm 16 as by means of a flanged ring 19 and bolts 20. The balls 21 are interposed between the races so that the bar or arm 16 is freely rotatable on the plug or support 6. One brush or contact finger 22 is secured to the bar 16 and bears on the contact ring 10, this brush being provided with a terminal or connecting post 23 from which leads a supply wire 24. Another contact finger or brush 25 is secured to the bar 16, and bears against the contact 15 this brush being provided with a connecting post 26 from which leads a wire 27.

The wires 24 and 27 may lead to any device or apparatus which may be mounted on the bar 16 and which is to be supplied with electricity. As an example of the use of such device, I have mounted miniature motor driven airplanes (not shown) on the bar 16 which are supplied with electricity from the terminals 23 and 26, the airplanes being arranged so that they cause the bar to be rotated on its support.

From this description it will be seen that I provide means whereby a swivel connection is provided between two sets of supply wires so that one set may be rotated relatively to the other without the possibility of twisting or strains on the wire.

The modified form of construction shown in Figure 3 illustrates an arrangement

whereby the position of the parts is reversed and the plug is rotatably mounted in the socket. In this arrangement a supporting pipe 28 which for instance may comprise a part of a floor stand is provided at its upper end with a cup 29. A socket 30 which is similar to an ordinary lamp socket is mounted in this cup with its open end projecting upwardly. One of the main supply wires 31 is connected with a contact sleeve or ring 32 which is secured in the socket 30 but insulated therefrom in the usual manner by insulation 51. The other wire 33 is connected with a central terminal or contact 34 such as is commonly provided in such sockets. The plug 35 is the same as an ordinary plug of this character with the exception that it is adapted to rotate freely in the sleeve 32 instead of being screwed into the socket. The shell 36 of the plug is connected with one terminal 37, and the center contact 38 is connected with another terminal 39 in the usual manner. Wires 40 and 41 from these terminals are adapted to supply current to any desired device.

The cup 29 has an upwardly projecting sleeve 42 to which is secured a ball race 43. A coacting race 44 is secured to a rotatable member such as a disk or bar 45 by means of a flanged ring 46 and bolts 47. The balls 48 complete the bearing between the plate 45 and the cup 29. A rod or spring 49 is secured to the plate or bar 45 by means of screws or clips 50 and passes through the plug 35. This rod or spring tends to hold the plug in engagement with its coacting contacts and also insures its turning with the plate or bar 45.

It will be seen that by means of this arrangement current may be supplied through the wires 40 and 41 to anything secured to or mounted on the plate or bar 45 and the bar may be freely rotated without disturbing the electrical connections.

Inasmuch as this invention may be utilized for various purposes, changes may be required in the details of construction in order to adapt them for various purposes, and therefore I do not wish to be limited to any particular form herein shown and described except as specified in the following claims, in which I claim:

1. In a device of the character set forth, the combination of a pipe, a cup mounted on said pipe, a rotatable member for supporting other devices, a ball bearing for supporting the member on the cup, a socket mounted in said cup and having two terminals, wires leading from a source of supply to said terminals, a plug rotatably mounted in the socket having two contacts adapted to engage with the respective terminals in the socket, a spring coacting with the rotatable member and the plug which

tends to hold the plug in engaging position, and conductors leading from said plug.

2. In a device of the character set forth, the combination of a support, a cup mounted on said support, a rotatable member mounted on the cup, a socket arranged in said cup and having two terminals, wires leading from a source of supply to said terminals, a plug rotatably mounted in the socket and having two contacts adapted to engage with the respective terminals in the socket, means coacting with the rotatable member and the plug for holding the plug in engaging position, and conductors leading from the plug and secured to the rotatable member.

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