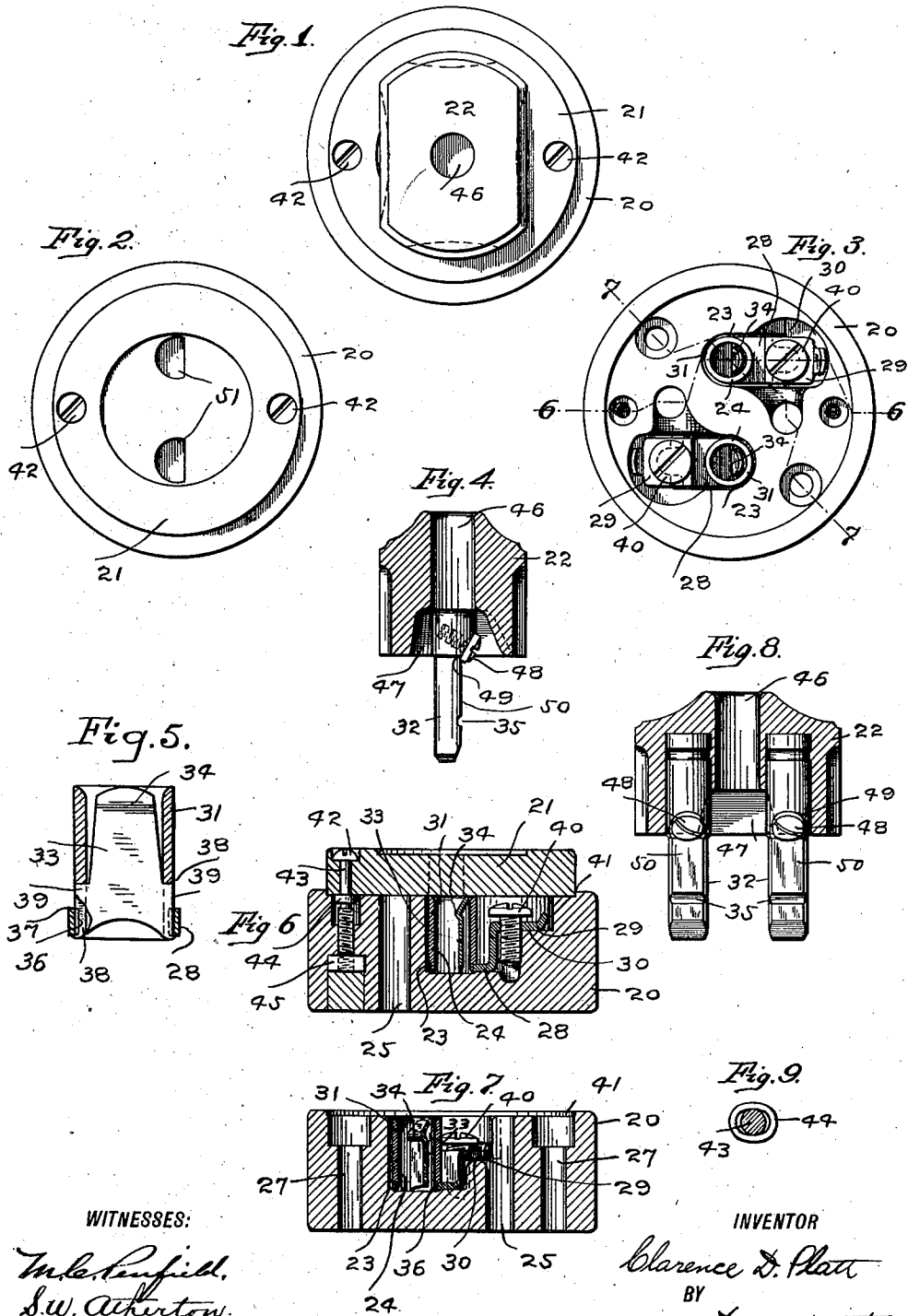


C. D. PLATT.
FIXED POLARITY ATTACHMENT PLUG.
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WITNESSES:

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FIXED-POLARITY ATTACHMENT-PLUG.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CLARENCE D. PLATT, a citizen of the United States, residing at Bridgeport, county of Fairfield, State of Connecticut, have invented an Improvement in Fixed-Polarity Attachment-Plugs, of which the following is a specification.

This invention relates to fixed polarity attachment plugs, that is attachment plugs in which it is required that the contact pins can make engagement with the base terminals in a certain fixed relation only and that they can not engage when reversed so that there can be no change in polarity, and the invention has for its object to simplify, cheapen and to generally improve the construction and especially to provide a construction that will permit engagement of the contact pins with the base terminals even should the pins be appreciably bent out of parallel, it being of course well understood that the plugs are subject to hard usage and abuse and that the pins are very likely to get sprung, so that with bases provided with ordinary forms of terminals it is frequently quite difficult to effect an engagement of the pins with the terminals without considerable tentative bending or springing of the pins to make them engage.

With the above and other objects in view the invention consists in certain details of construction which will be hereinafter described and then specifically pointed out in the claims hereunto appended.

In the accompanying drawing forming a part of this specification, Figure 1 is an elevation of my novel polarity attachment plug with the plug in engagement with the base; Fig. 2 an elevation of the base with the plug removed; Fig. 3 an elevation of the base with the cover plate removed; Fig. 4 a transverse section of the plug; Fig. 5 a detail view, on an enlarged scale, illustrating the attachment of the spring to a contact bushing; Fig. 6 a section of the base on the line 6-6 in Fig. 3; Fig. 7 a section of the base on the line 7-7 in Fig. 3; Fig. 8 a section of the plug on a line at right angles to the section line of Fig. 4; and Fig. 9 is a section of one of the cover screws on an enlarged scale, showing the retaining collar.

20 denotes the base, 21 the cover plate and 22 the plug, all of which are made of insulating material. The base is provided with sockets 23 suitably shaped to receive the terminals 24 loosely, with holes 25 through

which electrical conductors (not shown) pass and which lead into the sockets and with holes 27 for attaching screws (not shown). Each terminal comprises a plate bent to form lower and upper steps, indicated respectively by 28 and 29. The lower steps rest upon the bottoms of the sockets and the upper steps upon shoulders 30 therein.

31 denotes tubular contact bushings which are adapted to receive contact pins 32 extending from the plug and are provided with springs 33 having engaging projections 34 which are adapted to engage grooves 35 in the faces of the contact pins and to force the pins into close engagement with the walls of the bushings. The contact bushings and the springs are carried by the lower steps of the terminals and are attached thereto in the novel way which I will now describe. The lower step of each terminal is provided with a hole 36. The lower end of the bushing is provided with a reduced end which passes through the hole leaving a shoulder 37 which engages the step and with slots 38 which are engaged by wings 39 on opposite sides of the spring. The end of the bushing is flanged outward upon the under side of the step which rigidly locks the bushing and the spring to the step.

40 denotes a binding screw which engages the upper step of the bushing and to which an electrical conductor 26 is attached. The top of the base is preferably provided with a slight depression 41 which receives the cover plate, which is secured in place by screws 42. I preferably use screws having unthreaded shanks, indicated by 43, and rolled threads at their ends and retain the screws against dropping out when the cover plate is removed by means of collars 44 on the shanks. These collars are simply slipped over the thread and secured in place by flattening the collar against the shank. Sufficient space is left between the head of the screw and the collar to permit the thread to be disengaged from the nut 45 in the base without lifting the cover plate. When the cover plate is removed it can be handled freely without danger of losing the screws which are retained against detachment by the collars.

The plug is provided with a central hole 46 through which the conductors pass and with a recess 47 which receives the binding screws 48.

A novel feature of my present structure is

that the peripheries of the bases of the contact pins are provided with bearing surfaces 49 and the binding screws are tapped into the pins at the bearing surfaces, thus dispensing with terminal plates for the binding screws which require to be attached to the plug by screws entering from the outer side. In the present instance I have shown the bases of the contact pins as considerably larger than the operative portions and the bearing surfaces as lying at an incline to the axes of the pins. These details of construction, however, are not of the essence of the invention, it being simply required that the bases of the contact pins be large enough to permit the binding screws to be tapped into them and to provide bearing surfaces between which and the heads of the screws the wires may be clamped in the usual manner. The bases of the contact pins are rigidly secured to the plug by molding them into the material thereof.

In order to permanently fix the polarity of the plug, the contact pins are provided with a flat side, as at 50, the grooves 35 for engagement with the projections on the springs being on the flat sides, and the holes 51 in the cover plate through which the contact pins are passed are made part round with a straight side, so that the pins can only enter said holes when in proper relation as to polarity with the terminals and cannot be forced into said holes when reversed. The holes 21 are, however, necessarily slightly larger than the contact pins. The terminals are simply retained in place by the cover plate but have considerable freedom of movement in the sockets. This is an important feature of the invention as it enables engagement of the contact pins with the contact bushings to be made even when the contact pins are sprung appreciably out of parallel, the terminals shifting in their sockets sufficiently to adapt themselves to the alinement of the contact pins and the springs forcing the pins into contact with a large portion of the bushings under all circumstances, so that perfect electrical connection is assured.

Having thus described my invention I claim:

1. A fixed polarity attachment plug comprising a base, terminals carried thereby, a cover plate with part round holes having a straight side and a plug having part round contact pins with a flat side corresponding with the straight side of a hole in the cover plate.

2. A fixed polarity attachment plug comprising a base having sockets, loose terminals therein, a cover plate having part round holes with a straight side and a plug having part round contact pins with a flat side corresponding with the straight side of a hole in the cover plate.

3. A fixed polarity attachment plug comprising a base having sockets with a shoulder, loose terminals therein each comprising a lower step carrying a contact bushing and an upper step engaging a shoulder and carrying a binding screw, a cover plate having part round holes with a straight side, and a plug having part round contact pins with a flat side corresponding with the straight side of a hole in the cover plate.

4. A fixed polarity attachment plug comprising a base having sockets, loose terminals therein each comprising a contact bushing with a spring having a projection, and a binding screw, a cover plate having part round holes with a straight side, and a plug having part round contact pins with a flat side corresponding with the straight side of a hole in the cover plate.

5. A terminal of the character described comprising a plate bent to form upper and lower steps, said lower step having a hole, a contact bushing having a reduced end leaving a shoulder and slots and a spring within the bushing having wings engaging the slots, the reduced end of the bushing being flanged outward under the step whereby the spring and bushing are locked to the plate.

6. A plug of the character described comprising a body having contact pins molded therein each provided with a base, the periphery of each base being provided with flattened portions arranged at an incline with relation to the axis thereof, and binding screws arranged to cooperate with said flattened portions to clamp conductor wires to said plugs.

7. The combination with a base, of a cover plate and attaching screws having unthreaded shanks with collars secured to the shanks so that the screws may be detached from the base without raising the cover plate and detachment of the screws from the cover plate is prevented.

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

CLARENCE D. PLATT.

Witnesses:

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