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ELECTRIC STAGE PLUG

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Fig. 1.

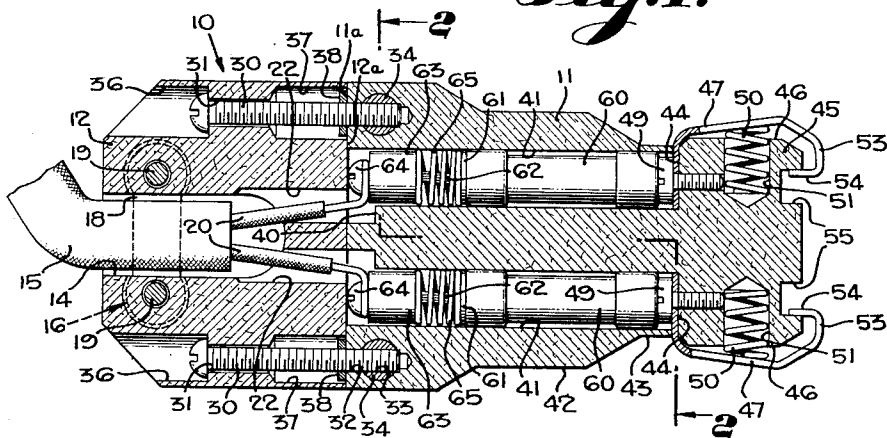
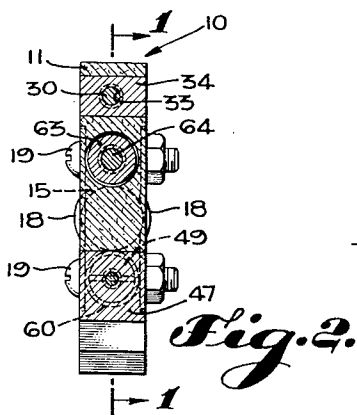


Fig. 2.

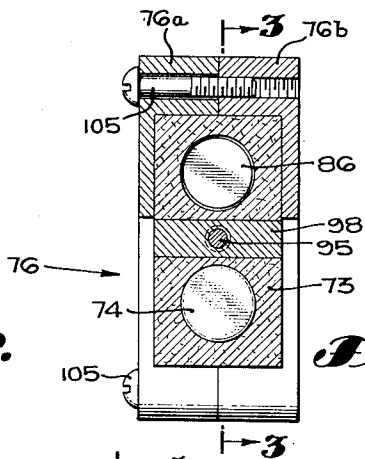


Fig. 4.

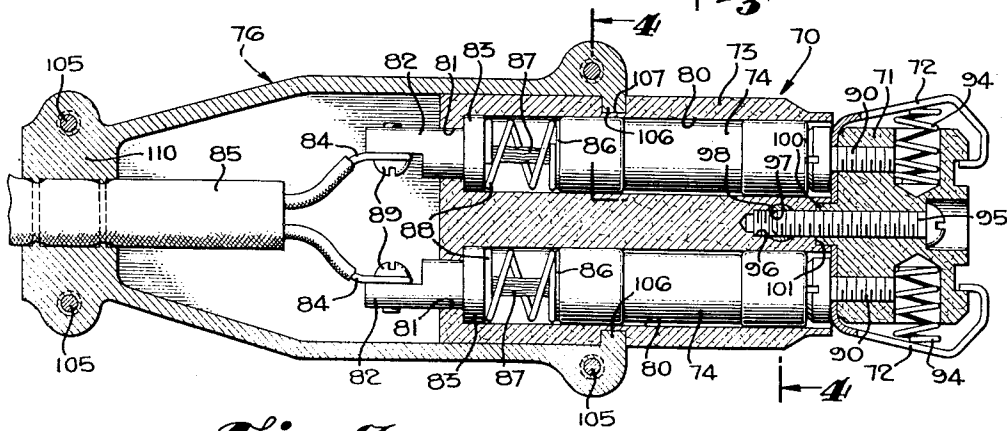


Fig. 3.

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ELECTRIC STAGE PLUG

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3 Claims. (Cl. 200—115.5)

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This invention relates to stage plugs, of the general type commonly used to connect studio lamp feeder cables to a plugging box outlet.

The conventional plugging box used on motion picture stages is provided with a plurality of outlets, each comprising a rectangular opening or socket provided on opposite interior side surfaces with flat metallic conductor strips, which are adapted to be contacted by conductor strips on opposite edges of a relatively flat fiber body member of the inserted plug. The relatively flat fiber body member functions not only to carry these conductor strips, but also serves as a handle, or as a part to which a handle may be fitted.

An object of the invention is to provide a stage plug of the type mentioned which is of improved construction and which includes provision for self-contained safety fuses. It should be understood that stage plugs of the type in question carry relatively heavy current flow, and that if a short or a broken circuit should occur within the plug, a heavy arc may ensue, with considerable likelihood of burning the hand of the operator. It is, of course, true that the feeder lines supplying these plugs are normally equipped with fuses, but these may be too heavy to blow instantly when an arc occurs within the plug, and the danger thus remains to some extent unabated. Moreover, blowing of the main fuses upon the occurrence of a short in but a single one of a number of stage plugs will put the entire lighting system out of commission. There are accordingly various good reasons for the use of local, self-contained fuses within the stage plug itself, and the main purpose of the invention is thus the provision of a novel and unique stage plug of improved arrangement and convenience whereby suitable fuses may be enclosed within the insulation plug body.

The invention will be better understood from the following detailed description of two present preferred illustrative embodiments thereof, reference for this purpose being made to the accompanying drawings, in which:

Figure 1 is a longitudinal section through a plug in accordance with the invention, the view being taken on line 1—1 of Figure 2;

Figure 2 is a broken cross-section taken on line 2—2 of Figure 1;

Figure 3 is a longitudinal section through another embodiment of a plug in accordance with the invention, the section being taken on line 3—3 of Figure 4; and

Figure 4 is a broken cross-section taken on line 4—4 of Figure 3.

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In Figures 1 and 2 of the drawings, the numeral 10 designates generally the flat and elongated insulation body of the plug, preferably composed of fiber, and comprising separable forward and rearward body parts 11 and 12, respectively, formed with flat opposed or abutting end surfaces 11a and 12a, respectively. The rearward body part 12 has extending inwardly from its rearward end a notch 14 which receives the electric feeder cable 15, said cable being clamped tightly to the plug by means of a suitable clamp device 16, which in this instance comprises a pair of bowed clips 18 drawn together by means of screws 19 to tighten against the insulation sheath of the cable. The two individually insulated electrical conductors 20 of cable 15 pass from notch 14 and open through plug surface 12a, the conductors 20 thus emerging from rearward body part 12 to enter forward body part 11.

The forward and rearward body parts of the plug are secured in detachable assembly by means of long screws 30 which extend through bores 31 in body part 12 and reach through bores 32 in body part 11 to make screw-threaded engagement with internally screw-threaded sockets 33 in metallic inserts 34 set into body part 11. The bores 31 are contrabored at the rearward end of the plug part 12, as at 36, to accommodate the heads of screws 30, and are contrabored as at 37, inwardly from plug surface 12a, to accommodate washers 38 mounted on the screws 30, it being evident that said washers secure the screws 30 against accidental disassembly from rearward body part 12 while the body parts 11 and 12 are disassembled from one another.

Forward plug part 11 is bored inwardly for a short distance, as indicated at 40, in alignment with the bores 22, and has larger, fuse-receiving bores 41 extending inwardly from surface 11a for a substantial distance, the latter bores intersecting the bores 40, as shown. The plug body part 11 is narrowed toward the forward end thereof by successive steps 42 and 43, and at the forward end of the latter, body part 11 has narrow, inwardly extending slots 44 intersecting the bores 41. Forwardly of these slots 44, body part 11 has a nose portion 45 provided with opposite, parallel sides 46 along which are disposed flat, electrically conductive contact strips 47. The rearward end portions of these strips 47 are bent inwardly and tightly received in the slots 44, and they are firmly secured to nose part 45 by means of electrically conductive screws 49 whose heads are accommodated within the forward end portions of the bores 41. The strips 47 normally stand out-

wardly somewhat from the surfaces 46, preferably at a diverging angle in a forward direction, and are yieldingly supported in such position by coil springs 50 seated in sockets 51 sunk into nose part 45 through surfaces 46. The forward end portions of strips 47 are bent inwardly, as at 53, and then rearwardly, as at 54, to engage in notches 55 formed in the forward end portion of body nose 45. It will be understood that when the plug is inserted in its socket or receptacle, the strips 46 will be pressed inwardly against springs 50, so as to assure the desired electrical contact with the coacting contact strips in the receptacle, all as clearly understood in the art.

Received within bores 41, and positioned with their forward ends in engagement and electrical contact with the heads of screws 43, are conventional safety fuses 60, and the rearward ends of these fuses 60 are engaged by contact discs 61 connected by flexible electrical conductors 62 to terminal cylinders 63, the latter having terminal screws 64 under whose heads are gripped the forward ends of the aforementioned cable conductors 29. As appears in Figure 1, the members 63 and 64 are accommodated within the rearward end portions of the bores 41, the heads of screws 64 being engaged by the opposed surface 12a of rearward body part 12. Such engagement compresses coil springs 65 placed in bores 41 between members 63 and the discs 61, and so forces the discs 61 tightly against the rearward ends of the fuses, as well as forcing the forward ends of the fuses tightly against the heads of screws 43.

As will appear, the construction provides for the convenient accommodation of two safety fuses within the body of the plug, the plug at the same time being of comparable size with stage plugs heretofore employed in the art. Further, the two body parts of the plug are capable of quick disassembly from one another in the event that necessity should arise for changing or inspecting the fuses.

Figures 3 and 4 show an alternative embodiment designed especially for somewhat heavier current-carrying capacity. Here, the insulation body of the plug is designated generally or in its entirety by the reference numeral 70, and this body part is made up of forward part 71, serving as the nose member which bears the contact strips 72, and rearward part 73 which in this instance serves to accommodate the fuses, designated by numeral 74. It will be seen that in both plugs the fuses are accommodated in fuse-receiving bores opening through the abutting or opposed portions of the two body parts, but that whereas the fuses are accommodated within the forward body part in the embodiment of Figures 1 and 2, they are accommodated in the rearward body part in the embodiment of Figures 3 and 4. In addition to rearward insulation body part 73, the embodiment of Figure 3 includes also a metal casing 76 secured to part 73 and forming a rearward extension serving as the handle for the plug.

Body part 73 will be seen to consist of a generally rectangular fiber block, having relatively long fuse receiving bores 80 opening through its forward end. The latter are continued by means of reduced bores 81 through the rearward end of the member 73. Mounted in these bores 81 are cylindrical terminal members 82, having enlarged heads 83 fitting snugly in the rearward ends of bores 80, and the terminal members 82 are provided with screws 83 by which connection is made to conductors 84 of feeder cable 85. Be-

tween the heads 83 and electrically conductive contact discs 86 in engagement with the rearward ends of the fuses are flexible conductors 87, and coil springs 88 acting between heads 83 and the washers 86 urge the fuses 74 forwardly and into engagement with the heads of electrically conductive screws 90 by which the inwardly bent end portions of contact strips 91 are secured to the rearward edge surfaces of body part 71. It will be evident that the inwardly bent end portions of the contact strips about the forward end of body part 73. The contact strips 91 are similar in general to the strips 46 of the earlier described embodiment, and are pressed outwardly by means of coil springs 94 corresponding to the springs 50 of the first embodiment, all as will be clear from the drawings.

To secure the two body parts 71 and 73 in detachable assembly, a screw 95 reaches through body part 71 from the forward end thereof and reaches into a bore 96 in the opposed end of body part 73 to make engagement with a screw-threaded socket 97 in insert 98 mounted in body part 73. For additional rigidity, forward body part 71 is preferably formed with a projecting part 100 receivable in a companionate cavity or recess 101 sunk in the forward end surface of part 73.

The aforementioned handle member 76 will be seen from Figure 4 to comprise two casing-halves 76a and 76b joined by screws 105, and fitting closely around the rearward portion of rearward body part 73 to form a rearward extension thereof. Preferably, this casing is formed on two opposite sides with short inwardly extending flanges 106 which engage in notches 107 cut in opposite sides of part 73. Casing 76 converges toward its rearward end to a clamp part 110 which passes and tightly embraces cable 85.

Two illustrative embodiments of the invention have now been shown, and it will of course be understood that these are not exhaustive of the invention, but merely illustrate it in two of its typical forms. Various changes in structure and arrangement may accordingly be made without departing from the scope of the invention as defined by the appended claims.

We claim:

1. In a stage plug, the combination of: a substantially flat insulation body comprising separable forward and rearward body parts having opposed end surfaces, means for detachably securing said body parts in assembly with one another with said end surfaces in opposition, a pair of substantially parallel cylindrical fuse receiving bores sunk into said forward body part from the end surface thereof which opposes said rearward body part, slots extending inwardly into opposite side edges of said forward body part and intersecting the forward ends of said fuse bores, flat contact strips extending along said opposite side edges of the forward portion of said forward body part and formed with inwardly turned end portions received in said body slots in line with said fuse bores, headed current-carrying screw means passing through said inwardly turned end portions and embedded in said forward body part in alinement with said fuse bores, current carrying fuse engaging means in the rearward end portions of the fuse bores, and conductor passages through said rearward body part communicating with the ends of said fuse bores.

2. In a stage plug, the combination of: a substantially flat insulation body comprising separable forward and rearward body parts having

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opposed end surfaces, means for detachably securing said body parts in assembly with one another with said end surfaces in opposition, a pair of substantially parallel cylindrical fuse receiving bores sunk into said rearward body part from the end portion thereof which opposes said forward body part, flat contact strips extending alongside the forward body part and formed with inwardly bent rearward end portions engaged and clamped between the forward and rearward body parts, headed current-carrying screw means passing through said inwardly bent end portions of said strips and engaging in said forward body part, with head means thereof received in the fuse bores of said rearward body part, current carrying fuse engaging means in the rearward end portions of the fuse bores, and conductor passageways leading from the rearward ends of the fuse bores outside said rearward body part.

3. In a stage plug, the combination of: a substantially flat elongated insulation body comprising separable forward and rearward body parts having opposed end surfaces, means for detachably securing said body parts in assembly with one another with said end surfaces in opposition, a pair of fuse receiving bores in said body extending longitudinally thereof, said bores be-

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ing sunk into one of said body parts from the end surface thereof which opposes the other body part, slots extending inwardly into opposite side edges of said body intersecting the forward ends of said fuse bores, flat contact strips extending along opposite side edges of the forward body part from the forward end thereof and formed with inwardly turned rearward end portions received in said body slots in line with said fuse bores, and conductor passages beginning at the rearward end of the rearward body part and extending forwardly to and communicating with the rearward ends of said fuse bores.

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