

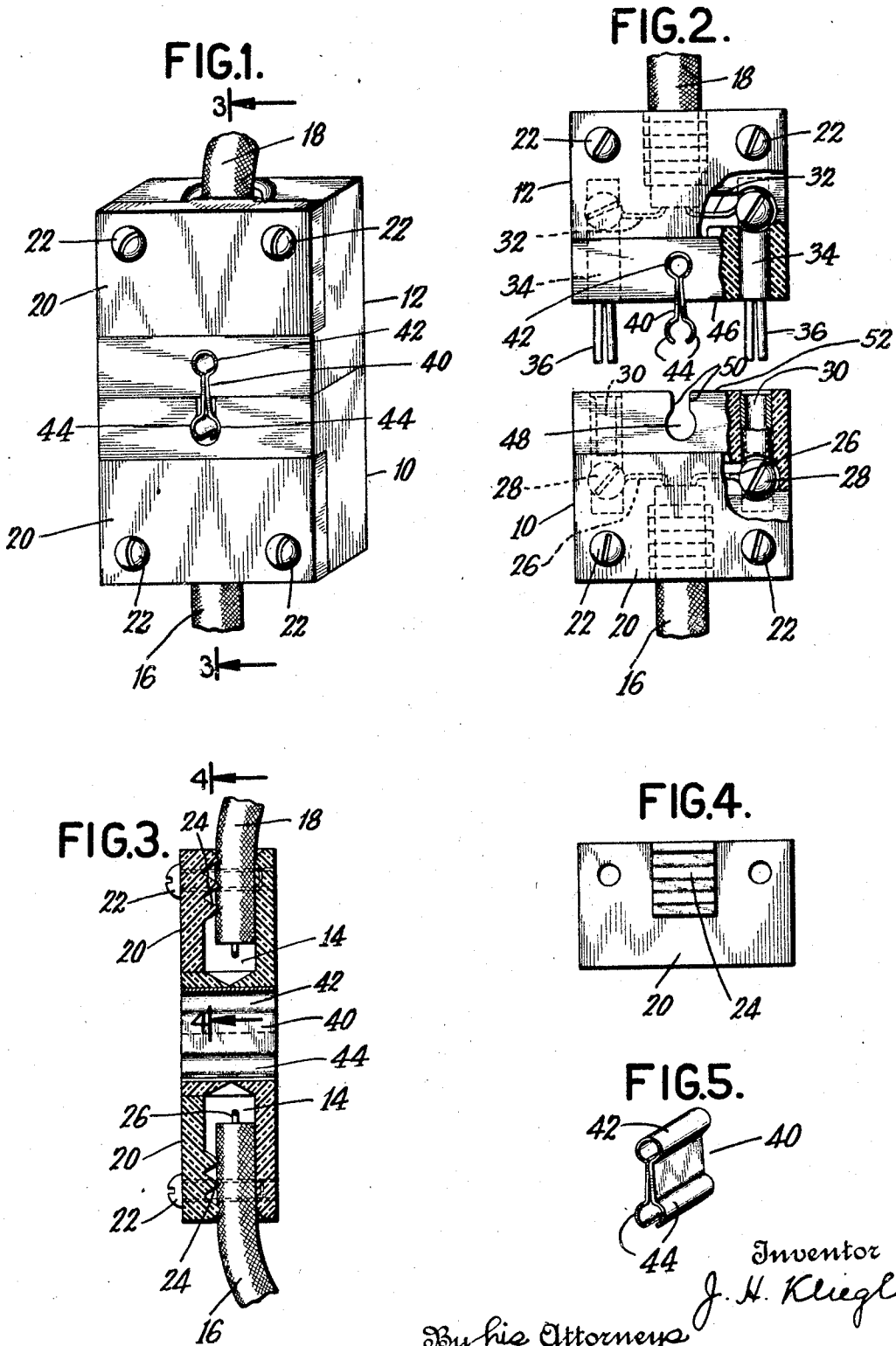
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PLUG SWITCH

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UNITED STATES PATENT OFFICE

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PLUG SWITCH

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This invention pertains to plug switches for electric cables, and has particular reference to the means for interlocking the separable parts of the device to prevent inadvertent or accidental separation of the parts in service.

Each half of the device is adapted to receive and grip the end of an insulated cable, the two conducting wires emerging from each cable being connected to a pair of terminals suitable for engagement with a corresponding pair of terminals in the other half of the device when the two halves are brought together into operative relationship. It is customary to connect the terminals of the line cable to tubular sockets, and of the load cable to projecting plugs adapted to enter the line sockets so as to complete circuits there-through.

In the endeavor to design the device so as to permit ready separation in response to a pull by the operator, and yet prevent inadvertent separation while otherwise handling the switch or cables, the plugs have been made to fit snugly into the sockets either by turning them to proper diameter or by providing for spring contact between plug and socket. Such expedients, however, have not worked well. In service the carefully fitted plugs, after a few separations, become too loose to function properly as a means for holding the plug together, and the spring-like plug-and-socket arrangements are objectionable because they add complications to and impair the efficiency of the parts of the switch which are called upon to transmit current.

Attempts have also been made to provide auxiliary devices aside from the plugs and sockets to accomplish the desired purpose, but so far as I am aware none has been satisfactory. They are either clumsy, or ineffective, or expensive, or otherwise objectionable.

The object of the present invention is to provide a plug which is effective in operation even after long use, attractive in appearance, and of very low cost of manufacture.

Further and other objects will be apparent from the accompanying specification, and from the drawings which by way of illus-

tration show what is now considered the preferred form of the invention.

Fig. 1 is a perspective view of the device.

Fig. 2 is a front view of the device, with its parts separated and partly broken away.

Fig. 3 is a cross-section on the line 3—3 of Fig. 1.

Fig. 4 is a view of a grip plate, on the line 4—4 of Fig. 3.

Fig. 5 is a perspective view of the locking element.

The device comprises two substantially similar body members 10 and 12, both made of rubber, bakelite, or similar insulating material. Each member provides a groove 14 to accommodate the end of an insulated cable such as line cable 16 and load cable 18. Each cable is clamped in place by a locking plate 20, secured to its corresponding body member by screws 22, and provided with projecting corrugations 24 so placed as to enter groove 14 and engage the insulation of the cable to take any pull on the cable.

The end of each wire 26 of line cable 16 is attached by a screw 28 to a tubular metallic socket 30 imbedded in member 10. In like manner wires 32 of load cable 18 are connected to a pair of cylindrical plugs 34 having projecting ends 36 of proper diameter to enter sockets 30 and make electrical contact therewith when the two body members of the device are placed together as in Figs. 1 and 3. Terminal plugs 36 are slotted and their ends slightly spread apart to insure close resilient contact with sockets 30.

The switch as described above can function as a device for operatively making or breaking electrical connections between cables 16 and 18, but the two members are liable to come apart in service because they are held together only by the resiliency of plugs 36. To avoid accidental separation I provide an additional impositive locking means in the form of a spring clip 40 formed from a flat strip of spring metal, preferably bronze. The strip is bent upon itself to form at the middle of its length a hollow cylindrical portion 42, while the free ends are formed in the shape of hollow semi-cylinders 44 so disposed as to form a split cylinder when the free ends

are pressed together. The length of the clip longitudinally of the cylinders is substantially equal to the thickness of members 10 and 12. Clip 40 is securely anchored in a socket provided in member 12. The socket comprises a drilled portion to tightly receive cylinder 42, and a slot permitting the ends of the clip to extend freely beyond mating face 46 of member 12 in a direction generally parallel to plugs 36. Member 10 is provided with a socket of the same general shape as the socket in member 12, with a drilled portion 48 connected by a slot 50 to mating face 52. Slot 50 is of such width that free ends 44 of the spring clip may be forced by the operator through the slot into space 48 while plugs 36 are entering sockets 30. While passing through the slot, ends 44 are necessarily slightly deformed by the walls of the slot, which means that they must be deformed again to the same extent in order to pass out of slot 50 when it is desired to break the electrical connection between cables 16 and 18. Clip 40, therefore, provides a simple, cheap, thoroughly practical means for preventing inadvertent separation of the plug, yet permitting separation by the operator when necessary.

It is to be understood that the invention is not limited to the specific embodiment herein described but may be used in other forms without departure from its spirit as defined by the following claims.

I claim—

1. In a plug switch of the kind described, in combination, a first body member of insulating material in which a pair of terminal sockets are imbedded, a second body member of insulating material provided with a pair of terminal plugs each adapted to enter and form contact with one of said sockets when said first and second body members are brought into operative relationship, a socket formed in the body of said first member between its terminals, and a spring clip imbedded firmly in the body of said second member and projecting therefrom and adapted to enter and resiliently engage said socket in said first member when said first and second members are brought into operative relationship, thereby providing an impositive lock between said members.

2. The invention set forth in claim 1 in which said clip comprises a strip of spring metal folded on itself to form at the middle of its length a hollow cylindrical portion and having its free ends formed in the shape of hollow semi-cylinders so disposed as to form another hollow cylinder when the free ends are pressed together, one of said cylindrical portions being adapted for imbedding in said second member and the other cylinder portion being adapted to be forced into the socket in the first member to provide an impositive lock therewith.

3. The invention set forth in claim 1 in which the projecting portion of said clip comprises a hollow cylinder, and means for supporting said cylinder whereby it will enter and resiliently engage the socket in said first member for the purpose set forth.

4. The invention set forth in claim 1 in which the projecting portion of said clip comprises a hollow cylinder, and means for supporting said cylinder whereby it will enter and resiliently engage the socket in said first member, said socket comprising a slot and an enlarged space into which said cylinder enters after passing through said slot, the width of the slot being slightly less than the outer diameter of the cylinder, whereby after said cylinder has entered said space the walls of said slot serve to oppose the outward passage of said cylinder.

In testimony whereof I hereto affix my signature.

JOHN H. KLIEGL.

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