J. SACHS.

INCLOSED FUSE CONNECTOR.

APPLICATION FILED SEPT. 20, 1915.

1,197,957. Patented Sept. 12, 1916.

Fig. 4.

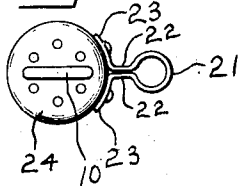


Fig. 8.

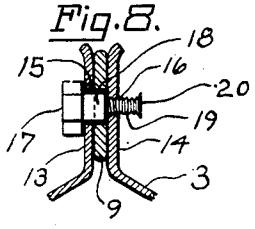


Fig. 5.

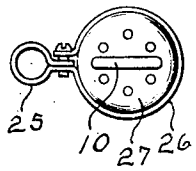


Fig. 3.

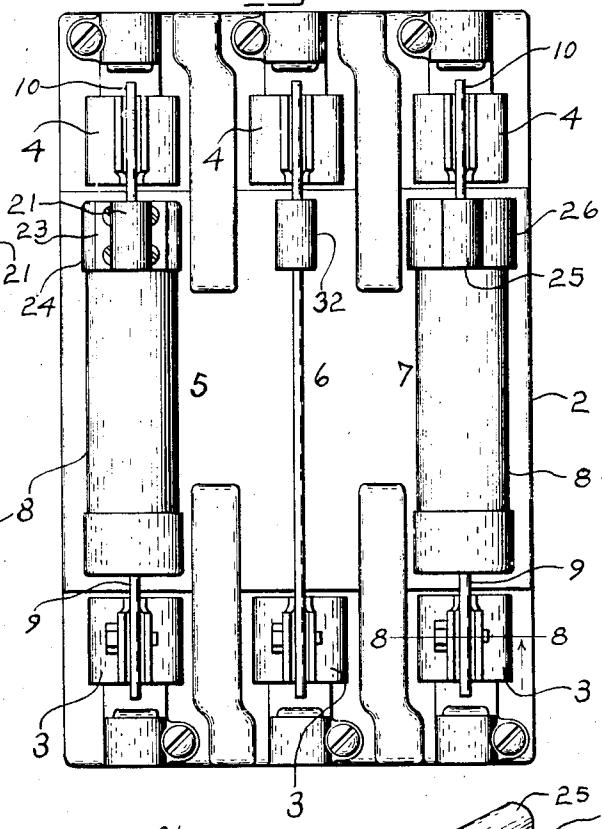


Fig. 1.

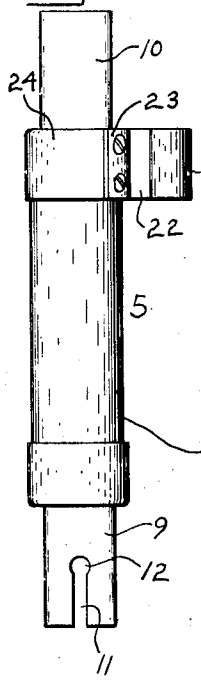


Fig. 2.

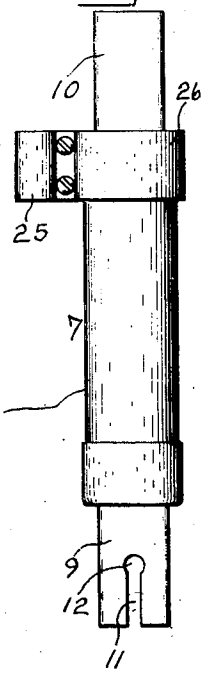


Fig. 6.

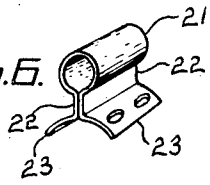
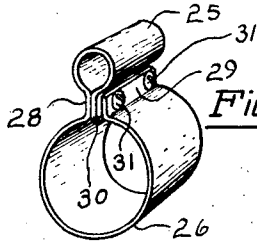


Fig. 7.



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UNITED STATES PATENT OFFICE.

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INCLOSED FUSE-CONNECTOR.

1,197,957. Specification of Letters Patent. Patented Sept. 12, 1916.

Application filed September 20, 1915. Serial No. 51,672.

To all whom it may concern:

Be it known that I, JOSEPH SACHS, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Inclosed Fuse-Connectors, of which the following is a specification.

This invention relates to what I shall for convenience term an "inclosed fuse connector", the invention being to provide an article of this kind which possesses in itself the functions of both a fuse and a connector usable for either or both testing and switching.

I have in use and have made the subject matter of certain prior applications, what I have termed "electric switching and meter testing appliances". The device of the present case while susceptible of general use is, however, of particular advantage when incorporated in or forming part of such an electric switching and meter testing appliance. The present inclosed fuse has in conjunction with it means whereby it can be opened or closed independently of a complemental inclosed fuse for testing purposes, (for instance) or whereby it can be moved with a coöperating-inclosed fuse or fuses to open or closed positions, the several fuses when thus coupled and moving together functioning as switching means.

In the drawings accompanying and forming part of the present specification I have shown in detail certain advantageous forms of embodiment of the invention which will be set forth fully in the following description. I do not limit myself to the precise construction just as disclosed; I may depart therefrom in several respects within the scope of the invention defined by the claims following said description.

Referring to said drawings: Figure 1 is a side elevation of an inclosed fuse connector involving my invention showing the same equipped with one form of socket piece. Fig. 2 is a side elevation of an inclosed fuse connector with a different form of socket piece. Fig. 3 is a front view of part of a meter testing and switching appliance provided with inclosed fuses involving the invention, the fuse on the left being such a one as represented by Fig. 1, while that on the right is such a one as is shown in Fig. 2. Figs. 4 and 5 are elevations as seen from the rupturing ends of the inclosed fuse connectors shown in Figs. 1 and 2 respectively. Fig. 6 is a perspective view of the socket-piece usable in connection with the fuse shown in Figs. 1 and 4. Fig. 7 is a similar view of the socket piece of the fuses shown in Figs. 2 and 5. Fig. 8 is a transverse section on the line 8—8 of Fig. 3.

Like characters refer to like parts throughout the several figures.

As may be inferred I do not restrict myself to any particular use of the inclosed fuse or fuse-connector, although as I note it is of especial utility when incorporated in a meter testing and switching appliance. I have shown in certain prior applications such appliances and might specifically mention that filed April 28, 1915, Serial No. 24,451. In this particular application I have shown base block units and in Fig. 3 of the present case have illustrated a part susceptible of performing the office of the main base block unit of said prior application thus identified. The base block unit of Fig. 3 comprises a body element as 2 generally made of porcelain or some suitable insulating material and contacts, there being as shown three pairs of such contacts, the supporting contacts being denoted by 3 and the rupturing contacts by 4. As represented each of the contacts is in the form of a two-lip clip held down to the body element 2 in some suitable manner and with which are associated wire connecting means of some convenient kind. As these are details which do not concern the invention, it is not necessary for me to describe the same.

In the construction shown there are as will be evident three connectors denoted in a general way by 5, 6 and 7 respectively, the two outside connectors 5 and 7 being of inclosed fuse form, while the intermediate connector 6 is plain or non-fused. The outer ends of the three connectors are mounted in a novel manner, and this manner of mounting a connector can be employed irrespective of the use to which the connector is to be put. In the present case all three of the connectors are similarly mounted. This

mounting, therefore, is not limited to its use in conjunction with a fuse-connector but can be utilized in conjunction with any.

The body of the fuse-connectors 5 and 7 consists of an inclosed fuse 8 of practically ordinary type, the blade portions 9 which extend from the rear or outer ends of the inclosed fused bodies 8 being mounted preferably for swinging movement between the lips of the supporting contacts or clips 3 for movement into or from the lips of the rupturing or front end contacts or clips 4. As will be obvious it is not essential that the contacts be in the form of clips, although an advantage follows the use of clips for mounting the supported ends of the connectors. The fuse-connectors 8 have at their front or rupturing ends blade portions 10 which extend forwardly from the inclosed fuse bodies 8 in line respectively with the blade portions 9, the blade portions 10 as will be clear, being movable into or out of the space between the lips of the front or rupturing end contacts 4. The intermediate, plain or non-fuse carrying connector 6 is in the form of a strip or blade and therefore its terminals present blade portions and act precisely like the blade portions of the fuse connectors 5 and 7. Said fuse-connectors 5 and 7 are preferably pivotally mounted for swinging motion, their blade portions 9 having longitudinal slots 11 open at their outer ends and at their inner ends leading into holes 12 of approximately circular form, the diameter of the holes being in the present case greater than the width of the slots. While the connector 6 can be considered as a blade the terminals thereof act as blade portions in the same sense as the portions 9 and 10. My point in mentioning this fact is to make clear that the ends of the connector 6 are as shown, like the blade portions 9 and 10, the outer end of the connector 6 being constructed exactly like that of the blade portions 9.

I will describe in detail the pivotal mounting of one of the connectors, and as will be obvious this will apply to the others. In this connection reference can be had to Fig. 8. The two lips of the clip 3 are denoted by 13 and 14, the lip 13 having a plain perforation or hole 15 and the lip 14 having a threaded hole or perforation 16. The centers of the two holes are coincident transversely of the clip 3, the perforation 15, however, being of greater diameter than the hole 16. The screw 17 presents a pivot for the connector with which it is associated, said screw having a plain portion 18 acting as the pivot proper and a threaded portion 19, the threads of which are adapted to match those in the hole 16. In Fig. 8 the parts are shown as in assembled relation, the cylindrical or pivot portion 18 of the screw being within the circular hole 12. To dismount the connector, for instance to substitute a new fuse-connector for one in which the fuse has been blown, the following procedure may be adopted: The connector will be swung up and the screw 17 will be backed out until the pivot portion 18 is wholly out of the circular opening 12, at which point the connector can be pulled from place which is permitted owing to the fact that the width of the slot 11 is slightly greater than the diameter of the threaded portion 19 of the screw. To mount the new connector the forked or slotted portion of the blade portion 9 of the new connector will be caused to straddle the threaded portion 19 of the screw, the motion continuing until said threaded portion is in the hole 12, the center of the hole being brought into coincidence with the centers of the holes 15 and 16. When this is done the screw 17 will be run in and the enlarged portion will be projected into the hole 12. The threaded portion of the screw 17 is headed or upset as at 20 to prevent accidental withdrawal of the screw.

I have mentioned the fact that the connectors have means by which they can be individually or simultaneously operated. When they are individually operated, this is for testing, and they are provided with suitable means for the connection therewith of testing appurtenances. When they are operated in unison or as one, this action is obtained by a switch operating device and the switch operating device is preferably provided with means adapted to be coupled to the same means of the connectors with which the testing appurtenances of whatever nature they may be are connected. While the connections in question, as will be obvious, can be made in different ways, I have found it of advantage to use a pin and socket connection, the testing appurtenances or the switch operating device being preferably but not essentially provided with the coupling pins or studs while the connectors are furnished with the sockets.

In the drawings I have shown two forms of sockets. In Figs. 1 and 4 and on the left in Fig. 3 the connector 5 is provided with a socket piece 21 in the form of a split or divided tube, the flanges 22 which extend from the mouth or split in the divided tubular socket piece 21 having outwardly extending lips 23 curved to conform to the curvature of the front ferrule 24 and fastened to said ferrule by rivets or in any other convenient way. A connector 7 shown in Figs. 2 and 5 and on the right in Fig. 3 has the socket piece 25 which as shown is made in one piece with the divided or split clamping ring 26 adapted to fit over the front ferrule 27 of said connector 7 on which

as will be understood the socket piece 25 is removably mounted. In view of this fact when a fuse becomes blown, the socket piece can be removed and applied to a new fuse. The socket piece 25 as shown is integral with the clamping member or ring 26, the two having in common the connecting flange 28. This flange 28 is at one end of the divided clamping ring 26, the other end having a flange 29 complemental to the flange 28, the two flanges 28 and 29 receiving between them the flange 30 extending from the socket piece 25. The flange 29 as shown is perforated to receive screws 31 threaded into the flanges 30 and 28. By backing out these screws the ring 26 can be opened or expanded automatically sufficiently to slip on the ferrule 27, and when positioned thereon the screws 31 will be set so as to firmly hold the clamping ring in place and at the same time properly mount the socket piece.

In both forms of the connector the socket pieces are of practically circular form in cross section and are intended to receive coupling pins or equivalents of a switch operating device or testing plugs or analogous means. When a switch operating device is connected with the connectors, the latter will serve for switching, whereas when the testing plugs are connected with the connectors, the latter can function for testing.

It will be understood that the blade portions of the inclosed fuses or connectors act as contacts, one contact of each presenting a mounting and the other a rupturing contact. Electrically connected, therefore, with one contact of each inclosed fuse is a means by which testing or switch operating appliances can be connected therewith as desired, depending upon the use to which the inclosed fuse is to be put, that is for either testing or switching purposes. In the present case the testing and switch operating appliances are interchangeably connected with the same part which as shown consists of a socket or socket piece. This, as will be obvious, is not always essential, although naturally of advantage.

The invention consists of an inclosed fuse connector provided with means to adapt it for testing or switching.

When the device shown in Fig. 2 is to be used for testing, suitable testing appurtenances will be connected with the socket pieces 21 and 25 so that the connectors 5 and 7 can be independently moved. If, however, said device is to be used for switching the three connectors 5, 6 and 7 will be simultaneously operated, means such as pins on an operating device entering the socket pieces 21 and 25. The plain or non-fused connector 6 has a socket piece 32 to receive such a pin, and may also be independently moved for testing purposes by the association with the socket piece of suitable testing appurtenances.

What I claim is:

1. An inclosed fuse provided with means directly carried thereby to adapt said fuse to function for either testing or switching purposes.

2. An inclosed fuse provided with means directly carried thereby for the removable connection therewith of a switch operating device and also for the removable connection therewith of a testing appurtenance to thus enable the fuse in itself to function either for switching or meter testing.

3. An inclosed fuse provided with means directly carried thereby to adapt said fuse to function for either testing or switching purposes, said means comprising a socket piece.

4. An inclosed fuse provided with means directly and removably carried thereby to adapt said fuse to function for either testing or switching purposes.

5. An article of manufacture comprising an inclosed fuse, and provided as a unitary part thereof with means to adapt said fuse with the aid of suitable testing or switch operating means for either testing or switching purposes.

6. A clip having opposing lips, one having a perforation and the other having a threaded opening, a screw fitted in said threaded opening, the screw having a cylindrical portion between the head and threaded portion thereof, constituting a pivot disposed in said perforation, the pivot portion being of greater diameter than the threaded portion.

7. An inclosed fuse provided with means directly carried thereby for the mechanical and electrical removable connection therewith of a meter testing appurtenance to adapt said fuse for use as a testing connector.

8. An inclosed fuse provided with blade terminals and also provided with means having a direct mechanical attachment and electrical connection with the fuse to adapt the same for either meter testing or switch functioning purposes.

9. As an article of manufacture an appurtenance removably associable with an inclosed fuse and adapted for direct mechanical connection therewith, said appurtenance being adapted to electrically connect with one of the terminals of said fuse and being provided with means to receive either testing or switching instrumentalities.

10. As an article of manufacture a switching and testing appurtenance removably mountable on an inclosed fuse, said appurtenance comprising a strap-like fuse clamping portion, and a portion for receiving testing or switching instrumentalities.

11. An inclosed fuse comprising a car-

tridge and terminals, said fuse having means directly attached thereto and in electrical connection with one of said terminals to adapt the fuse for use as a testing connector.

12. An inclosed fuse comprising a cartridge and terminals, said cartridge having ferrules, and means in electrical connection with the fuse and carried by one of said ferrules to adapt the fuse to function as a testing connector.

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

JOSEPH SACHS.

Witnesses:
L. L. MARKEL,
HEATH SUTHERLAND.