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1,913,532

SIGNAL BLOCKER

Filed April 18, 1930

Fig. 1

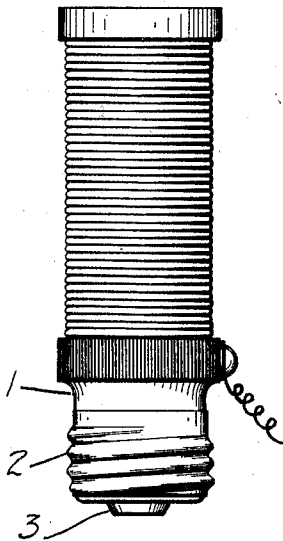


Fig. 2

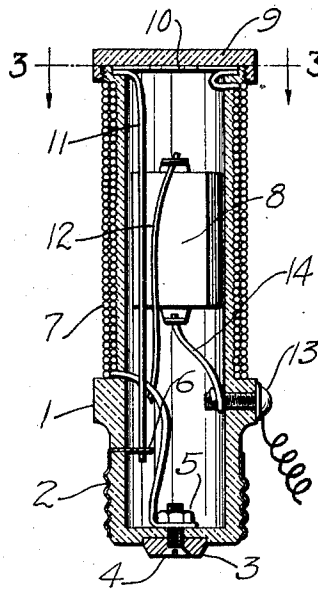


Fig. 4

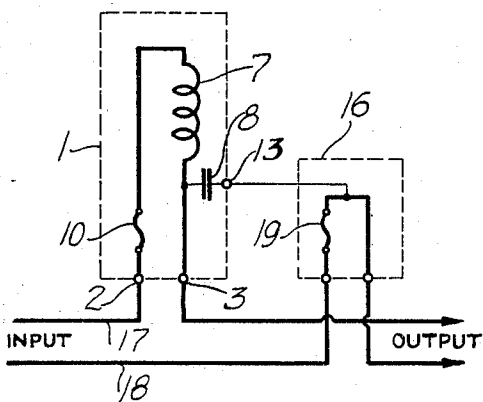
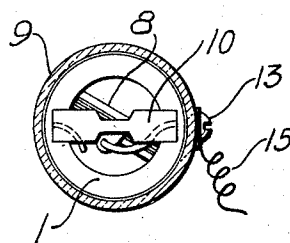


Fig. 3



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SIGNAL BLOCKER

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My invention relates to a device for blocking high frequency signals impressed upon electric light and power lines.

One of the objects of my invention consists in providing means for blocking high frequency currents in combination with current limiting means.

Another object of my invention consists in producing a high frequency signal blocker which can be conveniently interposed in an electric circuit by virtue of a construction adapted for mounting in fuse receptacles which form part of the normal equipment of electric light and power systems.

I accomplish the above desirable features in a single blocker in which a reactance coil and an electrostatic condenser are combined with a current limiting element in a unitary structure.

In the drawing accompanying and forming a part of the specification and in which like reference numerals designate corresponding parts throughout:

Fig. 1 is an elevation of one embodiment of my invention.

Fig. 2 is a vertical sectional view.

Fig. 3 is a horizontal sectional view along the line 3—3 of Fig. 1.

Fig. 4 is a diagrammatic representation of the electrical circuits of the signal blocker of my invention in a typical installation.

Referring to the drawing in detail, I provide a cylindrical member 1, composed of insulating material, such as porcelain, as the supporting and housing structure for my signal blocker. A threaded metal ferrule 2 is securely attached to one end of the member 1 to provide means for mounting my signal blocker in the fuse receptacle which is normally a part of a consumer's electric light and power service equipment. A contact button 3 is provided on the extreme end of the member 1 to engage with a corresponding terminal of the fuse receptacle in the usual manner. In Fig. 2, it will be seen how the contact button 3 is secured to the member 1 by screw 4 and nut 5. The ferrule 2 is provided with an ear 6 which extends into the interior of the member 1.

A coil 7 is wound about the exterior of the

member 1 and an electrostatic condenser 8 is disposed within the interior of the same. The coil 7 and condenser 8 serve as means for blocking high frequency signals, as described later. A cap 9, composed of insulating material, is secured to the top of the member 1, by means of threads, so as to be readily removable. A current limiting element consisting of a metallic fuse link 10 is provided beneath the cap 9 on top of the member 1 and is held in place by pressure of the cap 9. This fuse link 10 will function as a conductor of electric currents within predetermined limits, but will collapse and interrupt the passage of current in excess of these limits. Such a current limiting element is widely used as a protective device in electric light and power distribution systems. An electrical connection 11, and one terminal of the winding of coil 7, are held in contact engagement with the fuse link 10 by means of the cap 9 as shown in Fig. 2. The connection 11 is attached to the ear 6. The other end of the winding comprising coil 7 is connected to the contact button 3 through the screw 4, a connection 12 from the condenser 8 being soldered to this end of the winding of coil 7 as shown. A terminal screw 13 is provided through the annular shoulder of the member 1 to make connection through a wire 14 to the other terminal of the condenser 8.

Fig. 3 shows a conventional construction of the fuse link 10 and the position of the terminating ends of the connections 11 and 12 with reference thereto. A flexible connection 15 is connected to the terminal 13 for a purpose later described.

In Fig. 4, the member 1, diagrammatically represented, is positioned adjacent to an ordinary fuse plug 16, normally found in light and power service equipment, and adapted to be screwed into a fuse receptacle. The ferrule 2 and the contact button 3, in effect, comprise a construction similar to such a fuse plug and can therefore be substituted in a mounting receptacle for the same. Consequently, in Fig. 4, the member 1 has been substituted in a fuse receptacle in which a fuse plug, similar to fuse plug

16, would ordinarily be inserted. The lines 17 and 18 comprising the consumer's usual 110 volt supply line, serve also as conductors for high frequency currents. In the protective fuse equipment of a consumer's distribution system, the fuses would be in series with the lines 17 and 18. In my invention, the line 17 is connected through the terminal 2 to the fuse 10 and thence through the coil 7 to the contact button 3 to output. The line 18 is connected through the fuse link 19 in the fuse plug 16 and thence to output in the usual manner. The condenser 8 is connected from the output side of the coil 7 to the terminal 13 and thence to the line 18 in the fuse plug 16.

The coil 7 provides a relatively high impedance to high frequency currents which greatly reduces their flow through the line 17. The condenser 8, is, in effect, bridged across the lines 17 and 18 and is of a value such as to by-pass any high frequency currents which leak through the coil 7. The flow of the low frequency or direct current carried on the lines 17 and 18 is substantially unaffected by the presence of the coil 7 or the condenser 8. However, in the event that the low frequency or direct current should exceed a certain predetermined, or safe operating, value, the fuse link 10 will collapse and cease to function as a conductor. The member 1 may then be easily and quickly removed, a new fuse link inserted, and the unit replaced for operation.

It will now be apparent that I have provided a unitary signal blocker employing a current limiting device. It will of course be obvious that changes in the construction of my signal blocker can be made without departing from the scope of my invention. I do not therefore wish to limit myself to the foregoing, except insofar as may be pointed out in the appended claim.

What I claim as new and original and desire to secure by Letters Patent of the United States, is:

A unitary signal blocker comprising, a fuse plug of the screw thread type having an extended mounting structure carrying signal blocking means, including a reactance coil externally wound on said mounting structure and a condenser mounted within said structure, said unitary signal blocker being adapted to be inserted in a consumer's fuse panel for restricting the passage of high frequency signaling energy over a consumer's power distribution circuit while permitting the passage of low frequency light and power current.

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