

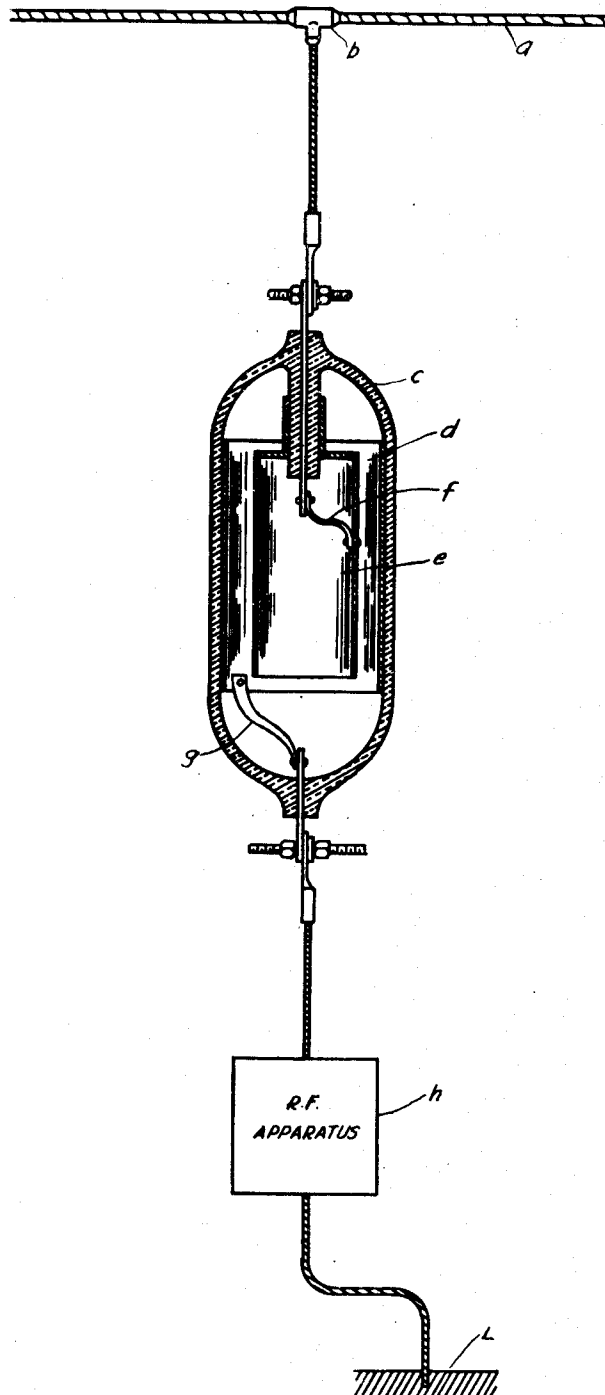
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WIRED WIRELESS SYSTEM

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WIRED-WIRELESS SYSTEM

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7 Claims. (Cl. 175-41)

The present invention relates to an arrangement for radio frequency communication over lines.

What is here understood by communication is any unilateral or bilateral transmission along lines by means of radio frequency currents, or, in other words, radio frequency telephony, teletransmission of instrument readings or service orders, automatic or prearranged teleoperation of switches, relays, or the like. The wave-lengths heretofore used for this purpose have been limited, in the sense of longer waves essentially by the cost of choke coils and coupling means, and in the direction of shorter waves essentially by the losses occasioned in the condensers built up of hard paper or porcelain.

According to the present invention, the difficulties heretofore known are avoided to a considerable degree. For coupling the radio frequency transmitter equipment and the receiver, as well as for bridging or shunting transformers, breaks in the lines, and the like purposes, according to the present invention, recourse is had to condensers comprising a dielectric consisting of gas artificially kept at either an increased or a reduced pressure as desired, and in accordance with the use to which the condenser is to be put. For instance, condensers may, where desired, have a compressed-nitrogen or other suitable gas filling or else a vacuous space.

The principal advantage offered by the present invention resides in the fact that condensers of this type no longer cause measurable losses so that far shorter wave-lengths than has heretofore been permissible may be employed for this traffic. This constitutes a progress in several regards, because (1) owing to the increase in the wave-length range new paths of communication are opened; (2) the choke-coil means are essentially reduced in cost; and (3) the new coupling condensers of this invention, because of the negligibly small weight of the dielectric material, are far lighter in weight, and in the case of shorter carrier waves also much smaller than heretofore on account of the lower capacity that is required. This latter advantage is a factor that makes it possible to mount condensers of the type herein disclosed in power stations or upon air-line poles already built.

This invention has been shown in one of its preferred forms by the accompanying drawing which is to be taken as illustrative of the system and not in a limited sense.

According to the invention, a high potential line is represented by the designation *a* and to

this line at the terminal or binding post *b* is attached a conductor which connects the high potential line *a* with a condenser element housed within a glass envelope *c*. The condenser is formed of inner and outer electrodes *e* and *d* respectively. According to the preferred form of the invention, the inner electrode is connected by means of a lead *f* with the high potential transmission line and the outer electrode *d* is connected by means of a lead *g* with the radio frequency apparatus *h* which apparatus is in turn grounded at reception. The transmitter or receiver equipment designated as *h* may, of course, be of any general and well-known type.

Having now described my invention, what I claim and desire to secure by Letters Patent is the following:

1. A condenser comprising an elongated vitreous envelope including a plurality of cylindrical electrodes, one of which electrodes is supported on the inner wall of said envelope, a rod-like internal support integral with one end of said vitreous envelope and extending within said envelope and beyond the end of said first mentioned electrode, means for mounting another of said cylindrical electrodes on said rod-like internal support, said last named electrode extending within said first named electrode and spaced therefrom, a conductor passed through one end of said envelope and connected to said first named electrode, a conductor passed through the other end of the envelope where said rod-like internal support is located and connected to said second named electrode, said envelope containing a compressed gas which serves as a dielectric for the electrodes therein.

2. A condenser comprising an elongated vitreous envelope including a plurality of cylindrical electrodes, one of which electrodes is supported centrally on the inner wall of said envelope, a rod-like internal support integral with one end of said vitreous envelope and extending within said envelope, means for mounting another of said electrodes on said support, said last named electrode extending within said first named electrode and spaced therefrom, a conductor passed through one end of said envelope and connected to said first named electrode, a conductor passed through the other end of the envelope and connected to said second named electrode.

3. A condenser comprising a cylindrical insulating casing having semi-spherical ends, one of said ends having a depending rod-like electrode supporting member, metallic mounting and terminal members retained within said semi-

spherical ends, a metallic tubular electrode surrounding the inner walls of said casing, and electrically connected to one of said terminal members, a second metallic tubular electrode having a flange-like end connected to the other terminal member and concentric with the first mentioned electrode and supported by said depending rod-like electrode supporting member.

4. A condenser comprising a cylindrical insulating casing having semi-spherical ends, one of said ends having a rod-like electrode supporting member, metallic mounting and terminal members retained within said semi-spherical ends, a metallic tubular electrode surrounding the inner walls of said casing, and electrically connected to one of said terminal members, a second metallic tubular electrode having a flange-like end portion which is connected to the other terminal member and concentric with the first mentioned electrode and supported by said depending electrode supporting member.

5. A condenser comprising a cylindrical insulating casing having semi-spherical ends, one of said ends having a depending rod-like electrode supporting member, metallic mounting and terminal members retained within said semi-spherical ends, two inner metallic tubular electrodes, the outermost one closely surrounding the inside of said casing and the innermost electrode being retained by a flange-like end portion and secured to said rod-like depending electrode supporting member, each of said electrodes being electrical-

ly connected to each of said terminal members.

6. A short wave radio frequency coupling condenser comprising a cylindrical glass envelope having semi-spherical ends, one of said ends having a depending rod-like electrode supporting member, metallic mounting and terminal members retained within said semi-spherical ends, an outer metallic electrode surrounding the inner walls of said glass envelope and electrically connected to one of said terminal members, a second cylindrical metallic tubular electrode having a flange-like end, said flange-like end supported by and secured to said rod-like electrode supporting member and electrically connected to the other terminal member.

7. A short wave radio frequency coupling condenser comprising a cylindrical gas filled insulating casing having semi-spherical ends, one of said ends having a depending rod-like electrode supporting member extending within and beyond the semi-spherical end portion of said insulating casing, metallic mounting and terminal members retained within said semi-spherical ends, an outer metallic electrode surrounding the inner walls of said insulating casing and electrically connected to one of said terminal members, a second cylindrical metallic tubular electrode having a flange-like end, said flange-like end supported by and secured to said rod-like electrode supporting member and electrically connected to the other terminal member.

KURT WILDE.

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75	150