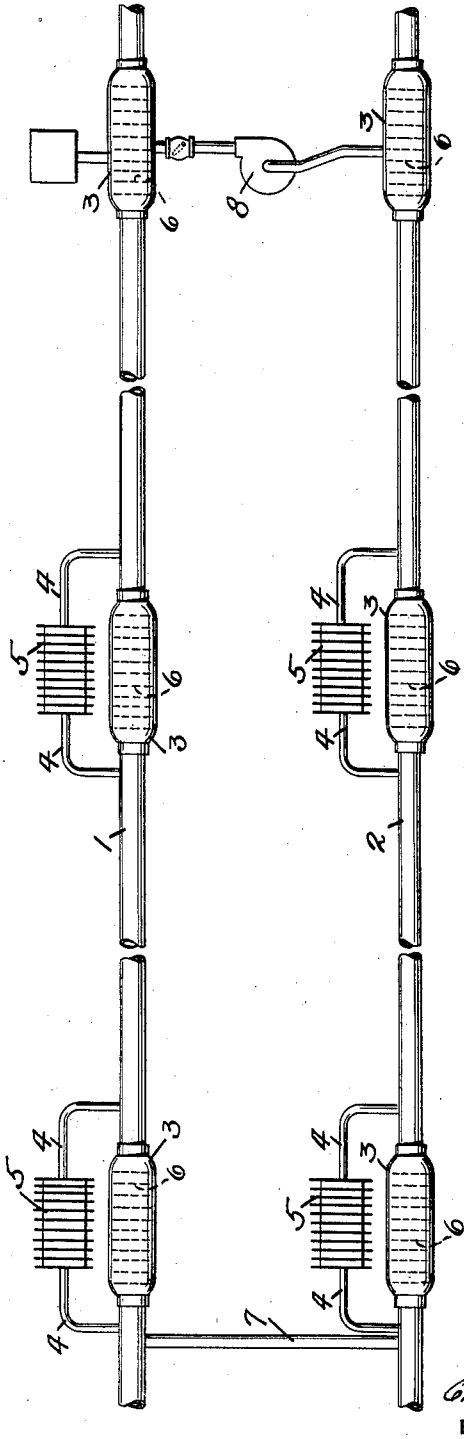
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ELECTRIC CABLE SYSTEMS

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ELECTRIC CABLE SYSTEMS

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1 Claim. (Cl. 174—15)

This invention is directed to an improvement in underground high tension electric cables of the type disclosed in Patent No. 2,015,063, dated September 24, 1935.

The present application is a division of my copending application Serial No. 720,734, filed April 16, 1934.

In the patent above referred to I have disclosed a cable system which comprises an oil filled pipe line buried in the earth containing insulated but unsheathed cable conductors, the pipe line being sufficiently large internally to permit of drawing in of the cable conductors and to permit relative movement of the conductors within the pipe line. The pipe line is filled with an insulating fluid such as oil which is maintained under sufficiently high pressure to increase its dielectric strength, pressures, for example, from five atmospheres upward.

While such a construction provides improved heat dissipating characteristics as compared with prior cable systems, the present application provides additional cooling means and minimizes the chances of "hot spot" formation due to inequalities of heat dissipation in the earth.

In the drawing accompanying this application, a fragmentary elevational view of an embodiment of my invention has been shown.

Referring to the drawing in detail, the present invention comprises two pipe lines 1 and 2 provided at regular intervals with joints 3. These pipe lines, as pointed out in my copending application Serial No. 720,734, are of sufficiently large diameter internally to permit of the drawing in and relative movement of the insulated but unsheathed cable conductors of the system.

At intervals along the length of the system I provide by-pass pipes 4 communicating at each end with the pipe lines 1 and 2, each of these by-pass pipes being equipped with a cooling device or radiator 5. The by-pass pipes 4 are shown in the drawing as by-passing the joints 3. It is to be understood, of course, that the by-pass pipes may be inserted at other desired intervals along the pipe lines.

The joints 3 are shown as provided with baffle plates 6 to increase movement of the insulating fluid with which the pipe lines 1 and 2 are filled through the radiators 5.

The two pipe lines 1 and 2 are connected to each other by cross-connection or cross-connections 7. A pump 8 is connected across the pipe lines 1 and 2 and provides a means for circulating the oil or other insulating fluid employed through the system, this fluid in its passage passing through the cooling device 5 where its heat is dissipated.

As explained above, the oil or other insulating fluid employed is maintained under pressure sufficiently high to increase its dielectric strength. This pressure is supplied by a suitable pumping system, for example, as disclosed in my Patent No. 2,015,063 above referred to.

The present invention, therefore, provides a cable system embodying a plurality of pipe lines cross-connected, these pipe lines containing the insulated but unsheathed cable conductors and being filled with an insulating fluid such as oil, for example, maintained under sufficiently high pressure to increase its dielectric strength, means, such as the pump 8, being provided for effecting circulation of this pressure fluid in a closed circuit through the system, the circulating fluid passing through radiators or other cooling devices as shown at 5.

It is to be understood that the details of construction and arrangement of parts herein illustrated and described may be varied within the purview of my invention.

What I claim is:

In combination, a plurality of multi-conductor high tension electric cable systems, each of which comprises an unsheathed cable conductor independently insulated with oil permeable impregnated insulating material and loosely enclosed in a pipe line, joints at intervals along said pipe lines, cooling means communicating with said pipe lines and by-passing said joints, oil under pressure sufficiently high to increase its dielectric strength filling the space in the pipe lines unoccupied by the said conductors and their insulation and in which the conductors and their insulation are immersed, cross-connections between the pipe lines, a pump in one of said cross-connections, said pump effecting circulation of the oil under pressure in a closed circuit including said cooling means, and baffles in said joints for increasing the movement of the oil through the cooling means.

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