

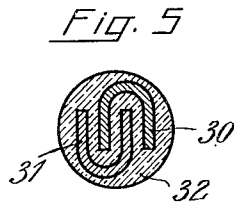
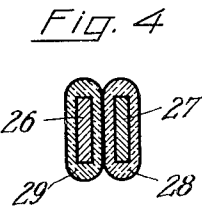
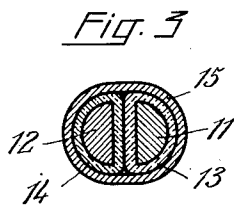
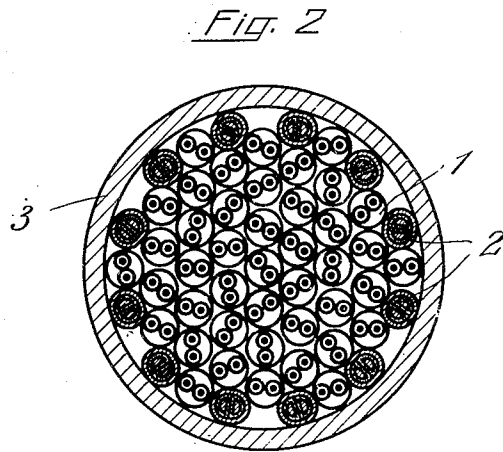
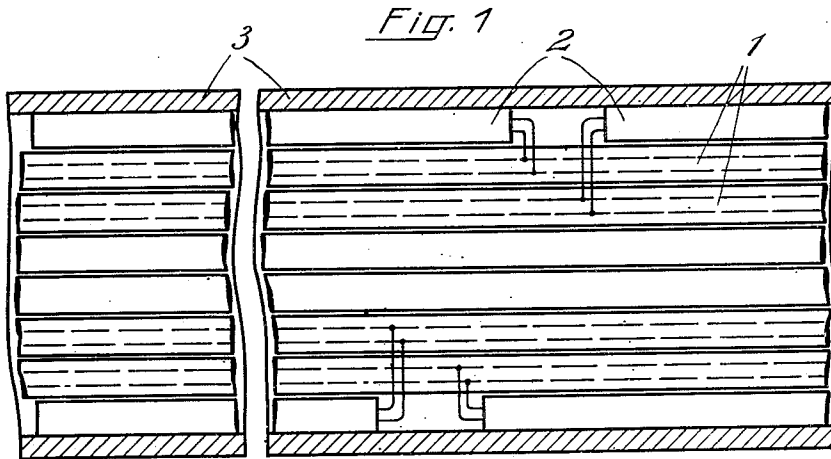
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E. FISCHER

1,853,677

TELEPHONE CABLE

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Inventor  
Ernst Fischer  
by *Knight & Co.* Attorneys

# UNITED STATES PATENT OFFICE

ERNST FISCHER, OF BERLIN-TEMPELHOF, GERMANY, ASSIGNOR TO SIEMENS-SCHUCKERTWERKE AKTIENGESELLSCHAFT, OF BERLIN-SIEMENSSTADT, GERMANY, A CORPORATION OF GERMANY

## TELEPHONE CABLE

Application filed October 19, 1929, Serial No. 400,971, and in Germany October 20, 1928.

My invention relates to telephone cables, and more particularly to telephone cables with equalizing condensers.

It is already known to provide in telephone cables additional conductors, so-called condenser conductors, which are electrically connected with the main conductors and function as condensers.

A particular novel manner of arranging such condenser conductors in connection with the cable conductors is disclosed and claimed in my copending application Serial No. 381,779, filed July 29, 1929, on which arrangement the present invention is a further improvement.

I have now ascertained that a particularly good effect is obtained if these additional or auxiliary conductors are given a cross-section of other than circular shape and if they are so arranged in relation to one another that their mutual capacity becomes as high as possible. The conductors may, for instance, be made of tape or strip copper and be placed together with their broad sides with an insulation between them. They may also be constructed of tapes folded or tucked together.

Some embodiments of my invention are illustrated in the drawings affixed to my specification. In these drawings

Fig. 1 shows my improved telephone cable in longitudinal section,

Fig. 2, this cable in cross-section, and

Figs. 3, 4 and 5 equalizing condensers designed as conductors of a cross-section other than of circular shape.

Referring to Fig. 1 of the drawings 1 are the main double conductors of a telephone cable and 2 the equalizing or balancing condensers designed as additional conductors of a cross-section other than circular. 3 is the lead sheath of the cable.

In Fig. 2, 1 are again the double conductors of the telephone cable, 2 the additional conductors of a cross-section other than circular

and serving as equalizing condensers, and 3 denotes the lead sheath of the cable. This figure clearly shows the location of the condenser conductor pairs with relation to the main conductor pairs.

In Fig. 3, 11, 12 are the condenser conductors, 13, 14 represents respectively their insulation, and 15 denotes the common wrapping.

An example of higher capacitance is illustrated in Fig. 4 of the drawings. 26, 27 are here the tape or strip conductors, 28, 29 the insulating layers of the same.

Fig. 5 shows a modification in which tapes or strips are folded or tucked into one another. 30, 31 are the folded conductors and 32 represents the insulation of these conductors.

I claim as my invention:

1. A telephone cable having insulated conductors, equalizing condensers and a lead sheath surrounding the aforesaid elements, said equalizing condensers consisting of additional conductors embedded in said cable and having a cross-section of other than circular shape, at least some of said equalizing condensers being electrically connected with said insulated cable conductors.

2. A telephone cable having insulated conductors, equalizing condensers and a lead sheath surrounding the aforesaid elements, said equalizing condensers consisting of additional conductors embedded in said cable and having a cross-section of other than circular shape and being so arranged in relation to each other that their mutual capacitance is sufficiently high, at least some of said equalizing condensers being electrically connected with said insulated cable conductors.

3. A telephone cable having insulated conductors, equalizing condensers and a lead sheath surrounding the aforesaid elements, said equalizing condensers consisting of additional conductors embedded in said cable and having the shape of a tape, folded longi-

tudinally to assume a U-shaped cross-section, any two of said conductors being inserted into each other to form an equalizing condenser.

- 5 4. A telephone cable having insulated conductors, equalizing condensers and a lead sheath surrounding the aforesaid elements, said equalizing condensers consisting of additional conductors embedded in said cable  
10 and having the shape of a tape, folded longitudinally to assume a U-shaped cross-section, any two of said conductors being inserted into each other to form an equalizing condenser, at least some of said condensers being electrically  
15 connected with said insulated cable conductors.

In testimony whereof I affix my signature.  
ERNST FISCHER.

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