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J. LÉVY

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TELEPHONIC SYSTEM

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Fig. 1

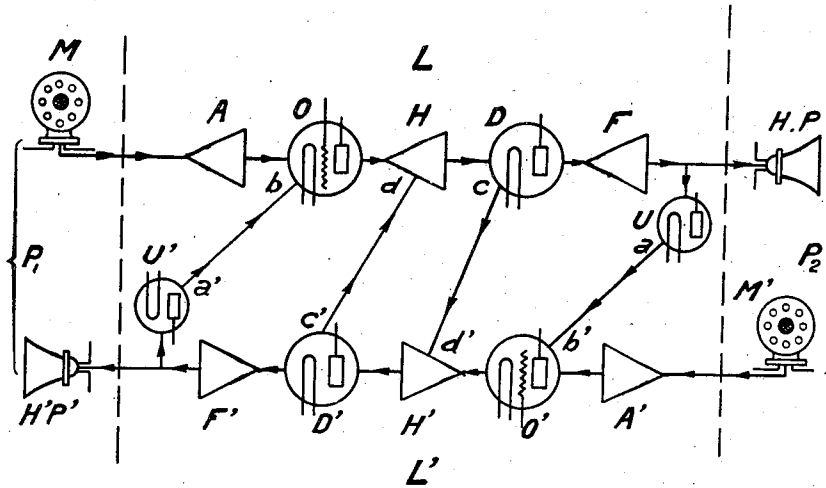
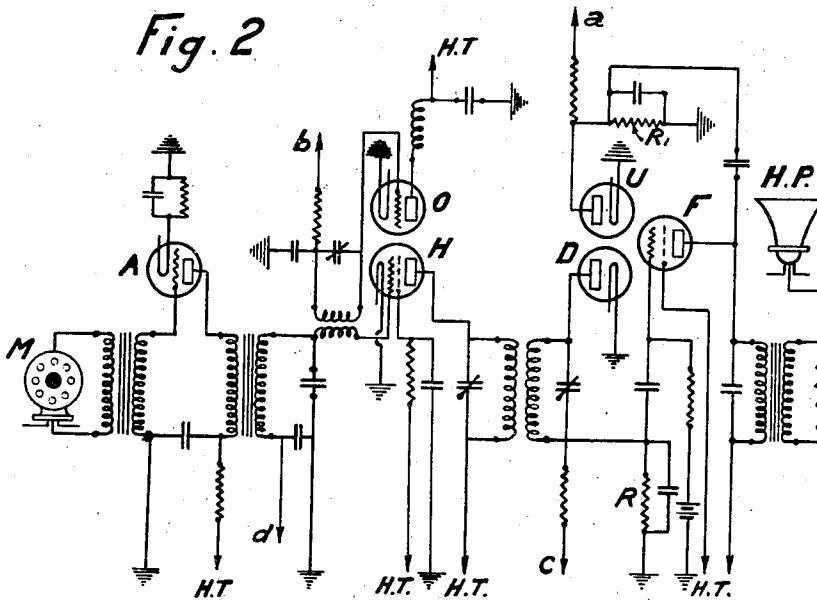


Fig. 2



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TELEPHONIC SYSTEM

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2 Claims. (Cl. 179—1)

The present invention relates to telephonic systems including microphones and loud speakers. The object of the invention is to provide improvements in systems of this kind.

In such systems, there is generally an outgoing line and an incoming line. It is known to interpose between these two lines electric connections adapted to prevent the setting up of audible frequency oscillations due to the acoustic coupling of the two lines at their ends.

But the existing devices do not give full satisfaction in all cases.

It happens that the amplification is insufficient so that it is necessary to raise the voice or to move nearer to the microphone in order to be heard by the correspondent.

If it is endeavoured to increase the amplification, the working becomes unstable and oscillations are set up, causing undesirable whistling noises.

According to the present invention, this drawback is avoided by the provision, in both lines, of high frequency, variable gradient tubes, which permit a wide variation of amplification without distortion. Consequently, it is possible to obtain a very low amplification when the line that is considered does not transmit any modulation, which avoids any risk of audible frequency oscillations being set up during periods of silence. However, the variation of amplification that can be supported by the tube, owing to the variation of polarization, is sufficient for enabling the voice to be clearly heard at the receiving station, without involving the necessity, at the sending station, of raising the voice or moving nearer to the phone.

According to the invention, also, this variation of amplification is obtained by the fact that the above mentioned high frequency amplifying tube is polarized by means of a high negative voltage supplied by the detecting tube of the conjugated line, when the system is at rest.

According to still another feature of the present invention, I provide in each line a special or auxiliary detecting tube which, when the line is utilized, produces a polarization voltage which stops the working of the oscillating tube of the conjugated line. It follows that no current flows through the conjugated line, whereby the negative tension, supplied by the detecting tube of this conjugated line to the high frequency amplifying tube of the line that is utilized is destroyed and the amplification of this last mentioned tube is maximum.

Another advantage of the system according to

the invention is that the amplification of the line that is utilized, which results from the fact that the other line is brought out of action through the means above described takes place instantaneously and not by gradual reactions from one line on the other as in some known systems.

Other features of the present invention will result from the following detailed description of some specific embodiments thereof.

Preferred embodiments of the present invention will be hereinafter described, with reference to the accompanying drawing, given merely by way of example, and in which:

Fig. 1 is a purely diagrammatical view illustrating the various elements and the connections between them;

Fig. 2 is a wiring diagram of the arrangement employed for one of the lines, the conjugated corresponding line being, of course, symmetrical.

As shown by the drawing, the system includes two stations, P₁ and P₂, each provided with a microphone M and a loud speaker HP. These two stations are connected together by two parallel lines L and L', in the known manner.

Line L includes the following apparatus:

A low frequency amplifier A,

A high frequency oscillating tube O,

A high frequency amplifying and modulating tube H,

A detecting tube D,

A low frequency amplifying tube F, and

An auxiliary detecting tube U in shunt across the output of said amplifying tube.

Line L' includes the same elements A', O', H', D', F', U'.

These elements are connected in the following manner:

From point *a* of detecting tube U a connection leads to the point *b'* of the oscillating tube O';

From point C of the detecting tube D a connection leads to the point *d'* of the amplifying tube H'.

A symmetrical connection is provided between tubes U' and O; between tubes D' and H.

The principle of operation is as follows: Tubes H, H' are tubes giving a high amplification, but this amplification is reduced due to the fact that a strong polarization negative voltage is impressed upon tubes H, H' by detecting tubes D, D' (Fig. 2 shows this voltage supplied from the terminals of resistance R of line L). This reduction of the amplifying power is sufficient for preventing any audible frequency oscillation

from being set up between the two ways or lines when at rest.

But as soon as one of the lines, for instance L, is utilized (that is to say when someone is talking before the microphone M of station P₁) the resistance R_i of the detecting tube U is subjected to a voltage and this voltage, transmitted to oscillating tube O', places the latter out of action. It follows that line L' is out of action. As a consequence, the current supplied to tube D' becomes zero. The voltage at the terminals of resistance R' of line L' (which corresponds to the resistance R of line L) becomes zero. The negative polarization voltage impressed upon tube H disappears and, consequently, the amplifying power of tube H reaches its maximum value.

Consequently, it results therefrom that the voltage at the terminals of resistance R in line L increases, which further impedes the action of amplifying tube H'. This action therefore operates in the same direction as the action of tube U on tube O'. However, for most practical purposes, this is not altogether essential because the action of tube U on tube O' is sufficient to prevent the flow of current through line L'.

In a general manner, while I have, in the above description, disclosed what I deem to be practical and efficient embodiments of the present invention, it should be well understood that I do not wish to be limited thereto as there might be

changes made in the arrangement, disposition, and form of the parts without departing from the principle of the present invention as comprehended within the scope of the appended claims.

What I claim is:

1. A two-direction telephonic system of the type described, including an outgoing line and an incoming line, each having a loud-speaker, and a high frequency intermediate amplifier connected therein; means in each line connected to the intermediate amplifier of the other line for supplying a voltage to the intermediate amplifier of the other line for considerably reducing the amplification of the intermediate amplifier of said other line when the first line is utilized, said reducing action being automatically eliminated when said other line is utilized, due to the resulting simultaneous throwing out of action of the first line which is not then utilized.

2. A system according to claim 1 and in which the means for supplying a voltage to the intermediate amplifier of the other line respectively is a detector which supplies a negative voltage to said amplifier of the other line, and in which each line has an oscillating tube connected therein for controlling the said detector, and connecting means between the two lines for submitting the oscillating tube of the other line to a voltage which stops its working when the other line is utilized.

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