WAVE DISTORTING CIRCUIT

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It is well known to produce alternating currents of a given curve shape by passing an alternating voltage of easily obtainable shape, such as sinusoidal shape, through a device of suitable current voltage characteristic whereby such voltage is distorted. Thus it is possible to produce, for instance, sinusoidal alternations by means of a linear rectifier, trapezoidal A. C. curves by means of a device possessing a saturation-current-characteristic, or periodical current peaks by means of a device the characteristic of which presenting within a narrow interval only, values different from the zero value, etc. At higher frequencies, or by using definite organs such as for instance electrolytic rectifiers, a difficulty is encountered in that an alternating current flows through the capacity of the distorting device and which is superimposed upon the current depending upon the characteristic of the device, thus causing another than the desired shape.

In accordance with the invention, therefore, the capacity of the distorting device is compensated by means of auxiliary capacities, so that the capacitive currents are prevented from further entering the utilization circuit and the curve shape of the useful current corresponds in fact with the static characteristics of the distorting device.

The drawing shows an embodiment of the invention by way of example, in which 1 denotes the A. C. source, 2 the distorting device, 3 designates the compensating capacity, 4 and 5 are any sort of resistors, but which are identical resistors (ohmic resistors, capacities, self inductances, or combinations thereof), the proportion of which is equal to the proportion between the capacities of 2 and 3. In this manner a current is obtained passing through the utilization circuit which is only determined by the static characteristic of device 2 and which is no longer affected by the capacity of this device.

Different variations of the bridge are available. The distortional element may, for example, comprise an electrolytic rectifier or a diode with a saturation characteristic, according to the desired shape of the current curve. Each of these distorting elements possesses a self-capacity which is detrimental inasmuch as the undistorted current supplied by the alternating current source will flow across this parallel capacity without being itself distorted. This diminishes the effectiveness of the distortional element, making an undistorted current component flow across the useful resistance. Such an undesirable parallel capacity is neutralized by means of the above-mentioned bridge arrangement.

The claims.

1. In combination, a source of alternating current energy, a distorting device for obtaining from said source of energy a wave of a desired form, said device having an inherent capacity, capacity means in circuit with said device for neutralizing the effect of the inherent capacity of said device on the desired wave form and a utilization circuit coupled to said device.

2. In combination, a source of alternating current energy, a Wheatstone bridge comprising for one of its arms a distorting device for obtaining from said source a wave of a desired form, a condenser adjacent said device and forming a second arm of said bridge for compensating for the effect of the inherent capacity of said device on the desired wave form, and two adjacent impedances forming the other two arms of said bridge, a diagonal of said bridge comprising a connection extending between the coupling point of said two impedances and the junction point of said condenser and distorting device, said source of alternating current energy forming the other diagonal of said bridge, and a utilization circuit connected across said first diagonal.

3. A combination in accordance with claim 2 characterized in this, that said first diagonal includes a resistance between the opposite apices of the bridge, and said utilization circuit is coupled across said resistance.

4. A combination in accordance with claim 2 characterized in this, that said impedances comprise equal value resistors.