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CARRIER FREQUENCY APPARATUS

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FIG. 2.

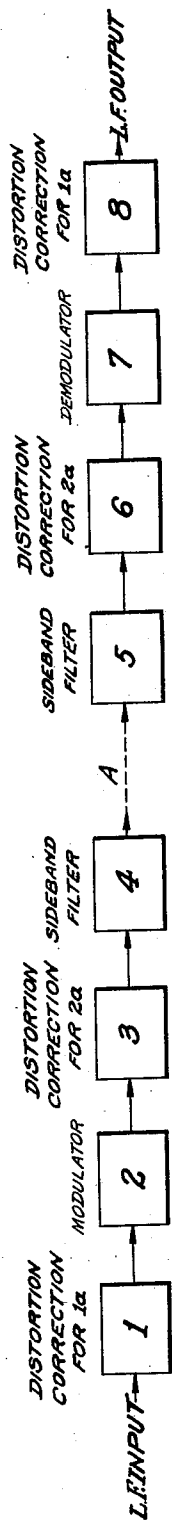
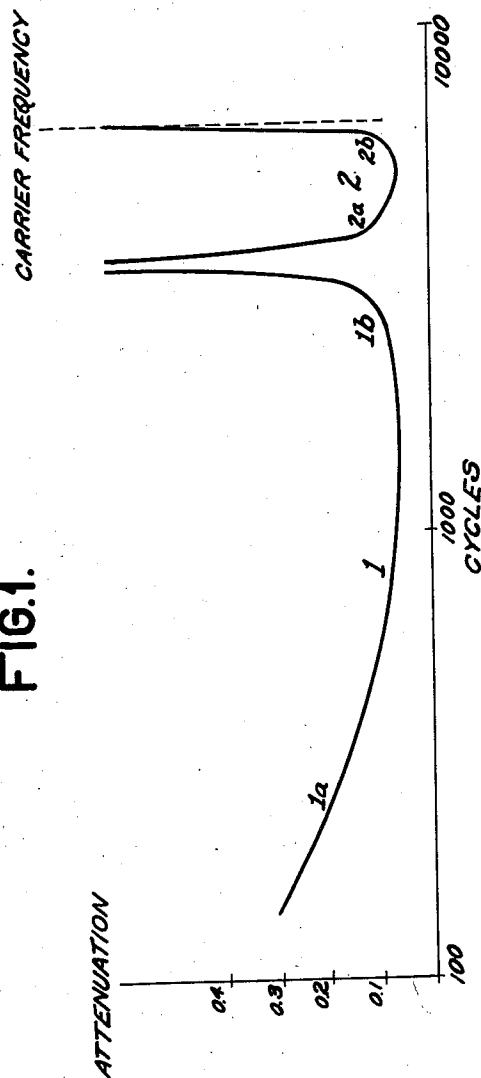


FIG. 1.



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CARRIER FREQUENCY APPARATUS

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2 Claims. (Cl. 178—44)

In carrier frequency apparatus the oncoming low frequency is modulated with a carrier frequency, whereupon both frequencies are transmitted or a side-band is transmitted either together with or without the carrier frequency. Preferably, only a side-band is transmitted without the carrier frequency. On the receiving side the carrier frequency is added again and the low frequency is recovered by demodulation. The elimination of one side-band is effected by filters. The attenuation due to these filters is increased in the case of the angle or corner frequencies, whereby the low frequency recovered on the receiving side becomes distorted in the region of the high and low frequency values. The distortion is double that caused by the attenuation due to one side-band filter since the distortions effected by the filter on the transmitting side and that on the receiving side sum up.

The present invention is concerned with arrangements of this kind and will be understood from the following description and the accompanying drawing, in which

Fig. 1 is a graph referred to in explaining the idea of the invention, Fig. 2 is a diagram showing one embodiment of the invention.

The distortion of the demodulated low frequency is in the nature of the curve 1, Fig. 1, if the transmitted side-band is in the reverse position. Before modulation the curve of the side-band is that designated 2 in Fig. 1. Curve 1 representing the distortion is flat in the case of low frequencies, as illustrated at 1a, and is steep with the high frequencies, as illustrated at 1b. As regards the side-band curve 2 the reverse is the case.

According to the invention the compensation for the distortion in the region 1a of the low frequencies is effected on the low frequency side while the distortion in the region 1b of the high frequencies is corrected on the carrier frequency side, namely, in the side-band region 2a.

This procedure has the following advantages. The distortion of the flat slope of curve 1 may be corrected with the aid of simple means, whereas the corresponding steep slope of the curve 2b would require the use of a large number of distortion-correcting devices. The slope of the distortion of curve 1b is approximately the same as that of curve 2a, that is to say, the same expenditure in distortion-correcting means is necessary in the two cases. The frequencies of the curve 2a, however, are higher than those of the curve 1b. The distortion-correcting device for curve 2a hence is made up of constructional parts, as coils, condensers, etc., which are smaller than the respective parts of the distortion-correcting de-

vice for curve 1b. In the former case the space requirements are hence less than in the latter. The distortion-correcting devices are preferably arranged in the vicinity of those parts at which the distortions arise.

In Fig. 2, 1 denotes a distortion-correcting device by which the oncoming low frequency is preliminarily corrected for the distortion to which it is subjected by a side-band filter 4, as illustrated at 1a, Fig. 1. After the modulation effected by modulator 2 the lower frequency values of the side-band, these corresponding to the upper values of the low frequency, are by a distortion-correcting device 3 preliminarily corrected for the distortion caused by the filter 4. In this way a non-distorted side-band arrives on line A. On the receiving side the side-band is distorted by a filter 5. A distortion-correcting device 6 acts to compensate the distortion of the lower frequencies of the side-band. By a demodulator 7 the side-band is reconverted into the low frequency. A distortion-correcting device 8 serves to compensate the distortion to which the low frequencies are subjected by filter 5, as illustrated at 1a, Fig. 1. In this way the low frequency outgoing from the apparatus will be free from distortion.

What is claimed is:

1. A transmitting terminal for a carrier wave signaling system comprising a low frequency signal wave input, a modulator for modulating a carrier wave with said low frequency signal waves, a filter for selecting from the modulation products an inverted side-band, a correcting network inserted between said low frequency signal wave input and said modulator for compensating for distortion introduced by said filter at the low frequency end of the signal frequency band, and a further correcting network inserted between said modulator and said filter for compensating for distortion introduced by said filter at the high frequency end of the signal frequency band.

2. A receiving terminal for a carrier wave signaling system comprising a filter for selecting an incoming inverted side-band, a demodulator for deriving the low frequency signals therefrom, a low frequency output circuit, a correcting network inserted between said filter and said demodulator for compensating for distortion introduced by said filter at the upper end of the signal frequency band, and a further correcting network inserted between said demodulator and said low frequency output circuit for compensating for distortion introduced by said filter at the lower end of the signal frequency band.

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