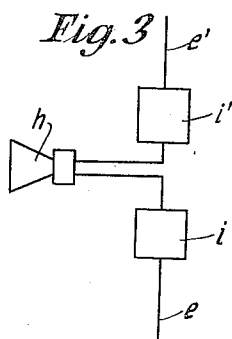
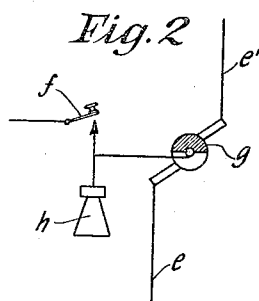
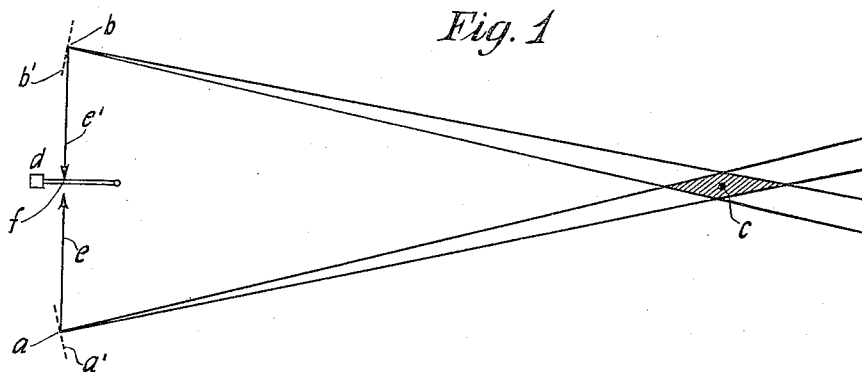


Sept. 8, 1931.

R. D. BANGAY  
RADIO SIGNALING SYSTEM  
Filed April 2, 1925

1,821,921



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# UNITED STATES PATENT OFFICE

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## RADIO SIGNALING SYSTEM

Application filed April 2, 1925, Serial No. 20,033, and in Great Britain April 9, 1924.

This invention relates to a method of obtaining secrecy in radio communication.

According to my invention I erect two directional transmitters situated at a suitable distance from one another and each capable of radiating either on similar or different wave lengths a narrow beam, in some particular direction, preferably by the use of reflectors which can be rotated to any required direction. The direction in which these two transmitters radiate is so arranged that the area of intersection of the two beams occurs at the point to which it is desired to signal. At the sending station, which may be at one or other of the transmitters or at some other place, means are provided for controlling both transmitters and for distributing or splitting up the signals between the two transmitters so that each beam carries only a portion of the signals, each portion being by itself unintelligible. It will be understood that excepting in the area covered by the intersection of the two beams, the signal can only be received from one of the two transmitting stations, and, consequently these signals will not be capable of interpretation except in that area.

The invention is illustrated in the accompanying drawings.

Referring to Figure 1, *a*, *b*, are two transmitters which, as illustrated, are provided with reflectors *a*1, *b*1, whereby the narrow beams transmitted can be caused to intersect at a receiving station *c*.

As illustrated, signals are sent from a telegraph station *d* situated between the transmitters *a* and *b* through land lines *e*, *e*1, by the aid of a signaling key *f* so arranged that the short elements or dots of the Morse code are relayed to one transmitter *a* or *b* while the long elements or dashes are relayed to the other transmitter.

Referring to Figure 2, which shows transmitting means which take the place of the signaling key in Figure 1, *g* is a rapidly rotating commutator by which a signaling key *f* or as another alternative a telephone modulator *h* is sometimes connected to the land line *e* and sometimes to the land line *e*1.

Referring to Figure 3, *h* is a telephone

modulator permanently connected to the land lines *e*, *e*1, through filter circuits *i*, *i*1, of which *i* is designed to reject all frequencies below 1000 cycles for example, and accept frequencies above this, and of which *i*1 rejects all frequencies above one thousand cycles and accepts frequencies below this.

Other methods of signaling may, however, be employed; for example, those whereby the marking signal is sent from one transmitter, whilst the spacing signal is sent from the other, or both transmitters may radiate continuously and the marking periods of the signals be formed by two different super-sonic frequencies which when combined produce a beat of audio-frequency; one of the component super-sonic frequencies being impressed on the carrier wave of one transmitter while the other is impressed on the carrier wave of the other. In this case both frequencies are received simultaneously only in the area of intersection.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I claim the following:—

1. The method of transmitting intelligence consisting in, sending portions thereof in different directions, and radiating the respective portions directly toward a common point and assembling the portions at said point.

2. A transmission system having a sender connected by land wires to separated directional radiating antennæ which are convergently focused upon a common receiving point.

3. A transmission system having a transmitting means, means for dissecting a message transmitted, wires for conducting the separate elements of the dissected message to directional antennæ for convergently radiating the elements and a single receiving means arranged to be effected by all the different elements and thus receive the complete message.

4. In combination, means for sending oscillations, conducting means connected thereto, directional antennæ connected to the conducting means whereby the position of focus of

the directional antennæ alone will determine where all oscillations therefrom will be received.

5 5. In a radio signaling system, the combination with two directional transmitters at a distance from each other and each capable of radiating a narrow beam, of means whereby some components of the signals are sent by one of the transmitters and other components by the other transmitter, the paths over  
10 which the beams are radiated being convergent to a common point.

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