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A. LEIB ET AL
SHORT WAVE SIGNALING
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Fig. 1

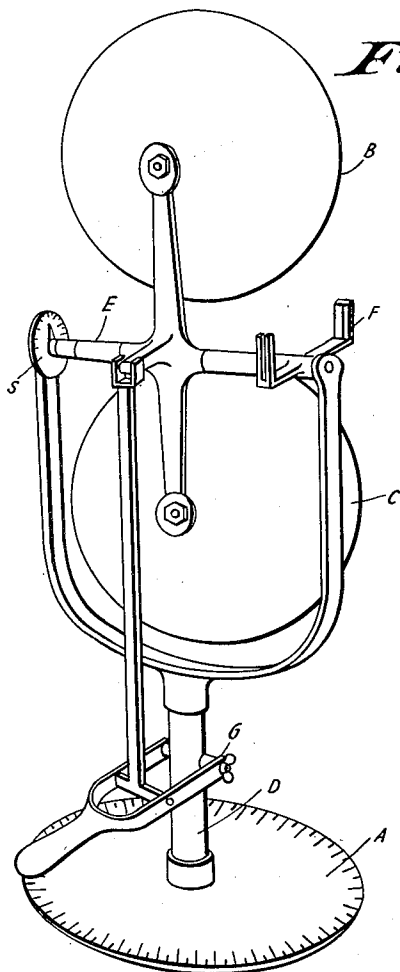


Fig. 2

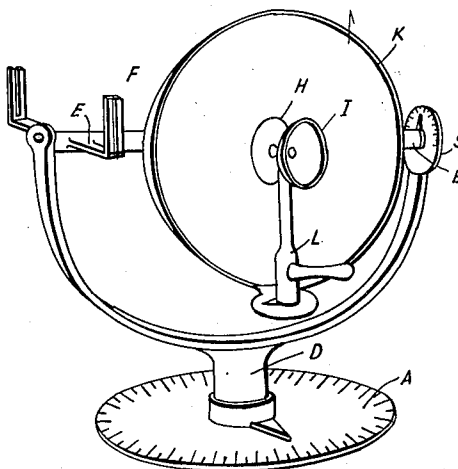


Fig. 4

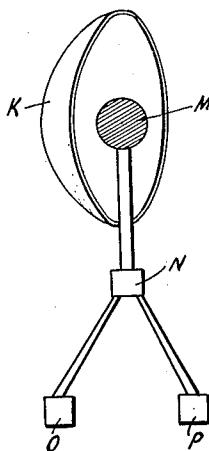
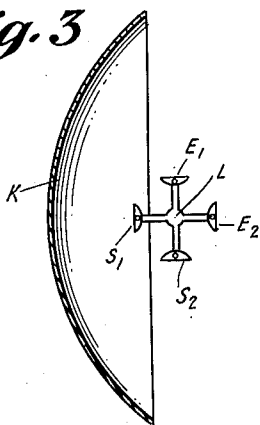


Fig. 3



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SHORT WAVE SIGNALING

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3 Claims. (Cl. 250—11)

This invention relates to sending and receiving equipment for use in infra-red beam radiations or ultra-short electromagnetic waves.

It is known in the prior art that directional or beam radiations are used for signal work between any desired points, the beam transmitter and the beam receiver being both equipped with suitable reflectors. However, the proper adjustment or orientating of the beam transmitter and receiver is very tedious and difficult, especially when both are mounted upon two vessels in motion. Now, according to the present invention these difficulties can be obviated by that the beam transmitter is connected with the beam receiver of the same vessel in such a manner that transmission and receiving direction are always the same.

The invention is illustrated in the accompanying drawing in which, Fig. 1 illustrates one embodiment and Figs. 2, 3 and 4 illustrate modifications thereof.

Coincidence of sending and receiving direction of the beam or directional transmitter and receiver of the same place can be insured by disposing these apparatus upon distinct axes while preserving their direction by mechanical or electrical means of positive action. However, the beam transmitter and the beam receiver together with their reflectors could also be mounted upon one and the same axis conjointly pivotal and or tiltable so that their transmitting and receiving senses will always be the same. This latter embodiment is illustrated diagrammatically in Figure 1.

A is the base plate or support with directional dial, B and C the reflectors in the foci of which the radiator and the radiation-receiver, respectively, are disposed, the energy source for the transmitter and the indicators for the receivers being mounted either stationarily or movably on the equipment itself or at some other place. The outfit is pivotal about the D and the E axes, respectively, in the horizontal and the vertical sense. The angles of vertical and horizontal rotation can be read on dials A and S, respectively. If visibility is satisfactory, adjustment to the desired station can be effected by the aid of a sighting device F, while when conditions are otherwise in the respect of visibility, the transmitter is adjusted to the corresponding station by the aid of the receiver. G is a handle for joint adjustment of the desired transmitting and receiving sense.

Under certain circumstances it may be advisable to combine the two reflectors as shown in Figure 2. The radiator H and the receiver I are here arranged interchangeably so that, according to desire, either one may be shifted into the focus of the common reflector K, such change being accomplished, for example, about the axis L. Upon the latter also a plurality of receiving and transmitting elements could be mounted so that

a change in wave length and ready replacement of spent elements is feasible by a mere rotation about the axis L. Figure 3 shows a top view of an arrangement of this kind, the element S1 from among the four elements S1, S2, E1, E2 being here shifted into the focus.

Figure 4 shows another embodiment. In the focus of the reflector K is, for instance, an ultra-short wave radiator or receiver M having the shape of a tube which acts either as a transmitter or a receiver according to whether the same is connected by the agency of a switch N to the sources of current and auxiliary circuits O or P.

It is recommended to make the apparatus readily transportable so that it can be mounted at any desired place. The wavelength of the radiations to be used in connection with the equipment hereinbefore described may conveniently fall inside the range of the ultra-red or the ultra-short electromagnetic waves. By the aid of the change-over device shown in Figure 3 it is also feasible to selectively use one out of several different waves or types of radiation.

We claim:

1. A short wave transmitting and receiving system comprising, a support member rotatable about a vertical axis, a horizontal support carried thereby, a reflector rotatably mounted on said horizontal support, a transmitter and a receiver mounted in front of said reflector in the focus thereof, and means for rotating said support about its vertical axis and said reflector about said horizontal support.

2. A short wave signaling system comprising, a support member, a U-shaped bracket member rotatably supported thereby, a horizontal member rotatably supported between the open ends of said U-shaped bracket member, transmitting and receiving means rotatably supported on said horizontal member, reflecting means mounted adjacent said transmitting means and said receiving means, and means for rotating said transmitting and receiving means about said horizontal support and for rotating said bracket on said first named support.

3. An ultra-short wave signaling system comprising a support, a member mounted thereon for rotation about a vertical axis, a support mounted on said member, reflecting means mounted for rotation about a horizontal axis on said second named support, a rotatable support mounted in front of said reflecting means and carried thereby, and a plurality of receiver elements and transmitter elements mounted for rotation on said last named support, said elements being located in the focus of said reflector system.

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