

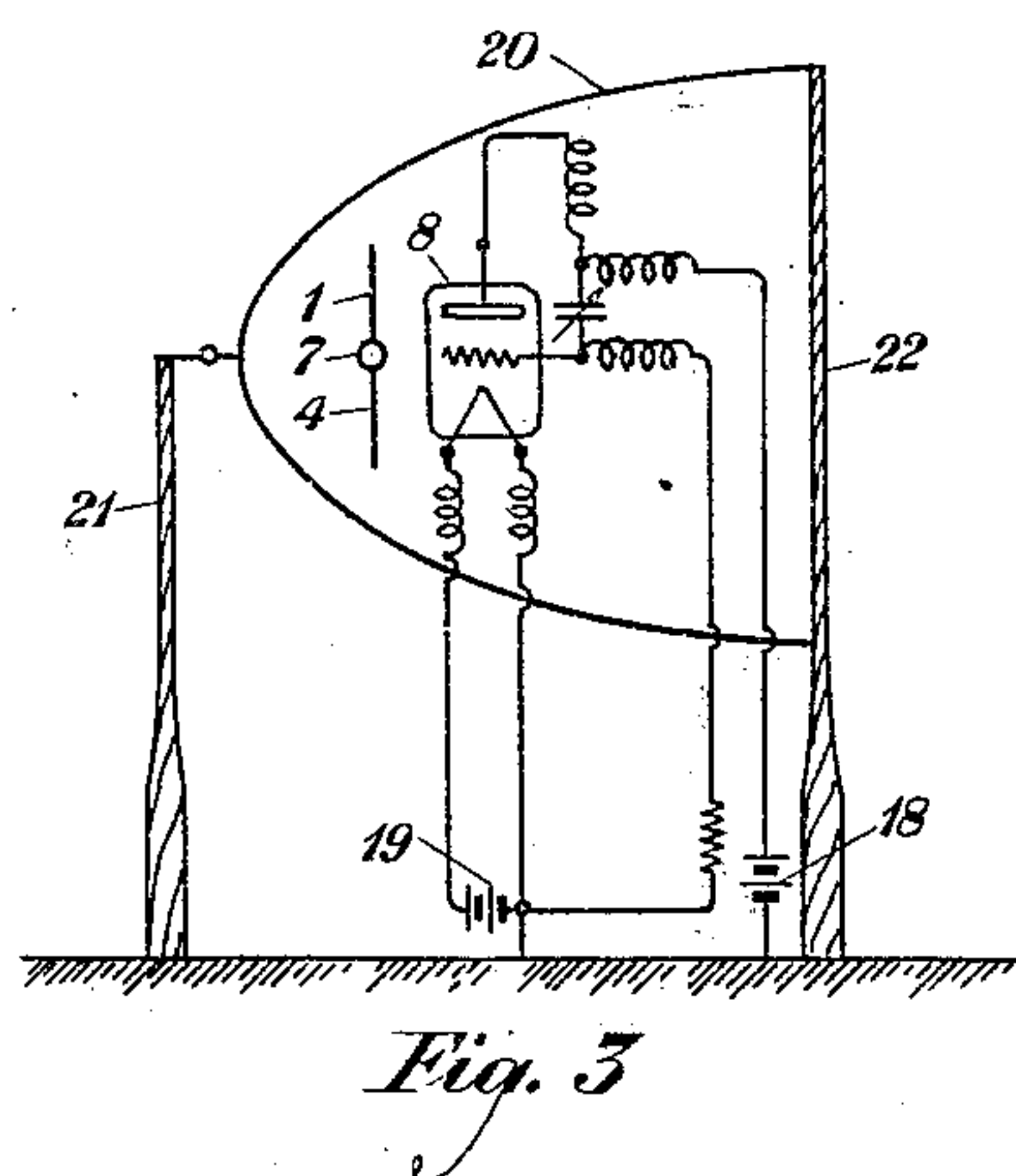
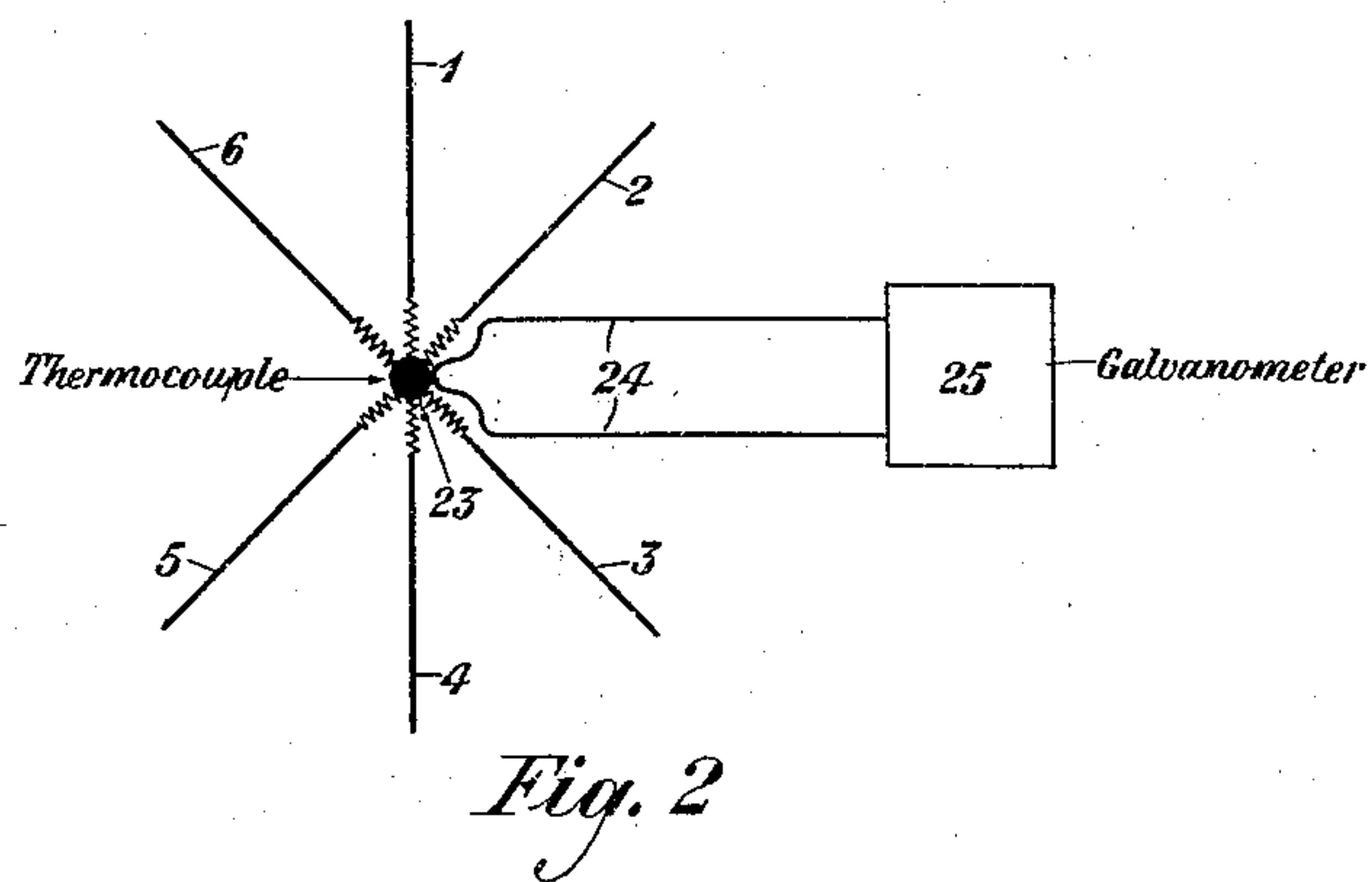
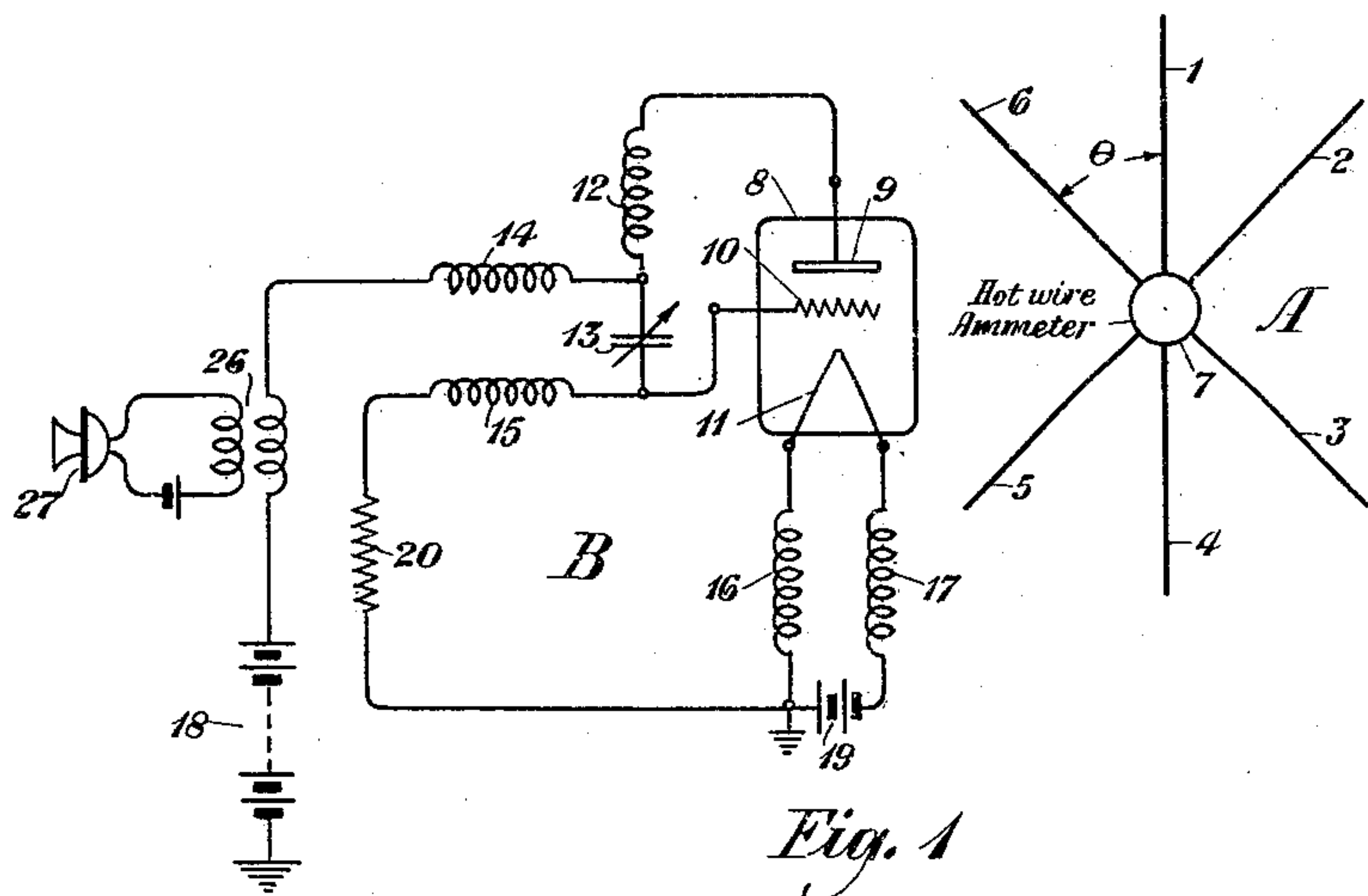
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R. S. OHL

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SHORT WAVE RADIO SIGNALING SYSTEM

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UNITED STATES PATENT OFFICE

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SHORT-WAVE RADIO SIGNALING SYSTEM

Application filed April 16, 1925. Serial No. 23,639.

This invention relates to short wave radio signaling systems and particularly to means to produce an unpolarized wave of short length.

5 The copending application of Demarest and Ohl, Serial No. 31,434, filed May 19, 1925, discloses a parabolic reflector capable of transmitting a beam of energy, which type of reflector is particularly well adapted for
10 signaling by short waves.

The present invention is concerned with a method and means for the production of an unpolarized wave of ultra-high frequency adapted for use with a parabolic reflector of
15 the type referred to in the said copending application, or in other ways.

This invention will be clearly understood from the following description when read in connection with the accompanying drawing, of which Figure 1 shows schematically means
20 for the production and the radiation of an unpolarized wave of ultra-high frequency, viz, short wave length; Fig. 2 shows a variation of the radiating element in which a thermocouple and a galvanometer provide means for measuring the total antenna cur-
25 rent, and Fig. 3 shows schematically a mode of application of the generator and the radiating element with the parabolic reflector.

30 In Fig. 1, the rods 1 to 6 inclusive lie in the same plane and are spaced apart by an equal angular distance. These rods are connected with the thermal element of a hot wire ammeter 7 by means of which the total an-
35 tenna current may be determined. This combination, designated A in the figure, constitutes the radiating element of the system. The generating element designated B comprises a vacuum tube 8 having a plate 9, a
40 grid 10, and a filament 11, the said plate being connected with the grid through the inductance 12 and condenser 13. These elements are so adjusted and proportioned as to determine the frequency of oscillations
45 produced by the generator. The inductances 14, 15, 16 and 17 are such as to offer high impedance to the ultra-high frequencies and thus to prevent the dissipation of the high frequency energy through the leads connected to
50 ground. The plate potential is supplied by

the source 18 and the filament is energized by the source 19. Oscillations produced by a generator of the type represented by B, which may be modulated by the transmitter 27, will be impressed upon the rods 1 to 6 inclusive
55 of the radiating element A and in turn this energy will be impressed upon the conductors of the parabolic reflector represented by 20 of Fig. 3. In order to obtain the best results in signaling with short waves, the signal
60 transmitting and receiving apparatus should be located at a point relatively high above the earth. This is readily accomplished with the arrangement constituting my invention, as shown in Fig. 3, inasmuch as the only
65 elements necessary within the parabolic reflector are the radiating element A and the generating element B. The batteries and modulating devices may be located upon the earth and connected with the generating de-
70 vice by means of specially shielded conductors which per se form no part of this invention.

In the operation of the system disclosed above, oscillations set up by the generating
75 device B will produce oscillations in the rods 1 to 6 of the radiating element A. The fields of energy produced by these rods as thus energized will coalesce and the result will be a field of unpolarized radio energy. When this
80 unpolarized source is located within a parabolic reflector, such as 20, there will result an unpolarized beam of radio energy.

While this invention has been disclosed as embodied in a particular form and arrange-
85 ment of parts it is to be understood that it is capable of embodiment in other and widely varied forms without departing from the spirit of the invention as defined in the ap-
90 pended claims.

What is claimed is:

1. In a short wave radio signaling system, the combination with a source of ultra-high frequency signaling currents of a radiating
95 system comprising a plurality of rods disconnected from the earth and in close proximity to the said source, each rod being tuned to the frequency of the currents from the said source, and all of the said rods lying in the
100

same plane and being spaced apart by the same angular distance.

2. In a short wave radio signaling system, the combination with a source of ultra-high frequency signaling currents of a radiating system comprising a plurality of radially projecting rods in close proximity to the said source, the said radiating system being elevated above the earth and electrically disconnected therefrom.

3. In a short wave radio signaling system, the combination with a source of ultra-high frequency signaling currents, of a radiating system comprising a plurality of radially projecting rods in close proximity to the said source, and a current measuring device effectively connected with all of said rods to indicate the current in the said radiating system, which system is elevated above the earth and electrically disconnected therefrom.

In testimony whereof, I have signed my name to this specification this 13th day of April, 1925.

RUSSELL S. OHL.