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RADIO ALARM SIGNAL SYSTEM

Filed July 2, 1921

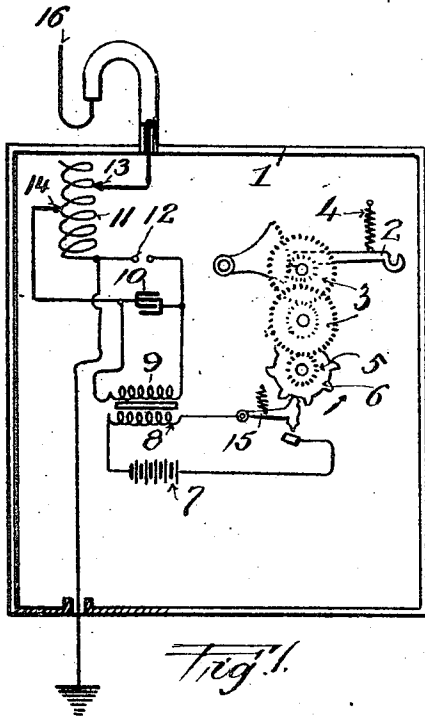


Fig. 1.

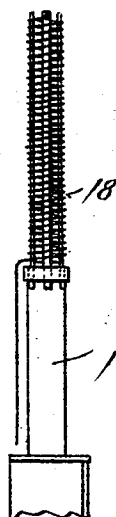


Fig. 3.

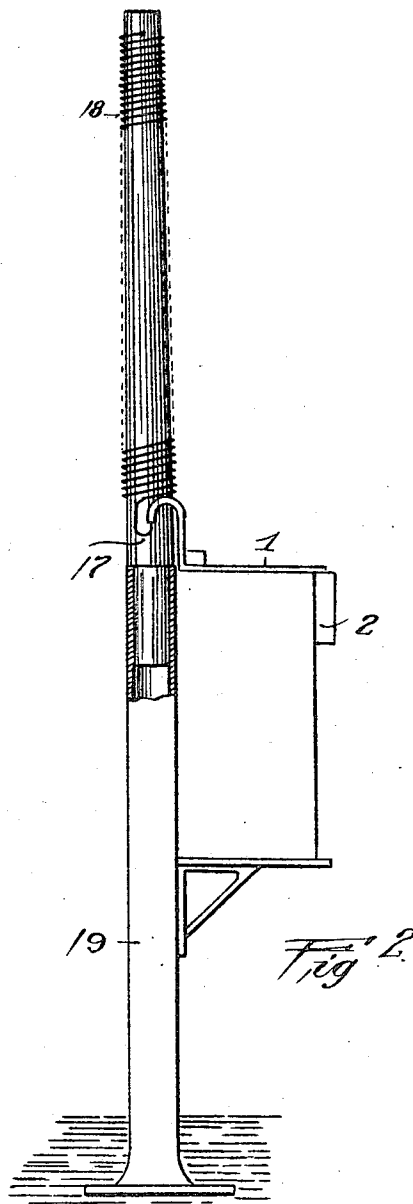


Fig. 2.

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UNITED STATES PATENT OFFICE.

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RADIO ALARM SIGNAL SYSTEM.

Application filed July 2, 1921. Serial No. 482,024.

This invention relates to the application of utilizing radio waves for transmitting alarm signals such as fire alarm signals, police call signals, etc.

5 The object of the invention is to provide an instrumentality which will permit utilization of radio signals for the purposes specified, which is simple in structure, highly efficient in operation and economical of manufacture, installation and maintenance.

10 A further object of the invention is to provide a self-contained transmitting station for radio transmission of signals.

Further objects of the invention will appear more fully hereinafter.

15 The invention consists substantially in the construction, combination, location and relative arrangement of parts, all as will be more fully hereinafter set forth, as shown in the accompanying drawing, and finally pointed out in the appended claims.

Referring to the drawing:

20 Figure 1 is a diagrammatic view showing a transmitting system embodying my invention.

Fig. 2 is a view, in elevation, partly in section, showing the same applied to its support, and the antenna employed in connection therewith.

30 Fig. 3 is a fragmentary view of a modified construction of the antenna employed in my invention.

The same part is designated by the same reference character wherever it occurs throughout the several views.

35 It is among the special purposes of my present invention to provide a transmitting station which is a self-contained unit including the transmitter apparatus, the antenna and the ground connection. It will be apparent that with such a transmitter unit, among the numerous applications that could be made thereof, may be included that of utilizing the principles of wireless for transmitting fire, burglar or police alarm signals. Therefore, while I have shown, and now describe, my invention as applied to a fire alarm system in the usual well-known type of mechanical construction, I wish it to be understood that I do not desire to be limited or restricted thereto, as other modifications thereof will readily occur to those skilled in the art without departing from the spirit

and scope of my invention as defined in the claims.

55 In Fig. 1, however, I have shown the usual housing 1, preferably of the fire or police alarm call box mechanism, including the pull lever 2, the train of gears 3 propelled by the release of the pull lever 2 acting under the impulse of the spring 4. The train of gears 3 controls the operation of a signal or key disc 5 provided with teeth 6 spaced apart from each other and of the required circumferential length to simulate the dot and dash of any desired code or signal. Upon rotation of the key or signal disc 5 a switch 15 is actuated to close a normally open circuit including a source of current 7 and primary coil 8 of a spark coil. The secondary coil 9 of the spark coil is connected at its terminals across a condenser 10. In shunt across the condenser 10 is the spark discharge circuit consisting of a few turns of a helix 11 and the spark gap 12; an antenna lead 13 is also connected to the helix 11. The position on the helix of contact 14 of the spark discharge circuit, taken in connection with the capacity of the condenser 10, determines the wave length radiated by the system. A radiating antenna 16 consists of a closely wound coil extending preferably above the call box 1 and wound around a di-electric core which may be the wooden supporting pole 17, which may be either solid or hollow or may be in the form of lattice or frame construction, as shown in Fig. 3, and the antenna wire 18 is preferably of insulated wire.

90 It is essential that the coiled antenna wire 18 extend all the way downward from the top of the pole 17, but the coiled portion thereof may be limited to a few feet of the pole, and a straight vertical conductor leading down from the bottom of the coiled portion to the helix 11 within the housing 1, may be employed. I have found it, however, to be essential that the coiled antenna earth system, the earth connection being made from the end of the helix 11 within the casing, shall have a strongly marked resonance period of vibration, i. e., must be a good oscillator due to its large distributed inductance and relatively small capacity. I have also found it to be essential that the

period of primary oscillating circuit containing the spark gap 12 be closely attuned to the nature period of the antenna system.

It is frequently convenient to use an iron post support for the call box 1 and also for the antenna mast support. In Fig. 2 I show such an arrangement wherein the base support 19 is of metal, preferably hollow, which supports the box 1 and in which the antenna support 17 which, in this instance, is a round pole or post of wood of fibre, set down into a socket formed by the hollow top of the iron pedestal. If the antenna frame be made of the open frame or lattice construction the same may be fastened at its base to the top of the iron post 17, as shown in Fig. 3.

Many other modifications and changes in detail of construction will readily occur to those skilled in the art and I, therefore, do not desire to be limited or restricted in these respects.

I make no claim to the particular instrumentalities employed for closing the signal circuit comprising the switch 15, battery source 7 and the coil 8, as any of the standard arrangements employed at the present time may be utilized for this purpose; but

having now set forth the objects and nature of my invention, and having shown and described a construction embodying the principles thereof, what I claim as new and useful and of my own invention, and desire to secure by Letters Patent, is:

1. The combination with radio transmitting apparatus of a casing therefor, of a metal post for supporting said casing and provided with a non-conducting portion extending above said casing, and a resonant antenna coil in a helix wound around the non-conducting portion of said post and connected to said apparatus.

2. The combination with radio transmitting apparatus, of a casing therefor, of a metal post for supporting said casing and provided with a non-conducting portion extending above said casing, a resonant antenna coil in a helix wound around the non-conducting portion of said post and connected to said apparatus, and a ground connection between said apparatus and said metal post.

In testimony whereof I have hereunto set my hand on this 30th day of June, A. D. 1921.

RANDALL M. KEATOR.