No. 858,554. PATENTED JULY 2, 1907.

H. A. YARNELL.

WIRELESS TRANSMISSION.

APPLICATION FILED APR. 23, 1906.

Fig. 1

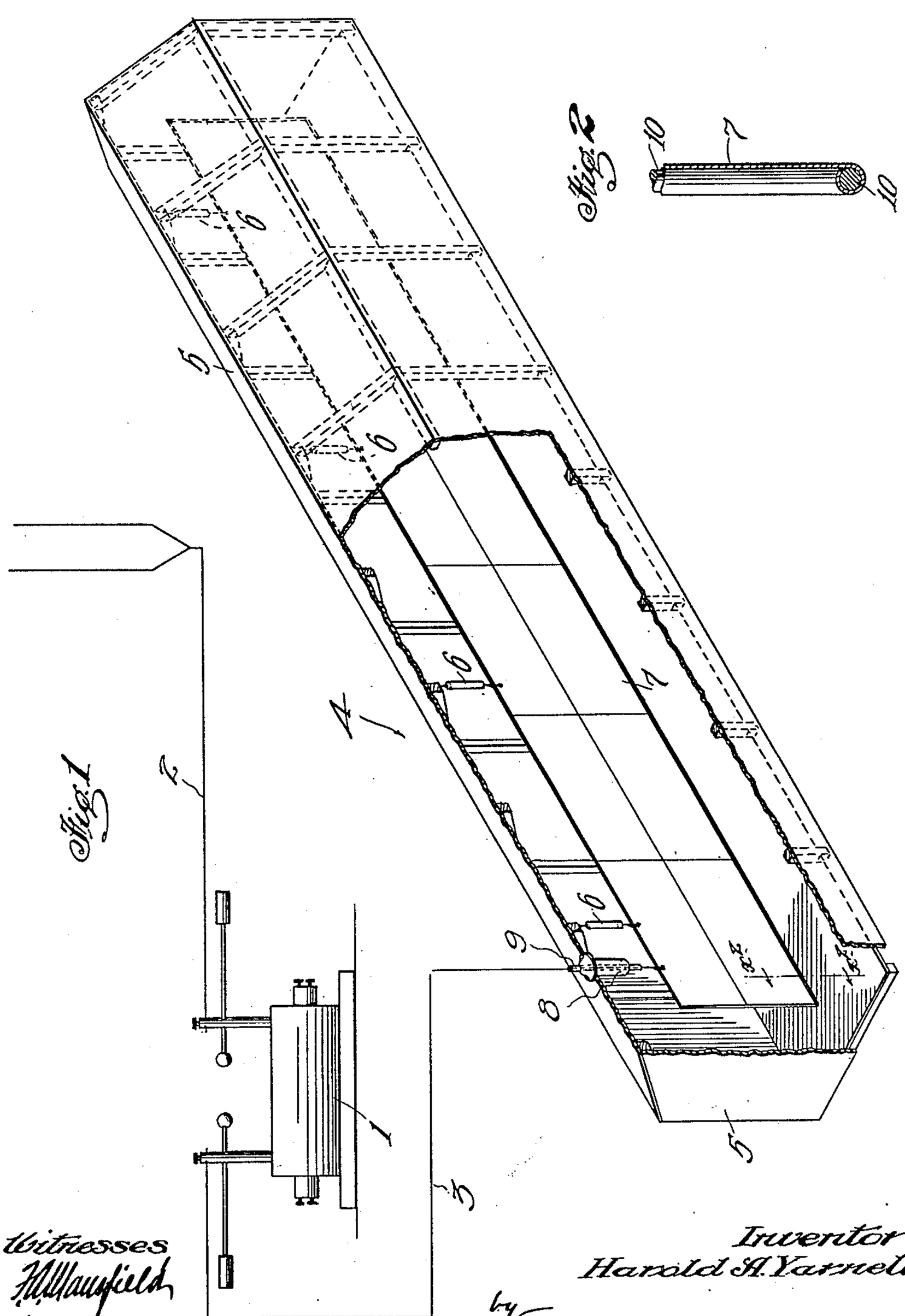

Fig. 2

Witnesses
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UNITED STATES PATENT OFFICE.

HAROLD A. YARNELL, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO PACIFIC WIRELESS TELEGRAPH COMPANY, OF LOS ANGELES, CALIFORNIA, A CORPORATION OF CALIFORNIA.

WIRELESS TRANSMISSION.

No. 858,554. Specification of Letters Patent. Patented July 2, 1907.

Application filed April 23, 1906. Serial No. 313,231.

To all whom it may concern:

Be it known that I, HAROLD A. YARNELL, a citizen of the United States, residing at Los Angeles, county of Los Angeles, and State of California, have invented new and useful Improvements in Wireless Transmission, of which the following is a specification.

This invention relates to wireless transmission and the main object of the invention is to eliminate the losses due to the ground connection heretofore employed and to thus increase the efficiency of the system.

The accompanying drawing illustrates the invention and referring thereto:—

Figure 1 is a perspective view showing the reservoir applied to the transmitting apparatus, with part of the envelop broken away to disclose the interior. Fig. 2 is a section, enlarged, on line x^2 —x^2 Fig. 1.

1 designates a spark coil which may be of the usual or any desired construction.

2 designates the aerial wire connection to one of the terminals of the spark coil. The other terminal of the coil instead of having a ground connection as ordinarily heretofore employed is connected by a wire 3 with a device which I term a reservoir 4.

A long closed envelop 5 is provided which may be constructed of wood with a roof as shown. Suspended within the envelop by insulators 6, which may be porcelain tubes, is a long solid sheet of tin forming a capacity 7, which may be built up from several smaller sheets of tin, all soldered together as indicated. I construct the envelop about twenty four feet long, by about twenty two inches wide, and two and a half feet deep. The tin may be twenty two feet long. Extending through the roof of the envelop near one end is a large glass tube 8 filled with paraffin, and in the center is a smaller glass tube 9 through which runs the insulated wire 3 connected with the spark coil. The end of the wire 3 inside the envelop is connected with the tin 7. If desired the reservoir may be buried.

It will be observed that the tin capacity 7 is insulated all around as it is hung from insulators and there is a space of about a foot all around between it and the envelop. The edges of the tin should be crimped over a wire 10 in order to present a smooth round edge instead of a thin sharp edge which would cause loss of current. By constructing the reservoir in this manner a great capacity is secured and yet the device may be constructed very economically, and when installed by burying, it economizes space and is not subject to atmospheric variations in temperature or to leakage. The sloping roof sheds moisture and prevents it from accumulating on top of the envelop, and the hood on the insulator 8 prevents any moisture from entering at that point. The open construction permits of easy inspection and repair if necessary.

In operation I have found that the strength of the signals produced and received are very much greater than with the ground connection, and it will readily be seen that the dissipation and loss of current which occurs with a ground connection can not occur when my invention is employed.

What I claim is:—

1. In a wireless transmission, a spark producer, an aerial capacity connected to one terminal thereof, and a reservoir comprising an elongated subterranean chamber, an elongated plate of great area within said chamber and insulated from the walls of the chamber, and a connection from the plate to the other terminal of the spark producer.

2. In wireless transmission, a spark producer, a reservoir connected to one terminal of the spark producer, said reservoir comprising an elongated chamber, an elongated plate of great area within said chamber hung pendent and insulated from the walls of said chamber, and a signal projecting device connected to the other terminal of the spark producer.

3. In wireless transmission, a spark producer, an aerial capacity connected with one terminal thereof, a reservoir comprising an elongated subterranean chamber, an elongated metallic plate suspended in the center of said chamber, there being considerable air space between said plate and the walls of said chamber, insulators supporting said plate, and a connection from said plate extending through the wall of said chamber to said spark producer, said connection being insulated from the wall of said chamber.

4. In wireless transmission, a spark producer, an aerial capacity connected with one terminal thereof, a reservoir comprising an elongated subterranean chamber, an elongated metallic plate suspended in the center of said chamber, the edges of said plate being curled, there being considerable air space between said plate and the walls of said chamber, insulators supporting said plate, and a connection from said plate extending through the wall of said chamber to said spark producer, said connection being insulated from the wall of said chamber.

5. In wireless transmission, a spark coil having an aerial terminal and a non-aerial terminal, a reservoir comprising a long wooden chamber having a pitched roof buried in the ground, a long sheet of tin within said chamber, insulators depending from the roof of said chamber and supporting said sheet, a wire extending from said sheet to the spark coil, an insulator in the wall of said chamber through which said wire passes and filled with paraffin which surrounds the wire and with a hood at its outer end to prevent the entrance of moisture to said chamber, there being a large air space within the chamber on all sides of the tin sheet.

In testimony whereof, I have hereunto set my hand at Seattle Washington this 17th day of April, 1906.

HAROLD A. YARNELL.

In presence of—
FRANK L. SMITH,
J. F. BEEDE.