W. E. FROW.

MEANS FOR TRANSMISSION OF INTELLIGENCE.

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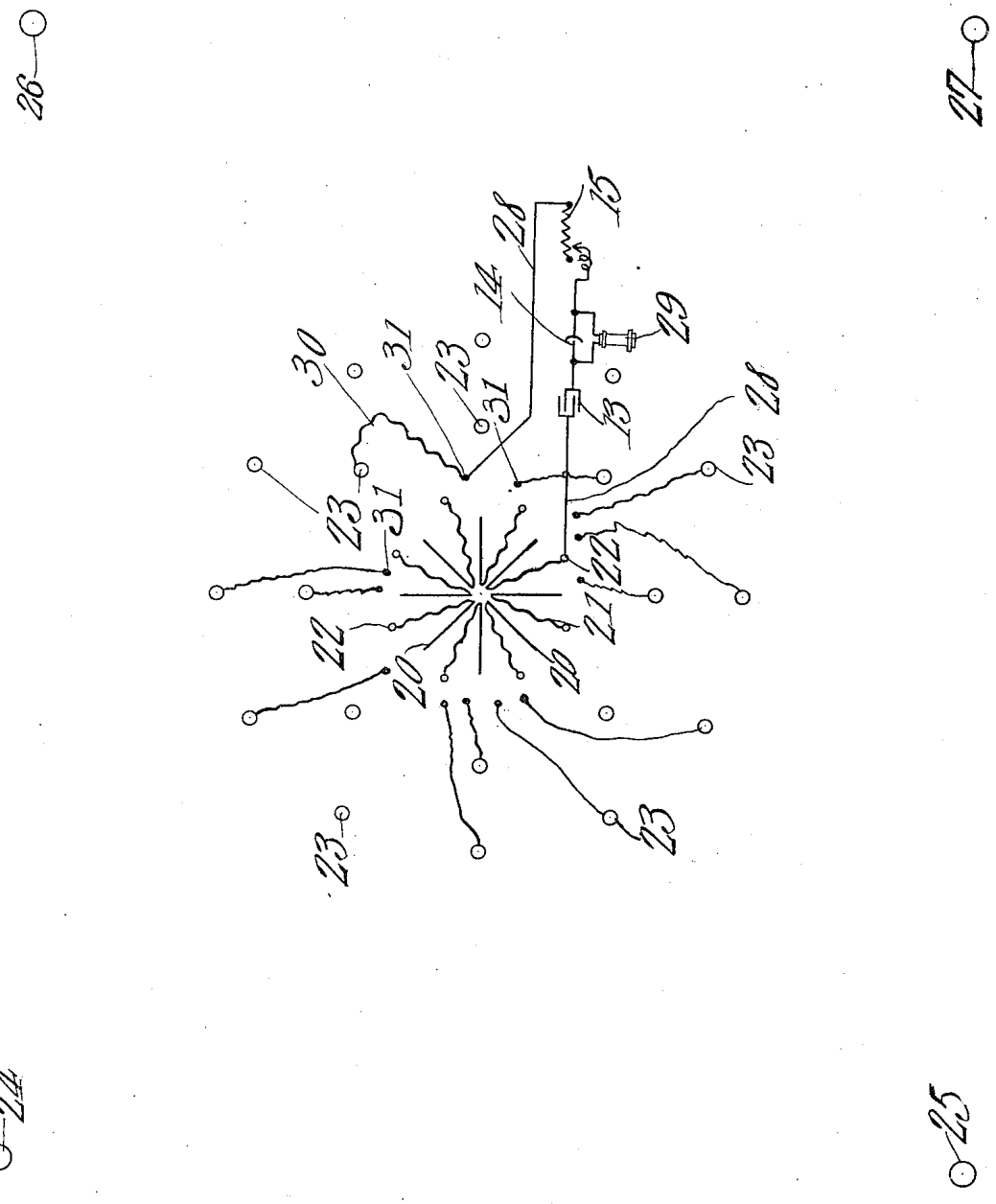
1,016,003.

Patented Jan. 30, 1912.



Witnesses

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UNITED STATES PATENT OFFICE.

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MEANS FOR TRANSMISSION OF INTELLIGENCE.

1,016,003. Specification of Letters Patent. Patented Jan. 30, 1912.

Application filed June 10, 1910. Serial No. 566,236.

To all whom it may concern:

Be it known that I, WILLIAM E. FROW, a citizen of the United States, residing at Lisbon Falls, in the county of Androscoggin and State of Maine, have invented a new and useful Means for Transmission of Intelligence, of which the following is a specification.

This invention has reference to improvements in means for transmission of intelligence and its object is to provide for telegraphic or telephonic intercommunication without the use of line conductors or aerial transmission.

In accordance with the present invention there are provided at each station separated ground connections between which the transmitting and receiving instruments are included and these ground connections are so related one to the other at each station and at the communicating station that communication is solely through the ground. Furthermore provision is made for changing the relation of the grounds at a receiving station to bring these grounds into proper relation to the sending station so as to obtain the best results.

The invention will be best understood from a consideration of the following description taken in connection with accompanying drawings forming a part of this specification, in which drawings, the figure is a diagram illustrating a means whereby the ground connections at a receiving station may be brought into the best relation with the sending station.

Referring to the drawings, the system is shown with the receiving station arranged for picking up any of the several divergent outlying stations. The station is shown as equipped with a series of radial ground plates 20 each connected at one point to a conductor 21 terminating at a binding post 22 or other suitable means of permitting the connection of another conductor thereto. At varying distances and in different relations to the ground plates 20 are other ground connections 23 which may be of various types such as metal plate or strands of wire, sunk into the damp earth, and either already existent or purposely installed. In the drawings the outlying stations are simply indicated at 24, 25, 26, 27 without any attempt to show the installations thereat, but it will be understood that each of the outlying stations may be equipped like the receiving station both for transmission and reception and it will be understood that the receiving station will also be provided with suitable transmitting apparatus. In the equipment care is taken that the grounds 23 either already existent or which may be installed when the station is installed, shall be sufficiently divergent. There is provided a conductor 28 including a receiver 29, and this may be indicative of both receiving and transmitting apparatus, and this conductor is capable of being connected at one end to any one of the binding posts 22 and at the other end to any one of the grounds 23 and since these grounds 23 may be at varying distances from the grounds 20, the conductor 28 may be long enough to reach from any one of the binding posts 22 to the most remote grounds 23 at the particular station.

It has been found in actual experience that unless the grounds 20 and 23 at the receiving station be in proper relation to the transmitting station, usually in a plane to coincide with the lines of current flowing, that the reception of the messages is materially less distinct or loud than they are when the relation is properly established. The arrangement provides a ready means for establishing this relation in a minimum of time since an operator on picking up a message from a sending station may quickly establish the best relation to such station by connecting the conductors 28 to a proper one of the binding posts 22 and grounds 23. This connecting up of the grounds at the receiving station may be facilitated by having each ground 23 connected by a conductor 30 to a binding post 31 adjacent to the binding posts 22 so that the conductor 28 which may then be quite short may be readily coupled up between the upper binding posts 22 and 31 and the desired relation of the grounds to the sending station may thus be quickly established with a minimum of trouble for the operator may quickly pass around the entire series of binding posts with the terminals of the conductor 28 to thereby establish the proper relation on the ground.

In the arrangement shown, all the inner grounds 20 may be coupled together as one ground and all the outer grounds 23 may be coupled together as the other ground, when necessary or desirable.

More than one message may be received at one time with the arrangement by selecting appropriate separate couples of the grounds 20 and 23, or by using one of the grounds 20 and properly chosen grounds 23, the latter being in number equal to the number of messages to be received.

What is claimed is:—

1. In a system of electrical transmission of intelligence, a receiving station having a receiving instrument, an equal number of divergent ground connections for both terminals on the receiving instrument, and means for the inclusion of the receiving instrument in circuit with any separated pair of ground connections at said station.

2. In a system of electric transmission of intelligence, a receiving station having a receiving instrument, a centrally located divergent ground for the receiving instrument and other grounds in divergent relation to the first named ground, and connections from both terminals of the receiving instrument adapted to be coupled to the central ground and any of the divergent grounds, respectively.

3. In a system of electric transmission of intelligence, a receiving station having a receiving instrument, a centrally located ground for the receiving instrument composed of a divergent series of separate grounds and connections therefrom to accessible terminals, other grounds in separated divergent relation to the first named ground and each also provided with accessible terminals, and connections from both terminals of the receiving instrument adapted to be coupled to the accessible terminals of any chosen member of the central ground and any chosen one of the divergent grounds respectively.

4. A means for the electrical transmission of intelligence below the earth's surface, which consists of transmitting and receiving instruments at separated stations, said receiving station having a centrally located ground composed of divergent separated connections another series of divergent grounds, and connections from both terminals of the receiving instrument adapted to engage any pair of the respective grounds.

5. In a system of electric transmission of intelligence, a receiving station having a receiving instrument, a central ground having radiating members below the earth's surface, other grounds disposed in substantially radial lines from said central ground, and means for connecting the receiving instrument to selected members of the respective grounds.

6. In a system of electric transmission of intelligence, a series of radiating grounds connected to a single terminal, a receiving instrument adapted to be connected thereto, another series of divergent grounds, all of said grounds being located below the earth's surface, and means whereby the remaining terminal of the receiving station may be attached to the selected terminal of the divergent ground.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

WILLIAM E. FROW.

Witnesses:
CHARLES E. RAYMOND,
R. F. SPRINGER.