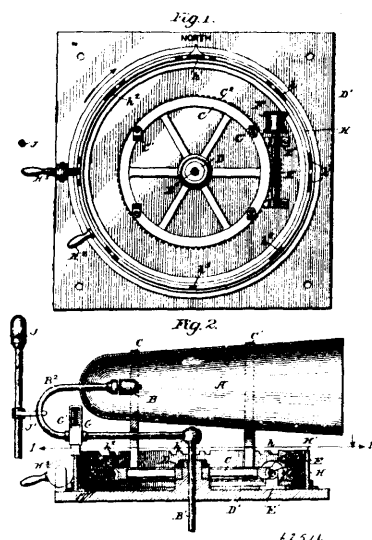


which consists in projecting concentrated sound waves in various predetermined directions and in varying the character of the signals in accordance with the various points of the compass, whereby the observer



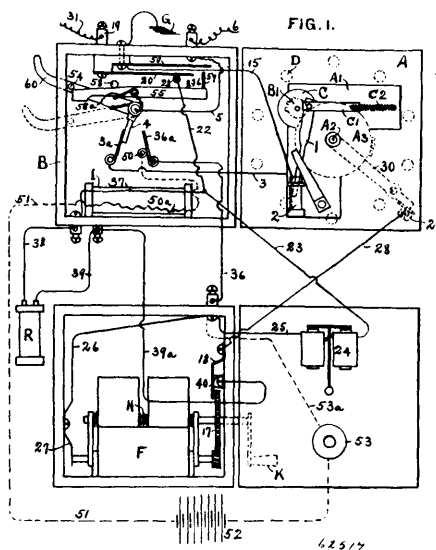
within the range of any of the sounds can determine the direction of the source of said signals. 2nd. In a signalling device the combination with a sound-director adapted to project concentrated sound waves in various given directions, of means for varying the sounds in accordance with the direction from and to which they are sent, substantially as described. 3rd. In a signalling device, the combination with a sound-director, adapted to project concentrated sound waves in various given directions, of means for varying the sounds in accordance with the direction from and to which they are sent, and devices for adjusting said means with relation to the points of the compass, substantially as described. 4th. In a signalling device, the combination with a sound-director adapted to project concentrated sound waves in various given directions, of means for varying the sounds in accordance with the direction from and to which they are sent, and an auxiliary signal arranged to be operated by the sound-director and adapted to indicate the course of the moving object, substantially as described. 5th. In a signalling device, the combination with a rotating sound-director, of means for varying the sounds in accordance with the direction from and to which they are sent, substantially as described. 6th. In a signalling device, the combination with a rotating sound-director, of means for rotating the same, and adjustable means for varying the sounds in accordance with the direction from and to which they are sent, substantially as described. 7th. In a combined signalling device, the combination with a rotating sound-director, of means for varying the sound in accordance with the direction from and to which they are sent, an auxiliary signalling device, and means controlled by the sound-director, for operating the auxiliary signalling device, substantially as described. 8th. In a signalling device, the combination with a sound-director, of a sounder located in operative relation therewith means for rotating the sound and sound-director, and means for operating the sounder to produce varying signals in accordance with the position of the sound-director, substantially as described. 9th. In a signalling device, the combination with a sound-director, of a sounder located therein, a rotating support for the sounder and sound-director, a pipe connected to the sounder, a valve device located in said pipe, and means for operating said valve device, substantially as described. 10th. In a signalling device, the combination with a sound-director, of a sounder located therein, a rotating support for the sounder and sound-director, a pipe connected to the sounder and extending through the pivot of the rotating support, a valve device controlling the sounder, and means for controlling the valve, substantially as described. 11th. In a signalling device, the combination with a sound-director, of a sounder located therein, a rotating support for the sounder and sound-director, a pipe connected to said sounder, a valve device in said pipe, and a ring for operating said valve, substantially as described. 12th. In a signalling device, the combination with a sound-director, of a sounder located therein, a rotating support for the sounder and sound-director, a pipe connected to said sounder, a valve device in said pipe, and means for operating the rotating support continuously, a ring for operating the valve device, and means for adjusting the ring, substantially as described.

No. 62,517. Telephone Exchange. (Echange de telephone.)

Frank A. Lundquist, Chicago, Illinois, U.S.A., 2nd February, 1899; 6 years. (Filed 27th October, 1898.)

Claim.—1st. A contact closing device consisting of a crank, a pitman connected thereto, an electrical connection with which said

pitman makes a contact once during each revolution of said crank, a device connected to said crank and adapted to draw it to and hold



it in position where said pitman will not be in electrical contact, and connections between said crank and a crank arm for permitting said first-mentioned crank to be turned by hand. 2nd. In a circuit closing device, a crank, a pitman connected thereto, a mercury receptacle into which said pitman is thrust by said crank, means for causing said crank to stop at a fixed position, and connections for permitting said crank to be rotated. 3rd. In combination with a circuit closing device consisting of a crank, a pitman, and a mercury receptacle into which said pitman is thrust by said crank, a hand lever and connections between said hand lever and said crank for giving said crank a rapid revolution. 4th. In combination with a telephone, a mercury receptacle, a pitman adapted to be thrust into said receptacle by a crank, a crank for so thrusting it, devices for turning said crank by hand, a bell ringing device located at a distant telephone, and connections from said receptacle and said pitman to said bell ringing device. 5th. A receiver hook provided with a pin, a flexible lever adjacent thereto and provided with a curved or inclined part for permitting said pin to pass said lever when moving in one direction by bending it but to engage and move said lever when moving in the other direction, and means for disengaging said lever from said pin when moved a required distance. 6th. A circuit closing device consisting of a mercury receptacle and a pitman adapted to be thrust therein, a crank arm adapted to be rotated about a pivot and provided with connections for operating said circuit closing device, a stop in the path of said crank arm at its normal position and against which it is normally held, and electrical connections whereby a circuit may be completed from the support for said crank arm through said mercury receptacle when said arm is being rotated and from said support through said stop when said arm is in its normal position. 7th. A circuit closing device operated by the rotations of an arm about its pivot, a stop in the path of said arm against which it is normally and automatically held, a bell ringing generator, a pointer located at a distant station and adapted to be rotated about a pivot, a magnet for moving said pointer into successive contact with a series of insulated points, electrical connections from said contact closing device to said magnet, a separate connection from said stop through said generator to said pointer, and a series of connections from said insulated points to a series of telephones. 8th. A ratchet-wheel mounted upon a spindle, devices for turning said wheel step by step, means for connecting and disconnecting said wheel and spindle, a spring for returning said spindle to normal position when released, a pointer carried by said spindle, a series of insulated contact points in the path of said pointer, connections from a telephone to said pointer, and means for controlling the movement of said pointer from said telephone. 9th. A ratchet-wheel loosely mounted on a spindle, a magnet and pawl for turning said wheel step by step, means for connecting and disconnecting said wheel and spindle, a spring for returning said spindle to a normal position when released from said wheel, a pointer carried by said spindle, a series of insulated contact points over which said pointer sweeps and into electrical contact with which it comes, connections from a telephone to said magnet and to one of said contact points, connections from each of the other contact points to a different telephone, and means for enabling the subscriber at the first mentioned telephone to operate said magnet so as to move the said pointer into electrical connections with any one of said other telephones. 10th. A ratchet-wheel loosely mounted on a spindle, spur ratchet teeth on said wheel by which it receives and crown ratchet teeth by which it transmits motion, a magnet and connec-