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P. O. PEDERSEN & V. POULSEN.

ELECTROMAGNET FOR TELEGRAPHONE PURPOSES.

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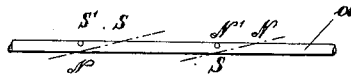


Fig. 1.

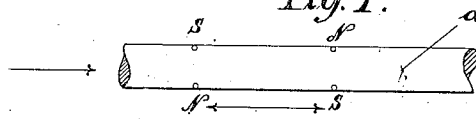


Fig. 2.

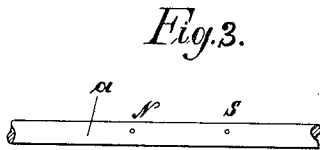
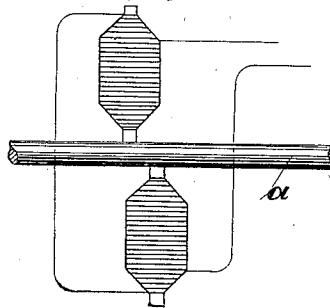


Fig. 3.



Witnesses:
Frank P. Ober
Waldo M. Chapin

Inventors
Peder O. Pedersen
Valdemar Poulsen
by W. A. Rosebaum
att'y.

UNITED STATES PATENT OFFICE.

PEDER OLOF PEDERSEN AND VALDEMAR POULSEN, OF COPENHAGEN, DENMARK, ASSIGNORS TO AMERICAN TELEGRAPHONE COMPANY, A CORPORATION OF THE DISTRICT OF COLUMBIA.

ELECTROMAGNET FOR TELEGRAPHONE PURPOSES.

No. 873,078.

Specification of Letters Patent.

Patented Dec. 10, 1907.

Application filed April 4, 1902. Serial No. 101,345. Renewed May 2, 1907. Serial No. 371,452.

To all whom it may concern:

Be it known that we, PEDER OLOF PEDERSEN and VALDEMAR POULSEN, subjects of the King of Denmark, residing at Vestervoldgade 2, Copenhagen, Denmark, have invented certain new and useful Improvements in Electromagnets for Telegraphone Purposes, of which the following is a specification.

This invention is an improvement in telegraphones, and relates specifically to the location and position of the poles of the electro-magnet with respect to the direction of movement of the steel body in which the record is made and from which it is reproduced, whereby the magnetic impressions made in the body will be as strong at the higher speeds as at the medium speeds of a magnetic body of given area or size.

In the accompanying drawing: Figure 1 is an explanatory diagram of the relative position of the magnetic poles on two steel bodies of different size or area; Fig. 2 shows the working position of the magnet in accordance with our invention, and Fig. 3 is an illustrative plan.

The form of the steel body illustrated is that of a wire. Fig. 1 shows two wires of exactly the same material but of different diameter. In the original Poulsen telegraphone, the magnet is preferably bipolar, the two pole pieces thereof being adjusted to the wire at opposite points, so that a line drawn between them is perpendicular to the length of the wire or its direction of traverse, as, for instance, shown at N—S on the larger wire *a* and at N, S' on the small wire *a*. With the magnet poles located in this manner on both wires and with both wires running at the same speed, it will be seen that the distance between any two succeeding impulses in a longitudinal direction will be the same in both wires, whereas the distance between

the north and south poles of a single impulse in the large wire, is greater than it is in the small wire and that the ratio between these two distances become greater as the size of the wire is lessened. When this ratio, which increases with the speed, becomes very great, the demagnetizing force in the direction of the breadth of the wire is very considerable and the high speed therefore is no longer advantageous. To avoid this we have located the poles of the magnet with respect to the steel body so that a line passing through them will be oblique to the direction of movement, as indicated by the lines N—S and S—N on the small wire of Fig. 1. This arrangement increases the distance between the north and south poles of a given impulse without increasing the distance between the north and south poles of succeeding impulses. The angle selected for the poles may vary considerably and should be made to correspond with the requirements of the service. The maximum of inclination is that in which the joining line of the two magnet poles coincides with the direction of motion, as shown in Fig. 3. The practical arrangement of the magnet is shown in Fig. 2, wherein it will be seen that the poles are in different transverse planes.

Having described our invention, we claim: The combination with the recording body of a telegraphone, of an electro-magnet having its opposite poles applied thereto in a line oblique to the direction of motion of said body.

In testimony whereof we have hereunto set our hands in the presence of two witnesses.

PEDER OLOF PEDERSEN.
VALDEMAR POULSEN.

Witnesses:

JENS HERMAN CHRISTENSEN,
J. C. JACOBSEN.