No. 803,108. PATENTED OCT. 31, 1905.

I. KITSEE.

ELECTRIC TRANSMISSION OF INTELLIGENCE.

APPLICATION FILED JUNE 24, 1904.

Fig. 1.

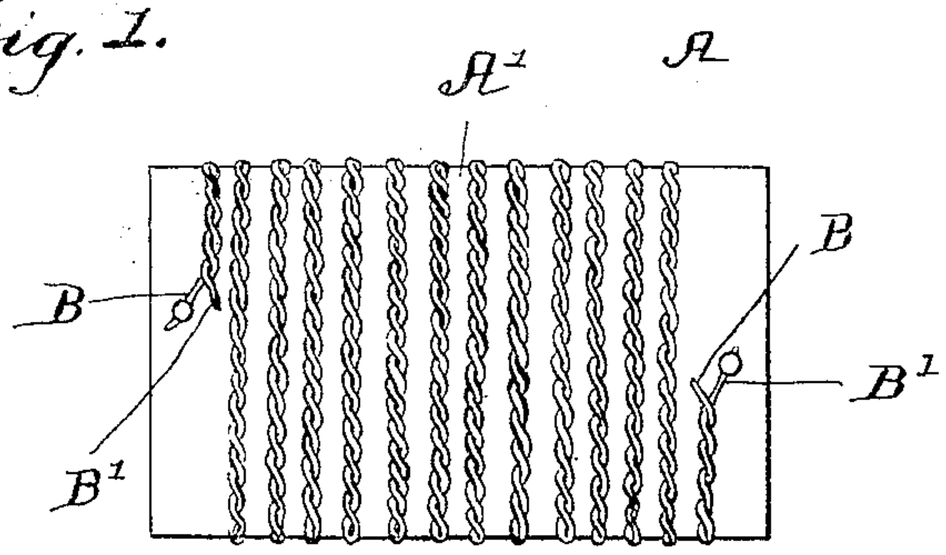
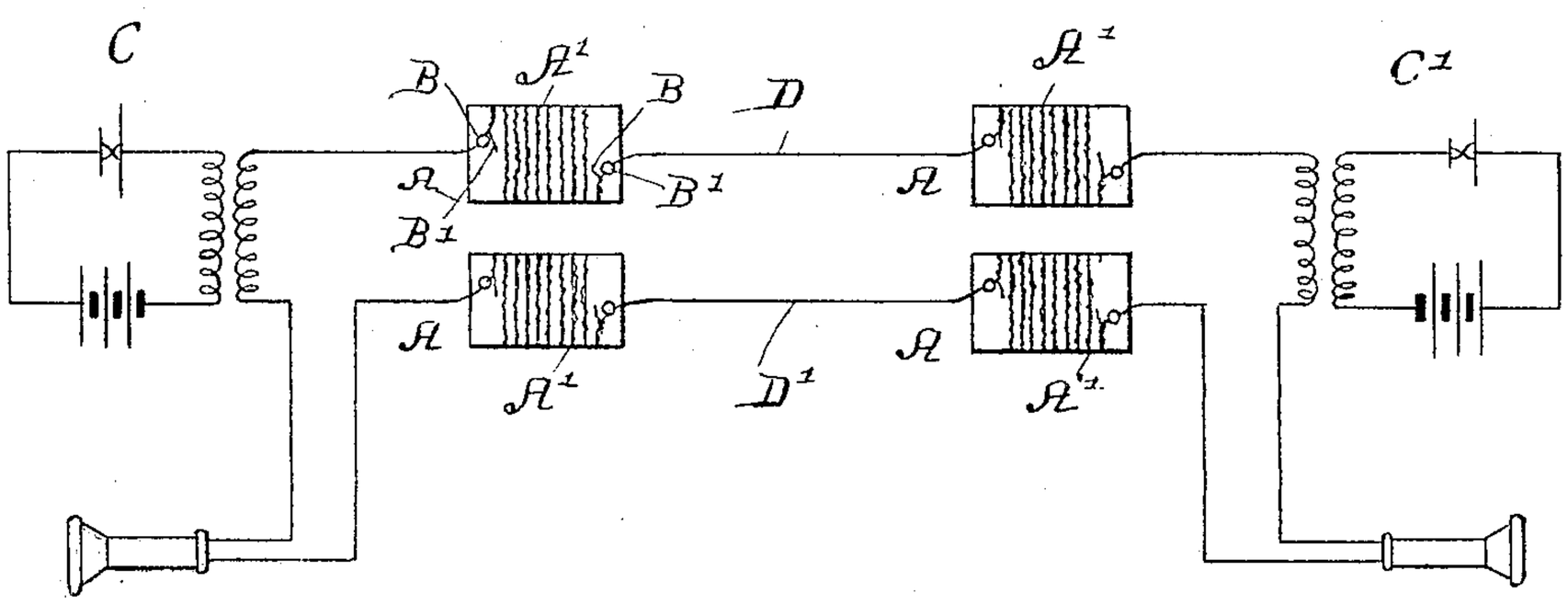



Fig 2.




Witnesses
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# UNITED STATES PATENT OFFICE.

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## ELECTRIC TRANSMISSION OF INTELLIGENCE.

No. 803,108. Specification of Letters Patent. Patented Oct. 31, 1905.

Application filed June 24, 1904. Serial No. 213,989.

*To all whom it may concern:*

Be it known that I, ISIDOR KITSEE, of the city and county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in the Electric Transmission of Intelligence, of which the following is a specification.

My invention relates to an improvement in electric transmission, and has more special reference to the improvement of telephonic circuits. In such circuits wherein the stations include an induction-coil the primary of which is connected to the microphonic transmitter and battery and the secondary of which is connected to the line of transmission it is a known fact that in long-distance transmission the waves constituting the speech to be transmitted are retarded and distorted if such line is of any considerable length. This retardation and distortion is in some cases due to the capacity and in some cases to the resistance and inductance of the line. In my experiments to overcome these disadvantages I have employed conductors or coils consisting of closely-twisted pairs of wires, the twist of these wires less than one-half inch apart. These "inductive devices," as I call them, are inserted in series in the line in a manner so that one terminal of one wire of said pair of twisted wires is connected to one terminal of the line and the opposite terminal of the other wire of said pair connected to the other terminal of the line, one terminal of each wire of said pair remaining free. I have found that with the introduction of these devices the speech became clearer and lost a great deal of what is technically called the "metallic sound." I employed, besides others, a device consisting of a board about eighteen inches long and twelve inches wide as a support, around which was wound in one layer about seven hundred and eighty feet of twisted wire, substantially as is illustrated in the drawings, and on such a line where speech could not commercially be transmitted the transmission became satisfactory after the insertion of such boards.

Referring to the drawings, Figure 1 is a plan view of the device substantially such as was employed by me in some of my experiments. Fig. 2 is a diagrammatic view of a telephonic circuit arranged substantially as one of the circuits employed in some of my experiments.

In Fig. 1, A is the device as an entirety, of which A′ is the board proper and B B′ the pair of twisted wires wound around such board. It is obvious that the wires are insulated from each other.

In Fig. 2, C C′ are two telephonic stations connected together by the line-wire D and D′, in which line the devices A A A A are inserted in series.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In telephonic transmission, an all-metallic line, a series of inductive devices inserted at different points in said line-wire and adapted to increase the efficiency thereof, each of said inductive devices consisting of a pair of twisted wires, one terminal of one wire of said pair connected to one terminal of the line and the opposite terminal of the second wire of said pair connected to the other terminal of said line, one terminal of each wire of said pair remaining free.

2. In combination with an all-metallic telephonic circuit of transmission, a series of devices inserted at different points in said line and adapted to increase the efficiency of said line, each of said devices consisting of a support, a pair of twisted wires around said support, one terminal of each of said twisted wires connected to the line and the other terminal of each of said twisted wires remaining free.

3. In combination with an all-metallic telephonic circuit, a series of devices inserted each at different points in said line and adapted to increase the efficiency of said line, each of said devices consisting of a support, a pair of twisted wires wound around said support in a manner so that of the two ends of the pair, one wire at each end is connected to the line and one wire at each end remains free.

4. A device adapted to increase the efficiency of an all-metallic circuit, said device consisting of a support and a pair of twisted wires wound around said support, each twist of said wires not longer than one inch, one end of each of said wires provided with means to connect the same to a current-carrying circuit and one end of each of said wires remaining free.

In testimony whereof I hereby sign my name, in the presence of two subscribing witnesses, this 21st day of June, A. D. 1904.

ISIDOR KITSEE.

Witnesses:
EDITH R. STILLEY,
H. C. YETTER.