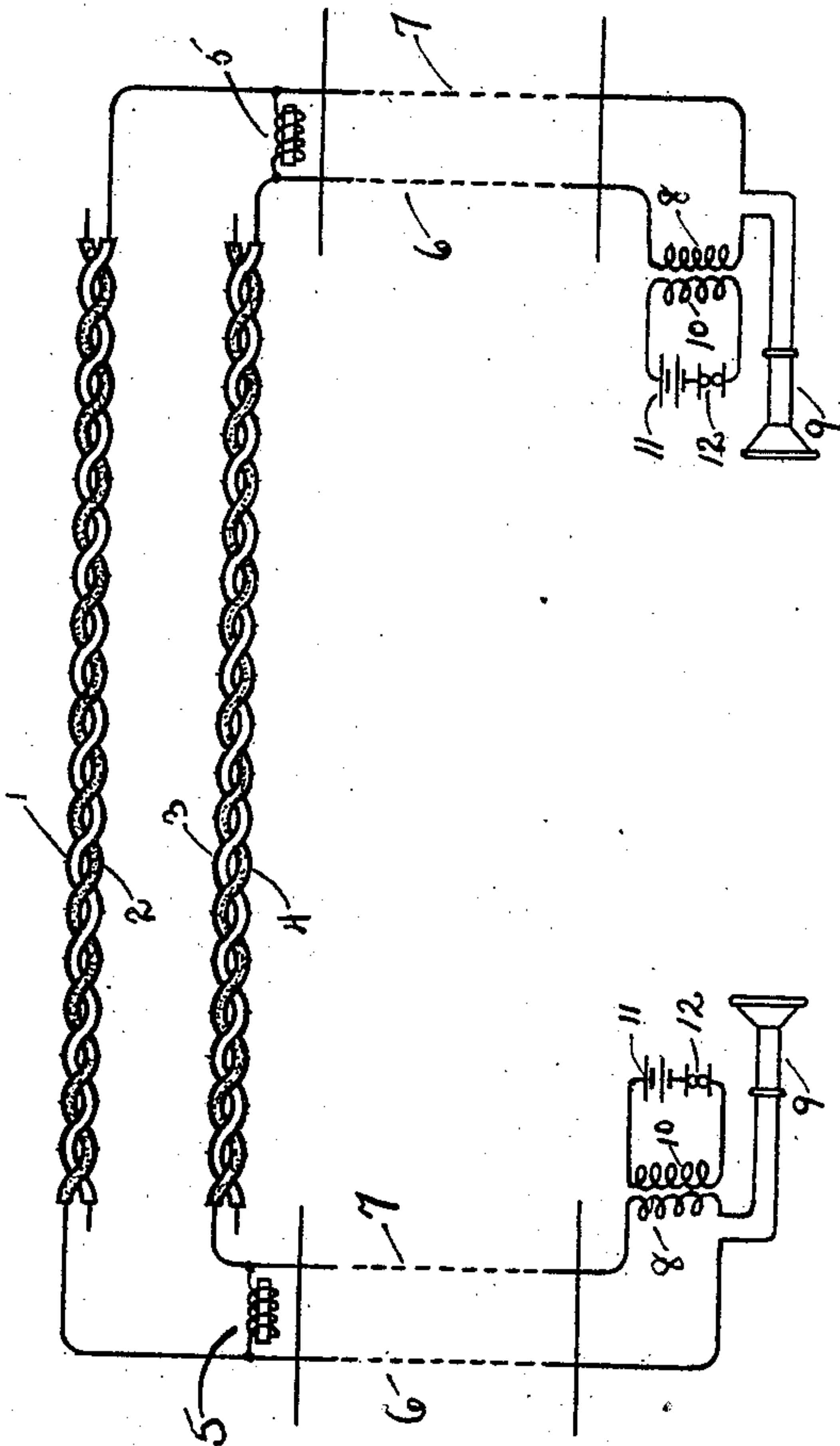


No. 828,217.

PATENTED AUG. 7, 1906.

I. KITSEE.
ELECTRIC TRANSMISSION OF INTELLIGENCE.
APPLICATION FILED JUNE 23, 1906.



Witnesses

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ELECTRIC TRANSMISSION OF INTELLIGENCE.

No. 828,217.

Specification of Letters Patent.

Patented Aug. 7, 1906.

Application filed June 23, 1906. Serial No. 323,065.

To all whom it may concern:

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

My invention relates to an improvement in electric transmission of intelligence. Its object is to provide means whereby circuits used for the transmission of electric intelligence may be made immune from disturbing influences.

Cases arise where circuits used for telephonic purposes are carried over land for a certain distance, the precaution to make this circuit all metallic and to transpose the same at intervals being sufficient to free it from the induction of neighboring telegraphic or telephonic wires; but when power-wires are carried on poles near by—as, for instance, is the case on the New Haven road—these usual precautions do not suffice to keep the circuit clear from inductive influences. In such cases it is best to carry the overhead circuit only to a point out of the region of the power-wire and to connect the metallic circuit then to a circuit adapted to inductively carry the impulses either to the point of destination or to a second metallic circuit, and in the drawing I have illustrated such an arrangement.

The drawing illustrates in diagrammatic view two metallic telephonic circuits joined together by an inductive circuit.

The inductive circuit embraces the wires 1, 2, 3, and 4, the wires 1 and 2 being inductively twisted together, and the wires 3 and 4 are arranged in the same manner, so that 1 and 2 form one pair and 3 and 4 the other pair of wires. 6 and 7 are the two legs of a metallic circuit including the secondary 8 of an inductorium and the receiver 9. The two legs 6 and 7 are connected together with the interposition of an inductive resistance, such as an electromagnet of preferably high-resistance value. The primary 10 of the inductorium is here shown as to be connected locally to the transmitter 12 and the battery 11; but it is obvious that where the metallic line starts or is connected in a central station the usual devices may be placed in said line. Of the inductive circuit one wire of one pair, here shown as the wire 2, and one wire of the second pair, here shown as the wire 4, is con-

nected to the inductive resistance 5 on the left-hand side, and the wires 1 and 3 are connected to the inductive resistance on the right-hand side. In reality we have two circuits, one circuit embracing the wires 1 and 3 and the other circuit embracing the wires 2 and 4. These two circuits are in inductive relation to each other, but are conductively independent of each other.

In my experiments I have used inductive devices of a resistance as high as five thousand ohms and of a self-inductance of about forty-four henries, and I used an inductive circuit of nearly forty miles with satisfactory results.

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

1. In electric transmission of intelligence, the combination of two metallic terminal circuits joined together inductively through a four-wire twist.

2. In electric transmission of intelligence, an all-metallic line provided with necessary transmitting and receiving devices, a resistance joining the two legs of said line and an inductive circuit comprising four wires divided into two pairs, one wire of each pair connected to said resistance.

3. In electric transmission of intelligence, a metallic circuit, an inductive resistance closing said metallic circuit for each terminal and a circuit joining inductively the two inductive resistances.

4. In electric transmission of intelligence, an all-metallic line provided with necessary transmitting and receiving devices, an inductive circuit comprising two pairs of wires, the two wires of each pair twisted in intimate relation as to each other, one wire of one pair connected to one leg and one wire of the other pair connected to the second leg of said metallic circuit; a second metallic circuit comprising necessary transmitting and receiving devices, one leg of said metallic circuit connected to the free wire of one pair and the second of said legs connected to the free wire of the second pair of said metallic circuit.

In testimony whereof I affix my signature in presence of two witnesses.

ISIDOR KITSEE.

Witnesses:

ALVAH RITTENHOUSE,
EDITH R. STILLEY.