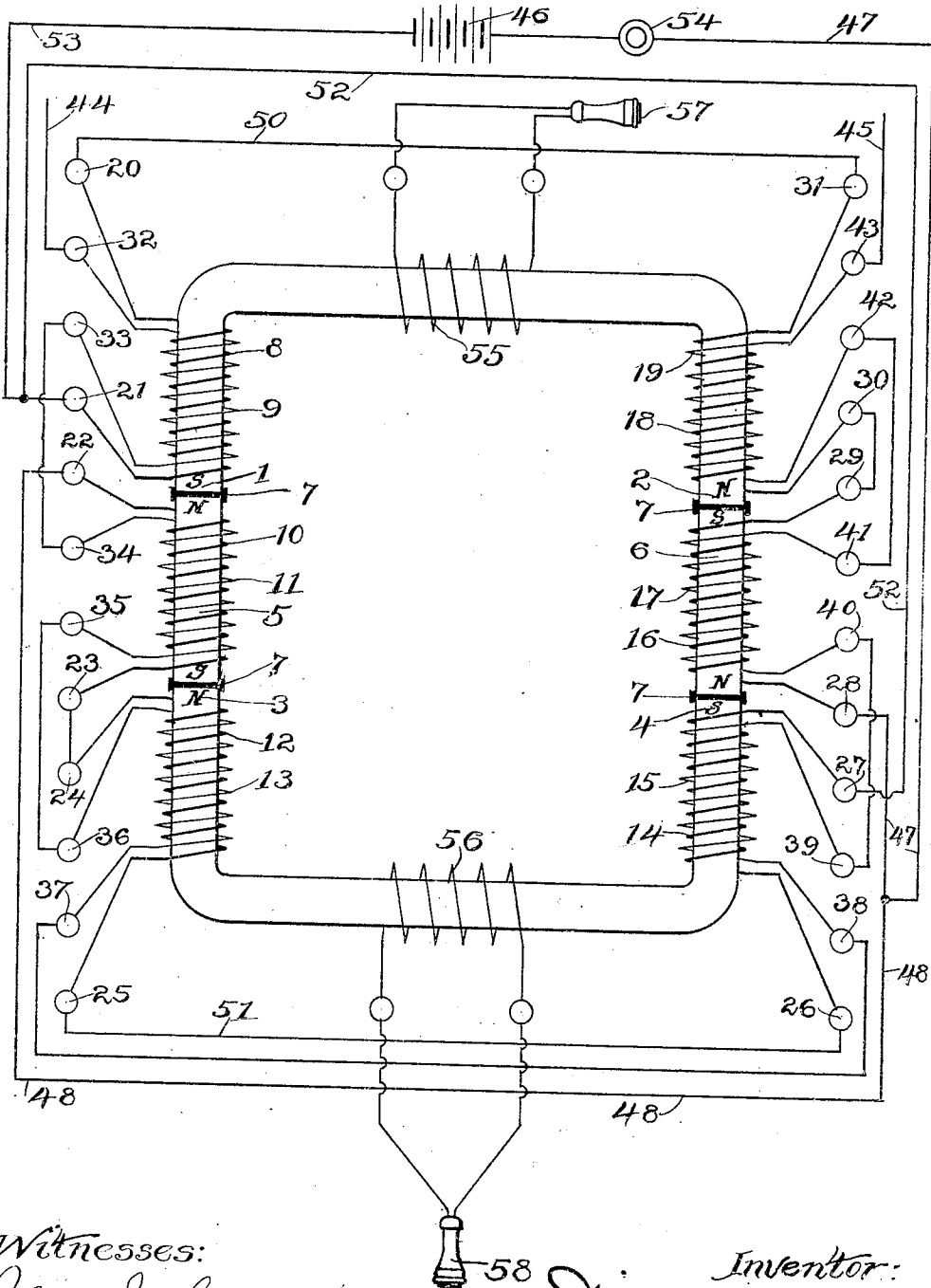


D. H. WILSON.
INDUCTION COIL.
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1,117,293.

Patented Nov. 17, 1914.



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UNITED STATES PATENT OFFICE.

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INDUCTION-COIL.

1,117,293.

Specification of Letters Patent.

Patented Nov. 17, 1914.

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To all whom it may concern:

Be it known that I, DAVID H. WILSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Induction-Coils, of which the following is a specification.

This invention relates to transformers, and has for its object to provide a new and improved transformer to be used where such devices are necessary, and particularly adapted for use in connection with telephone systems.

The invention is illustrated in the accompanying drawing, wherein there is illustrated diagrammatically one form of device embodying the invention.

In carrying out the invention I provide a core with two pole pieces, 1 and 2, having two opposed pole pieces, 3 and 4, there being intermediate core pieces, 5 and 6, between the opposed pole pieces and magnetically insulated therefrom in any desired manner, as by the magnetic insulating material or medium 7. The pole piece 1 has wound thereon the primary coil 8 and the secondary coil 9. The core piece 5 is provided with the primary coil 10 and secondary coil 11. The core 3 has the primary coil 12 and the secondary coil 13. The core 4 has the primary coil 14 and the secondary coil 15. Core piece 6 has the primary coil 16 and the secondary coil 17. Core 2 has the primary coil 18 and the secondary coil 19. These coils are wound so that the opposed ends of the pole pieces 1, 2, 3 and 4 and the pole pieces 5 and 6 are of opposite polarity. The various coils are preferably connected to separate binding posts, so that any desired combination may be secured. As herein shown the primary coils are connected to the binding posts 20 to 31 inclusive, and the secondary coils to binding posts 32 to 43 inclusive. It will be seen that by this arrangement the various coils can be connected in series, or in multiple, or series multiple, or in any manner desired.

As shown in the drawing, all the secondary coils are connected in series, the binding posts 32 and 43 being connected with the line wires 44 and 45, while the primary coils are connected in series multiple. The primary coils 8, 18 and 16 are connected in series, and the primary coils 14, 12 and 10 are connected in series, the two series sets of

coils being connected in multiple. As herein shown the primary coils are connected in circuit with a battery 46, or other source of electric supply. The battery is connected by a conductor 47 with the binding post 28, which binding post is also connected by conductor 48 with binding post 22. The current divides at the binding post 28, or, more properly speaking, at the point where conductor 47 meets conductor 48, part of it going through the coils 16 and 18 to binding post 31, and then by conductor 50 to binding post 20, then through coil 8 to binding post 21. The other portion goes through conductor 48 to binding post 22, thence through coils 10 and 12 to binding post 25, and then by conductor 51 to binding post 26, and then through coil 14 to binding post 27, and then by conductor 52 to conductor 53 where the two portions meet and pass by conductor 53 back to the battery. A transmitter 54 is also placed in the primary circuit. There is preferably provided receiving coils 55 and 56 wound around the said cores between the pole pieces 1 and 2 and 3 and 4, said coils having in circuit therewith receivers 57 and 58. This induction coil may be said to consist of two U-shaped pieces with opposed pole pieces, there being core pieces interposed between the pole pieces, the said core pieces and pole pieces being magnetically insulated from each other. Each U-shaped piece forms a short yoke with the branches having coils thereon. The coils 55 and 56, it will be noted, are wound upon a portion of the core which is magnetically insulated from the other portions of the core, said portion of the core acting as a collector and conductor for the magnetic waves produced by the talking current so as to reproduce them in the said coils 55 and 56. The core pieces 5 and 6 may be provided with one winding only, either primary or secondary, if desired.

I claim:

1. An induction coil comprising a core made up of a series of pieces magnetically insulated from each other, a series of primary and secondary coils on each of said pieces, the points of magnetic insulation being between said coils and extending across the axes thereof, the portions of the cores containing all of said primary and secondary coils being substantially parallel,

the portions of the core containing said coils being connected together at opposite ends by continuous pieces of magnetic material free from primary and secondary coils.

- 5 2. An induction coil comprising two U-shaped end sections with opposed pole pieces, core pieces between said opposed pole pieces, each in alinement with one of the projecting ends of said U-shaped end sections and magnetically insulated therefrom, said core pieces and the ends of said U-shaped sections in alinement therewith having coils thereon.
- 10 3. An induction coil comprising two U-shaped end sections with opposed pole pieces, core pieces between said opposed pole pieces, and magnetically insulated therefrom, said core pieces and the ends of said U-shaped sections having coils thereon, the several coils separated from each other, the coils on the said ends and core pieces at one side being in alinement, and binding posts by means of which said several coils are connected in various relations.
- 15 4. An octapole induction coil comprising a rectangular core, three primary coils and three secondary coils wound on one side of said rectangular core and three primary coils and three secondary coils wound on the opposite side of said rectangular core, the portions of the core between said coils being magnetically separated but mechanically connected.
- 20 5. An octapole induction coil provided with a core having four opposed pole pieces with two core sections interposed between them, and six primary and six secondary coils on said core sections three primary coils and three secondary coils on the portion of the core at one side of the induction coil and three primary coils and three secondary coils on the portion of the core at the opposite side of said induction coil.
- 25 6. An octapole induction coil provided with a core having four opposed pole pieces with two core sections interposed between them, and six primary and six secondary coils on said core sections three primary coils and three secondary coils on the portion of the core at one side of the induction coil and three primary coils and three secondary coils on the portion of the core at the opposite side of said induction coil, the ends of each induction coil connected to separate binding posts so that said coils may be connected in various relations.
- 30 7. An induction coil comprising a core made up of a series of pieces magnetically

insulated from each other, a primary and secondary coil on each of said pieces, and means for connecting the primary coils in series or series multiple and means for connecting the secondary coils in series or series multiple.

- 35 8. An induction coil comprising two U-shaped end sections with bent ends formed with opposed pole pieces, core pieces between said opposed pole pieces in alinement with said bent ends and magnetically insulated therefrom, said core pieces and the ends of said U-shaped sections in alinement having primary and secondary coils wound thereon.

- 40 9. An induction coil comprising a core with two end pieces, said end pieces each having two bent ends substantially at right angles to the body portions thereof, the bent ends of the two end pieces in alinement, core pieces between said opposed bent ends, said core pieces mechanically connected with the bent ends but magnetically insulated therefrom, a primary and secondary coil on each of said bent ends, and each of said core pieces, the portions of the end pieces between the bent ends being free from primary or secondary coils.

- 45 10. An induction coil having a mechanically continuous core, primary and secondary coils wound upon said core in sections, a series of said coils at one side of said core having their axes in alinement and a second series of said coils at the opposite side of said core having their axes in alinement, a series of separate binding posts associated with said sections, each end of each section connected with a separate binding post whereby said sections may be easily and quickly connected in series or series multiple in various relations.

- 50 11. An induction coil comprising a core with two end pieces said end pieces each having two bent ends substantially at right angles thereto, the bent ends of the two end pieces being in alinement, two connecting pieces between said bent ends and mechanically connecting them together but magnetically separating them, primary and secondary coils wound upon said bent end pieces and said intermediate pieces the axes of the coils on the opposed ends of said bent end pieces being in alinement.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."