

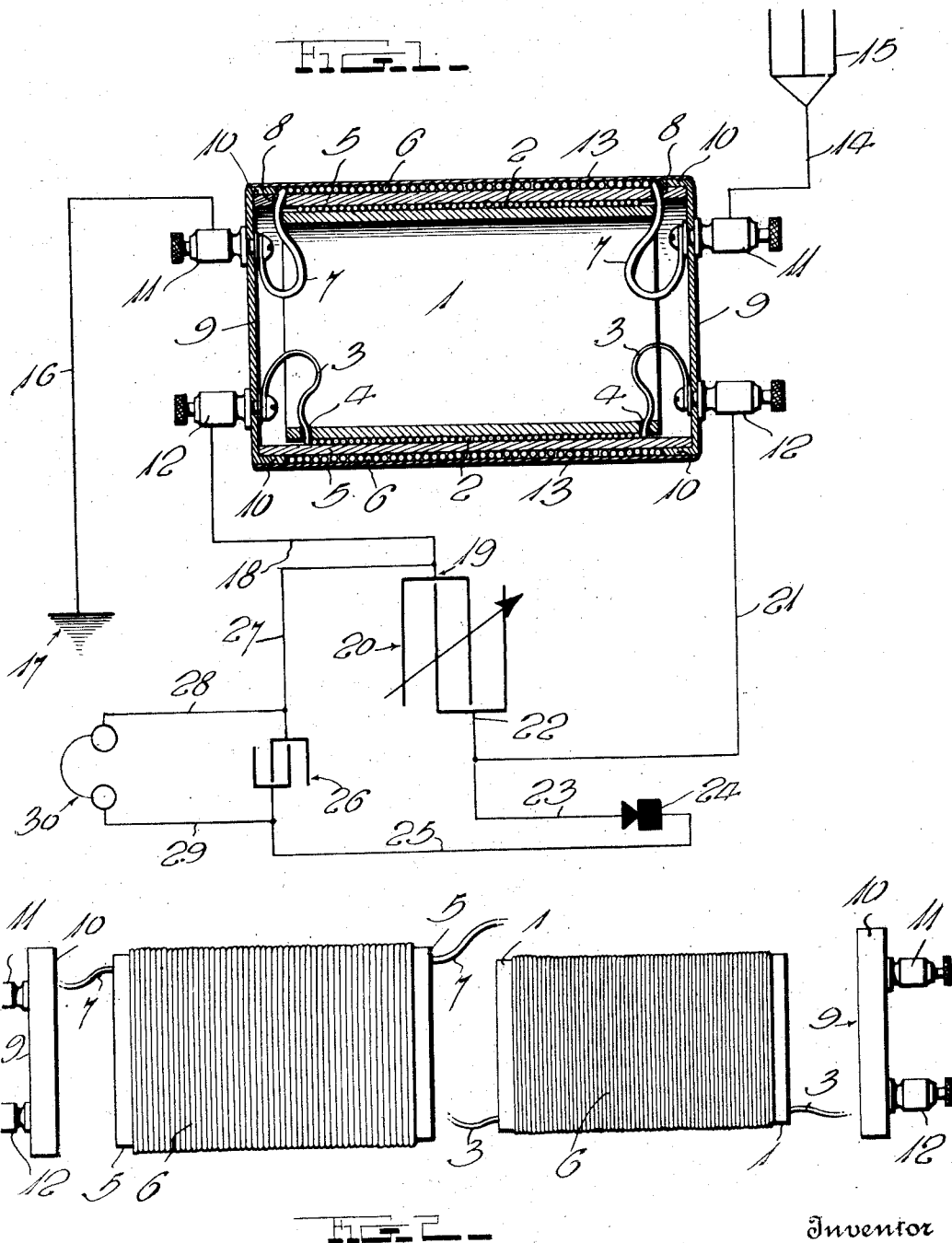
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TRANSFORMER FOR RADIO RECEIVING SETS

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TRANSFORMER FOR RADIO RECEIVING SETS.

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To all whom it may concern:

Be it known that I, ROBERT M. DINSMORE, a citizen of the United States, residing at Little Falls, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Transformers for Radio Receiving Sets; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has reference to radio apparatus, and relates particularly to radio receiving sets, being a transformer coil which has been especially designed for use in connection with radio receiving sets but which may be used for other purposes.

The invention has been designed in order to produce a coil of this character which is of simple, strong, durable and cheap construction, and which will be efficient and reliable in operation, and at the same time, one which may be easily connected by amateurs having no appreciable knowledge of radio communication in an antenna circuit and in connection with a variable condenser, a crystal detector, a set of phones and a phone condenser.

The windings of the improved coil are mounted in a novel manner and are intended to be maintained in fixed relation, so that when the coil is connected in circuit with the above mentioned instruments, the receiving set so formed may be tuned to various wave lengths by adjusting the variable condenser.

The novelty in the invention resides in the combination and arrangement of parts and the various features of construction, which are hereinafter fully described and claimed and shown in the accompanying drawing.

In the accompanying drawing in which similar reference characters are used to designate corresponding parts throughout the several views:

Fig. 1 is a longitudinal sectional view of a coil constructed in accordance with the principles of the present invention, and diagrammatically illustrating it connected in circuit with the various instruments which with it constitute a radio receiving set; and

Fig. 2 is a side elevation of the parts of the improved coil showing said parts prior to being assembled.

In the accompanying drawing which is intended for illustrative purposes only and

which is not intended to restrict the scope of the appended claims, the numeral 1 designates an open ended cylindrical tube, which is made of cardboard or some other suitable insulating material. Around the outside of the tube 1 is wound a winding 2 of small gage insulated wire. The winding 2 extends nearly to the ends of the tube 1 and has its terminals 3 passed through apertures 4 in the tube 1.

The tube 1 carrying the winding 2 upon its outer side is fitted snugly within a cylindrical tube 5. The tube 5 is made of cardboard or other suitable insulating material, and is of course of larger diameter than the tube 1, and also slightly longer than the tube 1, so that its ends project beyond the ends of the tube 1. Wound around the tube 5 is a winding 6 which is made from insulated wire of a larger gage than the wire out of which the winding 2 is made. The turns of the winding 6 extend nearly to the ends of the tube 5, and the terminals 7 of the winding are passed through apertures 8 formed in the tube 5.

The tube 5, like the tube 1, is open ended but in order to close the ends of the tube 5, flanged caps 9 are provided. The flanges 10 of the caps 9 extend inwardly substantially into contact with the end turns of the winding 6 and are of approximately the same thickness as the diameter of the wire out of which the windings 6 is made so that the outer surfaces of the flanges 10 will be substantially flush with the outer surface of the winding 6.

Each of the caps 9 carries a pair of binding posts 11 and 12. The binding posts 11 and 12 are located upon the outer sides of the caps 9 but have portions extending through the caps and disposed within the interior of the tube 5. These portions of the binding posts 11 and 12 are adapted for connection with the terminals of the windings 2 and 6, the terminals 3 of the winding 2 being connected to the binding posts 12, while the terminals 7 of the winding 6 are connected to the binding posts 11.

Of course the terminals of the windings 2 and 6 have to be secured to the binding posts 11 and 12 before the caps 9 are placed upon the ends of the tube 5. A cover 13 of paper or some other suitable material should be wrapped around the winding 6 and the flanges 10 of the caps 9 so as to secure and seal the caps 9 onto the tube 5.

The improved coil is especially applicable for use in connection with crystal detector radio receiving sets and in using it for this purpose, it is preferable to use the winding 6 as the primary winding and the winding 2 as the secondary winding. Thus, the conductor 14 leading from an antenna 13 should be connected to the binding post 11 carried by one of the caps 9 and the conductor 16 leading from a ground connection 17 should be connected to the binding post 11 carried by the other cap 9. The binding post 12 carried by one cap 9 should be connected by means of a conductor 18 to one of the terminals 19 of a variable condenser 20 while the binding post 12 carried by the other cap 9 should be connected by a conductor 21 to the other terminal 22 of the variable condenser 20. Leading from the terminal 22 of the variable condenser 20 is a conductor 23 which is connected to one terminal of a crystal detector 24, the other terminal of which is connected by a conductor 25 to one terminal of a fixed or phone condenser 26. The other terminal of the fixed condenser 26 is connected by a conductor 27 to the terminal 19 of the variable condenser 20. The two terminals of the fixed condenser 26 are also connected by conductors 28 and 29 to the terminals of a set of ear phones 30.

The variable condenser 20 is preferably a rotary variable air condenser so that the receiving set is tuned for various wave lengths by adjusting the position of the rotating part of the variable condenser after a live spot upon the crystal of the detector 24 has been engaged.

Satisfactory results have been obtained by using a coil constructed as above described and connected in circuit with the various instruments in the manner above described.

The improved coil is as will be readily understood of very simple and cheap construction and is especially intended to be used by amateurs having no appreciable knowledge of radio communication, as it requires no adjusting and very little knowledge of the art in order to operatively connect it in circuit with certain standard instruments.

From the foregoing description, taken in connection with the accompanying drawing, the construction, use and operation of the invention will be readily understood by those skilled in the art to which the invention appertains.

It is obvious that certain changes in form, proportion, and in the minor details of construction may be resorted to without departing from the principle of the invention and without sacrificing any of the advantages thereof, and hence it is to be understood that such changes may be made within the meaning and scope of the appended claims.

What is claimed is:

1. A transformer coil for radio receiving sets comprising an open ended supporting tube of insulating material, a winding disposed around the outside of said tube, a winding disposed upon the inside of said tube in inductive relation to the first mentioned winding, caps closing the ends of said tube, binding posts carried by said caps and located on the outer sides thereof, said binding posts having portions extending through said caps into the interior of said tube and having the terminals of said windings secured thereto, and a covering of insulating material disposed around the first mentioned winding upon said tube and sealing said caps onto the latter.

2. A transformer coil for radio receiving sets comprising an open ended supporting tube of insulating material, a winding disposed around the outside of said tube, a second open ended supporting tube of insulating material, a winding disposed around the outside of said second tube, said second tube carrying its winding being snugly fitted within the first mentioned tube so that said second winding is disposed in inductive relation to the first mentioned winding, caps closing the ends of the first mentioned tube, binding posts carried by said caps and located on the outer sides thereof, said binding posts having portions extending through said caps to the interior of the first mentioned tube and having the terminals of said windings secured thereto, and a covering of insulating material disposed around the first mentioned winding upon the first mentioned tube and sealing said caps onto the latter.

3. A transformer coil for radio receiving sets comprising an open ended cylindrical supporting tube of insulating material, a winding disposed around the outside of said tube, a second open ended cylindrical supporting tube of insulating material, a winding disposed upon the outside of said second tube, said second tube carrying its winding being disposed upon the inside of the first mentioned tube with the second winding arranged in inductive relation to the first mentioned winding, flanged caps of insulating material closing the ends of the first mentioned tube, binding posts carried by said caps and located on the outer sides thereof, said binding posts having portions extending through said caps into the interior of the first mentioned tube and having the terminals of said winding secured thereto, and a covering of insulating material disposed around the first mentioned winding upon the first mentioned tube and also around the flanges of said caps and sealing said caps onto the first mentioned tube.

4. A transformer coil for radio receiving sets comprising an open ended cylindrical supporting tube of insulating material, a winding disposed around the outside of said tube, a second open ended cylindrical supporting tube of insulating material, a winding disposed upon the outside of said second tube, said second tube carrying its winding being disposed upon the inside of the first mentioned tube with the second winding arranged in inductive relation to the first mentioned winding, flanged caps of insulating material closing the ends of the first mentioned tube, binding posts carried by said caps and located on the outer sides thereof, said binding posts having portions extending through said caps into the interior of the first mentioned tube and having the terminals of said winding secured thereto, and a covering of insulating material disposed around the first mentioned winding upon the first mentioned tube and also around the flanges of said caps and sealing said caps onto the first mentioned tube.

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ROBERT MAXWELL DINSMORE.