Nov. 25, 1930. R. RAMSDELL 1,782,444

INDUCTANCE

Filed March 13, 1929

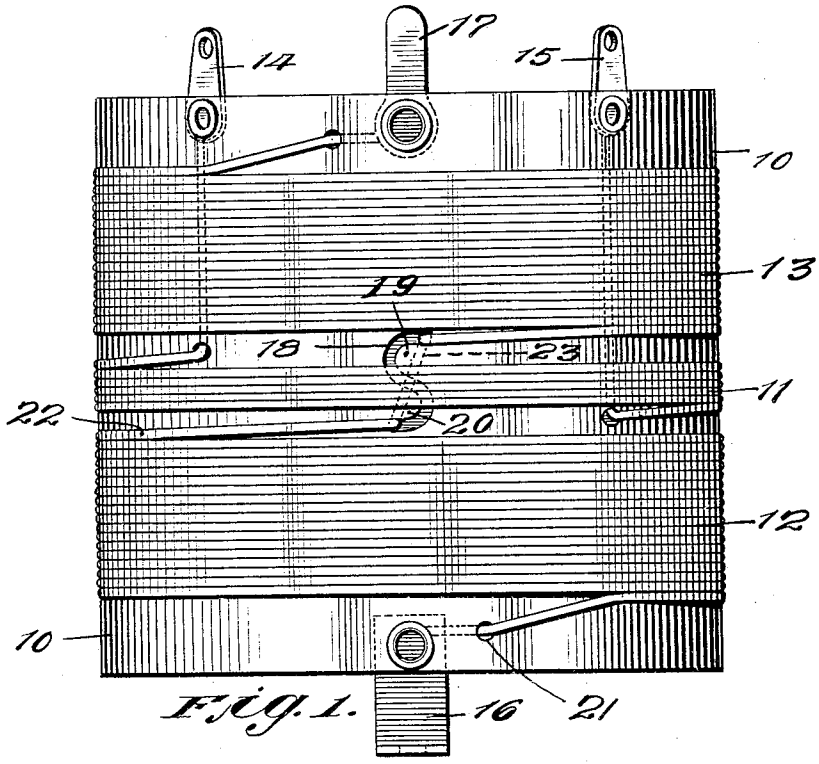


Fig. 1.

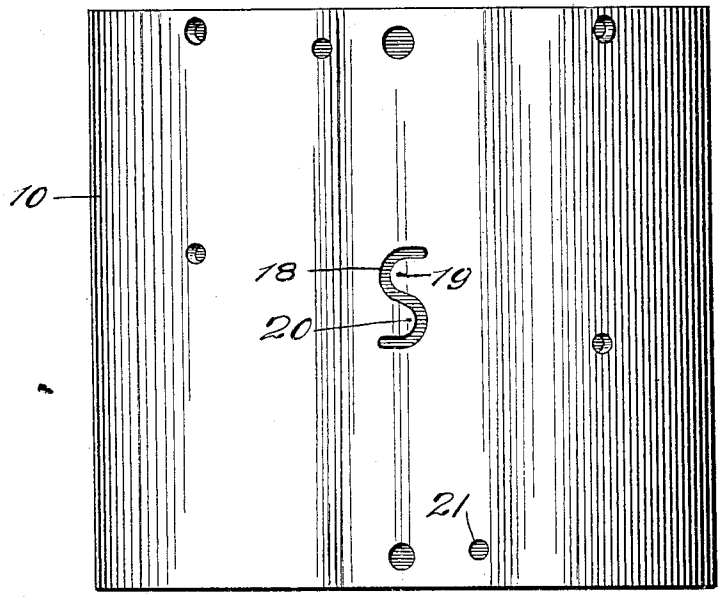


Fig. 2.

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Patented Nov. 25, 1930

1,782,444

UNITED STATES PATENT OFFICE

RUSSELL RAMSDELL, OF POUGHKEEPSIE, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO PILOT RADIO & TUBE CORPORATION, OF LAWRENCE, MASSACHUSETTS, A CORPORATION OF DELAWARE

INDUCTANCE

Application filed March 13, 1929. Serial No. 346,568.

My invention relates to radio apparatus and more particularly to an improvement in tubes or cylinders, adapted to support the primary and secondary windings of a transformer.

In the winding of the primary and secondary coils of an air core transformer, it is the usual practice to split the secondary and place the two secondary coil sections upon both sides of the primary. The two secondary sections are first wound on a tube of insulating material, being so positioned thereon as to leave sufficient space therebetween for the primary coil. The tube is drilled or otherwise apertured adjacent the inner or opposing ends of the two secondary sections and the free ends thereof run through these apertures to the interior of the tube. These ends are then connected, as by soldering within the tube. The primary coil is then wound on the portion of the tube between the sections, the ends of the primary and secondary coils, being connected to suitable binding posts. If desired, the primary is first wound on the tube and then the secondary, the two sections of the latter being connected as described.

This known method of winding the secondary sections on the tube has several disadvantages. In the first place, it required that the secondary coil wire be cut at the center in order that the ends thereof, which formed the adjacent ends of the secondary sections, might be passed through the apertures in the tube. This consumed both time and labor. Secondly, the danger of the windings becoming loose was greatly increased because of the necessity of cutting the wire and because of the increased amount of handling of the transformer before the ends of the wires were finally fixed. And finally, the connection within the tube between the adjacent ends of the secondary sections not only added another step to the process of winding the transformer but introduced an additional source of loose or imperfect contacts.

It is an object of the present invention to overcome the disadvantages above mentioned, and to provide a tube which is so constructed that the two sections of a split secondary may be wound thereon continuously, that is, without being cut at the center and without interrupting such winding, there being left an unobstructed space, as before, for the primary winding. I accomplish such object by providing a slot across the space to be occupied by the primary of such form and in such manner that a straight line drawn between the ends of the slot crosses a rigid part of the tube or an abutment connected to the tube, so that a loop of wire inserted into the slot and pulled across the same so as to engage in the ends of the slot will cross such rigid part or abutment and be prevented from slipping out of the slot. In this manner, I enable the winding of the secondary to be greatly facilitated and insure a tight and continuous coil.

In the accompanying drawing, I show by way of example, a preferred form of my invention, Figure 1, showing a view of a tube, constructed in accordance with my invention and having a primary and a split secondary wound thereon, and Figure 2, being a view of the tube with the windings removed.

Figure 1, shows a tube 10, of bakelite or other insulating material having wound thereon a primary 11 and the sections 12 and 13 of the secondary, the whole forming a well-known type of air transformer. The ends of the primary are connected to the binding posts or terminal lugs 14 and 15, while the outer ends of the secondary sections are connected to the terminal lugs 16 and 17.

In accordance with my invention, I provide in the tube across the portion occupied by the primary 11, a curved slot which in the embodiment illustrated is in the form of the letter S as shown at 18. There are thus provided two abutments 19 and 20, which overlap to a certain extent, so that a straight line drawn between the ends of the slot will cross both these abutments.

In winding the secondary of a transformer on my improved tube, the section 12 is first wound, the free end of the wire being first passed through the hole 21 and connected to the terminal lug 16. The section is then wound until the last turn 22 is reached. The wire is then held tightly against the

tube 10 with one hand, while a loop is formed of the wire with the other hand and passed into the slot, preferably at the middle portion thereof. The ends of the loop are then moved toward the opposite ends of the slot, while the loop portion 23, engages underneath the abutments 19 and 20 inside the tube. The wire is then stretched tight and the winding of the second section 13, proceeded with. It will be evident that the abutments 19 and 20, keep the loop 23 permanently in place and prevent disengagement thereof, from the slot 18. The winding of the secondary is thus greatly simplified and broken contacts or loose winding prevented.

While I have shown a slot in the form of an **S**, it will be clear that other curves may be employed, such as a **U** or a **J**-slot. Furthermore, the slots need not be curved but may be angular, such as right-angular, or they may be composed of both curved and straight lines, and I wish it to be understood that I include all such forms of slots in the term "slot of curved form" as used in the claim. If desired, a straight slot may be employed, in which case an abutment may be inserted into the loop of wire as it is threaded into the slot and made to span the slot, so that when the wire is drawn tight, it will hold the abutment against the inner face of the tube, the abutment at the same time preventing escape of the loop from the slot. Such abutment may be pivoted to the tube adjacent the slot as the inner face of such tube.

It is obvious that various changes and modifications may be made to the details of construction without departing from the general spirit of the invention set forth in the appended claims.

It will be obvious, for instance, that my improved tube may be used for transformers having a single secondary section and a split primary, or a single secondary or a single primary.

I claim:

1. A tube of insulating material, adapted to have a primary and a split secondary wound thereon and having a slot extending across the zone designed to be occupied by the primary and abutments formed in said slot, serving to carry a portion of a loop of wire interconnecting the respective parts of the split secondary.

2. A tube of insulating material, adapted to have a primary between a split secondary wound thereon; a slot in said tube, extending across the zone designed to be occupied by the primary, and abutments adapted to retain in said slot, a loop of interconnecting wire leading from one part of the split secondary, under the primary, to the other part of said secondary.

3. A tube of insulating material adapted to have a primary between a split secondary wound thereon, and having a curved slot therein, whose ends are located at opposite sides of the zone designed to be occupied by the primary and abutments formed in said slot for holding a loop of wire, forming part of and connecting the respective parts of the secondary.

4. A tube of insulating material adapted to have a primary between a split secondary wound thereon, and having an **S**-slot therein, whose ends are located at opposite sides of the zone designed to be occupied by the primary and abutments formed in said slot for holding a loop of wire forming part of the secondary in said slot.

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