Oct. 9, 1923. 1,470,337

C. H. THORDARSON

TERMINAL CONNECTOR FOR ELECTRICAL WINDINGS

Filed Jan. 30, 1922

Fig. 1.

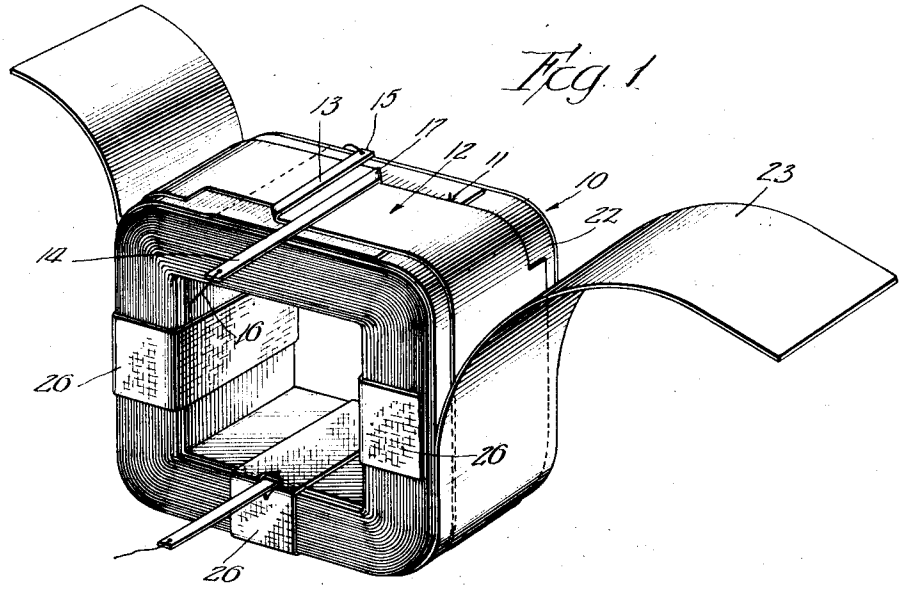


Fig. 3

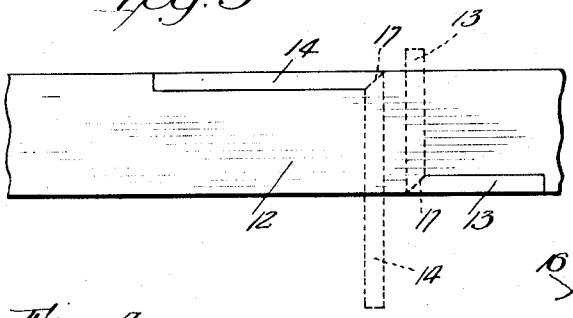


Fig. 2

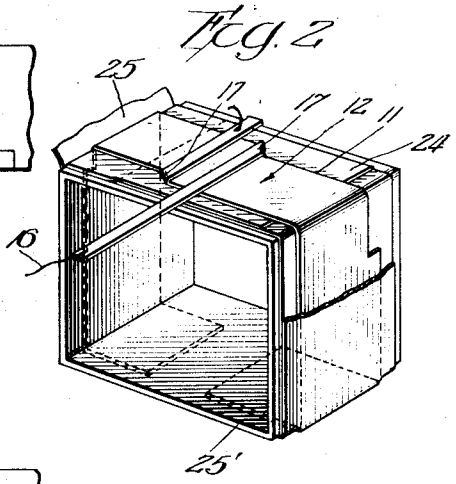
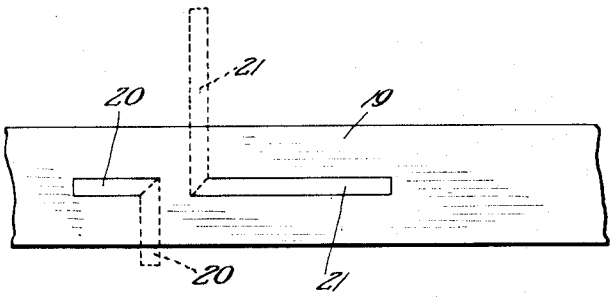


Fig. 4



Inventor:
Chester H. Thordarson
by: William L. Hall
Atty

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UNITED STATES PATENT OFFICE.

CHESTER H. THORDARSON, OF CHICAGO, ILLINOIS.

TERMINAL CONNECTER FOR ELECTRICAL WINDINGS.

Application filed January 30, 1922. Serial No. 532,802.

To all whom it may concern:

Be it known that I, CHESTER H. THORDARSON, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Terminal Connecters for Electrical Windings; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in windings or coils for electrical apparatus, and refers more particularly to a novel terminal connecter for connecting the ends of the winding to external circuit conductors, and also to means for strengthening the winding structure.

The principal purpose of the invention is to produce a connecter element for electrically connecting the ends of the winding turns to conductors of a circuit external to the winding, so arranged as to avoid pulling stress on an external circuit conductor being transmitted to the winding conductor in a manner tending to displace the winding turns. A further object of the invention is to so incorporate terminal connecters in the winding as to support the inner and outer turns thereof in a way to strengthen the winding and to insulate the connecter from the winding.

A terminal connecter embodying my invention comprises, in general terms, a thin, flexible, body portion which can be made of a flat strip of good conducting metal, such as copper, that is adapted to be anchored to the coil structure, and provided with one or more laterally disposed branch terminals to afford connection between the winding and an external conductor. When two branch terminals are employed, one is adapted for electrical connection to an end of the winding and the other to an external conductor. Said body portion will be made of substantial width to give it lateral stability, and is of a length to adapt it to be laid upon the winding, either at the inner or outer side thereof, to cover a substantial portion of the length of the inner or outer turn of the winding, and said strip may be insulated from the winding turns by means which firmly anchor said strip to the winding. The branch terminal or terminals are integral with the body portion. For instance, when made of thin, pliable metal, the branch or branches may be formed by narrow, longitudinal portion or portions partially sheared from the strip and folded at the base or attached portions thereof transversely of the strip and made of lengths to extend beyond the side edges of the strips. The said connecter strips thus laid on the outer and inner turns of the winding can be insulated from said turns by insulating means which firmly anchor the strips to the winding, so that the same means perform the double function of insulating the connecters from the winding turns and firmly anchoring the connecters on the winding.

In the drawings:

Figure 1 is a perspective view of a winding equipped with terminal connecters embodying my invention, with parts of the insulating and anchoring means for the connecter thrown back to illustrate the branch terminals of the connecter.

Figure 2 is a perspective view of the inner terminal connecter and its insulating and anchoring means.

Figure 3 illustrates a blank from which one form of terminal connecter and its branches may be conveniently formed, illustrating in dotted lines the form of branches.

Figure 4 illustrates a modified connecter.

As shown in the drawings, 10 designates the winding as a whole. It can be made up of a plurality of turns of fine round wire conductor suitably taped to hold the turns of the winding in place.

11, 11 designate the terminal connecters, as a whole, one adapted to the inner and the other to the outer side of the winding. Each connecter comprises a thin, elongated strip 12 of good conducting material, such as copper, and terminal branches 13, 14, the former of which is adapted to be connected, as by soldering, at 15 to the end of a turn of the winding and the latter of which is adapted for a solder or other suitable connection to an external circuit conductor 16. As shown in Figure 4, the said branches 13 and 14 are formed by longitudinally slitting the strip 12 along opposite sides thereof, and from opposite directions towards but terminating short of the longitudinal center of the strip. The narrow portions thus

sheared from the strip are then obliquely folded at 17 to form the branches 13, 14, each extending beyond that edge of the strip remote from the edge of which it is an integral part. Alternately, the narrow branch portions can be sheared from within the body of the strip 19 (Figure 4) and folded laterally to constitute the branches 20, 21.

The strip 12 of the connecter at the outer side of the winding is confined between inner and outer insulating bands 22, 23, made preferably of paper of substantial stiffness, with the inner band laid tightly on the outer turn of the winding and pasted together at its ends, and with the outer band laid on the inner band and enclosing the connecter strip and the bases of the branches, and itself pasted together at its ends. The said insulating bands are wider than the connecter body strip, and said bands are pasted together at their side edges laterally beyond the side edges of said body strip, as well as being pasted to said strip, so as to thereby completely envelop said body strip and afford a firm anchorage of the connecter to the winding structure. The said outer connecter strip is made of less length than the circumference of the winding to avoid short circuiting of the strip on itself. Preferably, however, the length of the strip is such as to extend almost around the winding so as to thereby increase the efficiency of the anchorage connection of the strip to the winding structure.

The strip 12 of the inner connecter is likewise confined between inner and outer bands 24, 25 of insulating material, such as stiff paper, and of a width greater than the width of the strip, the said bands being each pasted together at their ends and being pasted upon each other at their margins laterally beyond the strip 12 to enclose a form 25′ to support the inner turns of the winding, and upon which the winding may be wound. In Figure 1 said inner connecter and its insulating bands are shown as incorporated in the coil structure. In Figure 2 said parts are separately shown to better illustrate the same.

After the said connecter strips and their insulating bands have been incorporated in the winding in the manner described, the parts are bound together by suitable taping 26, so as to hold the turns of the winding in place.

The provision of the terminal connecters thus incorporated in the winding serves, not only as a means of preventing pulling stresses on the external conductor being transmitted to the winding turns, but also facilitates attachment of the ends of the winding turns to external conductors, inasmuch as the extension of the branch terminals beyond the edges of the connecter permits such attachment without deranging the winding turns. This is especially advantageous when the winding is made up of very fine wire.

In addition to the aforementioned advantages of the terminal connecters thus formed and incorporated in the winding, it will be obvious that the described arrangement of the inner and outer terminal strips and their cooperating insulating bands comprise means which serve to support and very materially strengthen the winding structure at the inner and outer sides thereof and, therefore, enhance the ruggedness and durability of the winding structure. Moreover, the strips that lie upon the outer turns of the windings constitute electrostatic shields to protect the adjacent turns against the effect of high surges which would otherwise exist.

I claim as my invention:

1. A terminal connecter for electrical windings comprising a thin, elongated, flexible conducting strip and a terminal branch cut longitudinally therefrom and folded laterally beyond the side margin of said strip.

2. A terminal connecter for electrical windings comprising a thin, elongated, flexible conducting strip, and terminal branches integral with and extending transversely over and beyond the side margins of said strip.

3. A terminal connecter for electrical windings comprising a thin, elongated, flexible conducting strip, and terminal branches cut longitudinally therefrom and folded laterally and oppositely over said strip and beyond the opposite side margins thereof.

4. The combination with an electrical winding, of a thin, flexible, flat terminal connecter applied to a side of the winding and anchored thereto and provided with a terminal branch cut from the connecter and folded to extend transversely of and beyond a margin of said connecter.

5. The combination with an electrical winding, of a flat, thin terminal connecter lying on and anchored to a side of the winding and insulated therefrom, to which an end of the winding is connected, said connecter being provided with an integral laterally extending branch sheared and folded laterally therefrom for electrical connection to an exterior conductor.

6. The combination with an electrical winding, of a terminal connecter comprising a thin, flexible conducting strip lying on a side of the winding, insulating members to enclose said strip, and lying also on the side of and anchored to said winding, said strip being formed with branch terminals extending transversely of and laterally beyond the margins of said strip for electrical connection to an end turn of the winding and an external conductor, respectively.

7. The combination with an electrical

winding, of a terminal connecter comprising a thin, flexible conducting strip provided with oppositely and laterally extending branch terminals, inner and outer insulating members enclosing said strip, with said members and strip lying on and extending partially around a side of the winding and anchored thereto, said terminals extending beyond said insulating members and one of them connected to an end of the winding.

8. The combination with an electrical winding, of elongated terminal connecter strips, lying one on the inner and the other on the outer side of said winding, and means to insulate said strips from, and to anchor them to said winding, each said strips being electrically connected to an end of a winding turn and provided with a laterally extending branch terminal adapted for connection to an external conductor.

9. The combination with an electrical winding, of elongated terminal connecter strips, lying one on the inner and the other on the outer side of said winding, and inner and outer insulating members incorporated in the winding and enclosing said strips, each said strips being formed with branch terminals extending from said strip and beyond opposite margins thereof for respective connection to an external conductor and an end of the winding.

In witness whereof I claim the foregoing as my invention, I hereunto append my signature this 21st day if January, 1922.

CHESTER H. THORDARSON.