July 9, 1946. J. E. RANGES 2,403,457

TERMINAL STRIP FOR INDUCTIVE DEVICES

Filed Feb. 7, 1942

FIG. 1.

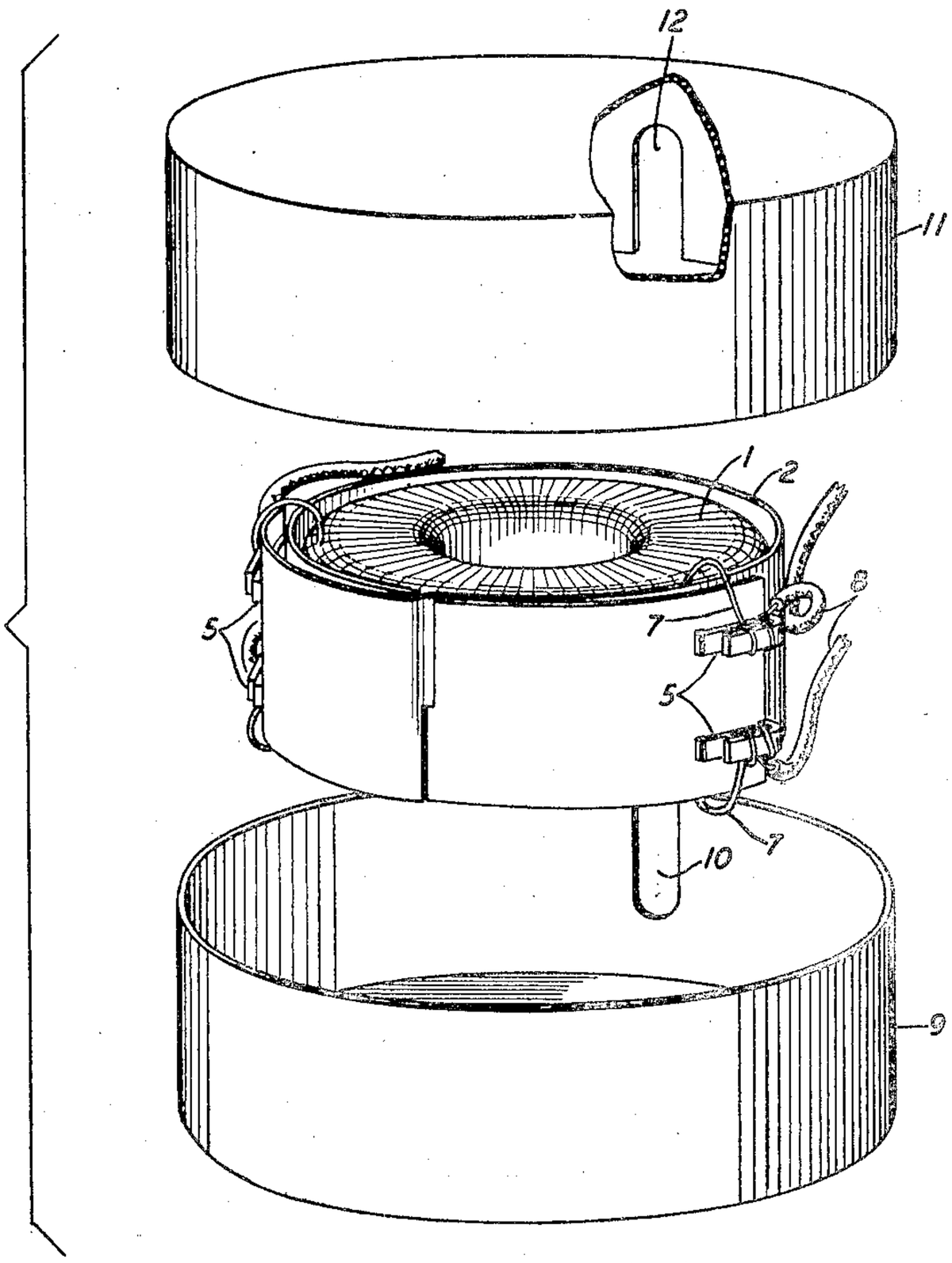


FIG. 2

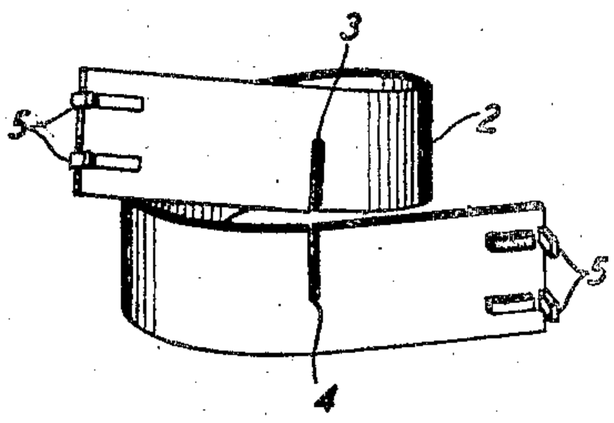
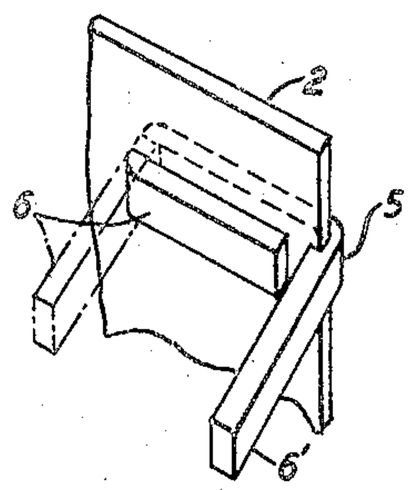


FIG. 3



INVENTOR
J. E. RANGES

BY

T. B. Jackson

ATTORNEY

Patented July 9, 1946

2,403,457

UNITED STATES PATENT OFFICE

2,403,457

TERMINAL STRIP FOR INDUCTIVE DEVICES

John E. Ranges, East Rutherford, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York

Application February 7, 1942, Serial No. 429,936

2 Claims. (Cl. 175—21)

1

This invention relates to inductive devices and more particularly to a terminal strip for such devices.

An object of this invention is an inductive device having a single piece of insulating material as a terminal strip or mounting plate which is firmly associated with the device without the use of screws, rivets, etc.

Another object of the invention is a single strip terminal strip for an inductive device in which both ends of the strip are exposed for attachment of terminals thereon.

To accomplish these objects and others which will appear hereinafter, this invention comprises a coil of one or a plurality of windings about the periphery of which is wrapped a strip of insulating material. The insulating material strip is of a length greater than the periphery of the device so that the strip would normally overlap. Near the point of overlapping are transverse slits extending approximately half way across the strip from opposite edges thereof. The ends of the strip are interlocked by inserting the unslit portion of each end of the strip into the slit in the other end.

The invention will be better understood from the following description of one embodiment of the invention together with the attached drawing in which:

Fig. 1 is a perspective view of a toroidal coil to which the invention has been applied with the two parts of the enclosing case separated from each other and from the coil;

Fig. 2 is a view of the terminal strip before being applied to the coil; and

Fig. 3 is an enlarged view of a portion of one end of the terminal strip and illustrates the manner in which the terminals are applied to the strip.

In Fig. 1, there is shown a toroidal type coil 1 preferably formed by winding enamel insulated wire on a toroidal core of magnetic material. The magnetic material may be of molybdenum permalloy dust of 400-mesh fineness compressed into the desired shape in the well-known manner.

Around the periphery of coil 1 is a strip of insulating material 2. This strip may be of stiff paper, cardboard or similar material and is longer than the periphery of the coil so that the ends of the strip would normally overlap. At the point where the ends of the strip would normally overlap, slits 3 and 4 are provided as shown more particularly in Fig. 2.

At each end of the strip, two terminals 5 are provided. As shown more particularly in Fig. 3, each terminal comprises a U-shaped piece or a

2

two-pronged staple of conducting material. One prong 6 passes through a hole in the insulating strip as shown in the dot-dash lines and is then bent over to contact with the strip. The other prong 6' fits into a notch provided in the end of the insulating strip as shown in Fig. 3.

After coil 1 is wound the insulating terminal strip 2 is wrapped around the periphery and the slits fitted as shown in Fig. 1, thereby leaving the ends of the strip free. If desired, a suitable cement or other adhesive may be applied to that surface of strip 2 which comes in contact with the coil. However, such adhesive is not required.

The ends 7 of the coil winding or windings are then brought out and together with leads 8 are given a few turns around portions 6' of the terminals to which they are then soldered. The prong 6' is then bent over.

In wrapping the coil winding ends around portions 6' of the terminals, the coil ends are pulled sufficiently tight to make the ends of the strip approach as closely as possible to the underlying portions of the strip. In other words, the coil winding ends 7 form anchors for the ends of the strip. For this reason the adhesive mentioned above is not essential but as stated may be used.

The coil and terminal strip are then placed in the bottom half 9 of a two-part insulating material container. The container may be of stiff paper, cardboard or similar insulation material. The leads 8 are wrapped closely about the strip 2 and pass out of the container through opening 10 in the bottom half. The upper half of the container is also provided with an opening 12 through which the leads pass when the upper portion is put in place. The upper half 11 of the container is fitted over the bottom half and is cemented thereto.

After the top of the container is in place, the complete assembly is vacuum impregnated with a suitable filling and moisture repellent material.

The invention has been described as applied to a toroidal coil but it is obvious that it is equally applicable to a solenoid. It is also obvious that the terminal strip 2 need not embrace the entire external surface of the winding or coil but that it may be placed at either or both ends of a winding or any place in between the ends. It is, therefore, seen that the invention may be carried out in other specific ways than those herein set forth without departing from the spirit and essential characteristics of the invention and the present embodiment is, therefore, to be considered in all respects as illustrative and not restrictive and all changes coming within the meaning and equiva-

lency range of the appended claims are intended to be embraced therein.

What is claimed is:

1. An inductive device comprising a coil of wire, a strip of insulating material around the periphery of said coil, said strip having transverse slits at an overlapping point to permit interlocking of the strip to hold it in position on said coil and to expose both ends of the strip, terminal leads, and a conducting terminal element attached to each of the exposed ends, the ends of said coil of wire and the terminal leads each being electrically connected to respectively associated terminal elements.

2. In an electrically inductive apparatus, an electrically conductive winding, a flat band of

insulating material adapted to pass completely around the periphery of the winding and to have overlapping end portions, said band having transverse slits at opposite sides at points which permit interlocking of the band with itself whereby the band is held in position on said winding with both its end portions exposed and free, terminal leads for said apparatus and electrically conductive terminal elements at each end of the band, said elements extending through the band and around the end margins of its free ends and an electrical connection from each terminal element to a point in the conductive winding and to a terminal lead.

JOHN E. RANGES.