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H. R. CLARKE

1,880,809

SPOOL FOR ELECTRICAL DEVICES

Filed Feb. 24, 1930

FIG. 1

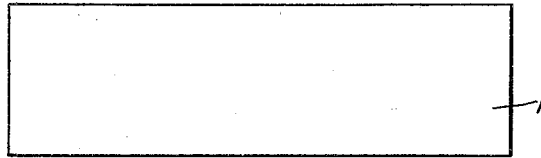


FIG. 2

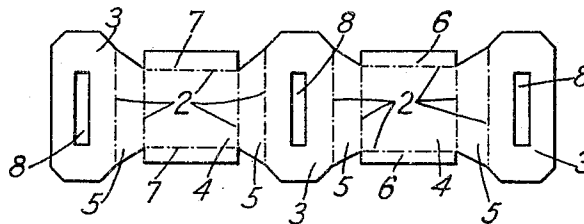


FIG. 3

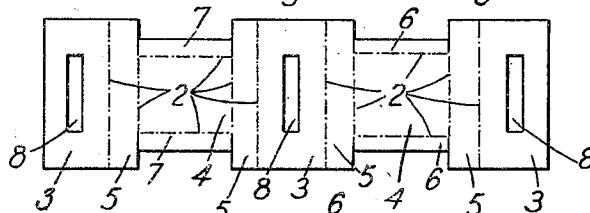


FIG. 4

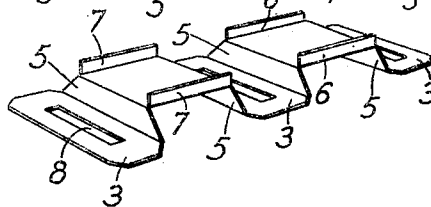


FIG. 5

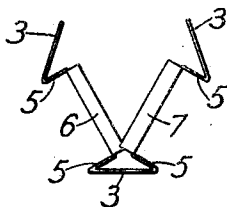


FIG. 6

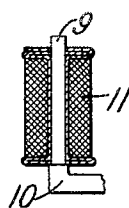


FIG. 7

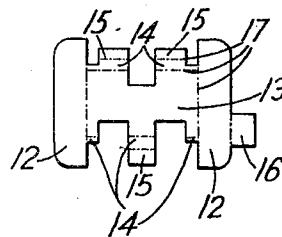


FIG. 8

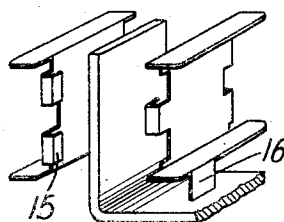
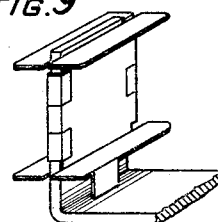


FIG. 9



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SPOOL FOR ELECTRICAL DEVICES

Application filed February 24, 1930. Serial No. 430,479.

This invention relates to improvements in spools for electrical devices and more particularly to spools adapted for use in electric bells, buzzers, relays, transformers, electromagnets, and a wide variety of similar apparatus.

One object of this invention is to provide a relatively simple and inexpensive spool for electromagnets which is of such a character that it may be readily assembled and mounted when it is desired to use the spool as an insulating and mounting medium between the core of the electromagnet and its winding.

A preferable form of this invention comprises a spool whose shank and head portions are integral and which is formed to the proper configuration from a single piece of material.

Another form of this invention comprises a spool of two pieces, preferably of relatively inflexible material, provided at its shank portions with interlocking projecting portions.

A more complete understanding of this invention will be obtained by reference to the appended drawing, wherein:

Fig. 1 shows a piece of sheet material from which a one piece spool forming one embodiment of this invention may be formed;

Figs. 2 and 3 show alternative shapings of the strip material of Fig. 1;

Fig. 4 shows in perspective the shaped and scored strip of Fig. 2 folded in one stage along its scorings;

Fig. 5 shows the spool in a further stage of its formation;

Fig. 6 shows the application of this one piece of spool in an electromagnetic device; and,

Figs. 7, 8, and 9 illustrate another embodiment of this invention.

The one piece spool forming the preferred embodiment of this invention is shown in Fig. 6 as a support for the energizing coil of an electromagnet and as an insulating medium between the core of the electromagnet and the coil. A simple and accurate way of forming this spool consists in taking a strip of insulating material 1, for instance, of paper or cellulose acetate, and cutting or stamping

it, either by a tool especially designed for this purpose or in accordance with a pattern, to the shape shown in Figs. 2 or 3, Fig. 2 for the purpose of this description showing the preferred shape. The openings 8 are of a configuration and size to fit about the core of the electromagnet with which the spool is to be used. By means of the scorings 2, impressed on the strip material by a pointed tool, or knife edge, the various parts of the spool are defined: spool heads 3, shank portions 4, connecting portions 5 joining the spool heads and the shank portions, and the spacing flaps 6 and 7. The shaped and scored strip is now folded along its scorings, as illustrated in perspective by Fig. 4, and in elevation, at a later stage, by Fig. 5, and when completely folded may be mounted upon the core 9 of a pole shoe 10 of an electromagnet as shown in Fig. 6. An energizing coil 11 is wound on the spool. In its assembled condition, the spool head portions and the spacing flaps are substantially at right-angles to the shank portions, the flaps spacing the flat shank portions apart to form the cavity with which the perforations in the spool are in alignment.

In accordance with this invention also, the spool may be made in two pieces each cut from a single piece of relatively inflexible non-magnetic material, for instance of stiff paper or brass, shaped in a manner similar to that shown in Fig. 7 and capable of being folded along scorings 17 which define the various parts of the spool: spool head portions 12, shank portion 13, lateral portions 14 and interlocking flap portions 15. One of the two pieces comprising this spool is provided as shown in Fig. 7 with a tab 16 on one spool head portion. When the pieces are folded along the scorings and assembled as shown in Figs. 8 and 9, tab 16 acts as a means for maintaining the spool in the desired position on the core of the electromagnet. As seen from Figs. 8 and 9, the interlocking flap portions 15 engage with correspondingly shaped recesses in the juxtaposed pieces comprising the spool.

From this description it will be apparent that the spools comprising embodiments of

this invention are adapted for quick and accurate manufacture and their use permits of gang winding of coils for electrical devices.

What is claimed is:

5 1. A spool for magnet cores in electrical devices comprising a single sheet of insulating material scored to form portions one of which has a slot therein and forms a spoolhead, others of which have slots therein in
10 alignment with said first mentioned slot and overlap to form another spoolhead, and still others of which connect said spoolhead portions and have shanks defining walls, the inner sides of which are in alignment with
15 edges of the slots in said spoolheads.

2. A spool for magnet cores in electrical devices comprising a rectangular spoolhead portion having a central elongated slot therein, integral connecting portions on opposite
20 sides of said spoolhead portion overlapping it to the long dimensions of said slot, integral shank portions extending from said connecting portions at right angles to the long edges of said slot, integral connecting portions extending outwardly from said shank portions,
25 a second rectangular spoolhead portion having a central elongated slot and being integral with one of said shank connecting portions and overlapping said shank connecting portions, the long edges of the slot in said
30 second spoolhead portion being in alignment with the shank portions, a third rectangular spoolhead portion integral with said other shank connecting portions overlapping said
35 second spoolhead portion and having an elongated slot registering with the slot in said second spoolhead portion, and integral overlapping spacing flaps on opposite sides of said
40 shank portions in alignment with the short edges of the slots in the spoolhead portions.

In witness whereof, I hereunto subscribe my name this 19th day of February, 1930.

HARRY R. CLARKE.

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