An end plate for a bobbin comprising a L-shaped piece of an insulating material the first branch of which having a through hole for a core and a number of grooves for connecting wires to windings of the bobbin and the second branch of the end plate having notches for placing soldering tabs, each groove in the first branch emerging into a notch in the other branch, the emerging point having the form of a narrow mouth which the connecting wires pass on their way to the soldering tabs and which after the bobbin windings are completed are closed, thus locking connecting wires to the bottom of the notches.

2 Claims, 3 Drawing Figures
BOBBIN END PLATE WITH MEANS FOR FASTENING OF SOLDERING TABS

Within telephony a number of electromechanical components are used having in common that a magnet coil with an iron core gives the required tractive force. Because of this the coil, as a construction, has a very large economic importance. The forming of the iron core, its attachment in the component, which may be a relay, a selector etc., and the construction of the bobbin — no matter whether it is an unattached bobbin or consists of end plates fixed on the core — are very old. Over the years the coil winding machines have been improved and made faster, but there have hardly been any epoch-making changes of the bobbin. This situation makes the changes, which can be made to facilitate the coil manufacture and reduce the sources of faults, extremely important for the function and the economy of the component. The coil is often a dominating part when it comes to the manufacture costs of an electromechanical component.

Coils according to the invention have one L-shaped end plate. One of the branches of the end plate is provided with a through hole for the coil core and in its other branch parallel notches are arranged for placing of soldering tabs. From these grooves connecting wires pass to the winding with which the completed coil is provided. Apart from the connecting wire to the outer winding layer each connecting wire will be crossed by the winding turns in each winding layer closest to the end plate. When the coil is in operation considerable potential differences can arise between the connecting wires and the adjacent winding turns due to self-induction in the coil with flash-over, ruined insulation and short-circuit as a result. For avoiding short-circuit the connecting wires have been covered with insulating glue patches upon the winding of the coils and this has prevented the connecting wires from getting into contact with adjacent winding turns. During the winding operation, however, it easily happens that a glue patch falls off and comes in between the winding turns. When the winding of a coil is completed, it is not always possible to see, whether the glue patches are still where they should be or have come into the winding.

To avoid this moment of uncertainty it has gradually become more common to place the connecting wires in grooves arranged in the bobbin end plate. During the very winding operation each connecting wire is kept stretched between the soldering tab and the winding and then follows the bottom of the groove, but in order that the connecting wires should withstand the transport of the completed coil as well as the movements arising within the coil upon operation due to temperature changes, it is suitable to slant the connecting wires. When a connecting wire has been slackeden, however, it easily comes into touch with adjacent winding turns and the flash-over risk is greater for this kind of coils than for coils in which the connecting wires have been insulated by means of glue patches.

The purpose of the present invention is to eliminate the above mentioned inconveniences and this is attained thereby that the bobbin end plate has obtained the characteristics stated in the claims.

One embodiment of the invention will be explained in more detail with reference to the accompanying drawing, in which

FIG. 1 shows a first branch of a bobbin end plate in flat view,
FIG. 2 shows an end plate in sectional view and partly cut away together with part of the appertaining coil core and winding and
FIG. 3 shows a second branch of the same end plate and part of the appertaining winding.

In FIG. 1, showing a first branch of a bobbin end plate in flat view, reference 1 is the common reference for grooves arranged in the end plate for connecting wires to the windings of the completed coil. The grooves, which emerge into notches 2, have been formed with a view to the fact that at varying core diameters and winding heights the connecting wires should easily and without sharp bends slide down into the grooves and be protected therein against adjacent winding turns. In these notches soldering tabs are arranged, in the figure represented by the tabs 3 and 4 which for facilitating the soldering operation in connection with the winding are bent upwards from their respective notches. FIG. 2 shows a bobbin end plate in sectional view and partly cut away, the cutting following the groove emerging into the notch with the soldering tab 3. In FIG. 2 also the end part of a core 4 with appertaining winding 5 is shown, on which core the bobbin end plate is arranged. Reference 6 denotes a connecting wire following the bottom of the groove from the winding 5 to the point, where the groove emerges into the notch, from where the wire is freely tightened to the soldering tab 3. FIG. 3 shows the other branch of the same bobbin end plate in flat view with part of the winding 5 and its connecting wires 6 and 7 connected to the soldering tabs 3 and 4. FIG. 3 also shows the mouths 8 of the grooves in the notches 2, which mouths in the shown embodiment are arranged next to one side of the respective notch.

When the winding of a coil is completed and the connecting wires have been soldered to the soldering tabs, the connecting wires are slackened by the soldering tabs being bent down towards the bottom of the notches. To prevent that the connecting wires come into touch with adjacent winding turns, as is often the case in known bobbin end plate constructions, the groove mouths are according to the invention closed before the soldering tabs are bent downwards. In the shown embodiment, which is made of a thermoplastic material, the closing of the mouths of the grooves has been made by means of a warm pointed tool which has been pressed against the bottom of the notches in question at 9 and 10, the material in the bottom of the notches having flown out and closed the mouths. By the shape of the grooves which have narrow mouths one advantage is that the mouths are easily closed and another is that the bottoms of the notches at the side of the mouths contain sufficient material for making possible warming and closing of the grooves. The grooves may of course also be closed in other ways, e.g. by means of a drop of glue or by pressing in of a wedge-shaped piece of plastic.

We claim:
1. End plate for a bobbin, mainly intended for relays, comprising a L-shaped piece of an insulated material, in the first branch of which a through hole for the coil core is arranged as well as a number of grooves for placing connecting wires to windings with which the bobbin is intended to be provided and in the other branch of which parallel notches are arranged in the
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3. Longitudinal direction of the branch for placing of soldering tabs, each groove in the first branch emerging into its notch in the other branch, whereby said grooves in the first branch get narrower the closer to the emerging point or mouth they come, said grooves having a mouth width which is considerably smaller than the width of the notches.

4. End plate for a bobbin according to claim 1, wherein said mouths of the grooves are arranged next to one side of the respective notch.

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