March 18, 1952 W. F. STAHL 2,589,640

FORM FOR WINDINGS AND THE LIKE

Filed May 29, 1947

Fig. 1

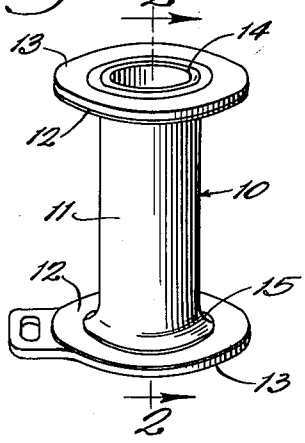


Fig. 2

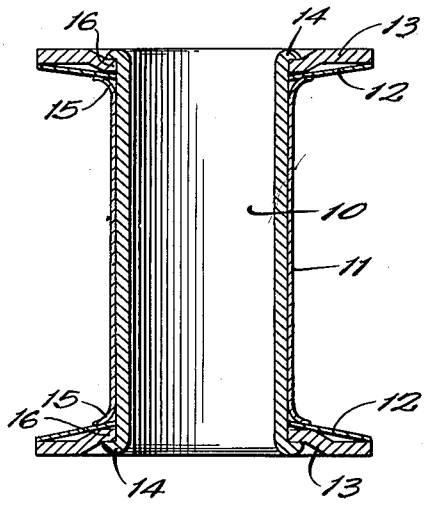
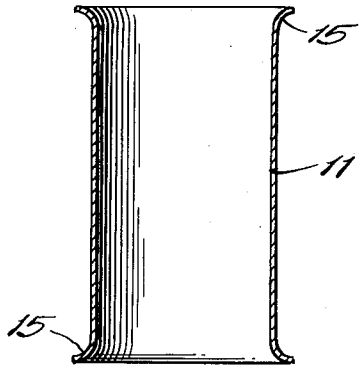


Fig. 3



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FORM FOR WINDINGS AND THE LIKE

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6 Claims. (Cl. 242—119)

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This invention relates to a form for windings and to the method of preparing the same. It is particularly useful as a bobbin or spool for coil windings, although it obviously will be applicable to other uses.

It has heretofore been proposed to employ a tubular paper core having annular flanges secured thereon by the swaging of the ends of the core and with a straight tubular insert about the body of the core and engaging the inner edges of the flanges. Such a structure has been extensively employed as a bobbin or spool for coil windings. The structure, however, has been somewhat unsatisfactory for certain windings because of the tendency of leakage of current about the ends of the tubular insert. Further, irregularities or warping of the end flanges have resulted in increasing the crevices through which a short may occur.

An object of the present invention is to provide a structure which overcomes the above disadvantages and provides an unusually effective means for sealing the windings against forming a short in the circuit. Yet another object is to provide a structure in which a tubular insert is employed having resilient end portions which conform to any irregularities in the contour of the flanges and thus form a tight seal against the passage of current. A still further object is to provide a tubular insert structure for bobbins which maintains the coils at such a distance from the core and flange joints as to prevent any loss of current. Still another object is to provide a bobbin of novel construction which is unusually effective as a form for electrical windings and the like. Other specific objects and advantages will appear as the specification proceeds.

The invention is illustrated, in a preferred embodiment, by the accompanying drawing, in which—

Figure 1 is a perspective view of a form embodying my invention; Fig. 2, an enlarged vertical sectional view; and Fig. 3, a sectional detail view of the tubular insert or enclosure for the bobbin core.

In the illustration given, 10 designates a core which may be formed of laminated paper strips or of any other suitable material. It may be formed of paper impregnated with resinous or other material, or it may be a molded body formed of plastic, etc. Over the core 10 is placed the sheath or spacing member 11, which may be formed of cellulose acetate or any suitable insulating plastic material, paper, etc. If desired, an inner apertured disk 12 may be provided at

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each end of the core. An outer flange 13 formed of paper, plastic, or any other suitable material, is provided. The ends of the core are swaged or spun outwardly to form locking shoulders 14 bearing against the inner ends of the flanges 13.

The insert or spacer member 11 is preferably flared at each end to provide the bell-shaped ends 15. The ends 15 provide flared resilient flanges which bear against the disks 12 and maintain them against the inner portions of the flanges 13. In the illustration given, the flanges 13 are dished inwardly at their central portion and provided with a substantially straight inner ring 16. The disks 12 have their inner end portions bearing against the inner side of the ring portions 16 and their inner edges squarely engaging the core 10. Such a positioning of the disks 12 under the pressure of the spring flanges 15 lock the flanges 13 against inward movement on core 10.

If the end flanges or disks 12 are not employed, the resilient ends 15 of the spacer member 11 still serve effectively as a sealing means by engaging the end flanges 12 and the resilient character of the flanges 15 cause them to follow the contour of the flanges 12 irrespective of irregularities therein.

In the method of assembly and of use, I prefer to use the following steps. The core 10 is provided first with the spacer member 11, as shown in Fig. 2, and the disks 12 are placed against the bell-shaped ends 15. The flanges 13 are next placed in position against the disks 12, and the ends of the core which project beyond the ring portions 16 of flanges 13 are swaged outwardly to produce the locking shoulders 14. A suitable spinning method is described in my Patent No. 2,343,389 which issued March 7, 1944. At the time of the spinning or swaging of the ends of the core, the flanges 13 are preferably pressed inwardly so as to flex the spring flanges 15 of the spacer member 11, or, alternatively, the spinning or swaging operation may be controlled so as to force the flanges 13 inwardly during the actual forming of the shoulders 14 and thus to bring about a tight locking of the flanges 13 in the position illustrated in Fig. 2.

The tubular core member 10 may be of any desired shape, such as, for example, circular, rectangular, etc., and the flanges 13 and other members may similarly be of any desired shape.

The plastic material, such as cellulose acetate, etc., suggested for the spacer member 11 and the end disks 12 is found to be particularly useful in that such material, while being very thin, is

nevertheless sturdy and provides the rigid lock required. Further, the inner ends of the disks 12 are rigid and sharp and tend to engage and grip the core member 10 to prevent inner slippage of the flanges 13. The flared ends 15 of the spacer member provide a substantial air gap between it and the joints at the ends of the core member while at the same time forming a tight seal with the end flanges which it engages.

While in the foregoing specification, I have set forth a single structure in substantial detail for the purpose of illustrating one embodiment of the invention, it will be understood that the details of such structure may be modified widely by those skilled in the art without departing from the spirit of my invention.

I claim:

1. A form for windings and the like, comprising a tubular core member, apertured flanges received upon the ends of said core, said core having its end portions turned outwardly to provide locking shoulders maintaining said flanges on said core, and a tubular member extending about said core between said flanges and having flared end portions engaging said flanges and urging them toward said shoulders.

2. A form for windings and the like, comprising a tubular core member, apertured flanges received upon said core at the ends thereof, said core having its end portions turned outwardly to provide locking shoulders maintaining said flanges on said core, apertured end disks lying against the inner sides of said flanges and having edges engaging said core member, and a tubular member extending about said core and having flared end portions engaging said disks and urging them toward said flanges.

3. A form for windings and the like, comprising a tubular core member, apertured flanges received upon said core at the ends thereof, said core having its end portions turned outwardly to provide locking shoulders maintaining said flanges on said core, apertured end disks lying against the inner sides of said flanges and having edges engaging said core member, and a tubular member extending about said core and having flared end portions engaging said disks and urging them toward said flanges, said tubular member and disks being formed of resilient plastic material.

4. In a form for windings of the character set forth in which a hollow core member is provided with locking shoulders at its ends, apertured flanges received upon the ends of said core and being maintained thereon by said locking shoulders, a spacer member between said apertured flanges and having resilient, flared end portions abutting said apertured flanges on the core and urging said apertured flanges toward said shoulders.

5. A form for windings and the like, comprising a tubular core member of substantially uniform cross section, apertured flanges having a central portion offset inwardly, the ends of said core being turned outwardly to provide locking shoulders engaging said offset portion, end disks having inner end portions engaging the core and abutting said offset flange portions, and a tubular spacer member snugly engaging said core member and having its ends flared to provide bell-shaped terminals engaging said disks and urging them against the offset portion of said end flanges.

6. A method of making forms for windings and the like, comprising placing a tubular spacing member having flared resilient ends upon a tubular core, inserting apertured flanges over each end of the core, pressing the flanges against the resilient ends of said core, and turning the ends of the core outwardly against the flanges to lock them against said compressed flared ends of the spacing member.

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The following references are of record in the file of this patent:

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