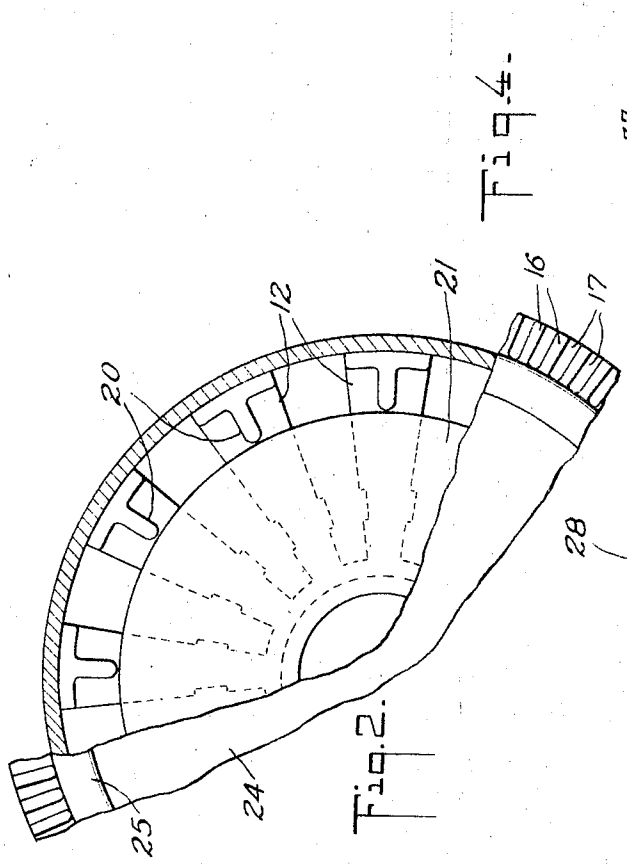
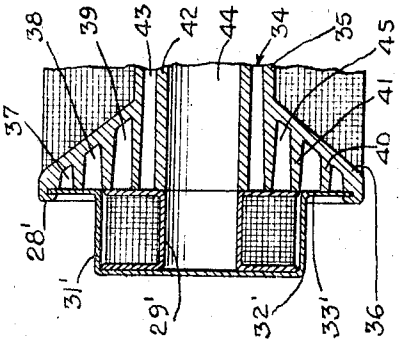
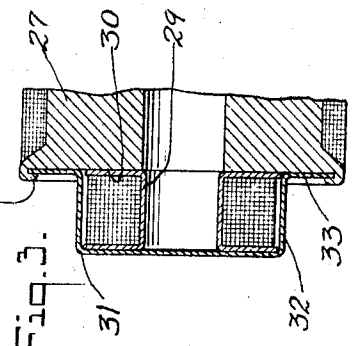
Dec. 2, 1958 L. H. MORIN 2,862,610

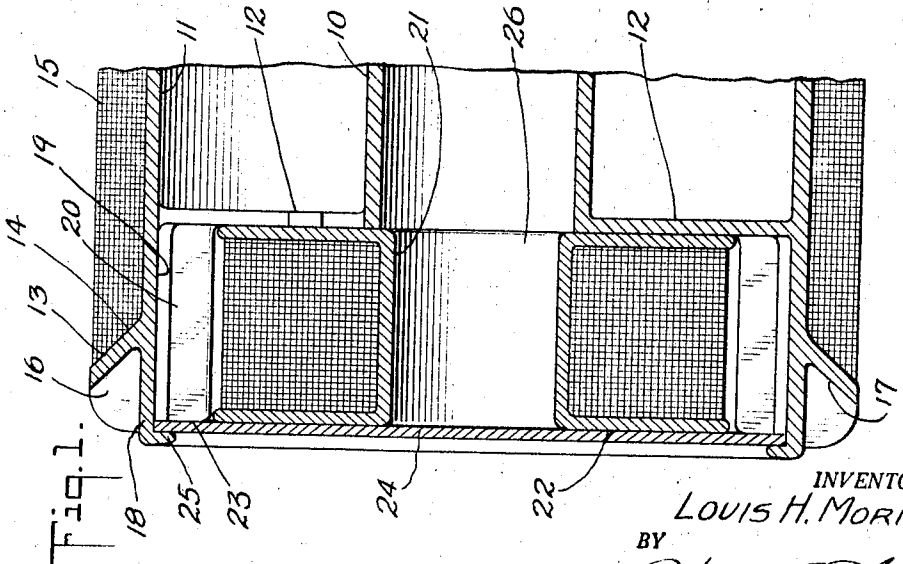
SPOOL AND BOBBIN COMBINATION

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SPOOL AND BOBBIN COMBINATION

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4 Claims. (Cl. 206—47)

This invention relates to a spool structure, wherein means is provided for supporting and shielding a bobbin in connection therewith. More particularly, the invention deals with a spool structure, including a spun-over or formed label supporting rim, wherein the label element is utilized in retaining a bobbin in position on a spool.

The novel features of the invention will be best understood from the following description, when taken together with the accompanying drawing, in which the separate parts are designated by suitable reference characters in each of the views and, in which:

Fig. 1 is an enlarged partial sectional view through one end portion of a spool showing a bobbin mounted therein, and a label element for retaining the bobbin against displacement from the spool.

Fig. 2 is a partial end view of the structure shown in Fig. 1, with part of the construction broken away and in section; and

Figs. 3 and 4 are views, similar to Fig. 1, on a smaller scale, showing modified forms of construction.

This application constitutes a continuation-in-part of the structure disclosed in my prior application filed June 22, 1953, bearing Serial Number 363,309, now abandoned.

My present invention deals with spool structures having spun-over, or formed, label engaging rims for securing labels at spool ends and, more particularly, with the utilization of structures of this type and kind, wherein the label element is further used in retaining a bobbin against displacement from the spool end. As the bobbin is disposed at one end portion only of the spool, the present disclosure will deal solely with one end of the spool.

In illustrating one adaptation and use of my invention, I have shown in Figs. 1 and 2 a moulded spool structure, comprising an inner tube or cylinder **10**, an outer tube or cylinder **11** joining the inner cylinder in circumferentially spaced radial ribs or wall portions **12**, of the general contour noted in Fig. 2 of the drawing. The end of the spool has an outwardly flared rim **13** which defines, around the cylinder **11**, an annular recess **14** for reception of the thread, as diagrammatically illustrated at **15**. The outer surface of the rim is preferably provided with a series of circumferentially spaced ribs **16** forming corresponding recesses, as noted at **17** in Fig. 1 of the drawing. In the construction shown, the ribs **12** are disposed in wide spaced relation to the outer end portion **18** of the cylinder **11** to form a large annular chamber **19** outwardly of the ribs **12**.

Extending into the chamber **19**, the ribs **12** have other circumferentially spaced ribs **20**, generally T-shaped in cross-sectional form, as will appear from a consideration of Fig. 2 of the drawing. The ribs **20** reduce the size of the chamber **19** and form positioning guides for a bobbin **21** so that the bobbin **21** is centralized on the spool end, in the manner clearly illustrated in Fig. 1 of the drawing.

It will appear that the outer surface **22** of the bobbin is in alinement with outer ends **23** of the ribs **20**, thus producing alined label supporting surfaces **22**, **23**, upon which a label disc **24** is adapted to rest. The label, or

label element **24**, is preferably made of a transparent or translucent cellophane and this label is held in position by an inwardly spun or formed annular flange or rim **25**. In other words, normally, the flange or rim **25** constitutes an outwardly extended portion of the end **18** of the cylinder **11** to facilitate insertion of the bobbin **21** into the chamber **19** and arrangement of the label **24** in position on the surfaces **22** and **23**, after which, the flange or rim **25** is then formed.

In the use of the combined spool bobbin structure shown in Figs. 1 and 2 of the drawing, the label **24** can be broken through the bore **26** of the bobbin **21** and, then, torn from the spool end to free the bobbin for removal from the chamber **19**.

In Fig. 3 of the drawing, I have shown a modified form of construction and, in this figure, a moulded spool is diagrammatically shown at **27**, the spool having a label retaining flange or rim **28**, similar to the flange or rim **25**. In this construction, a bobbin **29**, generally similar to the bobbin **21**, is mounted upon the end surface **30** of the spool **27** and a label element, in the form of a shell or casing **31**, is employed, the element **31** having a cup-shaped portion **32** forming a receptacle for the bobbin, the casing **31** having an extended wide flange portion **33** at its free edge adapted to be engaged by the flange or rim **28** in support of the bobbin upon the spool end. Here again, the element **31** is preferably formed of transparent or translucent cellophane or other plastic material which can be moulded or otherwise formed into the cross-sectional contour disclosed and, accordingly, made sufficiently strong to support the bobbin against shifting movement on the spool end.

The modification of Fig. 4 differs from that of Fig. 3 only in the construction of the spool **34**. The latter, except for flange **28'**, is described in copending application Serial Number 423,457, filed April 15, 1954, and for convenience, a brief description of the spool may be given here. It comprises a one-piece, integrally formed, all-plastic thread spool comprising a barrel **35** having a pair of flanged end portions, one of which is shown at **36**, of such size as to provide a so-called deep grooved spool capable of holding a substantial amount of thread. The barrel, when viewed in cross-section, comprises an annular wall of substantial thickness. Each flanged end portion comprises a plurality of concentric annular grooves **37**, **38**, **39** extending from the end face of the spool inwardly for varying depths, and annular walls **40**, **41** each formed between a pair of adjacent grooves. An annular wall **42** is formed between the innermost groove **43** and bore **44**. The innermost groove **43** extends into the annular wall of the barrel for a distance (not shown) less than half the length of the barrel, and the remaining grooves terminate as shown. Each adjacent pair of annular walls is connected to each other by a plurality of circumferentially spaced, radially disposed ribs, one of which, for example, is shown at **45**, each rib being located in a groove and being coextensive in length with the depth of the groove. The free ends of the walls and ribs lie in the end face of the spool.

The bobbin and bobbin retaining structures of Fig. 4 are like that of Fig. 3 and are identified by similar but primed reference numerals.

With all modifications, the label element, in addition to retaining the bobbin against accidental displacement from the spool, also provides a protective covering to prevent dust and dirt from collecting upon the bobbin. In each case, too, the spool has a bobbin in association with it, and the bobbin carries thread correctly chosen with respect to the thread on the spool. The purchaser thus gets a single convenient package particularly adapted for sewing machine use.

It will be appreciated that the particular spools shown in the drawings are illustrative. That of Figs. 1–2 is an integrally formed, all-plastic, light weight spool of pleasing over-all appearance. The circumferentially extending ribs **16** and recesses **17** on the periphery of the end portion of the spool provide a decorative effect and increase the attractiveness of the spool. The circumferentially spaced ribs **20** may be omitted in spools of smaller size, that is, in spools whose tube or barrel **11** has approximately the same diameter as the bobbin so as to enable the bobbin to fit snugly in the compartment in the absence of the ribs. Figs. 1–2 illustrates the use of a compartment in an end portion of the spool for receiving the bobbin, while the spools of Figs. 3 and 4 show how the bobbin may be disposed outwardly of the end face of the spool. Fig. 4 further shows that spools too small to be provided with a compartment may yet be enabled to carry a bobbin. If desired, the spools of Figs. 3 and 4 may be provided with an extension engageable in the bore of the bobbin, as set forth in said copending application.

As illustrated, and as will be understood, the spool construction is variable. In each case, however, a retaining element for the bobbin is provided which extends across the end of the spool and across the outer end face of the bobbin. Peripheral portions of the end of the spool are movable or deformable so that they overlap or extend over onto peripheral portions of the retaining element to secure the element to the spool end. The spool may be entirely or partially made of plastic and may be formed integrally or from two or more pieces. A spool partially made of plastic comprises one whose rims or peripheral flanged portions are of plastic, and in such case movable or deformable peripheral portions may be formed on such plastic portions if the latter are not adapted to be moved, at least in part, over onto peripheral portions of the retaining element. Thermoplastic materials are preferred, although other deformable material such as metal is suitable. As noted above, the deformable peripheral portions on the end of the spool are preferably in the form of a retaining flange, and this flange may be continuous as shown, or it may be discontinuous, that is, comprised of spaced members or lugs as described in copending application Serial Number 442,137, filed July 8, 1954.

In order to move or fold the flanges **25**, **28**, and **28'** over onto peripheral portions of the retaining element, it is preferred to heat the flanges and to fold them over by means of a suitable forming tool such as is described in copending applications Serial Number 442,137, filed July 8, 1954, and Serial Number 442,138, filed July 8, 1954.

The retaining elements **24**, **31**, and **31'** may be of paper, foil, cardboard, plastic, and the like. They may have printed information on them and thus serve as labels as well as retaining elements, and/or they may be transparent to expose the bobbin to view, in which case they are preferably made of a material like cellophane or sheet plastic. If desired, bobbins may be supported at both ends of the spool.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a spool of the character described, the combination of a spool body having a chamber at one end adapted to receive a bobbin, a plurality of vertical ribs circumferentially arranged in said chamber so that the outer surface of a bobbin in said chamber and outer ends of said ribs are in common alinement within end extremities of the spool, a rupturable disc arranged upon said bobbin and rib ends, and means fashioned from the material of the spool engaging peripheral edges of the disc for supporting said disc and bobbin against displacement from the spool.

2. In a spool of the character described, the combination of a spool body having a chamber at one end, a plurality of ribs circumferentially arranged in said chamber so that the outer surface of a bobbin in said chamber and outer ends of said ribs are in common alinement within end extremities of the spool, a rupturable disc arranged upon said bobbin and rib ends, means fashioned from the material of the spool engaging peripheral edges of the disc for supporting said disc and bobbin against displacement from the spool, said spool body comprising inner and outer tubes spaced and joined by circumferentially spaced radially extending wall portions, and said wall portions forming supports for the inner surface of said bobbin.

3. In a moulded spool body, having a rupturable label element at one end thereof, with means integral with the spool body engaging said element for retaining the same against displacement from the spool body, a bobbin chamber arranged at said end of the spool body, said element adapted to cover a bobbin and retain it against displacement from the spool body, means integral with the spool body for centralizing the bobbin in said chamber, said element comprising a disc engaging and covering the outer surface of said bobbin, and said last named means comprising vertically arranged circumferentially spaced ribs.

4. In a moulded plastic spool, a chamber at at least one end adapted to receive a bobbin, an outer tube, a concentric inner tube, spaced radial ribs joining said tubes at the bottom of said chamber, vertical spaced ribs on the peripheral wall of said chamber arranged around the periphery so as to snugly receive said bobbin within said chamber, a rupturable label engaging said bobbin to retain the same against displacement from the chamber, and means integral with the spool body engaging said label to retain the same in position on the end of the spool body.

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