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M. CURRY

2,908,093

THREAD SPOOLS

Original Filed Jan. 24, 1955

Fig. 1.

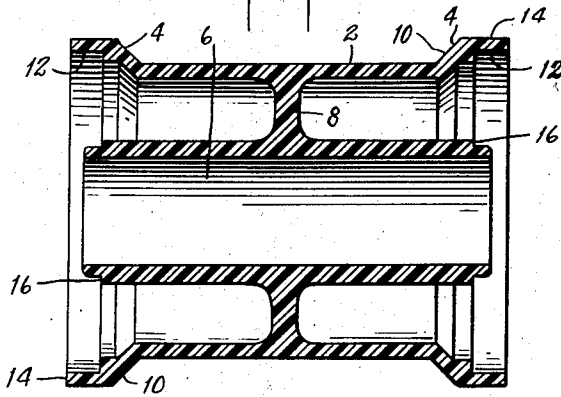


Fig. 2.

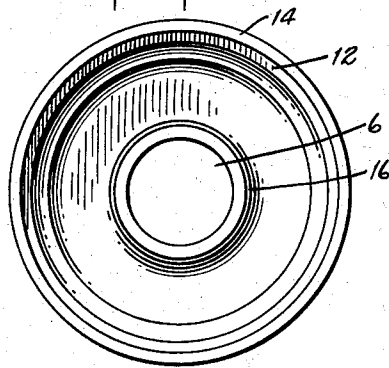


Fig. 3.

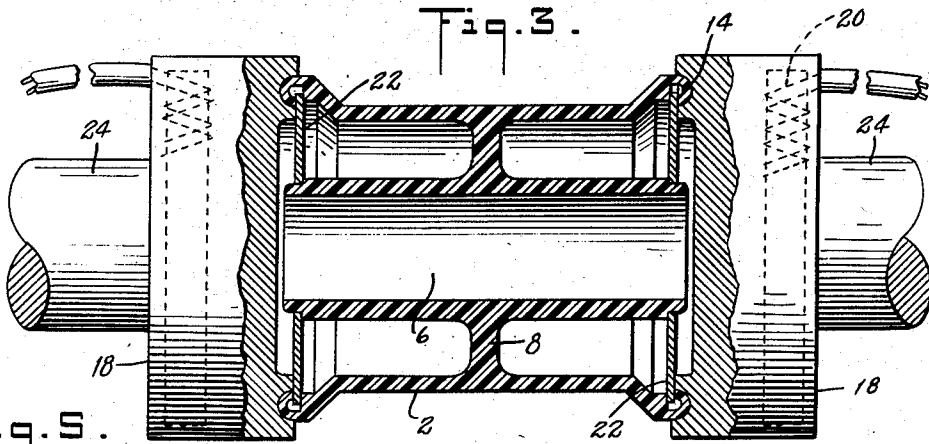


Fig. 5.



Fig. 4.

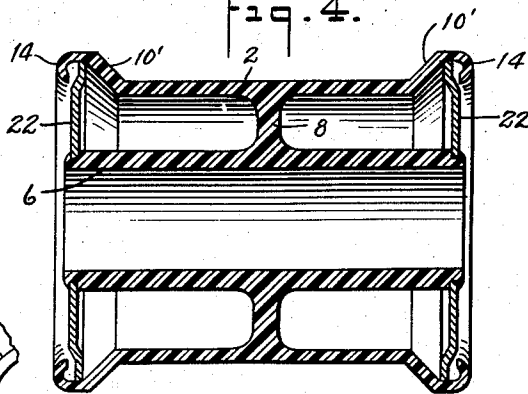


Fig. 7.

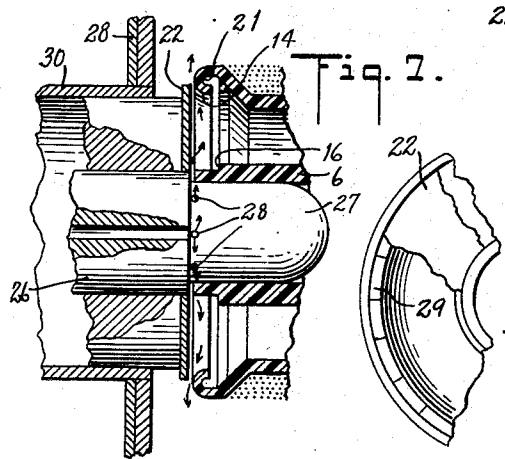


Fig. 6.

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2,908,093

THREAD SPOOLS

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Original application January 24, 1955, Serial No. 483,650.
Divided and this application July 7, 1958, Serial No. 746,790

7 Claims. (Cl. 40—10)

The present invention relates to sewing thread spools and more particularly to such spools made of resinous material. This application is a divisional of United States of America application Serial Number 483,650 filed January 24, 1955, now abandoned.

Sewing thread spools in general use today are usually made from wood and are in the form of an elongated cylinder having a bore extending axially therethrough. The ends of the cylinder are provided with peripheral flanges in order to retain the wound thread on the spool. Attached to one or both ends of the cylindrical tube are labels upon which the name of the manufacturer of the thread is imprinted as well as other data to identify the thread wound on the spool. These labels are attached to the ends of the spool by means of adhesive. The use of adhesive to secure these labels to the ends of the spool has the disadvantage that the labels often become disengaged from the spools either during display or while the spool is in use by the consumer. Another disadvantage of thread spools presently in use is that they are made from wood which renders them relatively expensive.

In view of the foregoing the primary object of the present invention is to provide a thread spool with means for securing tickets or labels on the ends of the spool without the use of adhesive.

Another object of the present invention is to provide a molded thread spool having maximum strength for the amount of material used.

These and further objects of the present invention will appear from the following description of the invention to be read in conjunction with the accompanying drawings wherein like components in the several views are identified by the same reference numerals.

In the drawings:

Figure 1 is a longitudinal sectional view of my improved spool in the form in which it may leave the molding die.

Figure 2 is an end view of the spool illustrated in Figure 1.

Figure 3 is a longitudinal sectional view, partly in elevation, of the spool and devices for operating on projecting lips on the ends of the spool, the lips being for the purpose of retaining tickets or labels on the ends of the spool without the use of adhesive.

Figure 4 is a longitudinal sectional view of a modified form of the spool of the present invention.

Figure 5 is an end view of a portion of the spool illustrated in Figure 4.

Figure 6 is a view corresponding to a portion of Figure 2 of another modified form, and

Figure 7 is a sectional elevation of a spool corresponding to a portion of Figure 3, and a device for applying a ticket or label to one end of the spool.

My improved spool may be made of polystyrene such, for example, as that put out by the Dow Chemical Company under the trademark "Styron 475." This resin is a high impact polystyrene formulation developed

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by the manufacturer, and it will be understood that any other resin having suitable characteristics may be employed.

The spool may be made of the size commonly used for home sewing thread. Such spools are usually approximately 1 1/4 inches long with their heads or end flanges 1 inch in diameter. It will be understood, however, that the spool may be made of any desired size.

As shown in Figure 1, the spool is provided with a barrel portion 2 having heads or end flanges 4, and further provided with a central tube or core 6 which is integrally connected with the barrel 2 by means of a central disc or web 8.

The flanges 4 are provided with beveled portions 10, internal annular shoulders 12, and annular lips 14 which project from the outer peripheries of the flanges concentrically with the axis of the spool.

The tube or core 6 may have its ends reduced in diameter to provide shoulders 16 which are substantially in the plane of the shoulders 12.

The spool as thus described and as shown in Figure 1, may be molded by any suitable means, such as by injection molding.

When the spool is removed from the molding die, it may be placed between eyeletting dies 18 which may be heated by any suitable means as by the heating coils 20 (Figure 3). By means of these dies the material of the annular lips 14 is softened by the heat and then the lips are curled inwardly as shown. The inner edges of the lips are spaced in proximity to the planes of the shoulders 12.

When the lips 14 have thus been formed, the spools are ready to receive the thread which may be wound thereon in the usual manner. To secure the outer end of the thread, a suitable slot 21 may be cut in one of the curled lips 14. It will be noted that owing to the curvature of the lip, the slot may be made at the desired angle and depth without cutting through the edge of the lip which would be liable to result in a protruding barb.

After winding, annular tickets or labels 22 may be applied to the ends of the spool without the use of adhesive. The labels may be made of paper, preferably tag stock or other relatively stiff and resilient material, the labels being punched out of a strip of the material.

The labels may be forced through the tapering openings provided by the curled lips 14, and against the shoulders 16 on the ends of the core of the spool, the central pre-punched apertures in the labels closely fitting over the reduced ends of the core. At the same time as the labels are seated on the ends of the core, the resiliency thereof causes their edges to snap beneath the inner edges of the lips 14 and into the spaces between said edges and the shoulders 12. It will be apparent that when thus applied, the labels are securely held on the ends of the spool without the use of adhesive.

The labels may be thus applied by any suitable means. In Figure 7 there is shown a plunger 24, and an auxiliary plunger 26 extending through an axial aperture therein. The plunger 26 has a reduced rounded end forming a pilot 27.

The punched out label may be received over the end of the plunger 26 as shown. To apply the label, the plungers 24 and 26 are advanced to cause the end of the pilot to enter the core 6. Then the plunger 24 is advanced to apply the label over the end of the core and against the shoulder 16, and to snap its outer edge beneath the lip 14. The labels may be punched out of a strip 28 by means of a punch 30, and then the punched out labels may be successively applied to the end of the spool as described. It will be understood that the

labels may be applied to both ends of each spool simultaneously.

The pilot pin 27 is made hollow and may be provided with radial apertures 28 so as to permit a blast of air admitted through the plunger to be directed outwardly through the apertures. By this means, as the plunger and label approach the end of the spool, a film of air is directed outwardly between the label and end of the spool. This ensures that in case the end of the thread projects within the labeling area it cannot be carried by the label beneath the curled lip 14.

It is more convenient for the thread manufacturer to apply the labels after than before the thread is wound on the spools. In case, however, it is desired to apply the labels before winding this may be done before the lips 14 are curled over. The labels 22 may first be positioned against the shoulders 16 of the core and the shoulders 12, and then the lips 14 curled against the labels as shown in Figure 3.

In the form of spool shown in Figure 4 instead of the labels engaging shoulders 12 in the flanges of the spool, those shoulders are dispensed with and the ends of the labels engage between the underside of the curled lips 14 and the beveled portion 10' of the flanges. It will be apparent that with this construction, there is a saving of material, and the labels are securely held whether the labels are applied after or before the lips 14 are curled over.

Also, if desired the ends of the core may be riveted over more or less against the outer sides of the labels as illustrated in Figure 4, thus assisting in securely holding the labels in position. If desired the labels may be made convex as shown in Figure 4 so as to permit the printed portion thereof to be positioned closer to the outer surfaces of the curled in lips 14.

The shoulders 12 of Figure 1 instead of being made continuous, may be interrupted at spaced intervals 29 as illustrated in Figure 6, thus decreasing the amount of material used in the spool.

It will be apparent that my improved spool may be cheaply made of a minimum amount of material and still be of the requisite strength. The curled over lips 14 in addition to securing the labels, provide transversely curved supporting edges or rims for the ends of the spool during winding of the spool and when used on sewing machines, and they effectively reinforce the ends. It will also be apparent that my invention is also applicable to single headed spools, as well as the double headed spools shown in the drawings. The lips 14 may be made relatively thin and yet, because of the curvature thereof and the strength and resiliency of the resin, they provide strong supporting rims for the ends of the spools as well as effective means to retain the labels in place.

The core and supporting web 8 provide for maximum strength for the amount of material used in the spool. The strength of the spool may be increased by merely increasing the thickness of the web, and this may be readily done by adjusting the molding cores, thus spools of various strengths may be made without changing the molding dies. Also, the hollow construction enables the winding spindles to enter the ends of the spool and engage the barrel thereof, thus ensuring stability of the spool during winding.

I claim:

1. A thread spool provided with labeled ends attached thereto without the use of adhesive, comprising an open ended barrel having cylindrical lips projecting from the ends thereof, a central core coaxially supported within said barrel and having reduced end portions to provide annular shoulders, said core being coaxially supported within said barrel by an annular web, said lips being curled inwardly with the edges thereof substantially in the plane of said shoulders, and annular disc shaped

labels centrally supported on the reduced ends of the core and marginally abutting said shoulders, the peripheries of said labels being retained by said lips whereby the ends of said barrel are enclosed and the labels are retained in place on the ends of said spool.

2. A thread spool provided with labeled ends attached thereto without the use of adhesive, comprising an open ended barrel having flanges on the ends thereof, annular lips projecting from said flanges concentric to the axis of said spool, a central core coaxially supported within said barrel and having reduced end portions to provide annular shoulders, said core being coaxially supported within said barrel by an annular web, said lips being curled inwardly with the edges thereof substantially in the plane of said shoulders, and annular disc shaped labels centrally supported on the reduced ends of the core and marginally abutting said shoulders, the peripheries of said labels being retained between said lips and flanges whereby the ends of said barrel are enclosed and the labels are retained in place on the ends of said spool.

3. A thread spool provided with labeled ends attached thereto without the use of adhesive, comprising an open ended barrel having cylindrical lips projecting from the ends thereof, a central core coaxially supported within said barrel and having reduced end portions to provide annular shoulders, said core being coaxially supported within said barrel by an annular web, said lips being curled inwardly with the edges thereof substantially in the plane of said shoulders to provide snap-in enclosures, and annular disc shaped labels centrally supported on the reduced ends of the core and marginally abutting said shoulders, the peripheries of said labels being snapped under said lips within said snap-in enclosure whereby the ends of said barrel are enclosed and the labels are retained in place on the ends of said spool.

4. A thread spool provided with labeled ends attached thereto without the use of adhesive, comprising an open ended barrel having flanges on the ends thereof, annular lips projecting from said flanges concentric to the axis of said spool, a central core coaxially supported within said barrel and having reduced end portions to provide annular shoulders, said core being coaxially supported within said barrel by an annular web, said lips being curled inwardly with the edges thereof substantially in the plane of said shoulders to provide snap-in enclosures, and annular disc shaped labels centrally supported on the reduced ends of the core and marginally abutting said shoulders, the peripheries of said labels being snapped under said lips within said snap-in enclosure whereby the ends of said barrel are enclosed and the labels are retained in place on the ends of said spool.

5. A thread spool provided with labeled ends attached thereto without the use of adhesive, comprising an open ended barrel having cylindrical lips projecting from the ends thereof, a central core coaxially supported within said barrel and having annular grooves on the ends thereof, said core being coaxially supported within said barrel by an annular web, said lips being curled inwardly with the edges thereof substantially in the plane of said grooves, and annular disc shaped labels centrally supported within the grooves on the ends of said core, the peripheries of said labels being retained by said lips whereby the ends of said barrel are enclosed and the labels are retained in place on the ends of said spool.

6. A thread spool provided with labeled ends attached thereto without the use of adhesive, comprising an open ended barrel having flanges on the ends thereof, annular lips projecting from said flanges concentric to the axis of said spool, a central core coaxially supported within said barrel and having annular grooves on the ends thereof, said core being coaxially supported within said

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barrel by an annular web, said lips being curled inwardly with the edges thereof substantially in the plane of said grooves, and annular disc shaped labels centrally supported within the grooves on the ends of said core, the peripheries of said labels being retained between said lips and flanges whereby the ends of said barrel are enclosed and the labels are retained in place on the ends of said spool.

7. A thread spool provided with labeled ends attached thereto without the use of adhesive, comprising an open ended barrel having flanges on the ends thereof, annular lips projecting from said flanges concentric to the axis of said spool, a central core coaxially supported within said barrel and having annular grooves on the ends thereof, said core being coaxially supported within

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said barrel by an annular web, said lips being curled inwardly with the edges thereof substantially in the plane of said grooves to provide snap-in enclosures, and annular disc shaped labels centrally supported within the grooves on the ends of said core, the peripheries of said labels being snapped under said lips within said snap-in enclosure whereby the ends of said barrel are enclosed and the labels are retained in place on the ends of said spool.

References Cited in the file of this patent

UNITED STATES PATENTS

2,190,085	Scholl	Feb. 3, 1940
2,618,442	Kellog	Nov. 18, 1952