United States Patent

Jurgen Lahmann

[15] **3,658,275**

[45] **Apr. 25, 1972**

[54] SPOOL FOR SEWING THREAD

[72] Inventor: **Albert Heinrich Jurgen Lahmann,** Gutach-Breisgau, Germany

[73] Assignee: **Gutermann & Co. Aktiengesellschaft,** Zurich, Switzerland

[22] Filed: **Apr. 29, 1970**

[21] Appl. No.: **32,900**

[30] **Foreign Application Priority Data**

May 6, 1969 Great Britain 23,061/69

[52] **U.S. Cl.** **242/118.4,** 242/125.1

[51] **Int. Cl.** **B65h 75/14**

[58] **Field of Search** 242/118.4, 118.41, 118.6, 118.61, 242/118.7, 125, 125.1, 125.2

[56] **References Cited**

UNITED STATES PATENTS

1,991,880	2/1935	Chaffin	242/125.2
2,643,830	6/1953	Paeplow et al.	242/118.61
2,819,853	1/1958	Kozlevcar	242/125.2
3,501,110	3/1970	Hopgood et al.	242/118.7

FOREIGN PATENTS OR APPLICATIONS

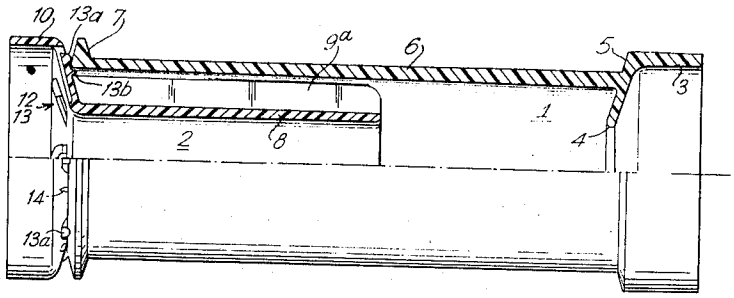
1,189,353	3/1965	Germany	242/118.7

Primary Examiner—Stanley N. Gilreath
Assistant Examiner—Werner H. Schroeder
Attorney—Cushman, Darby & Cushman

[57] **ABSTRACT**

A spool for sewing thread comprising an outer tubular member for carrying the thread windings and an inner member adapted to be telescoped within the outer tubular member, the inner member being provided with a tubular portion coaxial with the outer surface of the outer tubular member and adapted for mounting on a supporting post of a sewing machine, the inner member also being provided with a head adapted to trap thread between it and an end of the outer tubular member when the inner member is telescoped into the outer tubular member.

5 Claims, 4 Drawing Figures



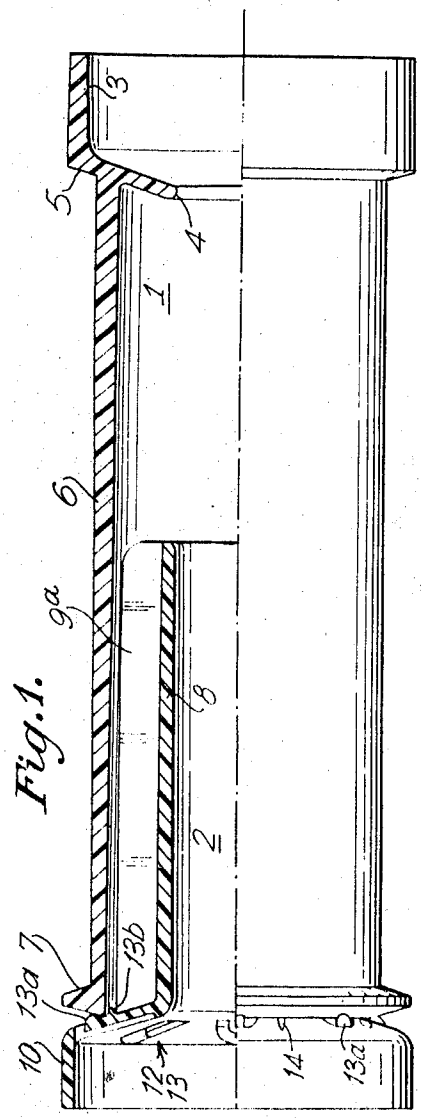


Fig. 1.

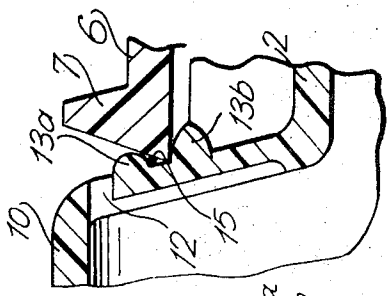


Fig. 4.

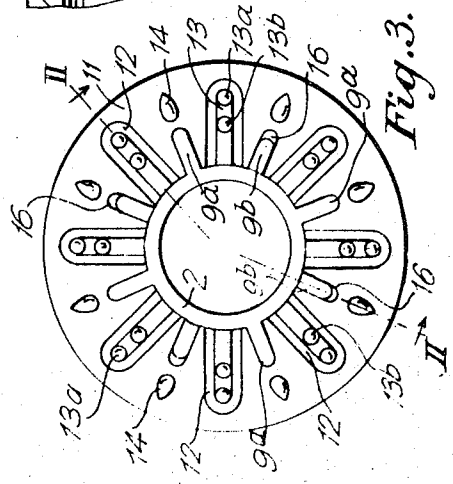


Fig. 3.

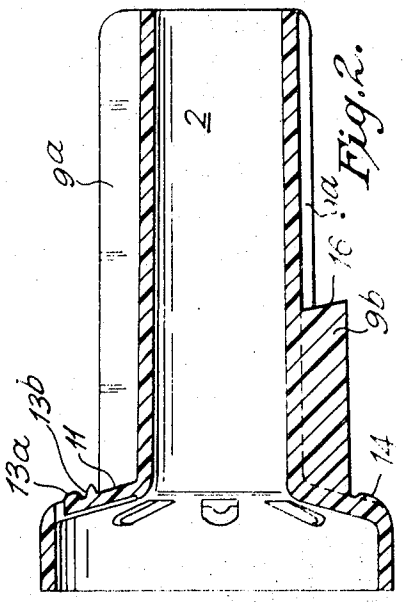


Fig. 2.

SPOOL FOR SEWING THREAD

This invention relates to spools for sewing thread and to a new and improved construction thereof whereby the spool may conveniently be made from plastics material and whereby the spool is provided with useful means for trapping the thread end and for mounting the spool on the supporting post of a sewing machine.

It has for some time been desired to make sewing thread spools of plastic material in place of the wood, which is the traditional material of construction. There are, however, a number of difficulties to be overcome.

Sewing thread spools should be of substantial diameter for a number of reasons, not least to promote speed of winding the sewing thread thereon. On the other hand, the spool must be provided with an inner bore of much smaller diameter for the purpose of mounting the spool on the relatively thin supporting posts of sewing machines, without the spool wobbling when the thread is pulled off and possibly jumping off the post. This was accomplished with wooden spools by making such spools of solid wood and boring a central aperture therein, but this is not commercially feasible with plastics.

The spools must also be provided with means for securing the end of the sewing thread, and this has been done with the traditional wooden spools by providing in one of the side flanges a cut groove into which the thread end is drawn and held therein by friction. Such a method is inconvenient and disadvantageous, as described below, whether the spool is of wood or plastics.

It is the object of the invention to provide a construction of sewing thread spool which is adapted for use with plastics material but which nevertheless meets the foregoing two requirements, firstly of having a relatively large outer diameter and a relatively much smaller inner diameter without using a solid construction and, secondly, of providing ready means for securing the thread end.

It is also an object of the invention to provide a thread end securing means which is neater and more efficient than the traditional cut groove. The latter has the disadvantage that it can grip the thread end too tightly so that the thread is broken by the force required to remove it. Furthermore, the edges of the groove can be rough and themselves contribute to breaking of the thread.

A further object of the invention is to provide means for securing the starting portion of the thread when beginning to wind.

The present invention provides a spool comprising an outer tubular member for carrying the thread windings and an inner member adapted to be telescoped within the outer tubular member, the inner member being provided with a tubular portion coaxial with the outer surface of the outer tubular member and adapted for mounting on a supporting post of a sewing machine, the inner member also being provided with a head adapted to trap thread between it and an end of the outer tubular member when the inner member is telescoped into the outer tubular member.

In the preferred form of the invention, the inner member is a frictional fit within the outer tubular member and its tubular portion is spaced from the outer tubular member by spacing members. The latter can be fins protruding from the outer circumference of the tubular portion. Such fins are preferably longitudinal, and at least some of such longitudinal fins are tapered so that the end of such fins adjacent the head project further radially outwards from the tubular portion than the ends of the fins remote from the head. In this way the inner member can be jammed within the outer tubular member.

When the inner member is pushed into the outer tubular member, the head on the inner member bears against the end of the outer tubular member. The opposing surfaces of the head and such end are used in accordance with the invention for the purpose of trapping thread ends between them. It is preferred that such opposing surfaces define a radial groove which tapers inward to where the opposing surfaces bear directly against each other. The thread end can simply be pulled into this groove. A light pull will tend to jam the thread lightly in the groove, without disturbance of the spacing of the opposing surfaces of the groove. If this is insufficient to hold the thread, the thread can be pulled more strongly so that the inner member is forced to withdraw slightly from the outer tubular member, thereby opening a channel within the thread is securely held.

One or both of said opposing surfaces can be provided with protuberances to assist in the retention of the thread end. It is preferred that such protuberances be provided on the opposing surface provided by the head. A convenient construction is to provide the opposing surface on the head with resilient tongues carrying protuberances thereon. These tongues can be so designed that, when the thread is forced into the groove against a protuberance on the tongue, this forces the tongue outwardly from the groove and allows the thread to enter further into the groove. After the thread has passed radially within this protuberance, the resilience of the tongue will force the protuberance back into the groove, thereby trapping the thread. This can be achieved, with some constructions, without necessitating slight withdrawal of the inner member from the outer tubular member.

It is convenient to provide each tongue with two protuberances, one radially within the other, and to ensure that when the spool is assembled, the opposing surface provided by the end of the outer tubular member abuts against the radially outer protuberance, while the radially inner edge of such opposing surface projects into the space between these two protuberances. The radially inner surface of the end of the outer tubular member should preferably in this position bear against the radially outer portion of the radially inner protuberance. In this way, the radially outer protuberance will serve to trap the thread, while the radially inner protuberance will serve to prevent the thread from slipping under the end of the outer tubular member.

It is convenient to mould the inner member in such a way that the said tongues project radially outward from the end of the said tubular portion into openings provided on the head. A number of these tongues can be disposed radially around the end of the tubular portion. The longitudinal fins can conveniently be interspersed between the tongues and be integral with the head. An extra protuberance can be provided on the head radially outwardly from each fin so as to help guide the thread and ensure that it is properly positioned in relation to the outer protuberance on the tongues.

The outer tubular member is preferably provided with a dished-out end portion corresponding somewhat in shape to the head on the inner member. This end portion can be provided with a central aperture in alignment with and of substantially the same size as the inner tubular portion of the inner member. This central opening will then allow the passage therethrough of supporting posts of sewing machines.

The said end portion provides a flange to support one end of the mass of thread windings, the other end preferably being supported by a peripheral flange or rim at the other end of the outer tubular member.

The invention is illustrated in the accompanying drawing, in which:

FIG. 1 is a side elevation of the assembled spool in part cross section,

FIG. 2 is a similar view just of the inner member of the spool, but in full cross section in the line II—II of FIG. 3,

FIG. 3 is an end elevation from the right hand side of FIG. 2, and

FIG. 4 is a large scale detail of a portion of FIG. 1.

In the drawings, a spool is constructed of an outer tubular member 1 and an inner member 2. The outer member 1 comprises a dished-out end portion 3 having a central opening 4 and an annular flange portion 5 for supporting one end of the mass of thread windings on the cylindrical surface 6. The other end of the outer member 1 has an annular rim 7 for supporting the other end of the mass of wound thread.

The inner member 3 comprises an inner tubular portion 8 formed with longitudinally extending radial fins 9*a* and 9*b* the outer edges of which bear against the inner cylindrical surface of the outer member 1. Fins 9*a* extend the whole length of the tubular portion 8, while fins 9*b* (which can readily be omitted) are much shorter and taper radially inwardly as they extend from a head 10. The ends 16 of the fins 9*b* remote from the head 10 are undercut for the purpose to be described.

The head 10 is formed at one end of the inner tubular portion 8. In the almost radial surface 11 of this head 10 there are formed eight openings 12. Projecting radially outwardly into these openings 12 are tongues 13 carrying protuberances 13*a* and 13*b*, the former being radially outward from the latter. The longitudinal fins 9 are joined to the surface 11, one between each of the openings 12. Radially outward from these fins 9, protuberances 14 are formed in the surface 11.

The spool is assembled by telescoping the inner member 2 into the outer tubular member 1 as shown in FIG. 1. An end of the spool can then be placed downwardly over a supporting post of a sewing machine so that the post is snugly embraced by the tubular portion 8, and possibly also by the opening 4. The longitudinal dimensions of the spool are normally so related to the length of the normal supporting post that, if the right hand end of the spool is placed downwardly over the post, the upper end of the post will pass into the tubular portion 8.

When the outer thread end is required to be secured this will be pulled into the groove formed by the opposing surfaces of the rim 7 and surface 11. As shown more clearly in FIG. 4, the thread will come up against the protuberance 13*a* and will force this and the tongue 13 temporarily away from the groove so that the thread can then be snugly held in the position shown at 15 in FIG. 4, after the tongue 13 has sprung back to its original position. As also will be seen from FIG. 4, the protuberance 13*b* will serve to prevent the thread slipping radially under and within the end of the outer tubular member 1.

The spool of the invention can also serve to secure the inner or starting portion of the thread when beginning to wind. Such starting portion can be gripped between the inner member 2 and the outer tubular member 1 when those members are telescoped together. One can conveniently snag a loop of the thread against the undercut end 16 of a fin 9*b* to carry the thread between the two members, but this is not necessary. The thread can be gripped between the outer edge of a fin 9*a* or 9*b* and the inner cylindrical surface of the outer member 1, but will in any event be gripped between the end of the outer tubular member 1 and the surface 11.

While the outer surface of the outer tubular member should be cylindrical, it is not necessary that the inner surface should be also cylindrical, though such will in practice normally be the case.

It will be seen that the outer tubular member 1 and the inner member 2 can readily be moulded in plastics material.

We claim:

1. A spool for sewing thread comprising an outer tubular member for carrying the thread winding and inner member having a head and a tubular portion which is adapted to be telescoped within the outer tubular member, said tubular portion being coaxially disposed with respect to the longitudinal axis of said outer tubular member when brought together with said outer tubular member, and said tubular portion further being adapted for mounting on a supporting post of a sewing machine, the end of the outer tubular member into which the inner member telescopes being provided with a radial rim at one end and a head at the other end to support the ends of the thread winding, and the opposing surfaces of the head of the inner member and said radial rim of the outer tubular member being adapted to cooperate, when brought together by the telescoping action, to form an inwardly tapering groove in which the thread can be trapped.

2. A spool as claimed in claim 1 characterized in that at least one of the said opposing surfaces is provided with protuberances.

3. A spool as claimed in claim 2 wherein the opposing surface of the head is provided with resilient tongues carrying protuberances.

4. A spool as claimed in claim 3 wherein the tongues project substantially radially outwards into openings in the opposing surface of the head.

5. A spool as claimed in claim 4 wherein the tongues each carry two radially-spaced protuberances between which the radially inner edge of opposing surface of the end of the outer tubular member projects in the inwardly telescoped position of the members.

* * * * *