This invention relates to spools, and in particular to a thread spool which is employed in the thread feeding mechanism of a sewing machine.

In sewing operations in the garment trade, high efficiency and saving of time are of the utmost importance, in order to maintain the cost of production at the lowest possible level. Heretofore, however, the re-threading of spools which are used in the cradle of a sewing machine to feed thread into the stitching mechanism has been time-consuming and wasteful. Thread has been wound customarily about the sleeve of the spool a number of times in order to anchor it and make certain that it would not slip from the spool prior to winding the spool on a thread-winding spindle. Furthermore, the loose end of the thread would protrude from the spool, thus interfering with the machine's mechanism. In production, such re-threading is performed by the sewing machine operator many times a day and the cumulative waste of time resulting therefrom reduces the operator's efficiency and increases the cost of production.

It is therefore an important object of the invention to provide a spool for a sewing machine which can be quickly and easily threaded.

Another object of the invention is to provide a spool for a sewing machine which will permit an easy severance of the loose end of the thread after it has been attached to the spool.

Still another object of the invention is to provide such a spool which will permit a quick attachment of the thread thereto.

A further object of the invention is to provide such a spool, which is simple in construction and inexpensive to manufacture.

These and other important objects of the invention will become apparent from the following description, when taken in connection with the accompanying drawings, forming a part of this application, and wherein like numerals refer to like parts throughout the same.

In the drawings:

Fig. 1 is a cross-section view of one embodiment of the spool.
Fig. 2 is a cross-section view taken on line 2—2 of Fig. 1.
Fig. 3 is a plan view of another embodiment.
Fig. 4 is a cross-section view taken on line 4—4 of Fig. 3.
Fig. 5 is a plan view of another embodiment of the device.
Fig. 6 is a cross-section taken on line 6—6 of Fig. 5.
Fig. 7 is a cross-section taken on line 7—7 of Fig. 6.
Fig. 8 is a broken away view of still another embodiment of the device and a section thereof.
Fig. 9 is a cross-section taken on line 9—9 of Fig. 8.
Fig. 10 is a view taken on line 10—10 of Fig. 9.
Fig. 11 is a plan view of still another embodiment of the device.
Fig. 12 is part plan and part cross-section view of the device of Fig. 11, and

Fig. 13 is a cross-section taken on line 13—13 of Fig. 12.

Referring now to the drawings in detail, there is shown in Fig. 1 in cross-section a spool 15 consisting of a cylindrical sleeve 17 formed with flanges 19 and 19a and peripheral indentations 21, 21a, which serve as a secure side rims 23, 23a to the sleeve to form the spool. These spool components are preferably made of steel by a stamping process and are attached to one another by a press in a manner well known in the art. The spool may also be molded from a suitable plastic material.

Secured longitudinally at its one end to the outer surface of sleeve 17 by means of screw 25 is a thin strip 27 of flexible resilient steel, the end 29 of which is spaced from the surface of sleeve 17 and side rim 23. The longitudinal edges of strip 27 are beveled to form cutting edges 31, 31a. A thread 33 may thus be inserted by passing it in the space between end 29 and sleeve 17 and pulled to the right of the spool shown in Fig. 1, until it is wedged and thus secured between strip 27 and sleeve 17, whereupon one or more turns of the thread may be wound around the sleeve 17 and over strip 27. The loose end of the thread 35 may then be severed by pulling it against the cutting edge 31a, if the thread is wound in the direction shown by the arrow in Fig. 2. The thread may be started in an opposite direction from that shown in Fig. 2, in which case the loose end may be similarly severed by pulling against edge 31.

In the embodiment of Figs. 3 and 4, rim 37 of spool 38 is provided with a slot 39, terminating in an annular opening 40 defined by a cutting edge 41. Secured to sleeve 45 is a flexible resilient metal strip, whose end 47 projects into slot 39. When it is desired to thread spool 38, thread 49 is passed through the space between rim 39 and strip 43 and into the annular opening 40 and wedged between the rim and the strip, as best seen in Fig. 4. The loose end, protruding through opening 40 is then torn off by pulling against edge 41 and the spool is wound on a spindle of the type shown at 85 in Fig. 12.

In the embodiment shown in Figs. 5, 6, and 7, there is secured to sleeve 53 of spool 50, by fastening means 55 a resilient metal strip 57, which bears against rim 59 and is spaced against the latter, just enough to clamp thread 60 when passed therethrough, by pushing strip 57 away from flange 59. Strip 57 is provided with cutting edges 61 and 61a, as shown in Fig. 7, either one of which may be employed to cut off a projecting end of the thread 60. The spool is then wound in the usual manner.

In the embodiment of Figs. 8, 9, and 10, sleeve 63 of spool 62 is made of flexible steel and is formed with a raised tongue 64, cut out from the sleeve body. Tongue 64 is provided with cutting edges 65 and 65a and is biased from the outer face of sleeve 63 just enough to allow the passage and wedging of thread 67 thereunder. The thread is passed under tongue 64, as shown in Fig. 9 and its projecting end 69 cut off by pulling against either of the cutting edges, depending on the direction in which the spool is to be wound.

In the embodiment of Figs. 11, 12, and 13, sleeve 71 of spool 70 is provided with a longitudinal slot 72 formed with extensions 74, 74', between which is pivotally mounted, by means of pin 75, a thread wedging and cutting element 79. Part 84 of element 79 is longer, and therefore heavier than part 82. Therefore, when sleeve 74 is held in a horizontal position, part 84 is tilted upwardly by the weight of part 82, to permit the insertion of thread 81, as shown in Fig. 11. Part 84 is provided on one side with a beveled cutting edge 83 (Fig. 13). Thread 81 is passed between part 84 and sleeve 71 and spool 70 mounted on spindle 85 of the winding spindle of a sewing machine. Spindle 85 raises part 82 into the
position shown in Fig. 12, and part 84 moves into slot 72 and clamps thread 81 while loose end 81 of the thread is cut off by cutting edge 83.

It is to be understood that the forms of the invention herewith shown and described are to be taken as preferred examples of the same, and that various changes in the shape, size and arrangement of the parts may be resorted to, without departing from the spirit of my invention or the scope of the subjoined claims.

Having thus described the invention, I claim:

A spool for thread for use in a sewing machine comprising in combination a hollow cylindrical sleeve on which the thread may be wound, a pair of circular rims rigidly secured to the ends of said sleeve, one of said rims having a radial slot terminating in an annular aperture adjacent and exteriorly of said sleeve, said aperture being defined by a cutting edge adapted for cutting off the thread when inserted in said aperture, and a resilient flat strip extending radially of the inner face of said one rim, whose one end is secured to said sleeve adjacent said aperture, the other end of said strip extending into said slot, said other end being adapted for bending away from said one rim to allow the insertion of a thread between said rim and said strip.

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