

A. N. CHARTIER.
THREAD COP.
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Fig. 1

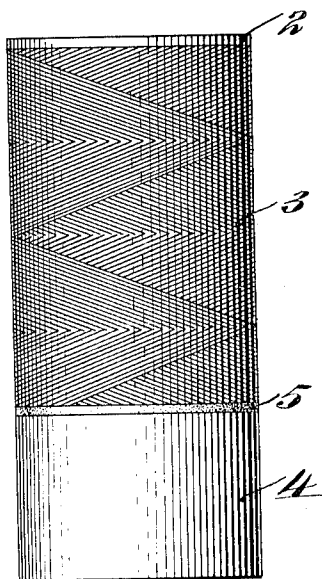
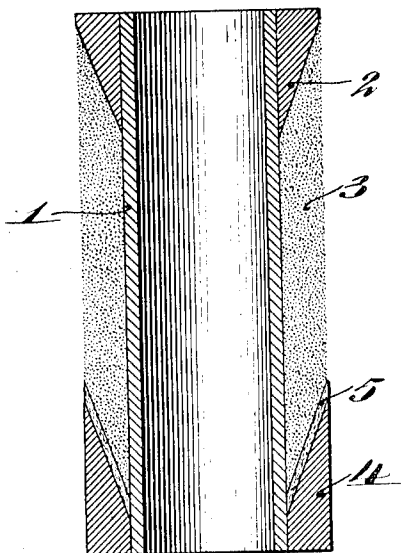


Fig. 2.



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UNITED STATES PATENT OFFICE.

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THREAD-COP.

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To all whom it may concern:

Be it known that I, ARTHUR N. CHARTIER, a citizen of the United States, residing at Dorchester, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Thread-Cops; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled to the art to which it appertains to make and use the same.

The present invention relates to thread cops, and more particularly to that type of thread cop which is wound with a hard thread and used in connection with high speed sewing machines of various types.

More or less difficulty has been experienced in winding cops for this character of work which are both inexpensive to manufacture and from which the thread may be delivered at high speed without snarling or otherwise catching. In one type of cop at present used, a spool having two tapered heads is provided and the thread body is wound thereon in a series of overlying layers gradually increasing in length, the various coils of thread lying substantially parallel to one another. This is known as the plain type of winding and if the surface of the spool is irregular in contour or the thread is wound without sufficient tension, the outer coils of thread are forced down between the adjacent coils beneath, causing the thread to catch or snarl when it is drawn from the spool. In another type of cop which is largely used, the thread body is wound upon a cylindrical tube or core in a series of overlying layers, each consisting of a plurality of spiral coils of thread arranged obliquely to the coils next beneath and forming what is known as a universal winding. When winding this type of cop, the thread is traversed automatically lengthwise of the spool, once for each two or three rotations of the core and each of the overlying layers is the same length. Thus a cylindrical thread cop having flat ends is formed and as the thread is delivered from the cop supported in a vertical position, the upper end must be left unprotected in order to allow the thread to be properly delivered by the cop. On account of the lack of protection for this end, the coils of thread not only become dirty, but are often loosened and snarled by objects with which they come in contact. From the above, it will be seen

that the first form of cop is readily susceptible to faults in the manufacture, which render it unfit for use when the thread is to be delivered at high speed, and with the second form large quantities of thread are often wasted owing to the slipping of the coils and consequent snarling when the cop is lying around and not in use.

The object of the present invention is to provide a thread cop for this type of work having a protected thread body which may be wound inexpensively and in which the uniform delivery of the thread will not be affected by imperfections in the core or winding.

With this object in view, the various features of the invention consists in certain novel features of construction, combinations and arrangements of parts hereinafter described and claimed, the advantages of which will be obvious to those skilled in the art from the following description.

In the accompanying drawings illustrating the preferred form of the invention; Figure 1 represents an elevation of a thread cop embodying the features of the invention in their preferred form; and Fig. 2 is a longitudinal section in elevation of the cop shown in Fig. 1.

It is a desirable requisite in thread cops of this character that the thread body shall be wound in such a manner that imperfections in the contour of the spool or the winding shall not affect the uniform delivery of the thread from the cop. It is further desirable that the thread body shall be protected when wound upon the core to prevent the loosening and snarling of the outer coils by contact with other objects when the thread cop is not in use.

The thread cop shown in the illustrated embodiment of the invention comprises a cylindrical core or tube 1, having a tapered head 2 supported upon one end and a thread body indicated at 3 wound upon the core 1. The core may consist of any suitable material but it is preferred to make it in the form of a paper tube having the wooden head 2 secured to one end. In the present invention the universal winding is employed which winding consists, as stated previously, of successive overlying layers of thread of uniform length, each layer being made up of a plurality of coils wound spirally from end to end of the cop and positioned obliquely to the coils next beneath.

In order to cause the upper end of the thread body to lie closely to the head 2, the spool is fed lengthwise after each layer has been wound, thus causing the thread body to be built with a cup-shaped upper end conforming to the taper of the head, as shown clearly in Fig. 2. This forms a thread body made up of a plurality of overlying cylindrical layers having one end tapered and the opposite end, from which the thread is drawn, cup-shaped to closely embrace the tapered head of the cop. In order to protect the tapered end of the thread body after it has been wound, a detachable head 4 having a cylindrical outer surface and a tapered recess conforming to the tapered end of the thread body is secured to the end of the tube 1. Thus after the cop is wound, the opposite ends of the thread body are protected by the heads 2 and 4, and the thread is delivered without catching or snarling from the upper end of the cop, as shown in Fig. 2. For this type of work a hard thread having a smooth silky finish is employed and as this thread is exceedingly wiry the coils become very easily loosened from the thread body, and if not prevented, are liable to slip down and catch between the lower portion of the thread body and the head 4. To prevent this, the inner tapered surface of the head 4 is faced with a layer of compressible material 5 which presses against the thread body when the head is in place and prevents the entrance of the loose coils of thread between the body and the head.

In operation, the thread cop is supported vertically, as shown in the drawing, and the thread is delivered from the upper end, the tapered head 2 enabling the thread to be paid out without catching upon the head and the universal winding preventing the catching or snarling of the outer coil of thread between adjacent coils underneath. When the thread cop is not in use, the thread body is protected by the heads 2 and 4, the outer surfaces of which are substantially flush with the surface of the thread body when the cop is full, thus preventing the loosening of the outer coils by contact with exterior objects.

While it is preferred to employ the spe-

cific construction and arrangement of parts shown and described, it will be understood that this construction and arrangement is not essential except so far as specified in the claims, and may be changed or modified without departing from the broader features of the invention.

The invention having been described, what is claimed is:—

1. A thread cop comprising a core having a tapered head upon the end from which the thread is drawn, a thread body wound thereon and consisting of a plurality of layers of uniform length wound universally, each succeeding layer being spaced lengthwise of the core, and a head supported upon the opposite end of the core and inclosing the tapered end of the thread body.

2. A thread cop comprising a core having a tapered head upon one end, a thread body wound thereon consisting of a series of cylindrical layers of uniform length wound universally, each succeeding layer being spaced lengthwise and the outer layer having its surface substantially flush with the outer edge of the tapered head.

3. A thread cop comprising a core, a tapered head supported upon the end of the core from which the thread is drawn, a thread body wound thereon consisting of a series of cylindrical layers of uniform length, each succeeding layer being spaced lengthwise of the core, and a head secured to the opposite end of the core and having a tapered recess fitting the tapered end of the thread body.

4. A thread cop comprising a core having a tapered head upon one end, a thread body wound thereon consisting of a series of layers of uniform length, each succeeding layer being spaced lengthwise, a head secured to the opposite end of the core and having a tapered recess, and a layer of compressible material secured in the tapered recess and engaging with the lower end of the thread body.

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