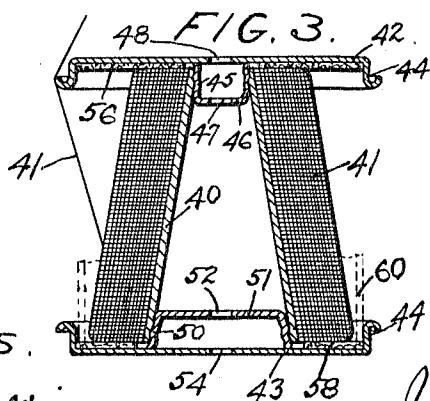
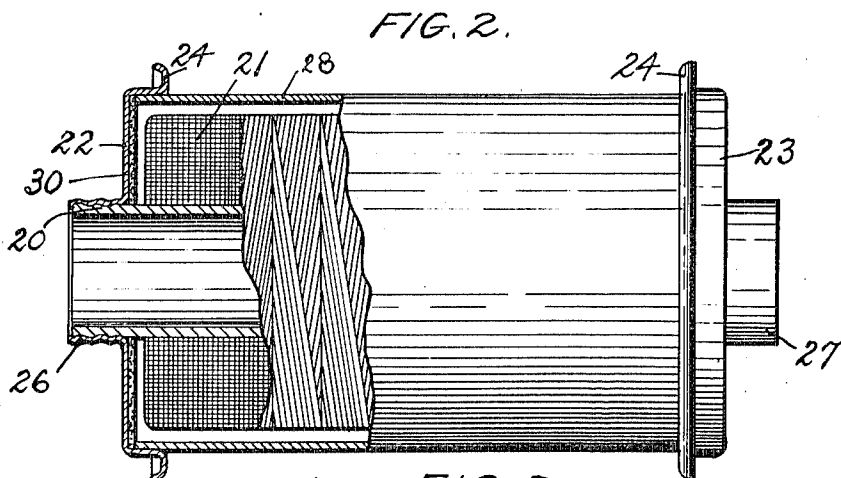
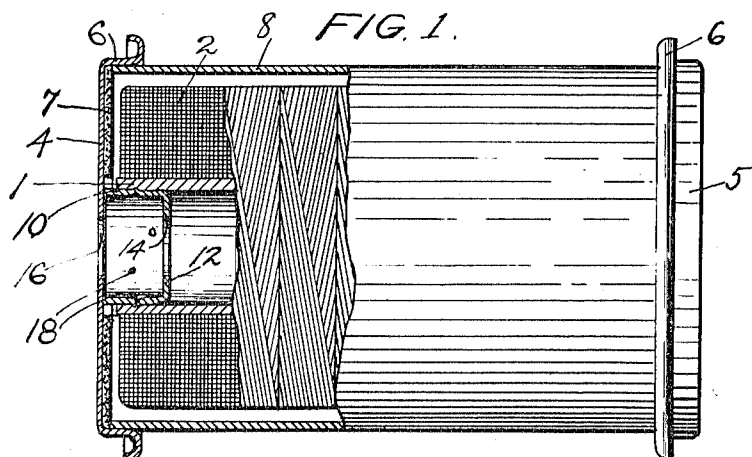


J. W. WEST.
 THREAD PROTECTOR.
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1,120,004.

Patented Dec. 8, 1914.



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JOHN W. WEST, OF EAST BRAINTREE, MASSACHUSETTS.

THREAD-PROTECTOR.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN W. WEST, of East Braintree, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Thread-Protectors, of which the following is a specification.

This invention relates to an improvement in devices for protecting thread, and is primarily intended as an improvement upon the protector for tube thread shown in my Patent No. 1,001,718 dated August 29, 1911, although in some of its broader aspects the invention is adapted for other uses. In said patent I have shown a protector for tube thread having heads provided with hollow bosses or stems for engaging the interior of the tube upon which the mass of thread is wound. Between the heads and the ends of the mass of thread I provided yielding material, such as felt or the like, to prevent friction between the heads and the thread when the heads are forced tightly against the thread. It has been found that when thread is allowed to remain in contact with metal carriers, such as spools or the like, climatic changes cause moisture to condense and collect on the metal. This moisture acting on the dye and other chemicals contained in the thread has a deleterious effect upon the thread, causing the latter to become discolored and deteriorate in strength. I have found that when felt is employed between the thread and the metal heads of the carrier and held in intimate contact with said thread, there is a tendency for the moisture which condenses on said metal to pass through said felt into contact with the thread.

I have found that by employing a bibulous material which will absorb moisture it obviates the difficulty noted above. A suitable material of this character consists of a comparatively cheap soft finished building paper, approximately a sixteenth of an inch in thickness. This material is soft enough to prevent injury to the thread due to friction when the heads are forced up tightly against the same; it absorbs the moisture so that it disappears entirely from the surface and is held within the mass of the material where it cannot come in contact with the thread; and it is much cheaper than felt for a packing material.

A further feature of the invention con-

templates the provision of a protector for conical tubes or cops of thread. When the thread is drawn off a conical cop of thread in the ordinary manner, it leaves the mass of thread in a direction substantially parallel to the outer surface of the cop and in contact therewith. With some grades of thread which do not have a smooth hard finish there is a tendency of the thread to catch as it is drawn off. Accordingly, by providing a conical cop with heads the thread is prevented from snarling at either end, and the head on the smaller end of the cop deflects the thread while drawn off, so that there is no tendency to catch against the surface of the mass.

The invention will be readily understood from an inspection of the accompanying drawings, in which—

Figure 1 is a sectional side elevation of one embodiment of the invention; Fig. 2 is a similar view of a modified form; and Fig. 3 is a central longitudinal section of a conical cop of thread embodying the invention.

As shown in Fig. 1 of the drawings, the carrier comprises a tube 1, made of paper or other suitable material, upon which a mass of thread 2 is wound. This mass of thread is generally cylindrical and of any length and diameter, according to the number of yards and size of thread. In this form of the invention the ends of the tube 1 are substantially flush with the ends of the mass of thread 2. A pair of heads 4, 5 are provided, preferably of sheet metal, and formed with a peripheral flange 6. This flange deflects the thread during use, to prevent the thread as it is being drawn off the mass from creeping between the head and the end of the mass and thereby becoming snarled about the tube 1. Said flanges also hold a protecting shell 8 in place about the thread to protect the latter during shipment and handling.

Projecting from the inner face of each head is a boss or stem 10, which is preferably made of sheet metal and secured to the inner face of the head by solder. It has a flat inner end 12, which is provided with a hole 14 adapted to receive the spindle of a stand or machine upon which the thread is being used. The head of the protector is also provided with a hole 16 of the same size as the hole 14 and in alinement therewith. These

holes are provided so that the spindle can enter both and thus prevent tipping of the mass of thread as it is drawn off during use.

The periphery of the boss 10 may be provided with projections for engaging the interior of the tube 1. These are conveniently shown as small protuberances 18, which may be formed by upsetting the metal of the boss, as by means of a prick punch. These projections engage the interior of the tube 1 with sufficient friction to hold the head when forced tightly against the end of the mass of thread.

In many instances the paper tube extends beyond each end of the mass of thread, as shown for example in Fig. 2. In this form of the invention the tube 20 is also of paper, upon which a mass of thread 21 is wound, so that the ends of the tube project beyond the ends of the mass about half an inch, more or less. The protector comprises a pair of heads 22, 23, preferably of sheet metal, and each provided with a thread deflecting flange 24. The heads 22, 23 are preferably substantially flat and provided with hollow bosses 26, 27, respectively. These bosses may be made of sheet metal and soldered to the head, or they may be made integral with the head and formed by spinning or otherwise. These bosses may be smooth bored, as 27, and adapted to tightly fit the exterior of the tube 2, or they may be formed with spiral corrugations, as 26, or they may be provided with projections such as are shown in Fig. 1.

An annular ring of packing material 7, 30, is arranged to be held in the heads 4, 5 and 22, 23, respectively, so as to surround the tubes 1 and 20, respectively, and loosely fit the same. This packing material is of a bibulous character, preferably a comparatively soft paper, such as is used in floors and walls of buildings. This material absorbs any moisture which may condense upon the inner face of the head by which it is carried, and prevents the moisture from coming in contact with the thread. This material retains the moisture within itself and does not allow it to be squeezed out when the head is forced tightly against the end of the mass of thread. A protecting shell may also be employed to inclose the mass of thread, and it is held in place by the flanges 24. This shell may be of card board, metal, or other suitable material, and in some instances a paper wrapping may be placed about the mass of thread and extend between the heads.

In the form shown in Fig. 3 the tube 40 is conical, and carries a conical mass of thread 41. A pair of heads 42, 43 are provided, preferably of sheet metal, and formed with a peripheral flange 44. Projecting from the inner face of the head 42 is a boss or stem 45, which is preferably made of

sheet metal and secured to the inner face of the head by solder. It has a flat inner end 46, which is provided with a hole 47 located in alinement with a similar hole 48 in the head 42. Projecting from the inner face of the head 43 is a conical boss 50, also preferably made of sheet metal and soldered to the inner face of the inner head. This boss is adapted to tightly fit the larger end of the tube 40 and is also provided with a flat inner end 51 having a hole 52 located in alinement with a similar hole 54 in the head 43. The outer peripheries of the bosses 45 and 50 are preferably formed with spiral corrugations or screw threads, although they may be plain or provided with small projections, as shown in Figs. 1 and 2.

An annular ring of packing material 56 is arranged to be held in the head 42 and is provided with a central opening which is slightly larger than the small end of the conical tube 40. The head 43 is provided with a similar sheet of packing material 58, having a central opening slightly larger than the large end of the tube 40. The heads 42 and 43 are preferably made of the same size so that a cylindrical protecting shell 60 may be employed, similar to the shells 8 and 28.

The outer shells 8, 28 and 60 are preferably made of such a length that when the heads are forced up tightly against the ends of the former there will be an air space between the ends of the mass of thread and the packing material. This provides additional protection for the thread against injury by moisture, especially when the thread is stored in this condition for a considerable period of time. When it is desired to use the thread, the protecting shell may be torn off, or one of the heads is removed from the tube and then the protecting shell or wrapping is removed. The head is then replaced upon the tube, or under some circumstances the upper head need not be replaced. The head or heads are then forced up tightly against the mass of thread to bring the packing material into intimate contact therewith, as shown in Fig. 3, and then the thread is placed in position upon a suitable support or spindle. When the thread is drawn off and reaches an end of the mass, it is guided away by the peripheral flange on the corresponding head and is prevented from breaking away the corners of the mass, and the packing material aids in preventing the thread from creeping between the protector heads and the mass of thread, thereby keeping the thread from snarling about the spindle.

By having the heads of the same size on the conical cop, the upper head is considerably larger in diameter than the corresponding end of the cop, so that when the thread 41 is drawn off during use, it is deflected

away from the body of the cop as is clearly shown in Fig. 3, thereby obviating any tendency toward catching against the mass of thread. This is especially advantageous with threads having a soft finish. Although the cop is shown in an upright vertical position, it may be held in a horizontal or an inverted position.

While the present illustrative embodiments of the invention are described in connection with tube thread, or cops, it should be understood that the bibulous material may be employed with other forms of thread carriers having metal heads, and that my invention contemplates the use of such material for any form of thread carrier having a metal head or heads.

What I claim is:—

1. A thread carrier provided with a pair of metal heads adapted to receive a mass of thread therebetween, and bibulous material on said heads adapted to bear against the ends of the mass of thread to absorb the moisture condensed on the contiguous surface of the head with which it is in contact and preventing the moisture from coming in contact with the thread.

2. A thread carrier provided with a pair of metal heads adapted to receive a mass of thread therebetween, and a mass of paper arranged to be held against the ends of the thread by said heads to absorb the moisture condensed on the contiguous head but preventing said moisture from coming in contact with the thread.

3. The combination with a tube having a mass of thread wound thereon, a pair of heads having provision for engaging said tube to hold them in place thereon, and an annular sheet of thick soft paper arranged

to be held between each head and the opposing end of the mass of thread.

4. The combination with a tube having a mass of thread wound thereon, a pair of metal heads having provision for engaging said tube to hold them in place thereon, an annular sheet of thick soft paper arranged to be held between each head and the opposing end of the thread, and a protecting covering surrounding the mass of thread and extending between said heads.

5. A protector for tube thread, comprising a metal head having provision for engaging the tube upon which the mass of thread is wound to hold the head in place against the thread, and a sheet of bibulous material on said head adapted to be held in intimate contact with the thread by said head to absorb the moisture condensed on the inner face of said head and prevent it from passing through into contact with the thread.

6. A thread carrier, comprising a tube adapted to receive a mass of thread thereon, a pair of heads connected to the ends of the tube, and a sheet of material adapted to be held between each head and the opposing end of the mass of thread, said material absorbing into itself any moisture which condenses on the inner face of the head against which it bears, so that said moisture will not pass therethrough into engagement with the thread.

In testimony whereof I have affixed my signature, in presence of two witnesses.

JOHN W. WEST.

Witnesses:

WILLIAM J. SPERL,
L. J. CARR.