Sept. 17, 1957 L. MARCOFF-MOGHADAM 2,806,660

THREAD FEEDING AND CLAMPING DEVICE

Filed Sept. 11, 1956

Fig. 1.

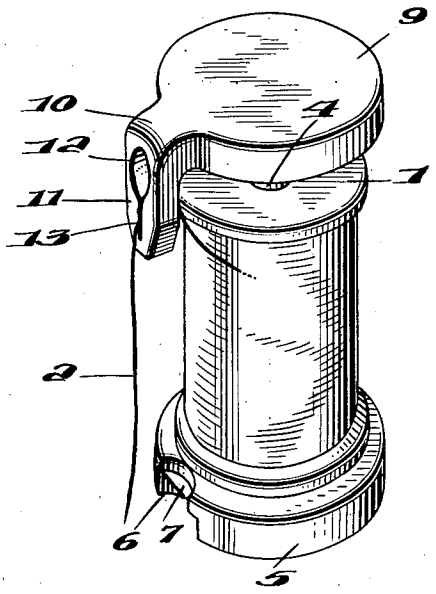


Fig. 2.

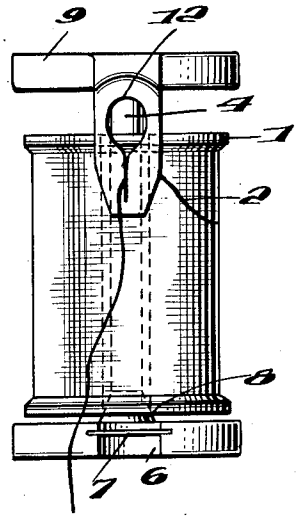


Fig. 3.

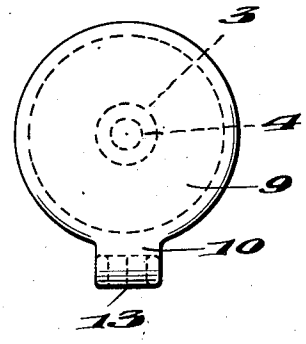
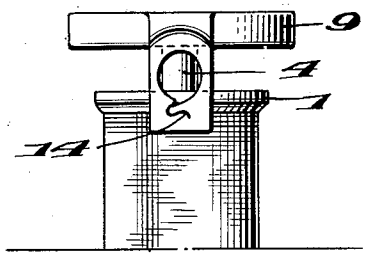


Fig. 4.



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THREAD FEEDING AND CLAMPING DEVICE

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Application September 11, 1956, Serial No. 609,280

1 Claim. (Cl. 242—125.3)

This invention relates to a device for preventing thread, yarn, wire, or the like, from unreeling from a spool upon which it has been wound.

The invention herein described and claimed is a modification of the inventions described and claimed in my application Serial No. 597,192, filed July 11, 1956, which is a continuation-in-part of my application Serial No. 589,627, filed June 6, 1956, now abandoned.

Thread, yarn, wire, string, and the like are usually sold on spools, usually of wood, but sometimes of other materials. After the initial use of some of the thread it is difficult to keep the thread from unreeling from the spool and from becoming tangled. Where a housewife or seamstress, for example, keeps a number of spools of thread of different colors in a sewing box or basket, this becomes somewhat of a problem. Manufacturers of thread, in an effort to solve the problem, have placed angular notches in the periphery of one end of the spool, in which notches the end of the thread may be disposed and retained when the thread is being stored. Such notches are somewhat satisfactory, but frequently breakage occurs so that the wood material adjacent to the notch breaks off, eliminating the notch completely. Moreover, even when the notch remains, it has not proved satisfactory with certain types of thread, such as with nylon, which, because of its slippery surface, is difficult to retain in any one position.

The present invention is designed to overcome these difficulties. Generally, it is comprised of a spindle or the like adapted to be disposed within the central bore of the spool. The spindle at one end is provided with a circular disc of slightly greater diameter than that of the spool and disposed axially on the end of the spool. The spindle, adjacent the disc, is formed with a frusto-conical portion the larger diameter of which is adjacent the disc. This frusto-conical portion provides wedging means which, as will be referred to hereinafter, prevent the spool from rotating on the spindle when it is in wedged position on the frusto-conical portion. At the other end of the spindle there is another disc which is removably attached to the spindle so as to permit the spool to be inserted on the spindle. This removable disc is of a diameter also slightly larger than that of the spool and it is provided with an integrally formed arm which extends outwardly and then down over the thread surface of the spool a short distance. This integral arm is provided with a relatively large opening through which the thread passes, the lower surface of said opening being provided with a slit into which the thread may be pulled and clampingly engaged when it is desired to prevent the thread from unreeling. Except when the spool is in wedged position on the frusto-conical portion, the spool is disposed loosely on the spindle so that it may rotate with respect thereto. The arrangement is thus that, selectively, the spool may either be loosely disposed on the spindle so that it may rotate about the spindle, or may be wedged on the frusto-conical portion so as to be rigid with the spindle. In the loose position thread may be removed from the spool, while in the wedged position, the spool may not rotate on the spindle and the thread is clampingly engaged in the slot. The thread is thus positively prevented from unreeling from the spool.

The principal object of the invention is to provide such a device.

Several forms of the invention have been illustrated in the accompanying drawings, in which:

Fig. 1 is a perspective view of one form of the invention showing the thread clampingly engaged;

Fig. 2 is a front elevation view of the same;

Fig. 3 is a top view; and

Fig. 4 is a partial front elevational view of a modified form of thread clamping means.

With reference to the embodiment of the invention illustrated in Figs. 1, 2, and 3, the reference numeral 1 indicates a spool upon which thread 2 is wound. The spool 1 may be of the usual type and made of wood and is provided with a central axial bore 3.

In accordance with this invention the device is comprised of a spindle 4 which is cylindrical and of a diameter so that it fits loosely within the bore 3 of the spool 1. As shown in the drawings, the spindle 4 is of a length greater than the axial length of the spool.

At its lower end the spindle 4 is rigidly joined, or is integral with, a circular base in the form of a disc 5. This disc is provided with a small cutout 6 and a knife blade 7 is disposed in the cutout and is embedded in the disc 5.

The spindle, adjacent the base disc 5, is of greater diameter than the axial bore 3. This portion of greater diameter is in the form of a frusto-conical wedge 8.

Removably secured to the upper end of the spindle 4, such as by a screw connection or the like, is a flat circular top member 9 which also is of a diameter slightly greater than the diameter of the spool 1. Integral with the circular top 9 is a thread guide and clamping device 10 which is in the form of an integral outwardly and downwardly extending arm 11. The arm 11 is provided with an enlarged opening 12 for the normal passage of the thread when it is being unwound. The lower surface of the opening 12 joins with a downwardly extending slot 13. As will be appreciated, the thread 2 from the spool 1 is passed through the opening 12.

The device operates in the following manner. When it is desired to prevent the thread from unreeling from the spool, the parts are disposed in the position shown in Figs. 1 and 2 with the bore of the spool being wedged on the frusto-conical wedge 8, and with the thread 2 being clampingly engaged in the slot 13 in the downwardly extending arm 11. When it is desired to remove thread, the spool is moved upwardly on the spindle so as to disengage it from the frusto-conical wedge 8 and so that it may rotate freely on the spindle, and the thread is pulled upwardly into the enlarged opening 12. By holding the circular top 9 and base 5 between thumb and forefinger of one hand and pulling on the thread with the other, the spool will rotate as the thread is removed therefrom. When the desired amount of thread has been removed, the spool is moved downwardly into wedging position on the frusto-conical wedge 8, the thread is pulled downwardly into the slot 13 and is then drawn across the thread-severing knife 7.

I have found that, advantageously, the device may be comprised of plastic material, with the exception of the thread-severing knife edge 7. In some instances the slot 13 will produce an elastic wedge effect. This in part depends on its exact formation, dimensions, and the plastic material of which the device is made. In other instances, it will prove satisfactory that the slot 13 effect the plain wedge action. This is satisfactory in most instances, since there is very little pull or strain exerted by the thread when it is merely being held from unreeling.

The modification illustrated in Fig. 4 is similar to that illustrated in Figs. 1, 2, and 3 except for the formation of the slot. In this instance the slot which is akin to the slot 13 of the embodiment of Figs. 1, 2 and 3, and, which, in the modification of Fig. 4 is designated by the reference numeral 14, is in the form of a curlicue, the purpose of this being to help to retain the thread in a clamped position to prevent it from being accidentally pulled from the slot. In other respects the arrangement there shown is similar to the first embodiment.

One of the advantages of the present invention is that it can be used in connection not only with spools of thread of different sizes but also with spools of other materials, such as yarn, cord, string, ribbon, surgical sutures, and wire. It is to be understood that the word "thread" as used herein is intended to cover any of the foregoing materials.

Moreover, it should be apparent that the invention can be employed with spools of different shapes, including, for example, those used for some kinds of wire and which are comprised of rather large parallel disc ends separated by a relatively narrow intermediate portion on which the wire is wound. It is, of course, essential that the spool have a central bore to receive the spindle of the device.

Still further, it should be clear that the invention can be used in connection with the type of device shown in my earlier application Serial No. 589,627, which device is comprised of a spindle having a knob or disc at one end only. In such event the thread guiding and clamping means, instead of being of wire, will be of plastic or the like and integral with the disc or knob by which the device is grasped. In form it may be similar to either of the upper dics and arms shown in the accompanying drawings. In such event the frusto-conical wedge will be on the upper end of the spindle adjacent the upper disc.

While in a general manner there has been disclosed what are deemed to be practical and efficient embodiments of the invention, it should be well understood that the invention is not to be limited thereto as there might be changes made in the arrangement, disposition, and form of the parts without departing from the principle of the

invention as comprehended within the scope of the accompanying claim.

I claim:

A device for controlling the removal of thread from a spool, said device comprising a spindle adapted to extend through the bore of a spool to form an axle about which the spool may rotate, circular disc members joined to each end of said spindle, said disc members being parallel to each other and to the top and bottom of a spool when the same is disposed on said spindle, said spindle adjacent one of said disc members being formed as a diverging frusto-conical wedge portion the smaller diameter of which is less than the diameter of the bore of a spool, said spindle exclusive of said wedge portion being of a length greater than the length of a spool to be disposed thereon, whereby selectively the spool may be disposed on said spindle for free rotation thereon when it is desired to withdraw thread therefrom or the spool may be shifted axially with respect to said spindle to become wedged on said wedge portion to lock the spool against rotation on said spindle, at least one of said disc members being removably joined to said spindle to permit a spool to be placed on the spindle, thread guiding and clamping means including an arm extending laterally from one of said disc members and then in a direction toward the other disc member to overlie a portion of the thread surface of a spool disposed on the spindle, a guide through which the thread may be passed to be guided thereby when thread is being withdrawn from the spool and a clamp for clampingly engaging the thread when the spool is locked against rotation on the spindle, said arm and the disc member carrying the same being of plastic and being integral, and said guide comprising an enlarged opening in said arm and said clamp comprising a slit in said arm, one end of which slit connects with said opening.

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