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[54] **APPARATUS FOR PROVIDING A THREAD RESERVE ON A WINDING BOBBIN OR THE LIKE**
4 Claims, 1 Drawing Fig.

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[56] **References Cited**

UNITED STATES PATENTS

2,517,625	8/1950	Bauer et al.	242/18 PW
2,638,279	5/1953	Winslow	242/18 PW
3,166,262	1/1965	Vanneman, Sr.	242/19
3,251,560	5/1966	Macedo	242/18 PW
3,275,252	9/1966	Bolger	242/18 PW
3,276,704	10/1966	Pabis	242/18 PW
3,282,516	11/1966	Porter	242/18 PW

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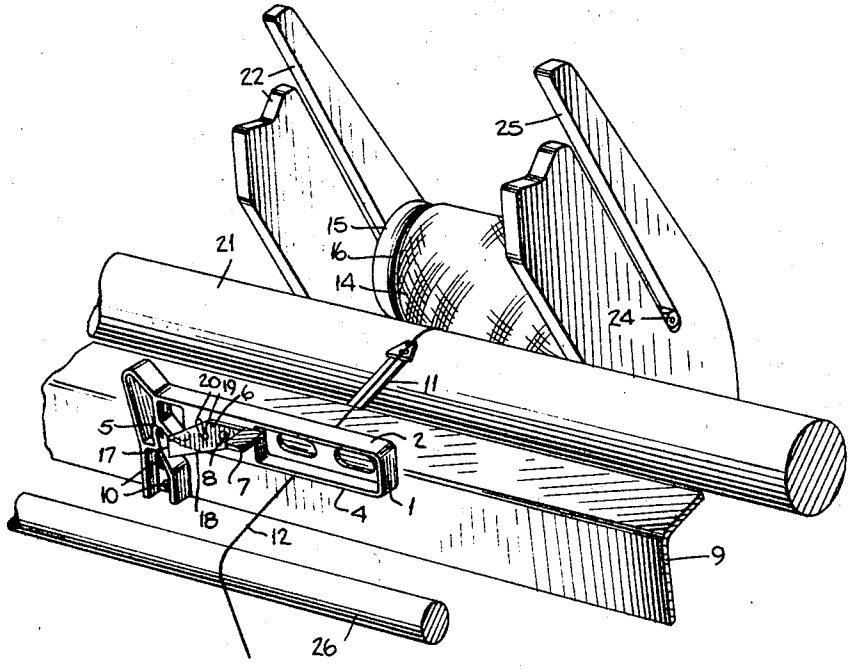
ABSTRACT: Apparatus for providing a thread reserve on a winding bobbin or the like wherein the advancing thread is shifted from the reserve area on the winding device to the takeup area with a minimum of manual operations when a new winding device is started.



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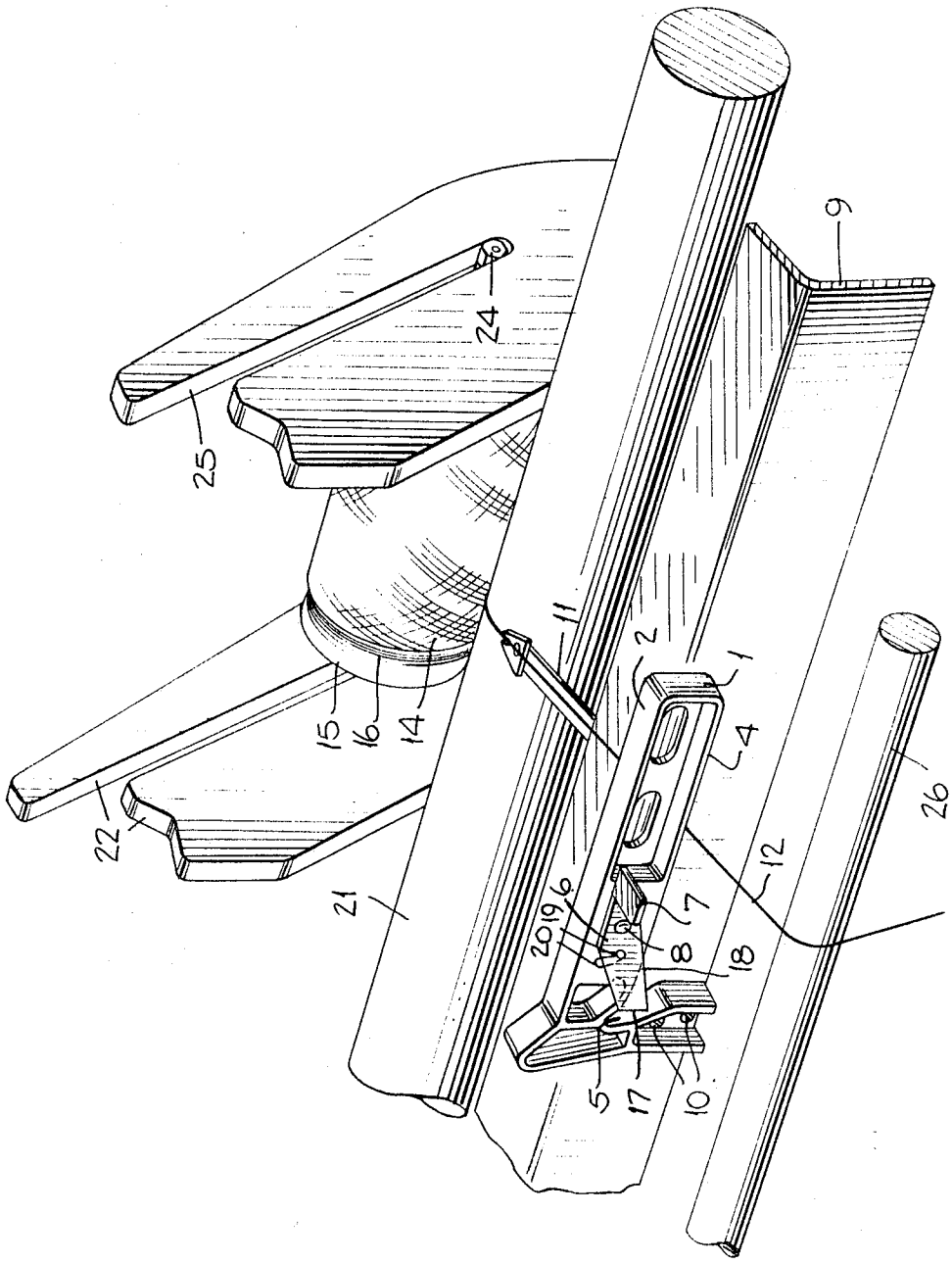

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APPARATUS FOR PROVIDING A THREAD RESERVE ON A WINDING BOBBIN OR THE LIKE

This invention relates to winding or takeup apparatus; and more particularly to such apparatus which provides a yarn or thread reserve on a new bobbin, for example, and then permits normal takeup on the bobbin with a minimum of manual control.

When winding or taking up yarns or threads, it is of course necessary to immobilize the takeup bobbin when same is fully wound and before starting a new bobbin. This is done by separating the bobbin from its driving means; and at this point, the delivery of yarn or thread (hereafter thread) is usually interrupted.

Heretofore a thread reserve on a new bobbin has been effected by manually drawing away the length of thread necessary for the transition from the wound to the unwound or new bobbin. Several reserve windings were then placed around the new bobbin either by hand or by machines, the beginning of the thread having first to be fixed on the bobbin.

It is also known to fix the thread end on the winding bobbin by means of an adhesive or flocked surface on the winding support.

Those skilled in the art will of course appreciate that the reserve is useful for subsequent knotting of the ends of thread on several bobbins to provide a single length of thread; and the reserve should be only long enough conveniently to permit the knotting.

The foregoing procedures involve excessive loss of time and thread waste.

We have conceived by out invention a novel apparatus which eliminates the foregoing difficulties and disadvantages and renders almost automatic the formation of a thread reserve on a new bobbin when same is placed into takeup position.

In essence, our novel apparatus for the formation of a thread reserve on a thread winding or takeup device while the thread advances towards such device comprises: thread guide means positioned in advance of the takeup device as viewed in respect of the direction of the advancing thread, the guide bar having a lower surface substantially parallel to the longitudinal axis of the takeup device and extending across the winding or takeup range thereof, and a second surface merging with the lower surface and positioned in advance of a reserve range of the takeup device, and switch means adjustably positioned relatively to the guide means for maintaining the thread in the range of the second surface and adapted to release same from that range.

There has thus been outlined rather broadly the more important features of the invention in order that the detailed description thereof that follows may be better understood, and in order that the present contribution to the art may be better appreciated. There are, of course, additional features of the invention that will be described hereinafter and which will form the subject of the claims appended hereto. Those skilled in the art will appreciate that the conception upon which this disclosure is based may readily be utilized as a basis for the designing of other structures for carrying out the several purposes of the invention. It is important, therefore, that the claims be regarded as including such equivalent construction as do not depart from the spirit and scope of the invention.

A specific embodiment of the invention has been chosen for purposes of illustration and description, and is shown in the accompanying drawing, forming a part of the specification wherein the single FIGURE is a perspective view illustrating an embodiment of our invention in operative position relative to a winding or takeup device.

Referring now to the drawing, the guide bar **1** is shown as comprising an upper flat rigid surface **2** and a lower flat rigid surface **4** merging with a curved, generally inverted U-shaped surface **5**. The guide bar **1** may conveniently be formed of a synthetic plastic material or a suitable metal.

A flat switching lever **6** formed with a finger plate **7** is pivotally mounted to the guide bar by a rivet **8**; and the guide bar itself is mounted on an angle bar **9** by means of screws **10** such that the lower surface **4** lies substantially in the same plane as a transverse thread guide **11** and that the thread **12**, while advancing in the range of the surface **4** passes to the winding range **14** of a bobbin **15**. It will be seen that in this position, the thread, when advancing in the range of the curved surface **5** of the guide bar passes to the reserve range **16** of the bobbin.

The switching lever **6** is formed with a straight edge **17** adjacent the curved surface **5** of the guided bar, and the finger plate **7** is preferably positioned on the side of the rivet **8** opposite the edge **17**. The lower edge **18** of the switching lever is inclined upwardly and to the right as viewed in the thread-advancing direction so that its plane intersects the plane of the edge **4**. The rivet **8** is so positioned relatively to the center of gravity of the lever **6** that the latter tends normally to assume the position shown, its pivotal movement being limited by a pin **19** fixed to the lever and extending into an arcuate groove **20** in the bar **1**.

In operation, a wound bobbin is removed from contact with the drive shaft **21** and lifted from the bobbin support **22** by sliding its axle **24** upwardly in the support guide grooves **25**. Simultaneously, the thread **12** is necessarily removed from the thread guide **11**. The thread **12** is then laid into a hook (not shown) fixed to the front of the machine to maintain tension, and is manually guided along the lower edge **18** of the switch **6** from the guide bar surface **4** to the curved surface **5**.

The reserve range of the new or empty bobbin is then placed into contact with the thread and is lowered into the bobbin support **22** by sliding the axle **24** down into the grooves **25**. The reserve thread commences to be wound on the bobbin when the bobbin contacts the rotating drive shaft **21** and the thread is automatically torn off the U-shaped hook (not shown). During reserve winding, the edge **17** of the switch lever confines the thread in the range of the curved surface until sufficient reserve thread is wound on the bobbin. The finger plate **7** is then depressed to pivot the switch lever **6** in a clockwise direction as viewed, thereby to release the thread from the range of the curved surface **5** of the bar **1**. As the switch lever **6** is allowed to descend counterclockwise by gravity, its lower edge **18** urges the thread from the range of the curved surface **5** to that of the surface **4** of bar **1**, and consequently from the reserve range **16** of the bobbin to the winding range **14** thereof. The thread passing over the bar **26** and under the surface **4** to the bobbin-winding range **14** advances across the path of the oscillating traverse guide **11** and is automatically received by same, thus completing the transition.

From the foregoing description, it will be seen that the apparatus of the present invention materially reduces the number of manual operations necessary to change a bobbin and provide for a thread reserve while permitting rapid changeover with practically no thread loss.

We believe that the construction and operation of our novel device will now be understood and that the advantages of our invention will be fully appreciated by those persons skilled in the art.

We claim:

1. Apparatus for the formation of a threaded reserve on a thread-winding or takeup device while the thread advances towards such device, comprising: thread guide mans positioned in advance of the takeup device as viewed in respect of the direction of the advancing thread, said guide means having a lower surface substantially parallel to the longitudinal axis of the takeup device and extending across the winding or takeup range thereof, and a second curved surface merging with said lower surface and positioned in advance of a reserve range of said takeup device and switch means adjustably positioned by a pivot relatively to said guide means for maintaining the thread in the range of said second surface and adapted to release same from that range, the axis of the pivot by which said switch means is mounted being so located that said thread

confining edge of said switch means is normally held by gravity in confining position and said lever may be pivoted to shift said edge away from said position.

2. Apparatus according to claim 1, wherein said switch means has a second edge adapted to urge the thread into the range of said lower surface and the winding range of the takeup device upon release of the pivoting force.

3. Apparatus according to claim 1, wherein means are provided limiting the movement of said switch means.

4. Apparatus for the formation of a thread reserve on a thread-winding or takeup device while the thread advances towards such device comprising; thread guide means positioned in advance of the takeup device as viewed in respect of the direction of the advancing thread, said guide means having

a lower surface substantially parallel to the longitudinal axis of the takeup device and extending across the winding or takeup range thereof, and a second surface merging with said lower surface and positioned in advance of a reserve range of said takeup device, and switch means pivotally mounted on said guide means and formed with an edge for maintaining the thread in the range of said second surface and adapted to release same from that range upon pivotal movement thereof in one direction, said switch means having a second edge for urging the thread into the range of the lower surface and the winding range of the takeup device upon pivotal movement in a second direction.