Jan. 6, 1953 W. T. STEARN 2,624,528

THREAD GUIDE

Filed July 27, 1949

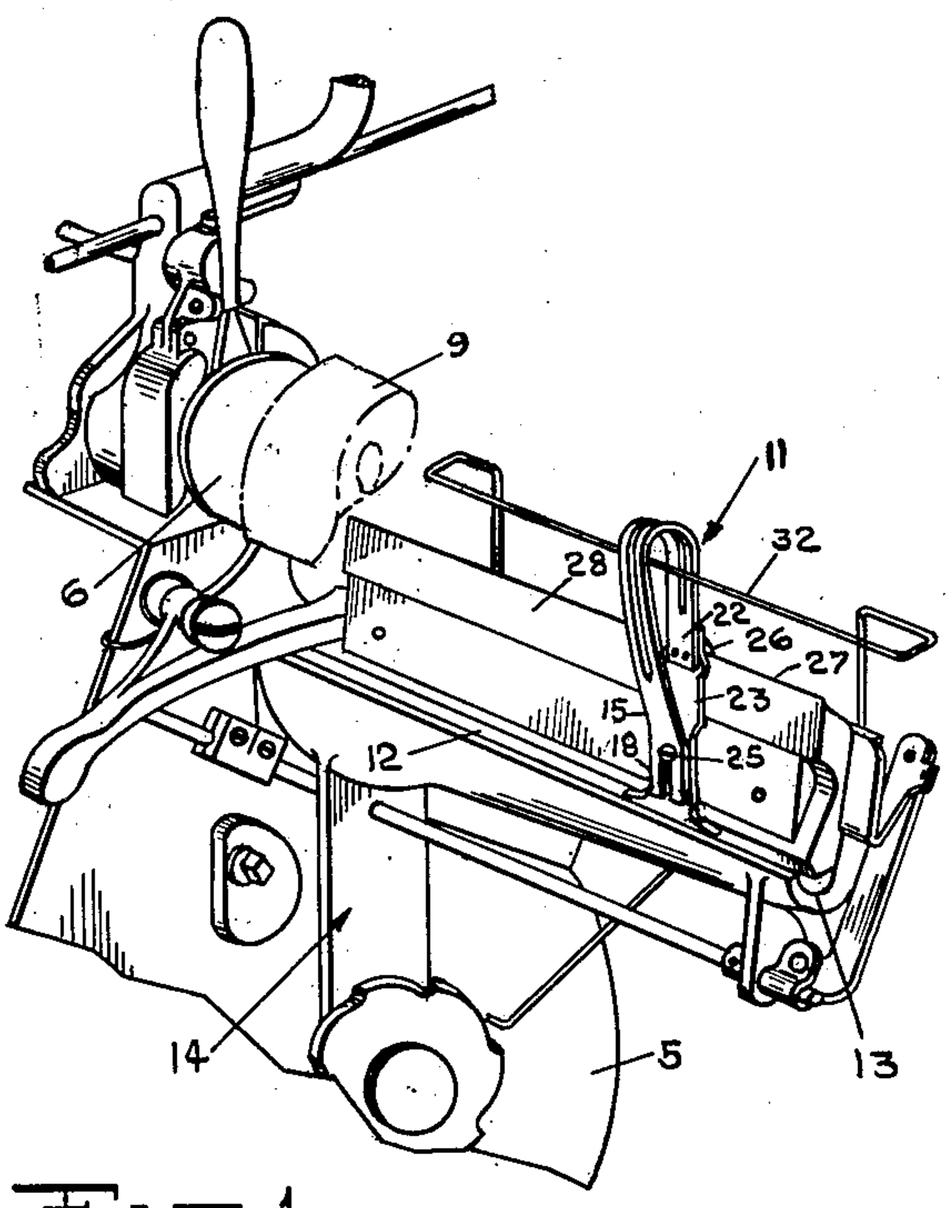

Fig. 1

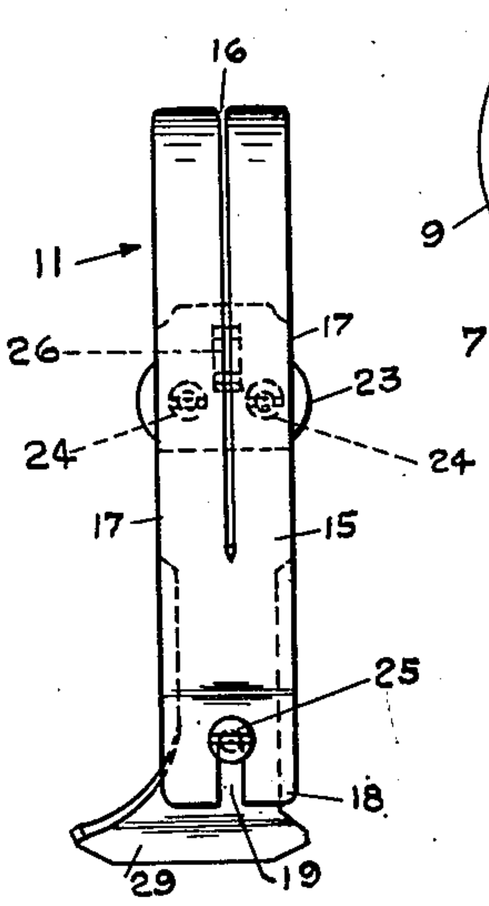

Fig. 2

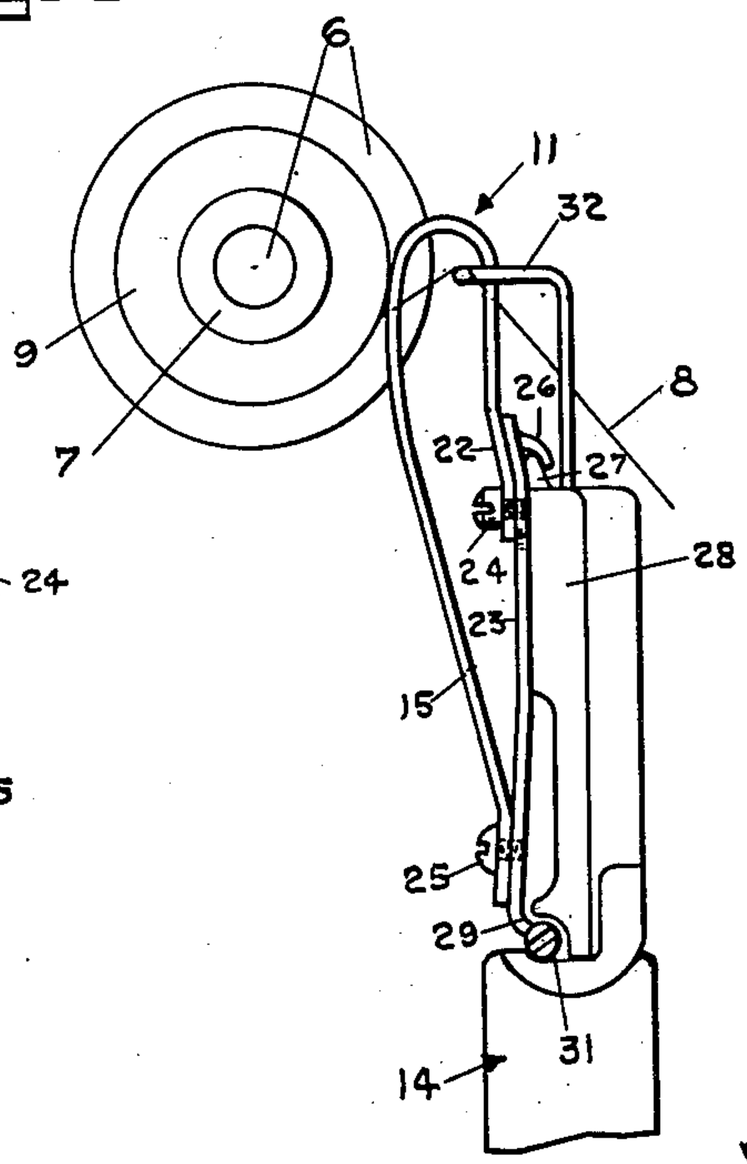

Fig. 4

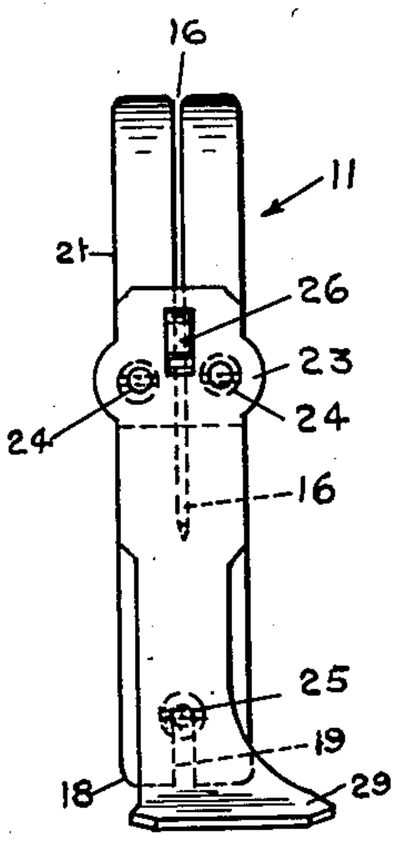

Fig. 3

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THREAD GUIDE

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5 Claims. (Cl. 242—157)

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This invention relates to thread guides, and relates more particularly to an anti-friction guide for guiding thread during the winding of the said thread into cones or similar thread packages.

In winding mechanisms for winding thread into cones or similar thread packages, wherein the thread is traversed longitudinally of the package being formed by means of reciprocating thread guiding means, there are normally employed thread guides provided with buttons of porcelain or other suitable hard material. The button of the thread guide, in the reciprocation of the guide, comes into contact with the thread of the package on a restricted area and therefore has a tendency to damage the thread, particularly at the ends of the package. Moreover, the traverse action of the button guides, particularly those that had been in service long enough for grooves to have been cut in the face thereof by the thread, cause periodic twist variation in the thread due to a period "rolling in" and "rolling out" of the twist. This twist variations degraded the quality of the thread.

Another factor which lowered appreciably the effiiciency of the button guides heretofore employed was the ease, relatively speaking, with which the guide buttons wear out, i. e. lose their useful life. This is due to the fact that the thread being wound into package form comes into contact with the identical sections of the button at all times. Not only does this condition result in a relatively low guide life, but also necessitates constant inspection. Furthermore, there is the added hazard that the thread in passing through the worn button guide will be damaged before the cut or worn button is removed from the machine. The buttons heretofore employed also created such friction as caused the formation of hard packages.

It is accordingly, an important object of this invention to provide a novel thread guide which will be free from the foregoing and other disadvantages and which will be especially simple in construction and efficient in operation.

Another object of this invention is the provision of an anti-friction guide for cone-winding machines, or other thread winding machines, wherein the thread path is constantly changing with relation to said guide.

Other objects of this invention, together with certain details of construction and combinations of parts, will be apparent from the following description and will be pointed out in the appended claims.

In the drawing wherein a preferred embodiment of my invention is shown,

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Fig. 1 is a perspective view of a portion of a winding machine, known as the "#50 Universal Winding Machine" and manufactured by the Universal Winding Company, showed the thread guide of my invention in operative relation thereto,

Figs. 2 and 3 are front and back views respectively, on an enlarged scale, of the thread guide of my invention, and

Fig. 4 is a more or less diagrammatic view, in side elevation with respect to my thread guide, showing the same as attached to the winding machine and in relation to the thread packages being formed.

Like reference numerals indicate like parts throughout the several views of the drawing.

Referring now to the drawing for a detailed description of my invention, the reference numeral **5** indicates the main frame of the winding machine. In frame **5** is carried an expander-spindle mechanism **6**, the spindle of which is driven by the means normally employed for this purpose, which is not shown. The expander-spindle mechanism **6** is of the type customarily employed in the #50 Universal Winding Machine and is adapted to receive a thread holder **7**, such as a paper cone, tube or the like, onto which the thread **8** is wound into desired package form, such as cone **9**.

The thread guide of my invention, generally indicated by reference numeral **11**, is carried, like other thread guides heretofore employed in thread package winding machines of the type above referred to, on a traverse bar **12** slidably mounted in a channel **13** provided in the oscillating traverse frame **14**. Thus the traverse bar **12** and thread guide **11** are arranged to reciprocate in a path substantially parallel to the axis of the spindle supporting thread holder or support. The traverse bar **12** is connected to the usual means provided for reciprocating the same.

The thread guide **11** is formed of a metal bar **15**, preferably a bar of chromium plated spring steel, provided with an elongated slot **16** located substantially equidistant from the longitudinal edges **17** of the bar. The lower end **18** of the bar is slotted at **19** and the upper portion **21** is bent to form to curved surface with the portion of slot **16** in the bent end aligned with the remainder of slot in the unbent portion of the bar. The lower end **22** of the bent portion of the bar is connected to the ends of the bent bar by a plate **23**, the said plate being fastened to end **22** by means of screw bolts **24**, and to end **18** by means of a screw bolt **25** passing through slot **19**.

The plate **23** is provided near its upper end with

an integral curved fringe or hook 26 which is adapted to ride on the upper edge 27 of back 28 of the oscillating traverse frame 14, whereby the guide may be maintained in position. The lower end of the plate 23 is a foot 29 which is adapted to be received in a slot normally provided therefor in the traverse bar 12, in which slot it is retained by a bolt 31.

Also mounted on the oscillating traverse frame 14 is a bail 32 which acts as an auxiliary guide for the thread. As shown in Figs. 1 and 4, the bail 32 passes through the bent thread guide 11. The bail is stationary and the thread guide moves relatively thereto as it guides the thread onto the thread package.

It is to be understood that the foregoing detailed description is given merely by way of illustration and that many variations may be made therein without departing from the spirit of my invention.

Having described my invention, what I desire to secure by Letters Patent is:

1. In a winding mechanism adapted to wind thread into package form, including a traverse frame assembly having a reciprocating bar, a guide for controlling the winding of the thread onto the package, said guide comprising a unitary bar bent upon itself to form a curved upper extremity and having an elongated slot therein between the longitudinal edges thereof, a plate attached to the extremities of said bar, a hook on said plate for holding and supporting said guide on said traverse frame assembly and a foot on said plate whereby the guide is carried by said reciprocating bar.

2. In a winding mechanism adapted to wind thread into package form, including a traverse frame assembly, having a reciprocating bar, a guide for controlling the winding of the thread onto the package, said guide comprising a unitary bar bent upon itself to form a curved upper extremity and having an elongated slot therein substantially equidistant between the longitudinal edges thereof, a plate attached to the extremities of said bar, a hook on said plate for holding and supporting said guide on said traverse frame assembly and a foot on said plate whereby the guide is carried by said reciprocating bar.

3. In a winding mechanism adapted to wind

thread into package form, including a traverse frame assembly having a reciprocating bar, a thread guide means mounted on the traverse frame assembly for movement with said reciprocating bar, said means comprising a unitary bar having a curved upper extremity and an elongated slot therein for controlling the path of the thread being wound onto the package, and a relatively fixed bail mounted on said traverse frame assembly and passing through the curved extremity of said unitary bar.

4. In a winding mechanism adapted to wind thread into package form, including a traverse frame assembly having a reciprocating bar, a thread guide means mounted on the traverse frame assembly for movement with said reciprocating bar, said means comprising a unitary bar having a curved upper extremity and an elongated slot therein, a plate attached to and connected to the extremities of said bar and a relatively fixed bail mounted on said traverse frame assembly and passing through the curved extremity of said unitary bar.

5. In a winding mechanism adapted to wind thread into package form, including a traverse frame assembly having a reciprocating bar, a thread guide means mounted on the traverse frame assembly for movement with said reciprocating bar, said means comprising a unitary bar having a curved upper extremity and an elongated slot therein, a plate attached to the extremities of said bar, a hook on said plate for holding and supporting said guide on said traverse frame assembly and a foot on said plate whereby the guide is carried by said reciprocating bar and a relatively fixed bail mounted on said traverse frame assembly and passing through the curved extremity of said unitary bar.

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