Nov. 6, 1945. F. A. DECKER, JR 2,388,239

THREAD GUIDE

Filed May 27, 1944

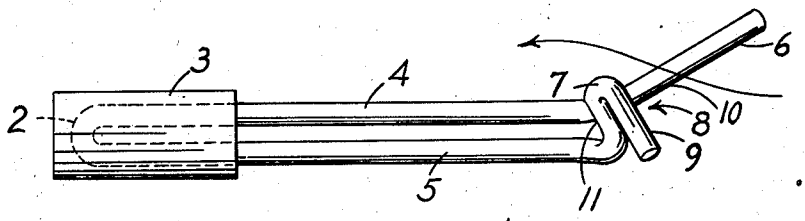


Fig. 1

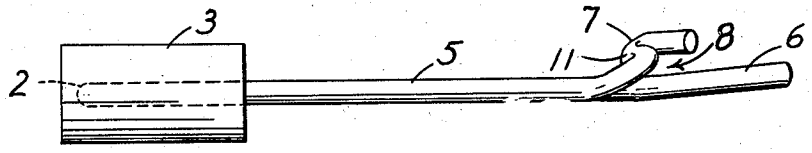


Fig. 2

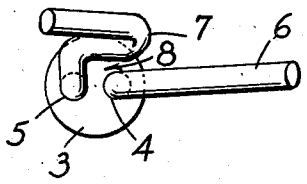


Fig. 3

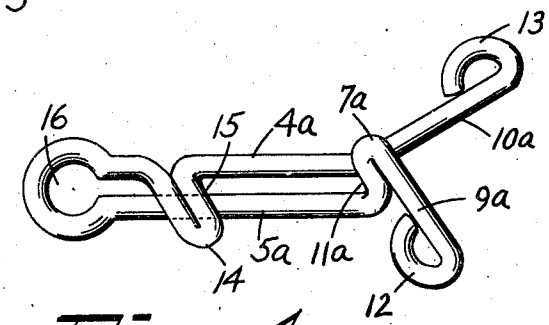


Fig. 4

INVENTOR.
Ferdinand A. Decker, Jr.
BY
Carl A. Castellan
ATTORNEY

Patented Nov. 6, 1945 2,388,239

UNITED STATES PATENT OFFICE

2,388,239

THREAD GUIDE

Ferdinand A. Decker, Jr., Parkersburg, W. Va., assignor to American Viscose Corporation, Wilmington, Del., a corporation of Delaware

Application May 27, 1944, Serial No. 537,743

4 Claims. (Cl. 242—157)

This invention relates to an improved thread guide for use on textile machinery, such as spinning-frames, winding and reeling machines and other similar apparatus.

It is an object of this invention to provide a guide which can be quickly, easily, and positively threaded or laced and which is not subject to be improperly or half-laced without detection as is the case with the conventional pig-tail type of guide. A further object is to provide a form of guide which can be used in a series of two or more without encountering the difficulties which are associated with the pig-tail guide, such as the tendency of a previously laced guide becoming unlaced while lacing of the subsequent guides is being performed. A further object of the invention is to provide a form of guide which can be laced by simple, direct motion of the operator in passing the thread through an open channel without the necessity to force the mouth of the guide to spread open by forcing the thread itself therebetween. A further object is to provide a guide in which the thread is entered through a free channel but in which the guide is so constructed and arranged that after being laced, the thread cannot escape from the operative zone of the guide through the free channel except by the deliberate action of the operator. Other objects and advantages of the invention will be apparent from the drawing and description thereof hereinafter.

In the drawing, which is illustrative of the invention,

Figure 1 is a plan view of a simple form of guide in accordance with the invention,

Figure 2 is a side elevation of the guide of Figure 1,

Figure 3 is a front elevation of the guide of Figure 1, and

Figure 4 is a plan view of a modification.

As shown in Figures 1 to 3, the guide may be formed from a single piece of wire which is bent back upon itself at 2 in a hair pin turn. The region of the guide adjacent the hair pin turn 2 may be mounted in a suitable support and for this purpose, it is embedded in a block 3. The guide thus comprises two, laterally spaced members, legs, prongs, or the like 4 and 5 extending outwardly from the block 3 and having free ends terminating near each other. One end of one of the free prongs may be spread outwardly at 6 whereas the other has a portion 7 which is bent back upon itself and to one side over the former prong adjacent the point where that prong is bent outwardly. Thus, the guide has an entrance 8 bounded by two sloped surfaces 9 and 10 which converge, when viewed from above as in Figure 1, to the point where the reversely bent portion 7 crosses over above the other prong 4 to form the free passage way 8. The rear surface 11 of the reversely bent portion 7 of the prong 5 is turned backwardly from the main thread guiding or confining portion or shank of that prong so that in case of any traversing of the thread along and between the main guiding surfaces along the shanks of the two prongs, the rear-ward inclination of this overhanging reversely bent portion serves to limit the outward motion of the thread and prevent it from becoming dislodged from the guide.

In lacing up the guide, the operator, assuming the thread proceeds from an unwinding package or other source below the guide, merely draws the thread upwardly between the two converging surfaces 9 and 10 at the mouth of the guide, over the outwardly turned end 6 of the first prong 4 and back beyond the point of overcrossing of the reversely bent portion 7 of the second prong 5 so that the yarn is guided directly through the free channel 8. This lacing motion is a substantially direct motion and requires no careful swinging of the thread through any peculiar arc since the moment the thread during the rearward motion imparted by the hand of the operator touches the guiding surface 9 presented by the reversely bent portion of the second prong, it is guided thereby back over and across the other prong 4 and thence into the free channel 8 existing between said prong and the overhanging reversely bent portion and continuance of the motion of the thread caused by further travel of the hand of the operator causes it to slide around the end of the reversely bent portion 7 and then to fall into the main guide way formed between the two prongs. The guide of Figures 1 to 3 should preferably be arranged so that any ballooning of the thread occurs therebelow. If the guide is to be placed below a zone of the yarn subject to considerable ballooning, it would be preferable to mount the guide so that the reversely bent portion 7 is beneath the outwardly bent portion of the other prong (that is, directly opposite to that shown in Figures 1 to 3).

Figure 4 shows a modification in which the two outer portions of the prongs having the surfaces 9a and 10a which serve to guide the entrance of the yarn have smoothly curved bent portions 12 and 13 at their outer ends to reduce the liability of injury of the operators or catching of their clothes upon the guides. In addition, a bight 14

is formed in one of the prongs at any desired distance back of the reversely bent portion 7a adjacent the entrance to the guide. This bight, as shown, is arranged to cross over the other prong (5a as shown) in a manner similar to that in accordance with which the reversely bent portion 7a at the entrance crosses over its cooperating prong. However, the bight may make a tight contact against the other prong. Preferably, the bight is bent forward so that the yarn engaging surface 15 thereof is inclined forward from the adjoining yarn confining surface of the prong in which the bight is formed. In this manner, there is no tendency for the thread to slide under the bight 14 between it and the other prong 5a. While the bight 14 which limits the rear-ward travel of the thread is shown to be formed in the prong other than that in which the reversely bent portion 7a is formed at the entrance to the guide, it may, if desired, be formed in the same prong as the reversely bent portion at the entrance. In either case, it will be noted that the bent portions are bent toward each other in order to obtain the proper inclination of the thread limiting surfaces 11a and 15 with respect to the prongs from which the bent portions extend. An eye 16 may be formed in the guide to enable it to be secured to a suitable support or mounting bracket.

With respect to the embodiment shown in Figure 4, the bight 14 may be formed any distance back of the reversely bent portion 7a at the entrance, thus permitting or restricting the amount of traverse within the guide to a predetermined distance. While the shanks of the guide having the main thread guiding or confining surfaces are shown substantially straight and parallel in Figures 1 and 4, they may be curved to form a thread guiding eye of any cross sectional shape, such as triangular, elliptical, or substantially circular.

The guide may be made of wire but is not to be restricted as to the material of which it can be made.

It is to be understood that variations and modifications of my invention may be made without departing from the spirit and scope thereof as defined in the appended claims.

I claim:

1. A thread guide having two members each having a free end near that of the other and being spaced apart along a portion of their lengths extending inwardly from the free ends to provide a thread passage therebetween, one of said members being turned back upon itself and to one side so that it overhangs the other member adjacent its end, said bent portion presenting an outer thread-guiding surface facing toward and converging with a thread-guiding surface adjacent the end of the other member to provide in conjunction therewith an entrance for the thread, and said bent portion having an inner thread guiding surface inclined inwardly from a perpendicular to said member to confine the thread within the thread passage.

2. A thread guide having two members each having a free end near that of the other and being laterally spaced apart along a portion of their lengths inwardly from their free ends to provide a main thread-guiding passage therebetween, one of the members being turned back upon itself and to one side so that it overhangs the other member adjacent its end and is spaced therefrom to provide a free passage for the thread therebetween, the bent portion presenting an outer thread-guiding surface facing toward and converging with a thread-guiding surface adjacent the end of the other member to provide in conjunction therewith an entrance for the thread, and said bent portion having an inner thread-guiding surface inclined inwardly to form an acute angle with the main thread guiding surface of the member of which it forms part.

3. A thread guide comprising two laterally spaced members, two bent portions formed in and spaced along said members, said bent portions being inclined from a perpendicular to its respective member toward the portion thereof intermediate the bent portions and each being turned to one side so that it overhangs the member other than that in which it is formed, thread guiding surfaces being provided on the inner portions of the members facing each other to provide a thread-guiding passage.

4. A thread guide comprising two laterally spaced members, two bent portions formed in and spaced along said members, said bent portions being inclined from a perpendicular to its respective member toward the portion thereof intermediate the bent portions and each being turned to one side so that it overhangs the member other than that in which it is formed, thread guiding surfaces being provided on the inner portions of the members facing each other to provide a thread-guiding passage, the members each terminating in a free end beyond one of said bent portions, said one bent end portion presenting an outer thread-guiding surface facing toward and converging with a thread-guiding surface adjacent the end of the other member to provide in conjunction therewith an entrance for the thread, and said bent end portion being spaced from the other member where it overhangs it to provide a free passage for the thread from the entrance to the main thread-guiding passage between the two bent portions.

FERDINAND A. DECKER, JR.