Jan. 5, 1943. W. BROOKSHIRE 2,307,664

THREAD GUIDE

Filed Oct. 14, 1940

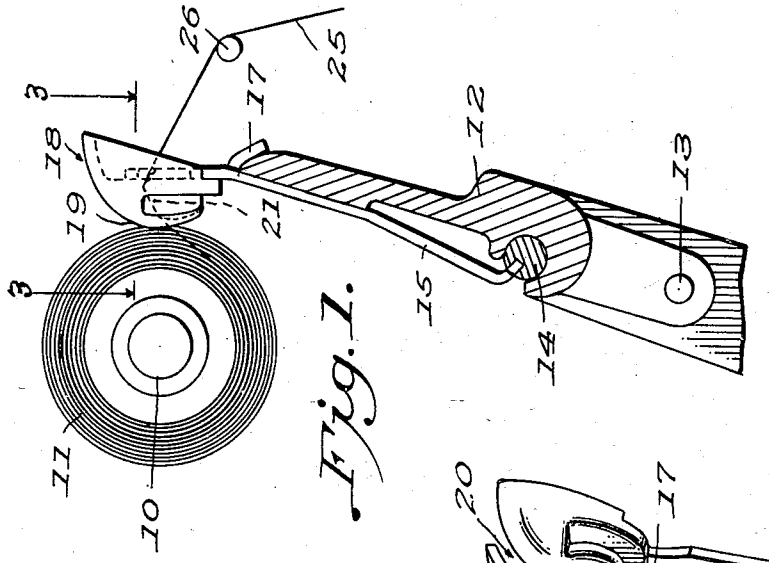


Fig. 1.

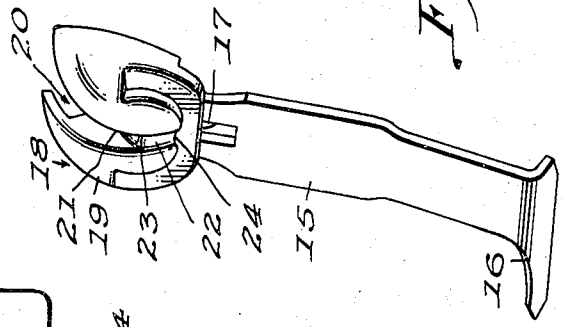


Fig. 4.

Fig. 2.

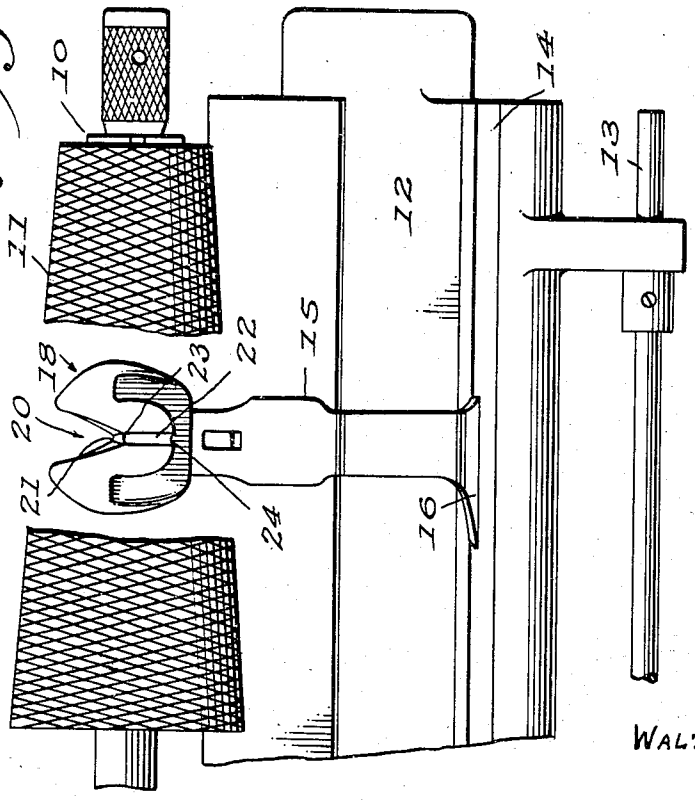
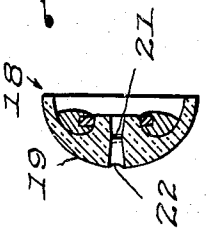


Fig. 3.



Inventor:

WALTER BROOKSHIRE

By Rudolph S. Bley

Attorney

Patented Jan. 5, 1943 2,307,664

UNITED STATES PATENT OFFICE

2,307,664

THREAD GUIDE

Walter Brookshire, Elizabethton, Tenn., assignor to American Bemberg Corporation, New York, N. Y., a corporation of Delaware

Application October 14, 1940, Serial No. 361,051

4 Claims. (Cl. 242—18)

This invention relates to thread guides such as are used on textile machines for the purpose of guiding the yarn or thread, and particularly to reciprocating thread guides or yarn guides such as are used on coning machines.

These reciprocating guides constantly support the yarn as it is being wound, and thus wear out very quickly, requiring frequent replacements. This replacement of worn guides has thus far considerably increased the manufacturing costs of yarn producers.

Moreover, these worn thread guides have frequently caused damage to the thread, particularly in the winding of artificial silk thread which is composed of a great number of fine individual filaments.

It is, therefore, one object of the present invention to provide an improved thread guide which possesses greater resistance to wear.

A further object is the provision of an improved thread guide which will cause less damage to the yarn.

These and other objects will become apparent from a study of the following description, taken with the accompanying drawing, in which:

Fig. 1 is an end elevation partly in section of a conventional winding mechanism showing the thread guide in operative position;

Fig. 2 is a front elevation of the thread guide mounted in a standard guide holder commonly used in connection with textile machinery;

Fig. 3 is a cross-sectional top view along lines 3—3 of Fig. 1; and

Fig. 4 is a perspective view of the guide by itself.

Referring to the drawing, the portions of the conventional winding machine shown in Fig. 1 comprise a cone or other core 10 which is supported by a spindle (not shown) for rotation therewith. Upon rotation of the core 10 a yarn package 11 is built up thereon. A weighted lever 12 is pivoted below the spindle at 13 and has a groove formed near its upper end receiving a traverse bar 14 which is reciprocated by a cam mechanism (not shown). A supporting metal arm 15 has a foot or laterally extending flange 16 secured to the traverse bar, a retaining tongue 17 therefor, and an upper end on which is mounted a yarn guide 18.

This thread or yarn guide 18 which is secured to the supporting arm 15 by shellac or the like comprises a smooth piece of material having a low coefficient of friction, such for example as porcelain or glass, with a convex bearing surface 19 to rest against the lateral surface of the cone or core 10 or the yarn package 11 wound thereon as it is rotated. The thread guide 18 is provided with a V-shaped notch 20 extending centrally through the convex surface 19. The bottom 21 of this notch is shaped to provide a narrow surface convexly curved from front to rear of the guide 18 and having its highest point intermediate its length.

According to the present invention the convex surface 19 of thread guide 18 is provided with a uniform vertical groove 22 which extends as a smooth continuation from the front end 23 of the notch bottom 21 to the lower end 24 of the convex surface. This groove 22 has a width several times the thickness of the yarn to be wound and a depth at least slightly greater than the thickness of said yarn. Throughout their lengths the edges defining the front of notch 20, notch bottom 21, and vertical groove 22 are smooth and rounded.

The thread 25 coming from a supply bobbin (not shown) passes over a guide bar 26 and through the notch 20 of the thread guide 18 along the upwardly or convexly curved bottom 21 thereof. After leaving the front end 23 of the curved bottom 21, the thread travels within the vertical groove 22 and passes onto the core 10 on which the yarn package 11 is formed.

The yarn body 11 increases in thickness as the winding progresses and, as a result, the thread guide 18 which rests against the yarn body and which is supported on the counter-balanced lever 12 for pivotal movement therewith is forced outwardly and away from the axis of the core 10. Consequently, the point of contact of the thread guide 18 with the yarn body 11 is gradually and progressively shifted towards the lower end 24 of the convexly curved bearing surface 19.

Since the thread or yarn always travels within the groove 22, the friction between the thread and the yarn body being formed, as a result of the reciprocation of the thread guide 18 along the surface of the yarn package, is greatly minimized and injuries to the thread which would ordinarily occur with the use of the conventional type of thread guide are eliminated.

Heretofore, the point of greatest wear on the thread guide was to be found in the notch 20 at the termination of its bottom 21 on the front face of the bearing surface 19. This wear consisted in furrows caused by the thread at this point in the bottom of the notch 20 because the thread was not free to move laterally at the front end 23 of the surface 19 as the thread guide reciprocated. In the thread guide comprising the pres-

ent invention, however, the notch bottom 21 terminates on the front face of the bearing surface 19 in the up and down groove 22 which allows the thread to shift its course laterally at 23 within groove 22 during the reciprocation of the guide 18, thus resulting in substantially less formation of furrows in the thread guiding surface and materially less wear on the thread guide.

What I claim is:

1. A thread guide comprising a body of material formed to provide a convex surface adapted to bear against a winding core and having a notch extending downwardly from its upper edge, the bottom of said notch being convexly curved, and an up and down groove in said convex surface forming a smooth continuation of the adjacent end of the bottom of said notch and being of a greater width than the thread to be guided and of a depth sufficient to receive said thread completely.

2. A thread guide for use in winding or coning machines and comprising a body of material formed to provide a convex surface adapted to bear against a winding core and having a central V-notch extending downwardly from its upper edge, the bottom of said notch being upwardly arched, and a uniform up and down groove in said convex surface extending as a smooth continuation of the adjacent end of the bottom of said notch to the lower edge of the convex surface and being several times the width of the thread to be guided and of a depth sufficient to receive said thread completely.

3. In combination with a thread winding machine having a horizontally extending core and a thread guide support reciprocable lengthwise with respect to the core and pivotally mounted for movement away from the core as the thread body is formed: a thread guide mounted on the support and having a smooth convexed surface adjacent the core, said thread guide being formed with a notch extending downwardly from its upper edge and having a convexly curved bottom surface, and a thread-receiving vertical groove extending from the bottom surface of said notch to the lower edge of the convexed surface.

4. In combination with a thread winding machine having a horizontally extending core and a thread guide support reciprocable lengthwise with respect to the core and pivotally mounted for movement away from the core as the thread body is formed: a vitreous thread guide mounted on the support and having a smooth convexed surface adjacent the core, said thread guide being formed with a central V-notch extending downwardly from its upper edge and having an upwardly arched bottom surface, and a uniform thread-receiving vertical groove having the depth of and several times wider than the thread to be guided extending from the bottom surface of said notch to the lower part of the convexed surface.

WALTER BROOKSHIRE.