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GUIDE FASTENING MEANS

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Fig. 1

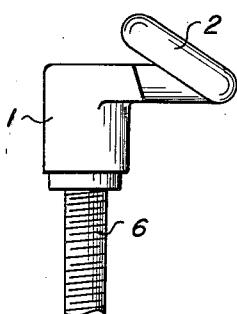


Fig. 2

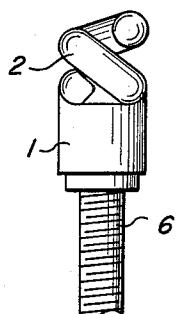


Fig. 3

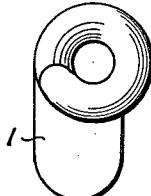


Fig. 4

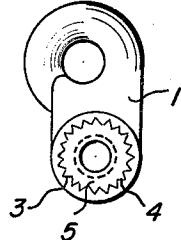


Fig. 5

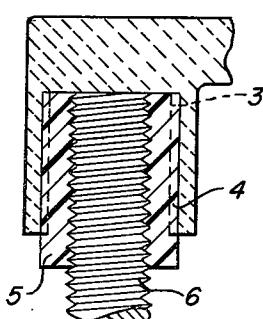


Fig. 6

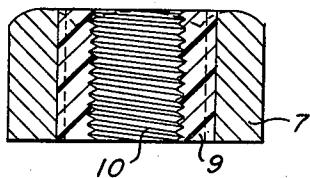
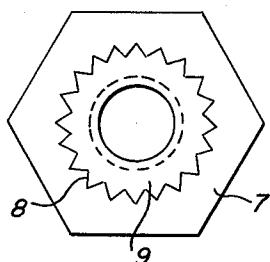


Fig. 7



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GUIDE FASTENING MEANS

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2 Claims. (Cl. 242—157)

This invention relates to a fastening means, with more particular reference to structure for fastening a yarn guide on to the supporting post of the carrier in a yarn braiding machine, and has for its purpose to provide instrumentalities for quickly and easily attaching a yarn guide formed of ceramic material on to the threaded support or post of a yarn braiding machine or other yarn handling apparatus without damage to the ceramic material and in such a way as to hold the yarn guide securely and permanently without fracturing the ceramic guide, and in such a way that it may be removed from the support if necessary.

According to the present general practice, such yarn guides are formed of metal and are therefore subject to wear from constant contact with the yarn traveling therethrough, requiring removal from the support and replacement, the guide being held while in use by threaded engagement with a threaded metal supporting post, and in order to eliminate the necessity for frequent replacement of a metal guide, a guide formed of ceramic material is employed which is much harder and less subject to wear than the metal guides in use. It is a particular purpose of the invention to provide means for fastening such a ceramic guide on to a threaded metal supporting post without the necessity of threaded engagement between the ceramic body and the supporting post and in such a way as to hold the ceramic guide on the support rigidly and without fracturing or affecting the ceramic body.

In general, the invention consists in fixedly securing within an opening in the ceramic body a bushing or sleeve formed of nylon, fiber or other firm and slightly resilient or yieldable material which will expand slightly upon application of pressure, such that when the ceramic body is turned on to the threaded support or post, the post forms a thread in the opening in the nylon bushing, forcing the bushing tightly against the surrounding wall of the ceramic body and insuring a tight and rigid engagement between the metal threaded post and the nylon bushing, so that the ceramic guide will not loosen on the post from ordinary wear and vibration, but may be removed if necessary by applying sufficient pressure to withdraw the ceramic body and bushing from the threaded post.

To these and other ends the invention consists in the construction and arrangement of parts that will appear clearly from the following description when read in conjunction with the accompanying drawings, the novel features being pointed out in the claims following the specification.

In the drawings:

FIG. 1 is a view in side elevation illustrating the invention as embodied in a ceramic yarn guide attached to a threaded supporting post, and looking toward one side of the pigtail or guide;

FIG. 2 is a side elevation of the same looking toward one end of the pigtail or guide;

FIG. 3 is an end elevation;

FIG. 4 is an end elevation looking in the opposite direction from FIG. 3 and with the guide removed from the supporting post;

FIG. 5 is a central vertical sectional view taken through the supporting post and ceramic guide;

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FIG. 6 is a sectional view showing an application of the invention to a nut for attachment to a bolt, and

FIG. 7 is a plan view of the same.

Referring more particularly to the drawings in which like reference numerals refer to the same parts throughout the several views, the structure includes a ceramic or porcelain guide including a body portion 1 and an integral guide or pigtail 2 extending laterally from one end thereof, the guide being suitably formed by molding and baking as well known in the art. The body 1 is provided with a longitudinal central opening 3 that is closed at one end and extends from the lower end of the body to a point in proximity to its upper end, said opening being provided with a multiplicity of endwise ribs or V-shaped grooves 4 which form an interlocking engagement with a nylon or fiber bushing or sleeve that is forced endwise of the ceramic body, although it is to be understood that the surface of the ceramic body surrounding the opening may be otherwise formed with any suitable construction adapted to provide an interlocking connection between the ceramic body and the nylon bushing to prevent turning of the bushing.

5 designates the bushing or sleeve that is formed of nylon or other material having the characteristics of nylon and that is sufficiently yieldable or resilient to enable it to be forced into the ceramic body and sufficiently resistant to pressure to cause it to grip the ceramic body tightly and to hold it securely on the support.

6 designates a threaded metal post constituting the support for the yarn guide, such a post forming part of a conventional yarn carrier of a yarn braiding machine or other yarn handling apparatus where the yarn travels through a guide, and the ceramic guide is mounted on the post 6, which is attached permanently and rigidly on the machine. The opening in the ceramic body is placed over the upper end of the threaded post 6 and turned on to the post as far as it will go by gripping the body 1 and pigtail 2. The outer diameter of the nylon bushing is slightly greater than the inner diameter of the opening in the ceramic body so that when forced into the ceramic body by endwise application of pressure, the nylon bushing is securely retained in the ceramic body, while the inner diameter of the bushing is slightly less than the outer diameter of the supporting post 6, so that when turned on to the post 6, the latter forms a thread in the nylon bushing and effects a secure and permanent attachment to the bushing sufficient to resist any vibration or normal wear of the parts, and the ceramic guide is thus permanently held on the supporting post. Should it become necessary to remove the ceramic guide, application of sufficient pressure in turning the ceramic guide in a reverse direction on the supporting post will remove the ceramic guide.

FIGS. 6 and 7 show an application of the invention to a conventional nut indicated at 7 and provided on its interior surface with ribs, grooves, or a thread 8 to receive a bushing or sleeve 9 of nylon or other slightly resilient and yieldable resistant material such that when a bolt is threaded into the opening 10, it will form a thread in the nylon bushing and expand the latter outwardly sufficiently to cause a tight interlocking engagement with the grooves 8 and retain the bolt securely in the opening 10 in threaded engagement with the interior surface of the bushing 9.

Other uses and applications of the invention are possible and while the improvement is especially useful and designed particularly for retaining a ceramic guide on a support of a yarn braiding machine, it is not restricted to the details herein disclosed, and the application is intended to cover such modifications or departures as may

come within the purposes of the improvement or the scope of the following claims.

I claim:

1. In a yarn guide, the combination with a ceramic body having an integral guide portion extending laterally therefrom and including a pigtail, said body having a cylindrical opening therein that is closed at one end and provided with ribs extending endwise of its interior surface, of a fastening means consisting of a hollow cylindrical bushing of slightly resilient material fitted in said opening and having a cylindrical central opening extending endwise thereof, and a threaded metal supporting post engaging the cylindrical central opening of the bushing with its inner end in contact with the closed end of said body, the inner surface of the bushing being tightly and closely engaged with the threads of the metal supporting post and held thereby against endwise movement in the body and the outer surface of the bushing being closely and tightly engaged with the ribs in the body and held thereby against turning movement in the body.

2. In a yarn guide, the combination with a ceramic body having an integral guide portion extending laterally therefrom and including a pigtail, said body having a cylindrical opening therein that is closed at one end and provided with ribs extending endwise of its interior surface, of a fastening means consisting of a hollow cylindrical bushing of slightly resilient material fitted in said

opening and having a cylindrical central opening extending endwise thereof, and a threaded metal supporting post the threads of which are in tightly and closely fitting engagement with the inner surface of said bushing which is thereby held against endwise movement in the body while the outer surface of the bushing is closely and tightly engaged with the ribs in the body and thereby held against turning movement in the body, the innermost end of the threaded post being engaged with the closed end of said body, the inner diameter of the opening in said body being less than the outer diameter of said bushing and the inner diameter of said bushing being less than the outer diameter of said supporting post.

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