SPINNING RING TRAVELER
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Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

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This invention relates to a spinning ring traveler such as used in ring-spinning and twisting in the textile industry and has for its purpose to provide a traveler that has a longer life than previously known types and is not affected as to wear by friction imposed by the strands of yarns or threads as they move in contact with the traveler.

Travelers for the purpose have in the past been made from metal, principally bronze, and from linear condensation polymers such as “nylon,” and it is a particular purpose of the invention to provide a traveler with a hard abrasion-resistant insert covering the surface that is contacted by the strands or threads, the abrasion-resistant insert being interlocked with the body of the traveler and rigidly attached thereto, with a formation such as to make possible a rigid permanent union with the traveler and to provide a properly shaped strand-engaging surface that takes the wear and protects the body of the metal or “nylon” traveler from direct contact with the strand.

A more particular object of the invention is to afford a hard abrasion-resistant insert of fire-hardened material of such shape and construction as to insure interlocking against relative lateral movement while reducing to a minimum the friction between the strand and traveler as the strand moves in contact therewith.

To these and other ends, the invention consists in the construction and arrangement 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 of a traveler made from “nylon” and provided with an interlocked and rigidly attached strand-engaging insert of abrasion-resistant fire-hardened material, in accordance with a preferred embodiment of the invention;

Fig. 2 is a side elevation of the same;

Fig. 3 is an enlarged detail sectional view taken on line 3—3 of Fig. 1;

Fig. 4 is a side elevation showing a preferred embodiment of the invention as embodied in a metal traveler;

Fig. 5 is a side elevation of the same, and

Fig. 6 is an enlarged detail sectional view taken on line 6—6 of Fig. 4.

Referring more particularly to the drawings in which like reference numerals refer to the same parts throughout the several views, the invention is applicable to a “nylon” or similar traveler as disclosed in Patent No. 2,236,828, or to a bronze or other metal traveler, as conventionally employed in the textile industry in connection with spinning and twisting machines, and embodies a wear surface consisting of an insert of extremely hard wear-resistant fire-hardened refractory material interlocked with and rigidly attached to the traveler, and having a form that insures permanent integral connection with the traveler and reduces to a minimum the friction between the traveler and the yarn or thread moving in contact therewith, while eliminating appreciable wear on the traveler, and this is accomplished in the case of the “nylon” traveler by molding the insert into the traveler, utilizing an insert of the form illustrated in Figs. 1 to 3 inclusive.

For this purpose, an insert of hard wear-resistant fire-hardened material such as disclosed in Patent No. 2,463,979, March 8, 1949, is employed, although any other material of suitable refractory character may be used. The insert includes a body that has a concave surface transversely, as indicated at 1, Fig. 1, and a convex surface laterally or in a plane perpendicular to the plane of Fig. 1, as indicated at 2, Fig. 2. The numeral 3 designates a groove formed in the hard abrasion-resistant insert extending around the under surface of the hook portion. The traveler which is formed of a linear condensation polymer such as “nylon” includes a hook portion 4 that is molded around the wear-resistant insert, forming an interlocking connection with the groove 3 which is thus embedded in the “nylon,” as shown in Fig. 2, and when thus molded into place, the concave transverse surface 1 of the insert forms a continuation of the adjacent under surfaces of the traveler, the insert being relatively thick at its central portion and including tapering sides of gradually reducing thickness, as indicated at 5, the outer surfaces of which merge into the adjacent outer surfaces of the traveler. The numeral 6 designates a boss or projection formed on the insert and embedded in the molded “nylon,” acting to prevent relative movement of the insert transversely of the traveler.

With this construction and arrangement, the wear-resistant insert is rigidly secured to the traveler, being anchored against relative movement in any direction, and affords a thick central body or wear surface for contact with the strand of thread or yarn which moves past the traveler in contact with the concave surface 1 and convex surface 2 at a point approximately centrally or adjacent to the center of the concave surface 1.
This relation of the wear-resistant insert to the traveler and to the yarn or thread reduces to a minimum the friction between the strand and the insert and for all practical purposes entirely eliminates wear on the insert and traveler, thus greatly increasing the life of the latter and resulting in a more efficient operation.

The wear-resistant insert is interlocked against relative lateral movement with the body of the traveler, due to the groove formed in the insert, and which interlocks with the body of the traveler when the latter is molded to the insert. The insert is so formed that when united to the traveler, it merges into the adjacent surfaces of the traveler and forms continuations of the under and side surfaces of the traveler, whereby the strand as it is drawn through the traveler in contact with the wear-resistant surface is always in contact with such surface and is effectively prevented from contacting the body of the traveler at any part thereof.

The invention may be likewise incorporated in a bronze or other metal traveler including a hook portion at its upper end of substantially rectangular cross-section, and to the under surface of which is applied a wear-resistant element of any suitable refractory or other hard material that is fire-hardened, such wear-resistant insert including a thickened portion at its center and tapering portions at its sides of gradually reducing thickness. The insert also has a bottom surface that is concave transversely and of convex formation laterally as shown at 12 in a plane perpendicular to the plane of Fig. 4. The upper surface of the insert is of convex formation to conform to the hook portion and provided with a circumferential groove 13 that receives the curved hook portion 7 seated therein and is thereby held against relative lateral movement. The wear-resistant insert fits somewhat tightly into the slightly resilient hook portion which retains the insert by a compressing or spring action after the insert is forced into operative position within the traveler, where it is securely held against lateral movement by the side walls of the insert that extend to the top of the hook portion of the traveler seated therebetween. In order to prevent relative endwise or transverse movement between the insert and traveler, or possibility of loosening, a body of solder or other suitable adhesive material is applied between the adjacent surfaces of the insert and traveler as indicated at 15.

While the invention has been described with reference to the particular structure shown herein, it is not confined to the details disclosed, and this 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.

1. A spinning ring traveler comprising upper and lower yieldable hook portions and a wear-resistant insert rigidly secured to the under-surface of one of the hook portions and composed of a multiplicity of alumina particles fire-hardened at a temperature below their melting point, the other hook portion and remainder of the traveler being free of any insert.

2. A spinning ring traveler comprising upper and lower yieldable hook portions and a wear-resistant insert interlocked with the under-surface of one of the hook portions against relative lateral movement and rigidly secured thereto, said insert being composed of a multiplicity of alumina particles fire-hardened at a temperature below their melting point and the other hook portion and remainder of the traveler being free of any insert.

3. A spinning ring traveler comprising yieldable hook portions and a wear-resistant insert rigidly secured to the under-surface of one of the hook portions and composed of a multiplicity of alumina particles fire-hardened at a temperature below their melting point, said insert having a groove extending around and embracing the under-surface of one of the hook portions which is interlocked therewith against relative lateral movement.

4. A spinning ring traveler comprising yieldable hook portions, and a wear-resistant insert embedded in the under-surface of one of the hook portions and interlocked therewith against relative lateral movement, said insert having a concave lower face extending around the under-surface of the hook portion and a convex lower surface extending laterally of the hook portion, and said wear-resistant insert being relatively thick at its central portion with tapering sides of gradually reducing thickness that merge into the adjacent surfaces of the hook portion.

5. A spinning ring traveler comprising yieldable hook portions, and a wear-resistant insert interlocked with the under-surface of one of the hook portions against relative lateral movement and rigidly secured thereto, said insert having a groove extending around and embracing the under-surface of the hook portion and a convex lower surface extending laterally of the hook portion, and said wear-resistant insert being relatively thick at its central portion with tapering sides of gradually reducing thickness that merge into the adjacent surfaces of the hook portion.

6. A spinning ring traveler comprising yieldable hook portions of generally rectangular cross-section, and a wear-resistant insert interlocked with the under-surface of one of the hook portions against relative lateral movement and rigidly secured thereto, said insert being composed of a multiplicity of alumina particles fire-hardened at a temperature below their melting point.

7. A spinning ring traveler comprising yieldable hook portions of generally rectangular cross-section, and a wear-resistant insert rigidly secured to the under-surface of one of the hook portions and composed of a multiplicity of alumina particles fire-hardened at a temperature below their melting point, said insert having a groove extending around and embracing the under-surface of the hook portion which is interlocked therewith against relative lateral movement.

8. A spinning ring traveler comprising yieldable hook portions of generally rectangular cross-section, and a wear-resistant insert rigidly secured to the under-surface of one of the hook portions and composed of a multiplicity of alumina particles fire-hardened at a temperature below their melting point, said insert having a groove extending around and embracing the under-surface of the hook portion which is interlocked therewith against relative lateral movement.
10. A spinning ring traveler including upper and lower yieldable hook portions, and a wear-resistant insert interlocked with the undersurface of the upper hook portion against relative lateral movement and rigidly secured thereto, both ends of said insert terminating above the lower end of said upper hook portion.

11. A spinning ring traveler including upper and lower yieldable hook portions, and a wear-resistant insert rigidly secured to the undersurface of the upper hook portion and terminating above the lower end of said upper hook portion, said insert having a groove extending around and embracing the undersurface of the upper hook portion which is interlocked therewith against relative lateral movement.

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