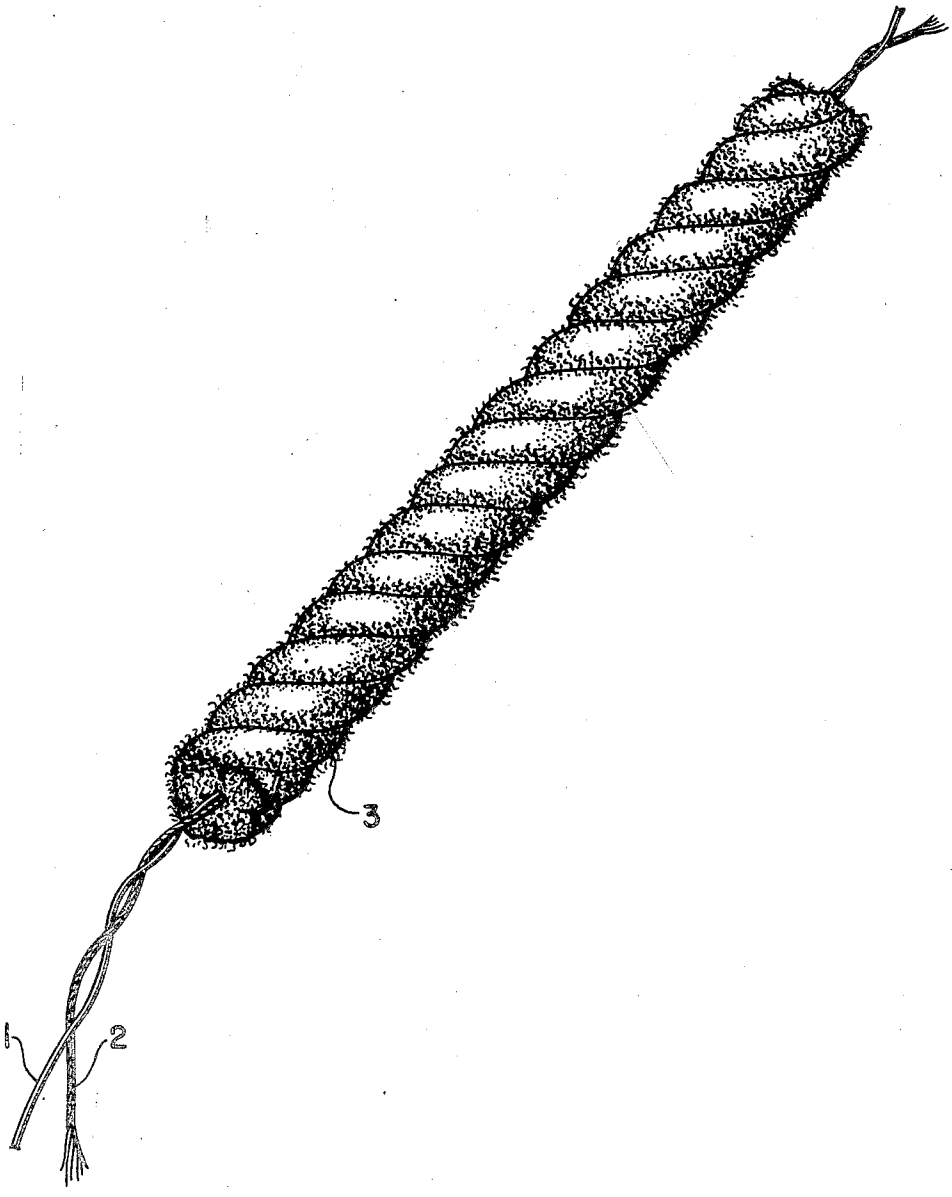
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REINFORCED ASBESTOS ROVING, SLIVER, OR YARN

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REINFORCED ASBESTOS ROVING, SLIVER, OR YARN

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9 Claims. (Cl. 57—144)

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This invention relates to improvements in asbestos roving, sliver and yarn, and refers specifically to a reinforced asbestos roving, sliver and yarn wherein the reinforcement comprises one or more single filaments having relatively high strength and one or more staple yarns.

Reinforced asbestos rovings and yarns have heretofore been proposed but they have either lacked adequate strength or have been difficult to handle, particularly in spinning and weaving. The weaving of such reinforced asbestos yarns has been attended by low loom efficiencies; that is, the looms must be operated at one-third or one-half the speed of looms operating on continuous filament yarns such as silk, rayon, nylon, etc. In addition, low loom efficiency has also been brought about by the frequent breaks in the warp yarn or the backing up of the fabric to insert skipped filler yarns. Further, closer attention has also been found necessary; for instance, in weaving with high grade cotton yarns or with rayon or other continuous filament yarns one weaver can attend sixty or more looms, whereas, in weaving asbestos one weaver attends not more than two looms.

The natural characteristics of asbestos fibers, such as their glassy or glass-like surfaces, their multiplicity of lengths and diameters and their sensitiveness to variations in humidity in carding and spinning, are well known to be greatly responsible for the relatively low strength and the continual variability in strength of asbestos yarns. In following all previous methods to increase the strength of the asbestos roving or yarn by employing a continuous filament core of glass, nylon, rayon or like smooth surface strands, the covering of asbestos fibers placed over the smooth reinforcing yarn is ruptured and the smooth core yarn is exposed. This occurs so frequently in the spinning and weaving operations as to make irregular yarn and fabric of impaired quality.

Continuous filament glass, nylon, rayon or like smooth surface yarn have relatively high strength and such yarn has heretofore been proposed as a reinforcement for asbestos yarn. But used alone they fail to make an asbestos yarn and that gives satisfactory spinning and weaving efficiency, due to the frequency of strippings that ruptures the continuity of the asbestos sheath or covering upon the core yarn reinforcement. Fine wire, nylon and other smooth surface continuous filament type reinforcements have been heretofore proposed and all have like disadvantages, that is, the asbestos covering "strips back" or denudes the reinforcing strand.

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We have found that the strength of continuous filament yarns, wires or the like, hereinafter referred to as reinforcing strands, can be successfully employed as a core material for asbestos yarn, sliver or roving and yet the disadvantageous "strip back" or denuding of the reinforcing strand by the asbestos covering can be eliminated by pairing the reinforcing strand with a staple fiber yarn, such as staple fiber glass, staple linen, hemp, wool, cotton, ramie or other staple organic material or synthetic yarn. By this core arrangement, strength is imparted to the resulting yarn by the continuous filament or reinforcing strand, and denuding of the reinforcing strand is prevented by the employment of the staple strand. The paired staple strand, in addition, also contributes strength to the final yarn, roving or sliver.

Of course, it is to be understood that one or more continuous filament strands may be employed with one or more staple strands depending upon the characteristics desired in the resulting product. Such continuous filament strands as glass, nylon, copolymers of vinyl chloride and vinyl acetate known as "Vinyon," rayon, filaments of copolymers of vinylidine chloride with vinyl chloride and the like known as "Saran," and nickel, Monel metal comprising an alloy of 67% nickel, 28% copper, 1–2% manganese and 1.9 to 2.5% iron, stainless steel, brass and copper wires in diameters of about 0.008 inches and smaller, are contemplated.

As a specific example of our invention, reference is made to the accompanying drawing, the single figure of which shows in detailed perspective a yarn made in accordance with our invention.

In carrying out our invention one or more continuous filament or reinforcing strands 1 are plied by winding or twisting with one or more staple strands 2 and the resultant combination is covered with asbestos fiber 3 by the usual rub apron method or other suitable method for wrapping the asbestos fibres around the core comprising strands 1 and 2. A yarn, sliver or roving so made can be conveniently handled, and when woven the loom efficiency is substantially increased to more favorably compare to that obtained when weaving staple cotton or the like.

We claim as our invention:

1. A reinforced asbestos roving, sliver or yarn which comprises a continuous filament wire strand to impart strength to said yarn, said strand having relatively great strength and a relatively smooth surface, and a staple strand having a relatively rough surface as a core about which asbestos fibers are wrapped as a covering for said core,

said staple strand preventing slippage of the asbestos fibers upon the core.

2. A reinforced asbestos roving, sliver or yarn which comprises a continuous filament glass fiber strand to impart strength to said yarn, said strand having relatively great strength and relatively smooth surface, and a staple strand having a relatively rough surface as a core about which asbestos fibers are wrapped as a covering for said core, said staple strand preventing slippage of the asbestos fibers upon the core.

3. A reinforced asbestos yarn having as a core a relatively smooth-surfaced strand of relatively great strength to impart strength to the yarn and a staple strand of relatively lesser strength, and having a relatively rough surface, and asbestos fibers disposed as a covering upon said core, said staple strand preventing slippage of the asbestos fibers upon the core.

4. A reinforced asbestos yarn having a core comprising a relatively smooth-surfaced strand of relatively great strength twisted with a staple strand of lesser strength, and having a relatively rough surface, and asbestos fibers disposed as a covering upon said core, said smooth surfaced strand imparting strength to the yarn and said staple strand preventing slippage of the asbestos fibers upon the core.

5. A reinforced asbestos yarn which comprises a reinforcing strand having a relatively smooth surface to impart strength to the yarn and a staple strand having a relatively rough surface, as a core about which asbestos fibers are wrapped as a covering for said core, said relatively rough surface strand preventing slippage of the asbestos upon the core.

6. A reinforced asbestos yarn which comprises a plurality of reinforcing strands having relatively smooth surfaces for imparting strength to the yarn, and at least one staple strand as a core about which asbestos fibers are wrapped as a covering for said core, said staple strand having a relatively rough surface to prevent slippage of the asbestos fibers upon the core.

7. A reinforced asbestos yarn which comprises at least one reinforcing strand having a relatively smooth surface to impart strength to the yarn and a plurality of staple strands as a core about which asbestos fibers are wrapped as a covering for said core, said staple strands having relatively rough surfaces to prevent slippage of the asbestos fibers upon the core.

8. A reinforced asbestos yarn which comprises a continuous filament strand of synthetic fiber having a relatively smooth surface to impart strength to the yarn and a staple fiber strand as a core about which asbestos fibers are wrapped as a covering for said core, said staple strand having a relatively rough surface to prevent slippage of the asbestos fibers upon the core.

9. A reinforced mass of wrapped asbestos fibers which comprises a reinforcing strand having a relatively smooth surface to impart strength to the wrapped mass and a staple fiber strand having a relatively rough surface as a core about which asbestos fibers are wrapped as a covering for said core, said relatively rough surface strand preventing slippage of the asbestos upon the core.

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