

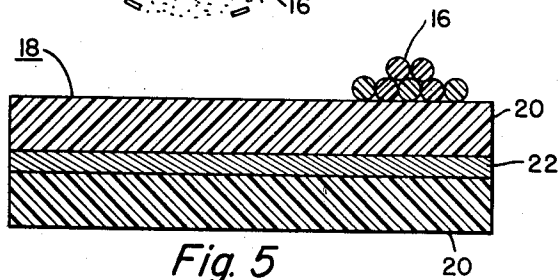
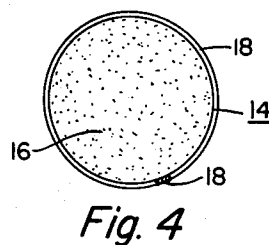
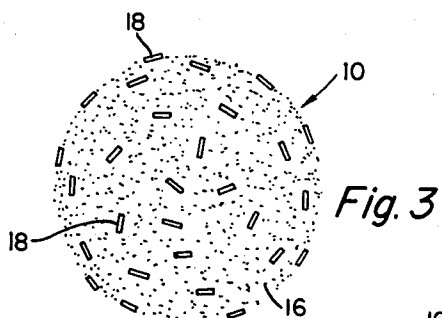
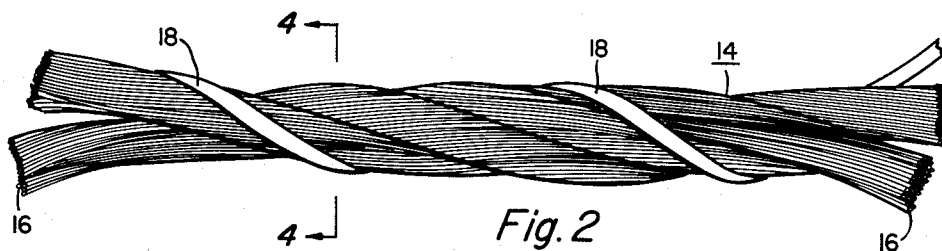
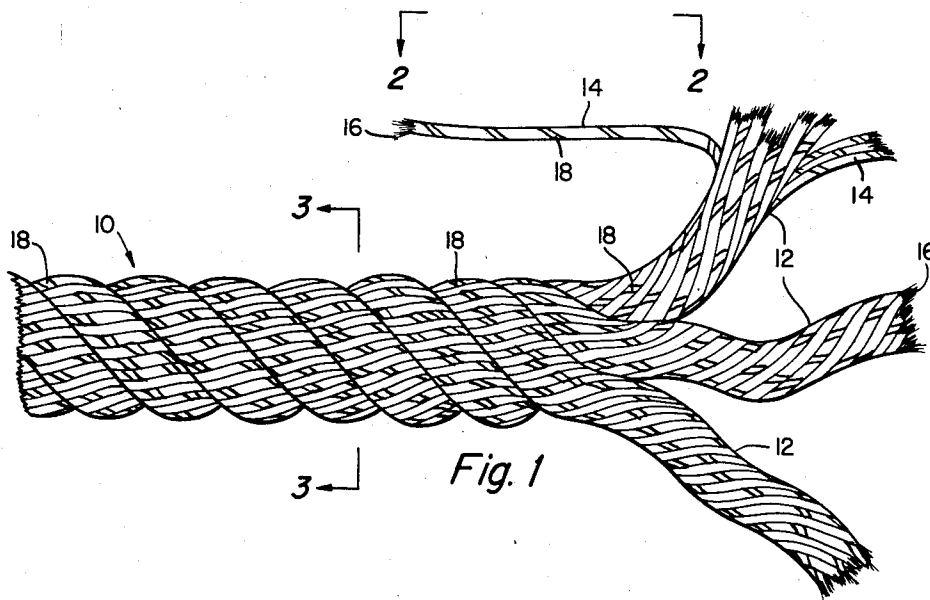
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PHOSPHORESCENT ROPE

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PHOSPHORESCENT ROPE

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7 Claims. (Cl. 57—140)

The present invention relates to a phosphorescent rope, and more particularly to a phosphorescent rope which glows throughout the entire thickness of the rope and which is light in weight.

Heretofore, phosphorescent ropes have been made by dipping the rope in a phosphorescent material so as to coat and impregnate the rope with phosphorescent material. However, such ropes have the disadvantage that the impregnation of the rope with the phosphorescent material greatly increases the weight of the rope. Also, the direct contact between the phosphorescent material and the fibers of the rope tend to weaken the fibers of the rope. Furthermore, since the phosphorescent material is exposed, it is subject to be worn off during the use of the rope.

It is an object of the present invention to provide a novel phosphorescent rope.

It is another object of the present invention to provide a phosphorescent rope which is relatively light in weight.

It is a further object of the present invention to provide a phosphorescent rope in which the phosphorescent material does not directly contact the fibers of the rope, so that the fibers of the rope are not weakened by the phosphorescent material, and the phosphorescent material cannot be worn off.

Other objects will appear hereinafter.

For the purpose of illustrating the invention there is shown in the drawings a form which is presently preferred; it being understood, however, that this invention is not limited to the precise arrangements and instrumentalities shown.

Figure 1 is an elevational view of the phosphorescent rope of the present invention with one end of the rope being unraveled.

Figure 2 is an elevational view of the yarn of the phosphorescent rope of the present invention looking in the direction of arrows 2—2 in Figure 1.

Figure 3 is a sectional view taken along line 3—3 of Figure 1.

Figure 4 is a sectional view taken along line 4—4 of Figure 2.

Figure 5 is a typical sectional view of the phosphorescent filament of the rope of the present invention.

Referring initially to Figure 1, the phosphorescent rope of the present invention is generally designated as 10.

Rope 10 comprises a plurality of strands 12 which are wound together to form the rope 10. Each of the strands 12 is formed from a plurality of threads of yarn 14 which are wound together. Each of the threads of yarn 14 is formed of a plurality of filaments 16 which are spun together to form the yarn thread 14. The filament 16 can be natural fibers, such as sisal, hemp, or flax, or can be synthetic fibers, such as nylon. As shown in Figure 2, a phosphorescent filament 18 is helically wound around each of the threads of yarn 14.

Referring to Figure 5, each of the phosphorescent filaments 18 comprises two thin, narrow, flat strips 20 of a translucent or transparent plastic having high

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strength characteristics, such as Mylar. The plastic strips 20 are bonded together in face-to-face relation with a thin layer 22 of a phosphorescent material sandwiched between the plastic layers 20. The phosphorescent filaments 18 can be formed from wider strips or sheets of the plastic and phosphorescent material laminate which is cut longitudinally to provide the narrow, flat phosphorescent filaments 18. Since the plastic layers 20 of the phosphorescent filament 18 are transparent or translucent, the layer 22 of the phosphorescent material is clearly visible through the plastic layers 20. Since the layer 22 of the phosphorescent material is sandwiched between the plastic layers 20, the phosphorescent layer 22 is protected from being worn away by the plastic layers 20. Also, the plastic layers 20 provide the phosphorescent filament 18 with great strength so that the phosphorescent filament 18 will not be broken or damaged during the manufacture and use of the cable 10.

Each of the phosphorescent filaments 18 is wound around its respective thread of yarn 14 with a flat side of the phosphorescent filament 18 contacting the filaments 16 of the thread of yarn 14. Thus, the other flat side of each of the phosphorescent filaments 18 faces away from the thread of yarn 14 so as to expose the greatest area of the phosphorescent layer 22 of the phosphorescent filament 18, and thereby provide the maximum amount of illumination from the phosphorescent filament 18. Since the phosphorescent layer 22 of the phosphorescent filament 18 is sandwiched between the plastic layers 20, only the plastic layers 20 contact the filaments 16 of the threads of yarn 14. Thus, the filaments 16 are not subject to be weakened by the material of the phosphorescent layer 22 of the phosphorescent filament 18.

Since each of the strands 12 of the rope 10 is made up of a plurality of the threads of yarn 14, and the strands 12 are twisted together, portions of some of the phosphorescent filaments 18 are exposed along the outer surface of the rope 10. In addition, other of the phosphorescent filaments 18 extend along the interior of the rope 10. Thus, as shown in Figure 3, each cross-section of the rope 10 along the entire length of the rope 10 has a plurality of the phosphorescent filaments 18 spaced around the outer surface of the rope 10, and a plurality of the phosphorescent filaments 18 scattered throughout the interior of the rope 10. Thus, when the rope 10 is placed in the dark, not only will the outer surface of the rope 10 be illuminated by the phosphorescent filaments 18, but also the entire thickness of the rope 10 will be illuminated. Since the phosphorescent filaments 18 are narrow and thin, they are relatively light in weight. Therefore, the phosphorescent filaments 18 do not add any appreciable weight to the weight of the rope 10, yet the phosphorescent filaments 18 completely illuminate the rope 10 when the rope 10 is in the dark.

The present invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof and, accordingly, reference should be made to the appended claims, rather than to the foregoing specification as indicating the scope of the invention.

I claim:

1. A phosphorescent rope comprising a plurality of strands of fibers, and a plurality of phosphorescent filaments wound through and along said strands, each of said phosphorescent filaments including a pair of thin, narrow strips of plastic bonded together, and a layer of phosphorescent material sandwiched between said plastic strips.

2. A phosphorescent rope in accordance with claim 1 in which the plastic strips of the phosphorescent fila-

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ments are flat strips of a transparent or translucent plastic material.

3. A phosphorescent rope in accordance with claim 2 in which the plastic strips of the phosphorescent filaments are Mylar.

4. A phosphorescent rope comprising a plurality of twisted strands, each of said strands formed of a plurality of threads of fibrous filaments of yarn, and a separate phosphorescent filament helically wound around and along each of said threads of yarn, each of said phosphorescent filaments including a pair of thin, narrow strips of plastic bonded together, and a layer of phosphorescent material sandwiched between said plastic strips.

5. A phosphorescent rope in accordance with claim 4 15 in which the plastic strips of the phosphorescent filaments are flat strips of a transparent or translucent plastic material.

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6. A phosphorescent rope in accordance with claim 5 in which each of said phosphorescent filaments is wound on its respective thread of yarn with a flat side of the phosphorescent filament contacting the filament of the thread of yarn, and the other flat side of the phosphorescent filament facing away from the thread of yarn.

7. A phosphorescent rope in accordance with claim 6 in which the plastic strips of the phosphorescent filaments are Mylar.

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