

March 29, 1932.

C. N. RINEK

1,851,868

METHOD OF MAKING ROPE

Filed June 1, 1931

Fig. 1.

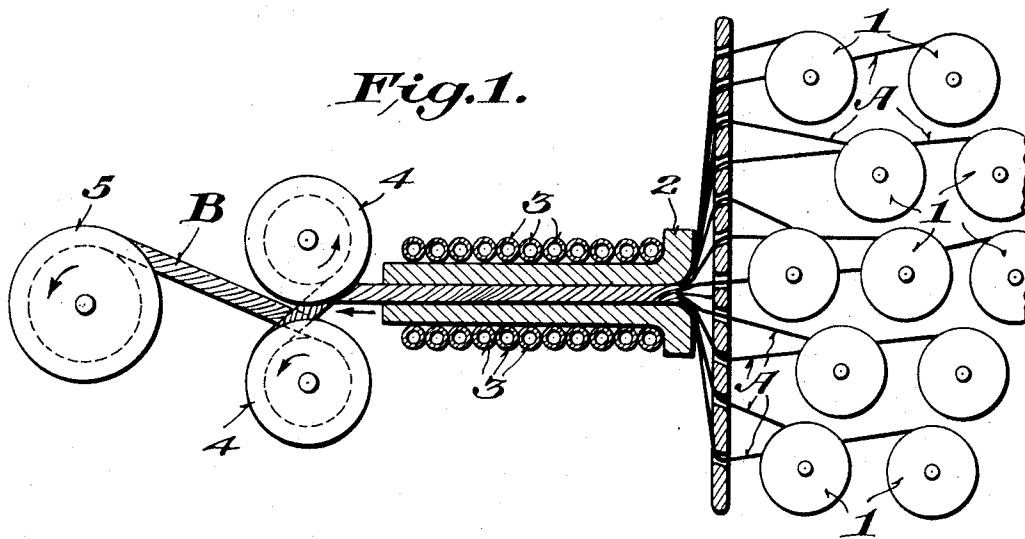


Fig. 2.

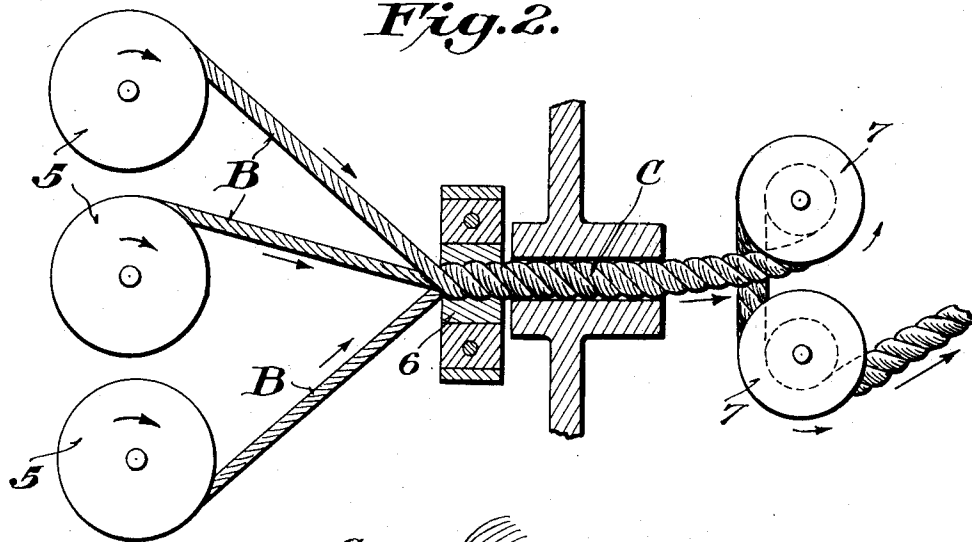
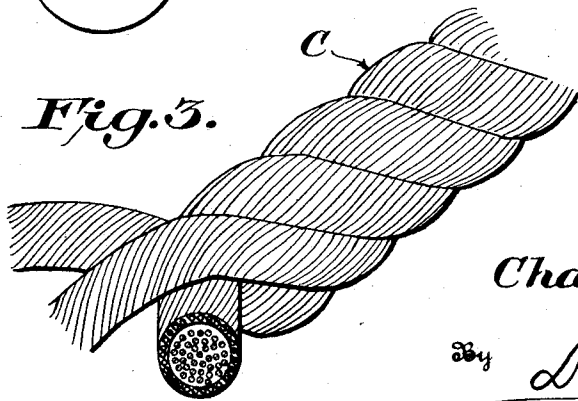


Fig. 3.



Inventor

Charles N. Rinek,

By

D. F. Willhaup

Attorney

UNITED STATES PATENT OFFICE

CHARLES NORVIN RINEK, OF EASTON, PENNSYLVANIA

METHOD OF MAKING ROPE

Application filed June 1, 1931. Serial No. 541,510.

This invention relates to an improvement in cordage, and more particularly to a novel rope structure possessing strength, flexibility and moisture resisting characteristics which contribute to the general durability of the rope and renders the same of wide application and service.

A primary object of the invention is to provide a rope having the foregoing characteristics which is made from cotton yarn or other materials impregnated with rubber gum, the yarn thus impregnated being the foundation of the general rope structure which includes several strands composed of cords formed of the previously treated yarn.

A further object of the invention is to provide a rope structure which is relatively inexpensive, and susceptible of being made from cotton fiber which is thoroughly waterproofed thereby to adequately meet the use of a rope made from cotton yarn under conditions which may require its use in water without impairing its tensile strength.

With the above and other objects in view, the invention consists in the novel features of construction, combination, and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawings and defined in the appended claims.

A preferred and practical embodiment of the invention is shown in the accompanying drawings, in which:—

Figs. 1 and 2 are diagrammatic views illustrating the method steps employed.

Fig. 3 is a perspective view of a rope made in accordance with the present invention.

Rope made from cotton fiber, under ordinary circumstances will not stand the amount of abrasive, wear and tear as rope made from hard fiber such as manila and the like. However, owing to the abundant and readily available supply of cotton fiber, it is desirable to process the same so that it may be readily used as a substitute for rope made from manila, abaca or other fibers. To that end the present invention provides a rope made from cotton yarn, such as the Sea Island grade, which may be expressly spun and laid exclusively for this purpose and which

is suitably processed and fabricated to render it strong and durable while at the same time maintaining its flexibility and increasing its tensile strength.

First, a cotton yarn or cord of the proper twist is provided with a thorough coating of the best quality pure Pará gum. After the yarn in the form of cords A is suitably coated or impregnated, according to this step of the method, the gum is permitted to dry and the coated cord is then wound upon bobbins 1 to be ready for fabricating into strands or readies, as shown in Fig. 1.

The said cords A thus coated, are handled by a forming machine which includes passing the same through the thimble plate into a forming tube 2 which may be heated by a steam coil or its equivalent. The heat and friction will cause a certain amount of cohesion to be imparted to the various yarn slivers comprising the cord. The degree of heat is carefully observed so that the cohesion is not sufficient to provide a solid mass but will cause the rubber to act as a holder in keeping the various yarns in place, as well as providing a flexible waterproof covering.

The cords A in passing through the forming tube 2 are made into readies or strands B which are passed over the forming capstans 4 and then wound upon the ready reels 5. The readies from these reels may then be placed in a machine known as a "layer" and if a three-strand rope is to be made, three of these readies are used to produce the ordinary three-strand rope, as will be seen from Fig. 2.

As the readies pass from the reels 5 to and through the forming dies 6, the heat generated by the passage through such dies constitutes a further stage for compressing the various outside yarns of the strands or readies into their respective places and imparts a finish to the rope C as a whole. The rope is then passed over the finishing capstans 7.

As will be observed from Fig. 3 the outside yarns or cords A of the strands B are bonded together while the inside yarns or cords of the strand or ready are loose and free to flex due to the fact that the heat to which the strands or readies are subjected in pass-

ing through the tube 2 causes the outside yarns or cords to stick together.

From the foregoing it will be apparent that the present invention contemplates the use of a cord, fabricated from cotton yarn, the said cord being coated with Pará gum, and as the cords are then passed through the forming tube and given the proper amount of twist, they are made into readies, which readies in turn are made into finished rope. During the process of making the finished rope, the cords are first subjected to sufficient heat to cause them to adhere to provide a relatively homogeneous outer coating and then the readies when formed into the finished rope are subjected to further heat to additionally compress the strands or readies thereby to impart a finishing envelope or surface to the completed structure.

While it is, of course, to be understood that the present invention has special application to the utilization of cotton yarn, it will, of course, be understood that the method and the product may be equally efficient with yarns having characteristics similar to cotton.

Without further description it is thought that the features and advantages of the invention will be readily apparent to those skilled in the art, and it will of course be understood that changes in the form, proportion and minor details of construction may be resorted to, without departing from the spirit of the invention and scope of the appended claims.

I claim:

1. A method of forming rope from rubber coated cords which consists in simultaneously subjecting the coated cords to pressure and heat while being assembled into strands, and subsequently simultaneously subjecting the strands to pressure and heat while being formed into rope.

2. A method of forming rope from rubber coated cords which consists in simultaneously subjecting the cords to pressure and heat while being assembled into strands whereby the outer yarns of the cords are adhesively connected and the internal yarns are free to flex, and subsequently simultaneously subjecting the strands to pressure and heat while being twisted into rope thereby to further compress the outside yarns and impart a finish to the rope as a whole.

In testimony whereof I hereunto affix my signature.

CHARLES NORVIN RINEK.