

UNITED STATES PATENT OFFICE.

THOMAS H. DUNHAM, OF BOSTON, MASSACHUSETTS.

PROCESS OF MAKING ROPE-YARNS FROM COTTON.

SPECIFICATION forming part of Letters Patent No. 227,885, dated May 25, 1880.

Application filed February 10, 1879.

To all whom it may concern:

Be it known that I, THOMAS H. DUNHAM, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new Process for Making Rope-Yarns from Cotton, of which the following is a full, clear, concise, and exact description.

The object of my invention is to make a yarn from cotton adapted especially for rope-making, but desirable for many other uses, and much cheaper than any other cotton yarn of equal strength and weight.

The new process by which my yarn is made is as follows: The cotton is first taken from the bale to the opener or lapper, and then to the carding-machine, from which the cotton usually runs into a trough or endless apron, by which it is carried to a drawing-head, where it is put into cans and taken to the drawing-frame. It is then doubled and drawn to make the fiber straight and form it into a sliver or roving. The sliver or roving is doubled and drawn sufficiently to make it even, or until the fibers composing it lie substantially parallel with each other and the roving is substantially uniform throughout its length. Each roving is also slack-twisted, forming what is called a "slubber-roving," this part of the process being that ordinarily used to prepare cotton for spinning by means of the usual drawing-frame and slubbing-machine. One or more of these slubber-rovings are then twisted hard (one or more being used, according to the size of yarn desired) by machinery too well known to require description, and the coarse yarn thus produced is wound on a spool, or otherwise kept under tension, as it leaves the machine by which it is twisted. The product thus obtained is a coarse strand of cotton fibers of uniform size throughout its length, of great tensile strength, because the fibers are twisted closely together—that is, the strand is hard twisted.

I have discovered and practically demonstrated that if the fibers of this product be cemented together by tar the fibers will become set, the tendency to kink and untwist will be done away with, and the yarn will not stretch appreciably.

The coarse hard-twisted yarn is passed

through a bath of hot tar in a way well known to all skilled in the art of tarring rope-yarns, and is then passed over driers, all of which will be understood without further description.

It will be advisable to add to this tar bath an extract of some tanning substance, such as fustic, turmeric, oak-bark, and gambia, first boiling one of these substances—as, for example, fustic—in water until its tanning and coloring properties have been extracted, (using very little water in proportion to the amount of fustic used, in order that the extract made may be very strong,) then mixing this extract with boiling tar in the proportion of one part in bulk of extract to three parts of tar.

The fibers are firmly attached together and made water-proof by the tar, so that they form a close, solid, compact, and very strong strand, with no tendency to kink or untwist; and in case the tanning extract is added to the bath the fibers are strengthened and preserved by it in addition to the tar. The addition of the tanning extract to the tar bath is not necessary, but is desirable.

I am aware of Patent No. 176,269, dated April 18, 1876, to R. and W. C. Blakiston, and that waxing and tarring threads, twines, and rope-yarns is common.

I am also aware of English Patent No. 11,996, (old law,) to H. Winter; but I am the first to make this large coarse yarn, which, when made, is of no value as a manufactured article, because it is not adapted for any use known to me, and which becomes of value only after its fibers are cemented and set by the tar.

What I claim as my invention is—

The improvement in the art of making cotton yarns above described, consisting in reducing the cotton fibers to a slubber-roving, then hard-twisting one or more of these slubber-rovings, so as to produce a large, coarse, hard-twisted yarn, and, lastly, saturating this yarn with tar and drying it, all as and for the purposes specified.

THOMAS H. DUNHAM.

Witnesses:

C. H. SLADE,
GEORGE O. G. COALE.