

United States Patent Office.

JOHN W. BOWERS, OF NEWTON, MASSACHUSETTS.

Letters Patent No. 92,933, dated July 27, 1869.

IMPROVEMENT IN THE MANUFACTURE OF BRAID.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOHN W. BOWERS, of Newton, in the county of Middlesex, and State of Massachusetts, have invented a new and useful Improvement in the Manufacture of Braids; and I do hereby declare that the following is a full, clear, and exact description of the same, and of the method or mode of operation by which it is carried out.

My invention relates to the manufacture of braids, so called, for various purposes, which are made from yarns braided together by braiding-machines, and is designed to obviate certain difficulties in the making of braids, and by which means a new and useful manufacture may be produced, which can be made much cheaper than the goods for the same purpose produced by the modes of manufacture heretofore practised.

In the manufacture of braids, it has been the universal practice to make them of doubled and twisted yarns, of such size that when doubled and twisted, they would be of the proper size for braiding; because, when single yarns are attempted to be used, certain difficulties present themselves which arise from the nature of the operations of a braiding-machine, which difficulties have practically prevented the making of single-yarn braids.

In the operations of a braiding-machine, the yarns to be braided are wound upon a series of bobbins, one half of which travel in a sinuous path around in one direction, and the other half in the same manner in the opposite direction, to interlace the threads, the effect of which is, if the yarns are all twisted in the same direction, to put one turn more into the twist of the yarns from one-half of the bobbins, and to take out one turn from the twist of the other half, at each round of the bobbins.

Now, if single yarns are used in this manner, one-half of them will become so slack-twisted as to break down from weakness under the action of the machine, and the other half would be too hard-twisted; or, if sufficient twist were at first put into the yarn in spinning to leave a strong yarn after the turn of twist was taken out, then the other half of the yarn would, by the addition of a turn, be so much twisted as to kink up and make bad work; and in any event, if all the yarns were made with the same twist, one-half of them, when in the goods, must be harder twisted than the other half.

These difficulties are most apparent in making small round braids from coarse yarns, where the bobbins move round continually in one direction, and the length of yarn given out at each round of the bobbin is short, and the yarn is coarse, so that one turn of twist in that length makes a very material difference in the consistency of the yarn.

To remedy this difficulty, I spin the yarns for the two sets of bobbins with two degrees of twist, one set

with more and the other set with less than the proper amount of twist that the yarn should have when in the goods, to an amount just sufficient to compensate for the twist put in or taken out by the action of the braiding-machine.

When the yarns are thus spun, they are ready for braiding, and are therefore by preference spun directly upon the braiding-bobbins, thus avoiding all the intermediate manipulation between the spinning and braiding, as heretofore practised.

The main purpose, therefore, of my invention, is to produce braids from single yarn, on the common braiding-machine, by means of preparing the yarn for braiding by the operation of spinning it with two kinds of twist directly upon the bobbins from which it is braided, so that the difficulties mentioned are avoided, and by which I am enabled to produce a new and useful manufacture of single-yarn braid never before known or used, which may be made much cheaper than braids of the same size made of doubled and twisted yarns, and yet subserve practically the same purpose.

By being thus enabled to braid single yarns, all the labor of winding, doubling, and twisting the yarns may be dispensed with, and the yarn braided directly from the bobbins upon which it is spun.

The yarn, also, is spun about twice as coarse as yarns to be doubled, so that a coarser quality of stock can be used if desired, and each spindle of the spinning-machine can produce about twice the weight of yarn that it would if the yarn were spun fine and afterward doubled and twisted to make a yarn of the same size.

For the purpose of keeping the two kinds of yarn separate, they are wound upon bobbins of different colors, so as to be readily distinguished from each other by the operatives, but any other distinguishing-marks may be used instead.

What I claim, is—

1. The braid herein described, composed of two kinds of single yarns prepared for the braiding-machine in spinning, substantially as described.

2. The method herein described, of making single-yarn braids, consisting in preparing the yarns for braiding by spinning them with two different degrees of twist adapted to the operations of the braiding-machine, and which are spun and wound respectively upon two sets of braiding-bobbins, and which yarns, in the condition in which they are spun and wound, are formed into braid on a braiding-machine, all substantially as described.

Executed January 23, 1869.

JOHN W. BOWERS.

Witnesses:

WM. C. HIBBARD,
N. C. LOMBARD.