W. E. CLOGHER.

METHOD AND APPARATUS FOR PRODUCING CORE YARNS.

APPLICATION FILED MAR. 19, 1912.

1,124,863. Patented Jan. 12, 1915.

2 SHEETS—SHEET 1.

Fig. 1.

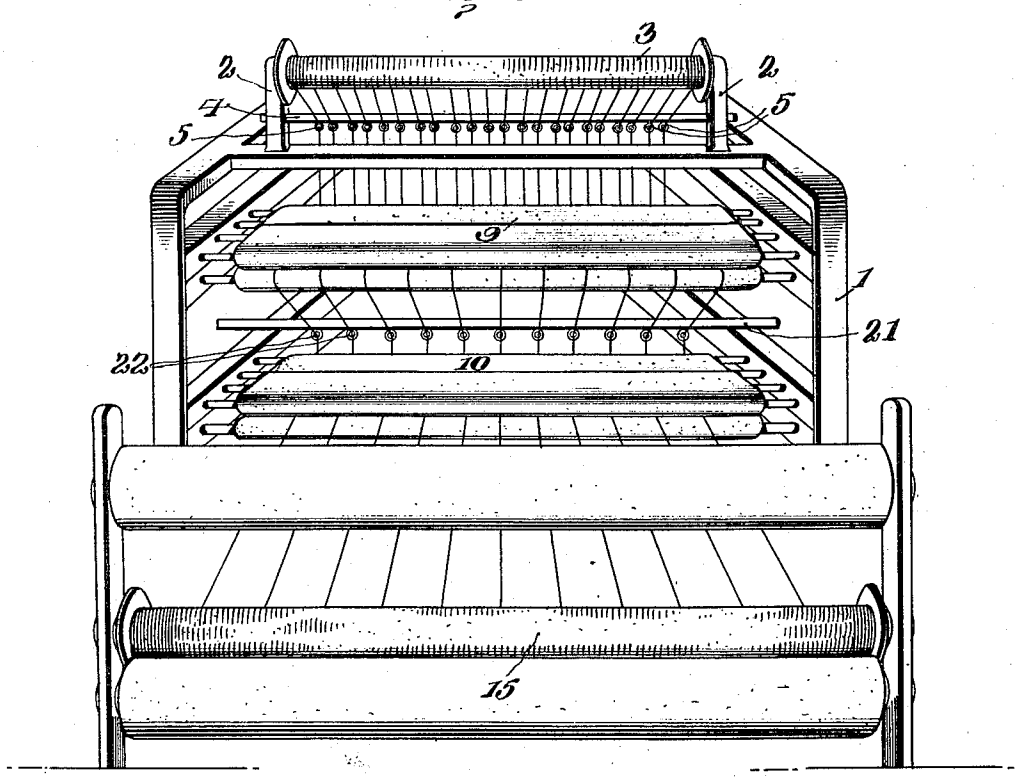
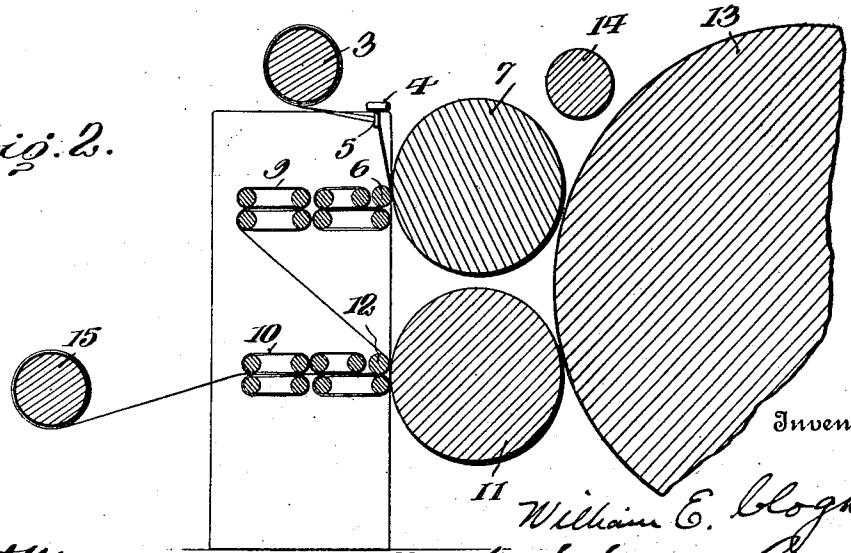


Fig. 2.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

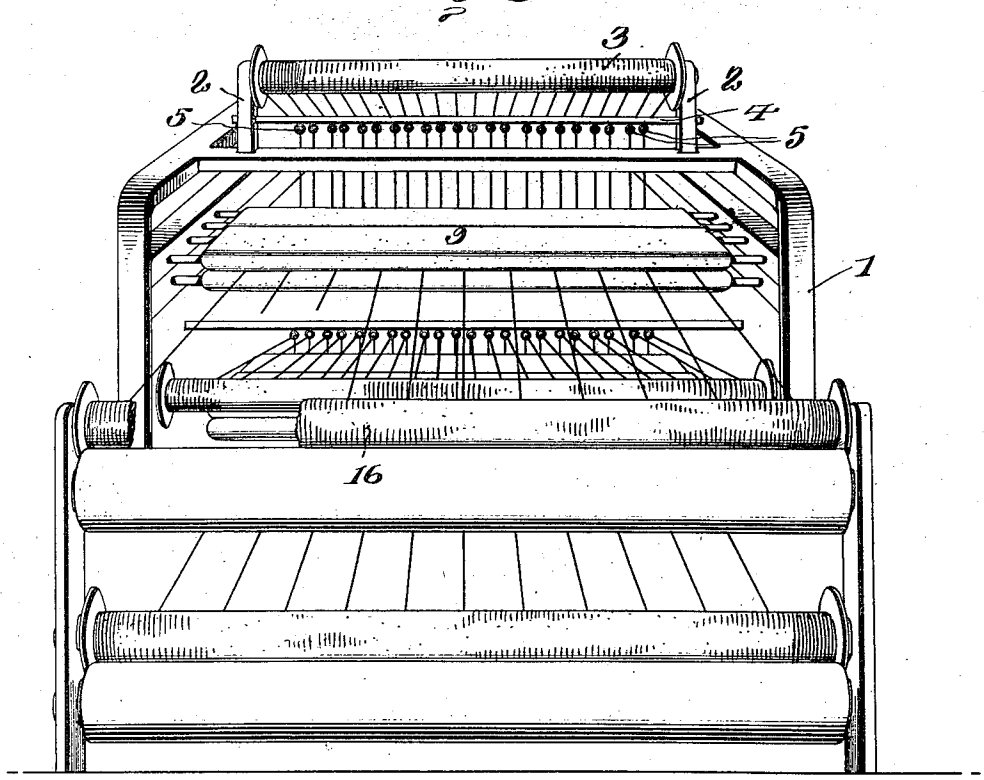


Fig. 5.

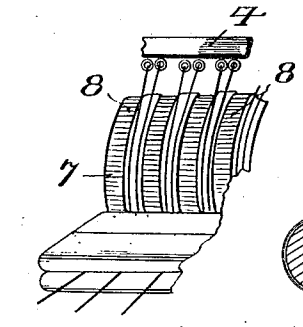
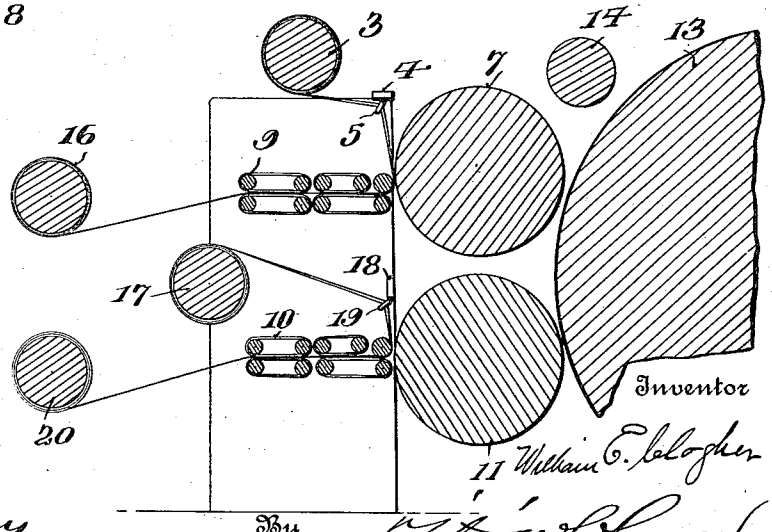


Fig. 4.



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METHOD AND APPARATUS FOR PRODUCING CORE-YARNS.

1,124,863. Specification of Letters Patent. Patented Jan. 12, 1915.

Application filed March 19, 1912. Serial No. 684,883.

To all whom it may concern:

Be it known that I, WILLIAM E. CLOGHER, a citizen of the United States, residing at Mankato, in the county of Blue Earth and State of Minnesota, have invented certain new and useful Improvements in Methods and Apparatus for Producing Core-Yarns, of which the following is a specification.

The invention relates to a method and apparatus for producing core yarn, and it has for its chief object the production of a core yarn thread of novel manufacture, in which the core consisting of two or more threads run together will be completely and more or less, evenly covered by a wrapper, in such a way as to produce on completion of the process, a single strand, the use of which in knitted or woven fabrics, will produce greater strength, wearing quality, and elasticity than can be produced in fabrics made from yarns comprised only of a single core and wrapper instead of a multiple core.

As my process applies particularly to the use of two or more threads run before the doffer ring for a core where only one has heretofore been employed, I will designate the core as a "multiple core" consisting of two or more threads, as desired.

Core yarns containing but a single core have been found unsatisfactory, due to the fact that it was not possible to so completely and evenly wrap or incase the core in the wrapper so as to prevent the covering from slipping and tearing from the core, resulting in causing bare spots in the yarn and lack of strength and elasticity, and the attempt to twist two single core yarn threads together after wrapping each separately, made the yarn so heavy and bulky that it was found impossible to produce a thread of the required size that would run satisfactorily and without great waste on machines making the finer knit or woven fabrics. By my "multiple core" process, it is possible to produce a more evenly covered multiple core thread, and when twisted will be in effect, a two or more ply thread under a single cover or wrapper which imparts a strength and elasticity impossible to obtain under the old single core process, resulting in a greater saving in waste, and when wool is used for wrapper and cotton for core, it is hard to distinguish from an all wool yarn.

My method or process of producing multiple core yarn, consists in feeding separated core threads in sets of two or more, down in front of and next to the doffer rings, and then to the set or series of rub rolls or aprons, supplying a wrapper to each thread from the doffer ring and rubbing two or more of the threads and roving or wrapper together after leaving the guide-eyes.

The invention further consists in feeding the double or multiple cores thus formed, in front of a second set of doffer rings which feed additional wrapper to the multiple cores, and then passing the combined cores and wrapper between the second set of rub rolls to effect a more complete covering of the multiple cores, and finally winding the combined multiple yarn on a suitable spool in single strands.

After each set of multiple core ends passes the guide-eyes it passes under the wipe roll and to the rub roll or apron. Each set of multiple core ends is combined with its companion set or group running parallel thereto, and the two sets of multiple cores are now combined as one, and incased as a whole by the roving or wrapper in one single strand.

In carrying out my improved methods, I have provided the apparatus illustrated in the drawing, in which—

Figure 1 is a front perspective; Fig. 2 is a vertical, longitudinal section, through the center; Fig. 3 is a front perspective showing the apparatus adapted to carry out a modified form of the process. Fig. 4 is a vertical longitudinal section through the center of Fig. 3; and Fig. 5 is a detail of the doffer ring roll.

Referring to the several views, the numeral 1 indicates the frame, which may be of any suitable construction. Mounted upon the frame at each end thereof, are brackets 2, 2 in which is journaled a spool 3 having the multiple core threads wound thereon, and secured to the frame, in the rear of the spool 3, is a rod 4 carrying a number of guide-eyes 5 arranged thereon in sets or groups of two or more. In the present instance the guides are shown arranged in sets of two or pairs.

Mounted in the sides of the frame, below the rod carrying the guide-eyes is a wipe roll 6, and to the rear of the wipe-roll is a doffer ring roll 7 provided with rings 8. Also mounted in the sides of the frame is a

set or series of rub-rolls or aprons 9, and immediately below this set of rub rolls is a second set 10. Below the doffer roll 7 is a second doffer ring roll 11 and in front of said doffer-roll 11 is a second wipe roll 12, both doffer-ring rolls being driven by belts (not shown) from center shaft in roll 13.

The apparatus as above described, with the exception of the arrangement of the guide-eyes is of usual construction, and no claim is herein made to the same.

The multiple cores pass from the spool 3 through the guide-eyes 5 to the upper doffer rolls, thence under the upper wipe roll and between the apron rolls, the heads of each set of multiple ends being fed in separated until they reach the apron rolls, where each set will be rubbed together with the roving or wrapper supplied by the doffer rings as they pass under the wipe-roll. In passing between the apron rolls, each set or pair of core-threads will be rubbed together with the roving wrapped between each combined set of core-threads, producing a single yarn-thread containing a double or multiple core, being in effect a two or more ply thread with a single wrapper. In order to provide a more complete wrapper or cover for the multiple core, the thread thus acted upon passes from the upper set of apron-rolls to the lower doffer ring roll and under the lower wipe-roll. After being supplied with more rovings or wrapper and further rubbed between the apron rolls, the multiple yarn is wound upon jack spool 15.

In Figs. 3 and 4, the apparatus is arranged to increase the production of the multiple yarn, as will be plainly seen by reference to Fig. 4. The multiple core yarn passes from the upper set of rub roll aprons directly to a jack spool 16 on which it is wound.

A spool 17 is provided for a second supply of core and a rod or bar 18 carrying guide-eyes 19 is arranged in a suitable position to permit the multiple core to pass through the guide-eyes, in pairs or sets as heretofore described. The sets of multiple threads in separated position, pass to the lower doffer-ring roll, under the lower wipe-roll and between the apron rubs to a jack spool 20 upon which the multiple yarn after having been incased with the rovings supplied by the lower doffer-ring roll, is wound.

It will be noted that if desired, a rod or bar 21, provided with guide-eyes 22, see Fig. 1, may be employed to guide the multiple core yarn as it comes from the upper set of apron rolls in a single strand to the lower doffer-ring roll and under the lower wipe-roll.

Having now fully described my said invention, what I claim is:—

1. The method of producing multiple core yarns, consisting in guiding core-threads in sets or groups of separated threads to doffer-rolls; supplying rovings to the core-threads of each set or group while in their separated condition, said rovings being supplied parallel with said core-threads, and the rubbing each set or group of enveloped core-threads together into a single strand.

2. The method of producing multiple core-yarns, consisting in guiding core-threads, in sets or groups of two or more separated threads, to doffer-rolls; supplying rovings to the threads of each set or group while in their separated condition; rubbing each set or group of multiple core-thread and rovings into a single strand; then passing the multiple-core, single strand to a second doffer-roll; supplying more rovings, and finally rubbing the rovings around said single strand to more completely envelop or wrap the same.

3. An apparatus for producing multiple core-yarns, having in combination means for guiding core-threads in sets or groups of two or more separated threads; a doffer-roll; a wipe-roll for supplying rovings to the separated core-threads of each set or group, and rub-aprons for gradually rubbing each set or group of roving-enveloped core-threads together.

4. An apparatus for producing multiple core-yarns, having in combination a guide-bar provided with guide-eyes arranged in separated sets or groups, whereby the core-threads are guided in separated sets or groups of two or more separated threads; a doffer-roll; a wipe-apron for supplying rovings to the separated core-threads of each set or group, and two sets of rub-aprons, one set for receiving the rovings and superimposed core-threads in separated position, and the other set for rubbing the roving-enveloped core-threads together to form a single yarn having a multiple core.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM E. CLOGHER.

Witnesses:
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H. S. CHRISTENSEN.