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PROCESS OF TREATING KAPOK

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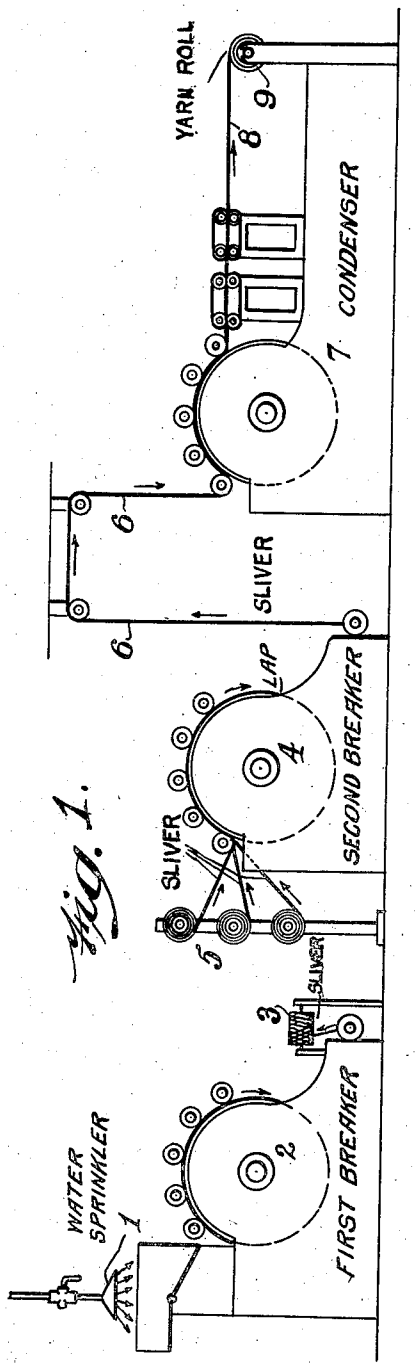


Fig. 1.

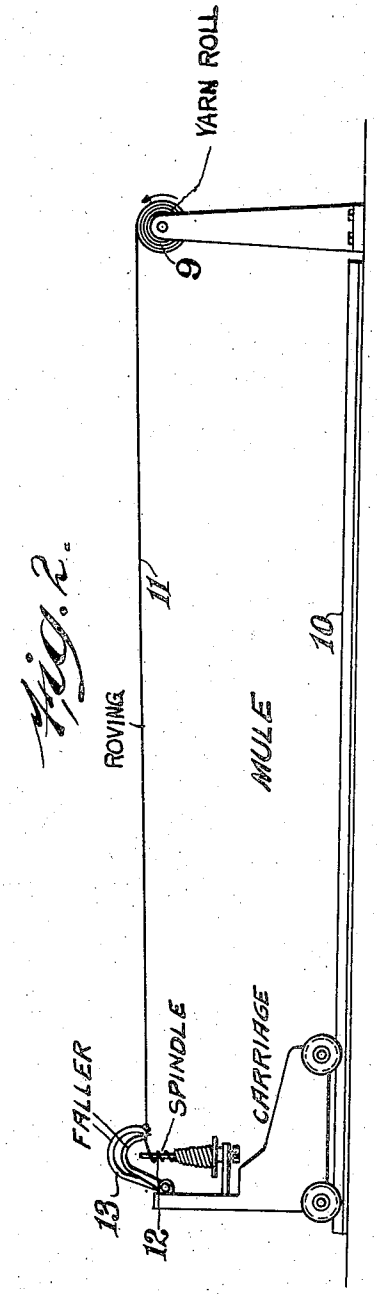


Fig. 2.

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PROCESS OF TREATING KAPOK

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1 Claim. (Cl. 19—66)

It has heretofore been recognized that the fibres of kapok, which are of a silky character, (being a species of silk cotton tree botanically related to the cotton plant, and which is grown in large quantities in Java, Ceylon and other places having similar climatic conditions) are possessed of unusual softness, warmth and buoyancy, but it has heretofore been practically impossible to card and spin kapok fibers in a pure condition, unmixed with other fibers, so as to produce a pure kapok yarn capable of being utilized to make a pure knitted or woven kapok fabric, for the reason that the fibers of kapok are short and have little or no felting quality or tendency to cling together or adhere to each other as in the case of cotton or wool. Attempts heretofore made to card pure kapok fibers have failed due to the fact that the short silky fibers immediately clogged the carding machine.

It will be apparent to those skilled in the art that it is extremely desirable to be able to produce pure kapok yarn, since from the same a pure kapok knitted or woven fabric can be produced, which has a general and wide-spread field of utilization in the making of various articles of apparel, such as vests, hunting, shooting and fishing jackets, blouses, swimming belts, bathing suits, coverlets, streetclothes, topcoats, overcoats, and the like, since any cloth, garment or wearing material or other article made of pure kapok knitted or woven fabric produced by my invention will possess a great degree of softness, warmth, lightness and buoyancy.

It has heretofore been proposed to apply the kapok fibers in bulk to cloth garments, but such use of the same gives the cloth garment, or the like, a padded, quilted and bulky appearance, which is entirely obviated when kapok yarn, produced from the pure kapok fiber, according to my invention, is employed to form the cloth itself.

By my novel method of producing pure kapok yarn from pure kapok, I have succeeded in overcoming the objections heretofore deemed to be insurmountable in the treatment of pure kapok fibre, and my invention, therefore, in its broad and generic scope, consists of a novel method of producing pure kapok yarn from pure kapok.

While the steps of my invention may be capable of being carried out in various forms of apparatus, I have shown herewith one preferred form of apparatus for carrying out the steps of my invention, and it is to be understood that I do not desire to be limited to the precise form of apparatus shown in every instance, since slight changes and modifications can be made therein, which will come within the scope of my novel process.

In Figures 1 and 2 of the accompanying drawing, I have illustrated diagrammatically one type of apparatus which may be employed in carrying out my novel method, and I will now explain the various steps employed in the production of the pure kapok yarn from the raw fibre.

The kapok fibre is obtained from a seed pod about one-half the size of a banana, the fibre being removed from the pod and the seeds separated from the fibre in any desired manner, the kapok fibre being imported into this country packed in bales similarly to the manner in which cotton is packed.

In carrying out my invention, the kapok fibre, after being removed from the bales is passed through the picker and then to the feeding device where it is moistened or sprinkled with liquid such as water, as seen at 1 at the left hand of Fig. 1, and a measured quantity of the fibre then passes to the first breaker 2 of the carding machine which is provided with a woolen card. If the carding machine is operated in the same manner or at the same speed as when cotton or wool fibre is treated, it will be found to be impracticable and impossible to pass the pure kapok fibre therethrough and subject it to the action of the carding mechanism, owing to the peculiar character of the pure kapok fibres which have little or no felting quality or tendency to cling together or adhere to each other whatever, as in the case of cotton or wool. The light and fluffy pure kapok fibre, if run through a carding machine, as adjusted for cotton or wool, will not form slubbings or slivers, but will clog up the carding machine and be thrown out all around the room. I have, however, discovered that pure kapok fibre can be carded if the speed of the main cylinders of the carding mechanism is reduced to about one-half of the usual speed, or to about forty to forty-five revolutions per minute, while the speed of the other parts of the carding mechanism, as the workers, is correspondingly increased.

Through the action of the carding mechanism of the first breaker, operated as above described, the slivers 3 of pure kapok are formed. These slivers are next subjected to treatment in the second breaker 4, as indicated at 5, whereby the slivers 6 of pure kapok are formed, which now pass to the condenser 7, which forms the lighter pure kapok rovings 8, which are collected on the yarn rolls or spools 9 seen at the right of Figs. 1 and 2. The yarn rolls or spools 9 are then

placed on the mule 10, which corresponds to a woolen mule. The pure kapok roving from the spools 9 is then spun into yarn 11 to the size that is to be desired and the yarn is wound on the spindles 12 to form the cops. The tension of the faller 13 on the pure kapok yarn must be greatly decreased, in order to carry out my process, since otherwise, the pure kapok roving will instantly break, thereby preventing the spinning or twisting of said pure kapok roving, which is essential to carrying out the steps of my process.

In so far as I am aware, I am the first in the art to form a pure kapok yarn of pure kapok fibre by the steps hereinbefore disclosed, and it is therefore to be understood that my invention is not to be construed as a mere improvement over prior methods, but is entitled to the broad and generic interpretation accorded to a pioneer invention, insofar as regards the steps of my novel process.

The yarn made from the pure kapok fibre can be knitted or woven into any desired fabric to form any desired garment or article or any part thereof.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is,

The method of producing pure kapok yarn from kapok fiber in its natural state, which consists in moistening said fibers, passing said fibers through a carding machine, the main cylinders of which are slowed down to about one-half the usual speed, and the workers of which are correspondingly speeded up and finally spinning the resultant product under a light tension.

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