UNITED STATES PATENT OFFICE.

WILLIAM H. MARTIN, OF PORTLAND, MAINE.

PROCESS OF TREATING CERTAIN KINDS OF COTTON.

SPECIFICATION forming part of Letters Patent No. 308,185, dated November 18, 1884.

Application filed September 15, 1884. (No specimens.)

To all whom it may concern:

Be it known that I, WILLIAM H. MARTIN, of Portland, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Process of Treating Certain Kinds of Cotton; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to the treatment of certain kinds of cotton stock, whereby strength, proper length of the fiber, color, and cleanliness are imparted to them in a much higher degree than they possessed before such treatment. My process, furthermore, enables me to use and bring up to a condition of superior grades of cotton, card-waste, cotton-pickings, rebates, factor samples, cotton that has been wet in fresh water and then dried, mix packs, as well as low grades of cottons hitherto useless for certain purposes.

My process relates to the mixture and treatment of certain different kinds of stock in such a way as to obtain the desired strength from one ingredient or part, color from another, and saving of a stock heretofore wasted, or nearly so, by the use and recovery or reformation of such stock.

In order to carry out my process I take the required quantity of stock composed in almost or substantially equal quantities of card-waste, Sea Island comber, and pickings.

I do not limit myself precisely to the statement that the different kinds of cotton entering into the composition shall always be of equal quantities. Practice in each particular case will determine the exact proportion. For instance, if more strength is required, a slightly increased proportion of comber is introduced. If more of the fiber and barb is desired, a slightly larger proportion of the cleaned and restored pickings is employed. The card-waste is the ingredient by whose use economy in preparation is achieved. The amount of this to be used without detriment to the prepared stock depends, of course, upon the grades or qualities of the other two.

I will now, before going minutely into the different steps of my improved process, define exactly what I mean by "card-waste," "sea island comber," and "pickings," and their equivalents in use in my invention. The card-waste or fly or cylinder strippings which I use is from mills in which are made fine classes of goods, and where high grades of Gulf cottons are employed. The value of such waste is from seventy to eighty-five per cent. the price of middling upland cotton. Pickings are of good cotton fiber, but lacking in color. Being taken from the exterior of bales that have been to a considerable degree exposed to the action of weather and moisture, they have become stained and soiled. They are consequently useless in spinning or weaving until restored in tone and color. Having often a dead color, it is only used for coarser yarns or bag stock. It is not possible to spin any of the fine numbers from pickings. Of card-waste I will further specify that it is apt to be of tender staple and to contain a fine peppery leaf or dirt, which it is necessary to segregate from the stock. This my process does. Comber, being of very long staple, is on that account inconvenient or impossible to be worked for many purposes. From the comber, however, in my admixture I obtain strength and fine color to the prepared stock. Having this great strength, it of course imparts the same to yarns and fabrics into whose composition it enters in the proper proportions.

In carrying out my process I first take an equal or the requisite proportion of pickings and comber and subject them to the action of a machine called the "flaker." This machine consists, essentially, of a series of toothed rolls so arranged as to have the teeth mesh quite closely. These teeth, and of course the spaces between them, are V-shaped. The teeth of one roll or set of rolls enter the spaces between the teeth of those placed opposite them. After having passed these toothed rolls, the cotton is subjected to the action of a very rapidly-revolving drum fitted with fine teeth on its periphery, and also at the same time to a powerful air-blast from a fan-blower. This treatment with the comber forms the lap. Previous to this it is wadded up and exhibits hard bunches or knobs. By this process it is smoothed out and made flaky and fit for union and complete intermingling with the other kinds of stock I employ. I then next take the pickings referred to and subject them to the same

process in the same machine. By this means the pickings are smoothed out, very much of the dirt is removed by the action of the fan-blower. When these steps have been taken with a given quantity of the materials mentioned, I then mix these thoroughly together, and also with an equal or requisite quantity of card-waste. After the three have thus been well commingled, I then submit the compound to the action of a rapidly-revolving drum having teeth projecting from its periphery about three or four inches long and about the same distance from each other. This drum revolves within a perforated casing, and has a fan-blower near the top of the same at one side. During the time—a few seconds only—that the compound is being acted upon by this inclosed drum the three kinds of cotton are thoroughly intermixed, the object being to so thoroughly mingle them that the peculiar properties of each are imparted to the whole—that is, the comber has been so thoroughly intermixed and interspersed throughout the whole mass that it has imparted its color to the whole, the pickings have given a good cotton fiber to the whole, and have lost their stains, and the waste is so completely commingled as to obtain strength and fiber from both the other ingredients. Moreover, the whole mass has become thoroughly cleansed. All the foreign matter, all dust, dirt, seed, &c., have become completely eliminated. This last machine is so constructed that after the requisite number of revolutions of the drum have taken place, and the stock thereby been sufficiently acted upon, the envelope of the drum automatically opens at a certain point and allows the commingled stock to pass out upon an apron and so upon a stand or floor. It is now ready for the press.

I will make a few more observations upon the effect of the different steps of my process upon the different kinds of stock used. I desire to specify that the process of passing between the toothed rollers and over the drum and applying the air-blast to a high degree facilitates the subsequent process of intermixing on the coarse-toothed drum; but the first step is not absolutely indispensable. The different stocks can be separately put through the machine having the coarse-toothed drum, and then mixed by hand, or they may be first mixed. It would take more time and labor in this way, but it could be effected. By the use of the first machine time and labor are saved. But, considered simply in view of the effect upon the stock, I specify the methods last named as equivalents of that including the use of the first machine. The first-named step—*i. e.*, the one done in the flaker—flakes the cotton, making it similar to a cotton-lap, does not injure the fiber, takes out small bunches, removes dirt and leaf, and puts it in a very good condition. Then the second step—when the three kinds have been mixed—thoroughly intermixes the three, shortens the fiber of the comber, removes the stains and bad color from the pickings, and completely removes dirt, dust, leaf, specks, lice, and every impurity and foreign substance. It will thus be perceived that I utilize a proportion of card-waste and do not degenerate my stock. The card-waste, after being cleaned, gives good color and a uniform staple of about seven-eighths of an inch. The pickings, not having been machined, give the coarse cotton staple of such cottons.

The result of my process is good bright color, uniform length of staple, strength, and cleanliness, and economy, although the product is composed of different lengths, colors, and strengths originally.

The manufacturer gets my prepared stock at the price of lower grades of cotton, and for manufacturing purposes has a stock as good, if not on some accounts better, than the high grades of cotton, and at the price of lower grades.

By the combination of the three stocks in my process, and treating them as described, I obtain a uniform staple of a full inch to an inch and one-eighth, which is a superior one for all cotton machinery, and we also have it free from all objectionable substances. By the last process the stocks have become thoroughly amalgamated and have taken on uniform characteristics except those inherent in the stocks themselves, but are alike in length of staple and in color.

I desire further to specify that instead of comber I can use extra-fine long waste which comes from the use of Peeler, Taylor, and Bender cottons, from cane-brake cottons, and extra-length Texas cottons, and I wish to name these as equivalents in my process of the comber.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

The process of treating and improving the cottons or their equivalents, as herein described, which consists in taking substantially equal quantities of sea island comber, pickings, and card-waste, then subjecting the comber to the action of meshing toothed rolls, a rapidly-revolving drum having teeth, and an air-blast, then subjecting the pickings to a similar operation, then combining the comber and pickings thus treated with the requisite quantity of cleaned card-waste, mixing the same together, and then submitting the compound to the action of a rapidly-revolving inclosed drum having coarse teeth on its periphery and to an air-blast at the same time, substantially as herein set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

WM. H. MARTIN.

Witnesses:
WM. HENRY CLIFFORD,
LORENZO CHASE.