

UNITED STATES PATENT OFFICE.

WILLIAM C. JOHNSON, OF MEMPHIS, TENNESSEE.

BLEACHED PAPER-PULP FROM COTTON-SEED HULLS.

SPECIFICATION forming part of Letters Patent No. 733,969, dated July 21, 1903.

Application filed August 6, 1900. Serial No. 26,082. (No specimens.)

To all whom it may concern:

Be it known that I, WILLIAM C. JOHNSON, of Memphis, in the county of Shelby and State of Tennessee, have invented certain new and useful Improvements in Bleached Paper-Pulp from Cotton-Seed Hulls; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to the manufacture of a bleached paper-pulp from the hulls of the cotton-seed or from the short cotton fibers which may be removed from the cotton-seed hulls.

My object is to secure a quality of paper-pulp or bleached cotton fiber from seed-hulls which is superior to all other paper-pulps now on the market in purity, color, length of fiber, and in having properties that are peculiar to the cotton fiber alone. For this purpose I use the cheap and practically waste product of the cotton-seed-oil mills known as "cotton-seed hulls."

In the manufacture of my improved article I preferably use the cotton-seed hulls which have been treated by my machines and process as described in my Patents Nos. 530,553 and 613,208, which consists of breaking the cotton-seed hulls by attrition, separating out the loosened hull particles, and repeating this operation until the hull particles are almost entirely removed without loss of fibers and without destroying the length and strength of the original fibers. All previous attempts to utilize the cotton-seed hulls were unsuccessful, because the only known means of treating the hulls was to cut or grind off the fibers, resulting in a very limited product of fibers too much cut up and too short to be commercially valuable.

While my improved product can be manufactured most economically and with best results by using the cotton-hull fiber made by my mechanical process described above, still it will be understood that it can be made from the cotton-hull fibers manufactured by other processes.

My process of manufacturing my novel product consists of treating the cotton-seed hulls after as much as possible of the hull has been removed by mechanical means with

chemicals under a very high steam-pressure and temperature to extract the coloring-matter and soften the hull particles. I then subject it to a thorough washing with hot water without allowing it to cool off and set the coloring-matter or chemicals in the fibers. I conduct the washing operation and subsequent bleaching in a tub equipped with agitator, preferring this to the beater-engine, which would have a tendency to counteract the free, open, and absorbent qualities of the fiber. I then wash out the remaining traces of hulls, which have been completely dissolved by the bleaching agent, and dry the stock in its loose and highly-absorbent condition by use of hot air or steam heat without allowing the fibers to be beaten or compressed in the manner customary in treating and drying other pulps until thoroughly dry.

My novel product, whether made by the process described or by any other which may be substituted for it, is a cotton-pulp which is free from every trace of the hull of cotton-seed, is perfectly white, of long fibers suitable for the finest grades of papers, and has the highest possible absorbent quality known to cotton fibers.

My new product is a distinct improvement over the raw and hully fibers produced by my mechanical process from cotton-seed hulls, not only because it can be used in finer grades of papers, but also because it has many new and important uses by reason of its chemical purity and its great absorbent quality.

In my chemical process for treating the cotton-seed hulls I preferably use hydrate of soda for softening and extracting the coloring-matter of the hull particles. For bleaching I preferably use a solution of chlorin; but it is understood that other chemicals may be used for these purposes.

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

The herein-described process consisting in breaking cotton-seed hulls by attrition; separating out the loose hull particles; treating the remaining cotton-seed hulls after as much as possible of the loose hull particles has been removed, with chemicals under a very high pressure and temperature; then washing said cotton-seed hulls while hot with hot water

and bleaching the same; agitating the material during the washing and bleaching; then washing out any remaining traces of hulls which have been completely dissolved by the
5 bleaching agent, and then subjecting the material while in its loose and absorbent condition, to the action of hot fluid for drying it.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILLIAM C. JOHNSON.

Witnesses:

W. P. CHAPMAN,

L. W. BOWKER.