UNITED STATES PATENT OFFICE.

WILBUR T. ARMISTEAD, OF RICHMOND, VIRGINIA, ASSIGNOR OF ONE-HALF TO NATHAN B. BACON, OF RICHMOND, VIRGINIA.

MANUFACTURE OF PAPER.

SPECIFICATION forming part of Letters Patent No. 719,982, dated February 10, 1903.

Application filed June 18, 1902. Serial No. 112,213. (No specimens.)

To all whom it may concern:

Be it known that I, WILBUR T. ARMISTEAD, a citizen of the United States, residing at Richmond, in the county of Henrico and State of Virginia, have invented certain new and useful Improvements in the Manufacture of Paper; 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 paper from cotton-seed hulls; and its principal object is to produce a grade of paper particularly adapted for roofing and building purposes, lining for boxes, cases, and packing purposes generally.

Another object of the invention is the production of a grade of paper of the class stated superior in quality to that now in use and which can be manufactured at a much less cost.

Heretofore attempts have been made to manufacture high-grade papers from cotton-seed hulls; but all such attempts have proved failures from one cause or another. By my process the product is easily convertible into paper of the grade named and can be economically produced, owing to the great abundance and cheapness of cotton-seed hulls.

In carrying out my invention the cotton-seed hulls are placed in a suitable tank or boiler and boiled in the presence of an alkaline solution under a sufficient pressure of steam until the hulls are softened and the oily substance neutralized, so that uniformity of color is obtained. After boiling a sufficient length of time the mass is transferred to the beating and refining engines, washed, and when sufficiently beaten the pulp is passed to the stuff-chest, from which it is pumped to the making-cylinder vat. It will be understood that during these steps in the process the mass must at all times be kept in a heated condition, in which case the small amount of grease or oil remaining in the cotton-seed hulls and fiber will not tend to retard its manufacture into the grades of paper hereinbefore mentioned. The mass may be kept heated by means of a supply of steam to each one of the several receptacles through which it is passed.

Other processes may be employed for obtaining my improved product; but I prefer to use the one above described, as it can be more expeditiously and economically practiced, and it will be found that uniformity and distinctiveness of color is obtained.

In producing my product I prefer to use the entire hull, with the fiber attached, after all of the oil possible has been extracted. If a special quality of paper is required, other paper-stock or raw fiber may be mixed with the cotton-seed hulls.

For some purposes it is important that the paper be capable of absorption, so that it will readily take up and absorb various solutions, such as tar, pitch, &c. As my product is of a highly-absorbent character, it will take up such solutions in quantity about equal to its own weight, and I propose for the purpose of producing slaters' and other felt papers to saturate the product with a solution of tar.

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

1. As a new product, an absorbent paper or board made from cotton-seed hulls, chemically cooked, then ground to a pulp and having the minute particles of the hulls distributed throughout the body of the paper, so as to impart a uniform tint thereto.

2. As a new article of manufacture, an absorbent paper or board produced from the hulls of cotton-seed boiled in the presence of an alkaline solution, under a pressure of steam, then ground to a pulp and having the minute particles of the hulls uniformly distributed throughout the body of the paper, so as to impart a uniform tint thereto.

3. As a new article of manufacture, a felt paper or board produced from the hulls of cotton-seed boiled in the presence of an alkaline solution, under a pressure of steam, then ground to a pulp, and saturated with a solution of tar.

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

WILBUR T. ARMISTEAD.

Witnesses:
ADA S. CRUMP,
JAMES F. RYLAND.