UNITED STATES PATENT OFFICE.

EDWARD CONLEY, OF CINCINNATI, OHIO.

IMPROVEMENT IN PROCESSES OF BLEACHING JUTE FOR PAPER-PULP.

Specification forming part of Letters Patent No. **165,307**, dated July 6, 1875; application filed February 19, 1874.

To all whom it may concern:

Be it known that I, EDWARD CONLEY, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new Improvement in the Manufacture of Paper-Pulp; and I do hereby declare the following to be a full, clear, and exact description of the same.

In my invention or process there is no very radical change or important departure from certain chief steps of previous ones of the class in which the vegetable material is subjected to the action of caustic alkali, boiled under pressure. My discovery, therefore, relates to the quantitative proportions of jute and the alkaline solution, the degree of pressure to which they are subjected, the length of time the boiling is continued, and the subsequent thorough washing in warm water.

As a preliminary step to carrying out my process, I first assort, clean, and cut up the jute or jute-butts in the usual way. I then put the same into a close vessel, either stationary or revolving. To every one hundred pounds of jute is added sixty gallons of caustic alkali of a strength of 7° Baumé at a temperature of 130° Fahrenheit. Then boil for about ten hours under a standard pressure of eighty pounds. The boiling completed, the spent liquor is drawn off, and the stock thoroughly washed with hot water, which keeps the thick vegetable matter in solution, and carries off the black and non-fibrous substances.

Preparatory to being bleached it is washed in an ordinary rag-engine in the usual way, after which I prefer to run it through a wet-machine, which extracts from it a large amount of water, and leaves it in a better condition to absorb the bleaching-liquor.

When jute-bagging, burlaps, or gunny-bagging is used, the quantity of caustic alkali may be less by ten gallons.

The strength and quantity of caustic alkali, the pressure, and the time given above are the standards, but their equivalents may be used. For example, I have named 7° Baumé at 130° Fahrenheit; but I consider 8° Baumé at 100° Fahrenheit as equivalent.

In this process there are two points of prime importance: First, boiling in alkali as strong as can be made caustic. I would use alkali of a strength of from 9° to 10° Baumé, if it were practicable to make pure caustic at that strength. Alkali of any greater strength than 7° or 8° Baumé cannot be made thoroughly caustic except by evaporation. Second, a combination of a caustic liquor of a high strength and a medium pressure.

The advantages gained by this process are as follows: First, the disintegration of the stock is effected by the single process above described. Second, this disintegration being thorough, the cellulose is left of a light brown color, and in its natural state short, with uneven ends, which is the best condition to be worked into paper. Third, another consequence of this thorough disintegration is, that all foreign matters, as silica, gluten, &c., are easily separated from the pulp, leaving pure cellulose. Fourth, owing to the absence of all foreign matters, paper made from pure cellulose dries out regularly when wet down for printing. This gives to the sheet an even surface, which enables it to pass smoothly through the press, and receive a clear and distinct impression. It is also opaque, and, when printed upon, does not permit the ink to show through from one side to the other. Moreover, pure cellulose is easily bleached, only a comparatively small amount of chemicals being required, and therefore the paper made from it is not only of the highest grade of color, but also stronger than when the pulp is subjected to a more intense chemical action.

The cellulose obtained by this process may not be chemically pure, but practically its purity is sufficient to produce all the results claimed for clear cellulose.

It has been the practice to work jute into low grades of white paper, and in small quantities. When treated by this process, it can be made into the finest grades of paper, either when used alone or mixed with other stock.

I do not claim to be the first to use jute in the manufacture of white paper, so called. It has been experimented upon by many persons and in many ways, such as boiling in lime, boiling in soda-ash, giving it an acid bath, &c.; but by none of the above processes,

however, has cellulose of the desired quality been produced.

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

The process of producing white pulp for paper, from jute, said process consisting in boiling the specified quantity of stock in a close vessel, of the degree of pressure and in caustic alkali of the strength and quantity indicated, and subsequently washing the same in warm water, as described.

EDWARD CONLEY.

Witnesses:
LISLE STOKES,
JAMES QUINN.