UNITED STATES PATENT OFFICE.

JAMES HENRY ASHWELL, OF NOTTINGHAM, ENGLAND.

PROCESS OF GLOSSING YARN.

SPECIFICATION forming part of Letters Patent No. 713,936, dated November 18, 1902.
Application filed July 12, 1902. Serial No. 115,346. (Specimen.)

To all whom it may concern:

Be it known that I, JAMES HENRY ASHWELL, dyer and bleacher, a subject of the King of Great Britain, and a resident of No. 117 Waterloo Crescent, Forest, Nottingham, England, have invented a certain new and useful Improvement in the Treatment or Finishing of Yarn, of which the following is a specification.

The present invention relates more particularly to the treatment of yarn of cotton with the object of altering and improving the quality and appearance of the same. It is, however, also applicable to the treatment of other yarns, such as flax, rhea, and hemp.

According to my invention the treatment consists in subjecting the yarn to a series of operations, partly chemical and partly mechanical, carried out in such a way as to produce the results desired.

The first step of the treatment is the wetting of the yarn (which is preferably unbleached) with water and the extraction from it of the excess of water, leaving it in a moist condition. The moist yarn is then steeped in a bath of caustic soda or potash of 20° to 35° Baumé. After steeping for about two hours in the bath the yarn is removed and the surplus solution extracted carefully by means of a centrifugal or similar machine.

After this preparation the yarn, in hanks, is placed upon pairs of glass-enameded rollers, which serve to stretch the yarn and move it gradually during the subsequent operations.

The rollers carrying the yarn are mounted in a closed chamber and are furnished with means for raising and lowering them and for rotating them backward and forward, as required. The means for effecting these movements may be of any convenient kind. Into this chamber, which is maintained at a temperature of 90° to 120° Fahrenheit, is admitted carbon disulfid, (CS₂) amounting to thirty per cent. to forty per cent. of the weight of the yarn. The chamber is kept charged for from two to five hours, during which time the hanks are kept moving to and fro on their rollers.

The yarn at this stage is a cellulose thio-carbonate and is in the condition of a more or less gummy yellow thread and is very elastic.

The carbon disulfid is now removed and the yarn dried by driving a current of warm dry air through the hanks. The reconversion of the yarn into cellulose in a proper state for use is effected by boiling it for about an hour in a solution of common salt (NaCl) or sulfate of sodium (Na₂SO₄) or a mixture of these. This completes the treatment, except for the final washing and drying, after which the yarn may be softened by any well-known process.

I may here remark that by varying the proportions of the mixtures and the duration of the operations within the limits above given certain modifications in the final product will result, the tendency being to insure by the employment of the full strengths and durations the highest results and by curtailing the same to obtain results proportionately less complete. After having been thus treated the yarn will be found to be glossier, finer, and stronger than the same yarn untreated.

What I claim as my invention is—

The process of treating yarn consisting in the six stages herein described, viz: first, moistening it with water; second, steeping it while moist in a solution of caustic soda; third, extracting the surplus solution from it; fourth, submitting it to a confined atmosphere of carbon disulfid at a temperature of about 90° to 120° Fahrenheit; fifth, drying it, and, sixth, converting it into cellulose by boiling in a salt solution.

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

JAMES HENRY ASHWELL.

Witnesses:

WILLIAM DORGAN,
ROBERT BOOThs.