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NEW SERIES.

IMPROVED COTTON-PACKER.

Custom requires Sea Island cotton to be packed in round bags about 8 feet long and 30 inches in diameter. This is a heavy tax upon the planters. It often takes a man and helper a whole day to fill a single bag. It takes some sixty or seventy thousand bags to hold the yearly crop of these fine cottons in the United States.

As no suitable machine has hitherto been supplied for this work, it has been necessary for the negro to get into the bag while it is suspended through a hole in the floor, and as the cotton is handed to him to pack it down with his feet, and also pound it with a long, heavy, iron pestle. The strongest and most reliable hands are required for this work. The stifling dust and fine particles of cotton beaten up by this mode of packing and necessarily inhaled by the negro, and the exposure of his person after becoming heated by labor to the cold air which strikes upon him when he has worked himself partly out of the bag, often results in pneumonia, which has thus destroyed many valuable lives. Mr. Lewis S. Chichester, a mechanical engineer of this city, has invented a simple and efficient machine for this work, which we will proceed to describe.

A thin, cast iron cylinder, A, something less than 30 inches in diameter, and 20 inches high, is placed over a corresponding opening in the floor of the gin house. The bottom of this cylinder is surrounded by a broad flange, B, which sustains, from opposite sides, two strong vertical posts of wood, C C. These posts furnish guides for the arms of a rack, to the lower end of which a circular plunger, D, is secured. This rack and plunger are worked up and down by a pinion suitably geared. Openings, E E, are left in the wall of the cylinder and through the flange at two opposite points, midway between the posts. These openings allow the end of the bag to assume its proper shape, and also allow it to stretch out to its full size as it is packed throughout its length.

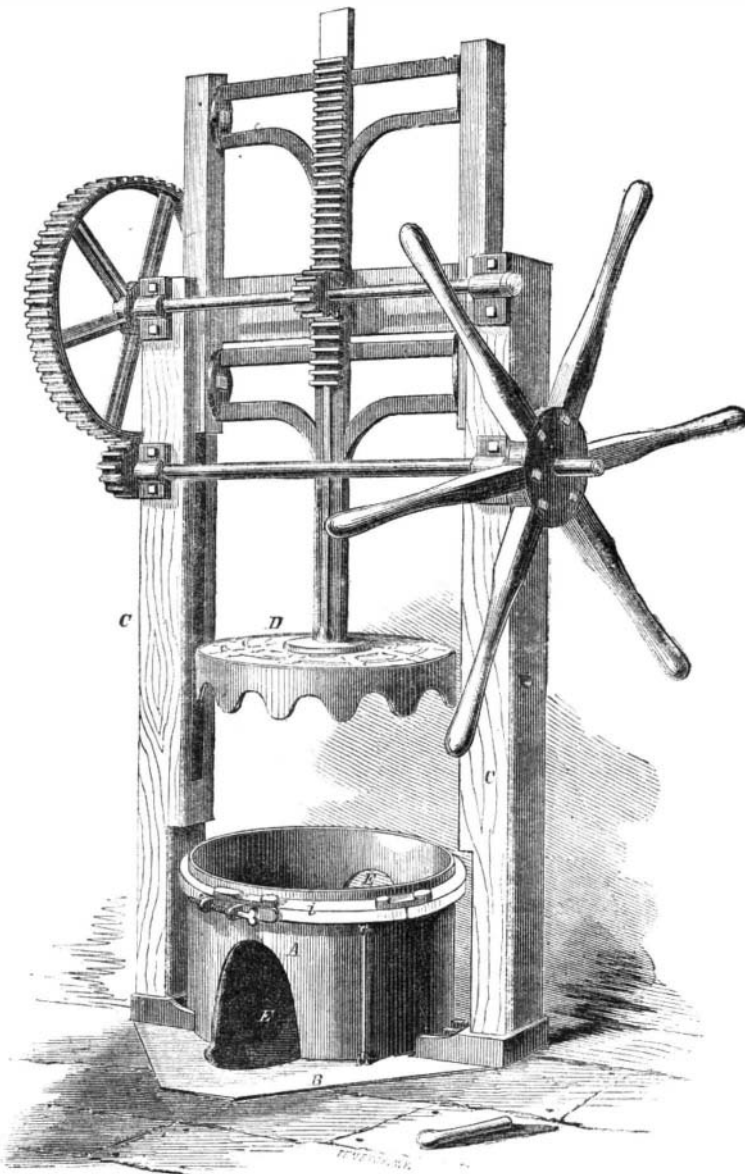
The bag to be filled is turned inside out and slipped down in folds over the outside of the cylinder, bringing the bottom of the bag into position to receive the cotton. The bag is then clasped to the outside of the cylinder by means of a jointed hoop, *i*, which surrounds it and is drawn tight by means of a thumbscrew arranged for that purpose. The cotton is thrown into the bag and is pressed into it by the plunger as it is worked downward. The plunger is then raised and a new supply of cotton thrown in, which is likewise pressed into the bag by the return of the plunger. As this operation is repeated the bag is packed, and the hoop being so adjusted as to allow the bag to slip or render over the top edge of the cylinder, at each return of the plunger, it is forced down gradually through the cylinder and floor, and when fully

packed falls into the room below. A bag of cotton is thus properly packed in about an hour by one man, without injury to the staple.

The patent for this invention was secured, through the Scientific American Patent Agency, Dec. 20, 1859, and

is afterwards submitted to the joint action of heat and moisture before the coloring matter is applied. The process is described in *Newton's London Journal of Arts*, and we would direct the attention of our calico-printers to it (especially those engaged on the finer styles), as it is one

of the most peculiar and original chemical discoveries which has been made for many years. He first takes the gluten of wheat, which is produced by the well-known process of kneading flour with water and washing away the starch, then allowing the gluten to remain in a suitable vessel until it has lost its tenacious character and has acquired, in some measure, the quality of common mucilage. The period at which this change takes place varies with the different kinds of flour and the temperature at which the gluten is kept. It is usually sufficiently fluid after five or six days, when kept at summer heat, and between that period and eight or ten days thereafter it is in the best condition to be used for the purposes of this invention. Then proceed to purify this mucilage by rendering the gluten which it contains again insoluble and coherent, and for that purpose mix it with a solution of carbonate of soda sufficient to saturate the acid which has been formed in it; the point of saturation being indicated by test-paper in the usual way. For 10 lbs. of gluten in this condition, there is usually required 18 oz. of solution of carbonate of soda of the specific gravity of 1.50. The gluten, in becoming again soluble, gradually separates from the soda solution and partially resumes its tenacious and coherent state, and the whole being shaken on a cloth the solution passes away, along with some portions of starch not previously separated. Assuming the above quantities to have been used, the gluten remaining is then to be kneaded or washed with 3 lbs. of cold water, and shaken on a cloth as before and this washing operation is to be performed three times. Ten pounds, by weight, of the purified gluten is to be mixed with 14 oz. of solution of caustic soda of the specific gravity of 1.080. The gluten immediately dissolves and forms a mucilage which is to be diluted with water to the required thickness, as is understood by calico-printers. For cylinder printing, add seven pounds of water. When the fiber or fabric of cotton or linen has been printed or otherwise impregnated with the compound just described, and dried, it is subjected to the action of steam (or of heated air, more or less moist), then rinsed in water. Dyeing in a preparation of orchil, in the manner well known, or in picric acid, or dinitrophenylic acid, or in the coloring matter obtained from coal tar or from aniline; or the same coloring matters may be applied by printing them upon a fiber or fabric, previously prepared with the glutinous mordant fixed by steam, and, subsequently, again subjecting the printed fabric to steam.



CHICHESTER'S COTTON-PACKER.

persons desiring further information in relation to it will please address the inventor, Lewis S. Chichester, or H. G. Evans, 85 Maiden Lane, New York, who has an interest in the invention.

Messrs. Erwin & Hardee are proprietors of this patent right for the States of Georgia and Florida, and inquiries in relation to the matter in those States may be addressed to them at Savannah, Ga., where they manufacture the presses.

MORDANT FOR CALICO-PRINTING.—A patent has been secured by Mr. Walter Crum, an eminent color chemist of Thornliebank, Scotland, for a very novel mordant for fixing colors in printed and other muslin goods. He mixes gluten with caustic potash or soda, or with the silicate of potash or soda, and prints this on the fabric or impregnates it with such a solution; then the fabric

is afterwards submitted to the joint action of heat and moisture before the coloring matter is applied. The process is described in *Newton's London Journal of Arts*, and we would direct the attention of our calico-printers to it (especially those engaged on the finer styles), as it is one of the most peculiar and original chemical discoveries which has been made for many years. He first takes the gluten of wheat, which is produced by the well-known process of kneading flour with water and washing away the starch, then allowing the gluten to remain in a suitable vessel until it has lost its tenacious character and has acquired, in some measure, the quality of common mucilage. The period at which this change takes place varies with the different kinds of flour and the temperature at which the gluten is kept. It is usually sufficiently fluid after five or six days, when kept at summer heat, and between that period and eight or ten days thereafter it is in the best condition to be used for the purposes of this invention. Then proceed to purify this mucilage by rendering the gluten which it contains again insoluble and coherent, and for that purpose mix it with a solution of carbonate of soda sufficient to saturate the acid which has been formed in it; the point of saturation being indicated by test-paper in the usual way. For 10 lbs. of gluten in this condition, there is usually required 18 oz. of solution of carbonate of soda of the specific gravity of 1.50. The gluten, in becoming again soluble, gradually separates from the soda solution and partially resumes its tenacious and coherent state, and the whole being shaken on a cloth the solution passes away, along with some portions of starch not previously separated. Assuming the above quantities to have been used, the gluten remaining is then to be kneaded or washed with 3 lbs. of cold water, and shaken on a cloth as before and this washing operation is to be performed three times. Ten pounds, by weight, of the purified gluten is to be mixed with 14 oz. of solution of caustic soda of the specific gravity of 1.080. The gluten immediately dissolves and forms a mucilage which is to be diluted with water to the required thickness, as is understood by calico-printers. For cylinder printing, add seven pounds of water. When the fiber or fabric of cotton or linen has been printed or otherwise impregnated with the compound just described, and dried, it is subjected to the action of steam (or of heated air, more or less moist), then rinsed in water. Dyeing in a preparation of orchil, in the manner well known, or in picric acid, or dinitrophenylic acid, or in the coloring matter obtained from coal tar or from aniline; or the same coloring matters may be applied by printing them upon a fiber or fabric, previously prepared with the glutinous mordant fixed by steam, and, subsequently, again subjecting the printed fabric to steam.