IMPROVEMENTS TO SLASHERS.

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The same refers to a comb-bar, the teeth of which are rigidly secured thereto and arranged in an oblique and angular position to the line of travel of several horizontal bands of warp-threads, whereby the latter are automatically changed from the several horizontal planes to one horizontal plane as they engage the warp beam; means (not shown in illustrations) being also provided for locking the comb-bar at an angle to the line of travel of the warp threads. The front and rear edges of the teeth are provided with a curved surface.

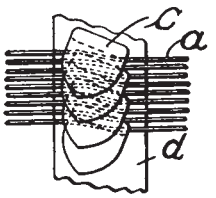

Fig.2

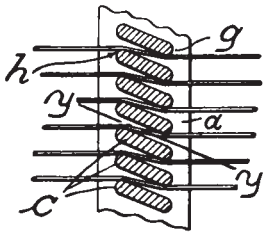

Fig.1

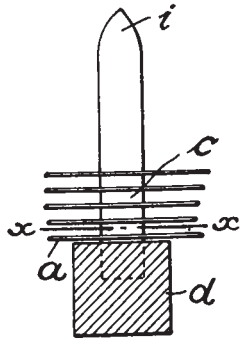

Fig.3

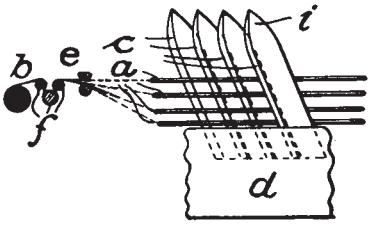

Fig.4

To explain the new device, diagrams 1 to 4 are given, and of which Fig. 1 is a horizontal, sectional view on the line *x*-*x* of Fig. 3. Fig. 2 is a top plan view of the comb-bar illustrating the inclined and angular arrangement of the teeth and with the threads from the several bands separated. Fig. 3 is a vertical, sectional view on the line *y*-*y* of Fig. 1. Fig. 4 is a side elevational view of Fig. 2 illustrating the inclined pins or dents of the teeth, and the threads from the several bands *a*, brought down into a horizontal plane for winding onto the warp beam *b*.

The object of the device is to change the plane of the band of warp threads from several horizontal planes to one horizontal plane in which the threads are positively placed, and which is accomplished by means of the teeth *c* of the comb-bar *d* and the smoothening bars *e* placed between said comb-bar *d* and the warp beam *b*. Three tension rollers are indicated by letter of reference *f*. The teeth *c*, it will be noticed, stand at an angle to the line of travel of the warp-threads, as shown in Fig. 1, and at an oblique angle, or inclined to the horizontal plane, as indicated in Figs. 2 and 4. The result of this arrangement of the teeth is to cause the warp-threads to engage the front side of the teeth, as indicated at *g*, of one of the teeth, and the rear side of the adjacent tooth, as indicated at *h* (see Fig. 1).

By reason of this inclined and angular arrangement of the teeth *c*, the threads *a* will be positively and automatically separated before they pass under the smoothening bars *e*, by means of the teeth, as shown in Figs. 2 and 4. These teeth cause each one of the threads of all of the bands to automatically pass onto the warp beam *b* in a positively separated position, side by side, in a straight line, and without any danger of one thread overlapping or crossing another.

The upper ends of the teeth *c* are made pointed, as indicated at *i*, to permit the warp-threads to be readily separated, one from the other, in getting the machine ready for the winding operation.

To adjust the width of the comb-bar, in use, to the width of the warp beam (between the flanges of the latter) said comb-bar *d* is pivotally connected at its centre to an adjustable bar extending the width of the machine and secured to its framing. One end of this comb-bar is provided with an arc-shaped member having a slot therein for receiving a thumb-nut by means of which the bar may be locked in any suitable angle to the adjustable bar, whereby the several bands of warp-threads will be bent out of their course of travel and brought nearer to each other so that they will wind within compass between the flanges of the warp beam.

Chronological Textile Events

(*Continued from page 21.*)

1795. A cotton mill was established at Warwick, Kent County, R. I.

The first cotton mill in Delaware put in operation by Jacob Broome at Wilmington, in the Old Academy on Market Street. It was afterwards removed to the Brandywine, to be driven by water, but later on burned down.

Thomas Hofland patented in England a loom, which gave a double blow to the batten.

1796. A patent for an improved self-acting loom for weaving duck, was taken out by Amos Whittemore, Cambridge, Mass.

Robert Millar, of Glasgow, Scotland, took out a patent for a power loom known for sometime as the *wiper loom,* from the fact that the picking and treadle motions were worked by cams which were called *wipers.* There was also a stop-rod attached to the loom, to stop the latter when the shuttle failed to enter the box, and on this account Millar called it the *protector.*

Brown and Pindar patented in England their upright warp frame for hosiery.

Smith, of Deanston, Stirlingshire, Scotland, invented the first stop-motion for (cotton) drawing frames.

1797. President Washington and several members of Congress visited Davenport's plant for spinning and weaving flax, hemp and tow, at the Globe Mills, Northern Liberties (at the north of Second Street) Philadelphia. They were highly pleased with the ingenuity and novelty of the machinery. The President, in particular, expressed a high opinion of the merits of the patentee, Mr. Davenport, and an earnest wish that a work so honorable to the infant manufactories of the Union,

might be extended to different parts of the country. The labor was chiefly performed by boys. Specimens of the spinning and weaving were deposited in Peale's Museum for public inspection. It was the purpose of Mr. Davenport to manufacture the machinery for sale. He died soon after, and the machinery of the Globe factory was sold in April, 1798, and the business was broken up.

The United Brethren, at Nazareth, Penna., had in operation a factory for spinning and twisting cotton, and had recently begun to draw wax tapers.

Amos Wittemore, Cambridge, Mass., obtained a patent for an improvement in the manufacture of wool cards.

Three merino rams and five ewes were introduced by Captain Macarthur, into New South Wales.

1798. The manufacture of dye stuffs was commenced in New York by William Partridge & Son. Among the first articles introduced into America, were lac dye, bichromate of potash, argal, peach and Nicaragua wood.

Charles Tennant, Glasgow, Scotland, patented the application of chloride of lime for bleaching purposes.

First cotton mill erected in Switzerland.

Long staple cotton (Sea Island) first to be generally grown in South Carolina.

Samuel Slater entered into co-partnership with Oziel Wilkinson, whose daughter he had married, and Timothy Green and William Wilkinson, also sons-in-law of the latter, under the firm name Samuel Slater & Co., Mr. Slater owning one half the stock. They erected, on the east side of the Pawtucket river, a cotton mill, afterward known as the New Mill, which was the second built by Slater, and the first upon the Arkwright principle, in Massachusetts. Both the old and new mills were superintended by Slater, who received a compensation of $1.50 per diem from each, and by his laborious and constant personal attention, overcame the numerous difficulties attending first enterprises. The hands in this mill soon after revolted, and five or six of them went to Cumberland and erected a small mill, owned by Elisha Waters and others. By these men and their connections several factories were commenced in various parts of the country; most of the establishments erected from 1790 to 1809 having, in fact, been built by men who had directly or indirectly derived the knowledge of the business from Pawtucket, the cradle of the cotton manufacture. Slater's patterns and models were stolen by his servants; his improvements thus became extended over the country, and the business was rapidly introduced in other places.

1799. Cotton machinery first introduced into Saxony.

1800. The first cotton spinning machine in France, was this year introduced from England, through Ghent, and was presented to the first consul. It was about the same time introduced into Switzerland, in the canton of St. Gall, where it was followed the next year by the power loom, recently brought into general use in England.

John Biddis received a patent in the United States for an engine "for reducing silk, cotton, worsted and woolen cloth to their original state to be manufactured," *i. e.*, the first attempt to transform rags into shoddy.

The quantity of cotton grown in the United States this year was about 35,000,000 pounds, of which 17,800,000 were exported. Of this, about 16,000,000 pounds went to England, constituting over one-fourth of the total importation of cotton into that country.

The cotton-worm made its first appearance, and commenced its devastations in South Carolina.

Horace Hanks, Gurleyville, Conn., invented a double wheel for spinning silk yarns.

M. I. Brunel invented the balling machine in England.

Michael Greenwood, Leeds, England, fixed a number of wires, called a false reed, at the back of the reed of the woolen loom, to break the stickiness of the warp, preventing, in a great degree, the shuttle being thrown out.

1801. The first full-blooded Merino buck, *Don Pedro*, imported from Spain into America by M. Dupont De Nemours, on the Benjamin Franklin, *via*. Philadelphia. Don Pedro was kept until 1805 at Rosendale, a farm at Kingston, N. Y., after which he was transferred to the farm of E. I. Dupont, near Wilmington, Del. Fine wool sheep were thus multiplied in that neighborhood.

The dressing of cloth introduced in Dalton, Mass., by Ezra Maynard.

Arthur Scholfield, of Pittsfield, Mass., who accompanied Samuel Slater from England, and, in 1794, was concerned in starting the first incorporated woolen factory in the United States, at Byfield, in Newbury, completed the first improved carding-engine in New England. The machine was constructed without the aid of patterns or drawings, which the laws of England did not suffer him to bring away. During its construction the builder is said to have been obliged to make one or two voyages to England, to refresh his memory of the parts, and to have smuggled portions of the machine, or models and plans, concealed in his bedding. On its completion he announced that he was prepared to card wool into rolls at twelve and a half cents the pound; mixed, fifteen and a half cents; or if previously picked, mixed and greased, ten cents and twelve and a half cents per pound. He soon after commenced the manufacture of carding machines.

Snodgrass, of Johnstone, Scotland, invented the cotton scutcher.

The first wool picker invented by Bowden in England.

(To be continued.)

Waterproofing Textile Fabrics.

A new method of waterproofing textile fabrics, which are exposed to the elements, has recently been devised.

It consists in subjecting the fabrics, such as cotton duck, umbrella cloth, automobile covers, etc., to the action of copper sulphate for about four days, after which it should be dried thoroughly.

In order to further intensify the results, the fabrics are immersed in a 10 per cent solution of soap, which will in turn form an insoluble copper soap, which, by reason of its nature, forms a coating or covering over the fabric, thoroughly impregnating the fibres, making the fabric in no way susceptible to water or moisture.