



### THREAD MACHINERY.

THE FIRST THREAD. — THE ART OF SPINNING BY HAND. — THE SPINNING-WHEEL. — SPINNING THREAD BY MACHINERY. — HARGREAVES. — ARKWRIGHT. — CROMPTON. — THREAD-MAKING IN THE UNITED STATES. — THE FIRST COTTON THREAD. — THE COMPLEXITY OF THREAD MACHINES. — MESSRS. FALES, JENKS AND SONS.

THE first thread used by mankind was most probably such as we find in use now by the Esquimaux and by the various savage races still in the world, made from the sinews of animals, or from such vegetable fibres as are fit for this purpose. Upon this condition a great step in advance was made, when it was discovered that a thread could be made, of any length or thickness, by twisting together the shorter fibres which are furnished in greater abundance by various plants.

The art of thus spinning thread must have been arrived at very early in the history of the race, since in the remotest historic times we find the process had already been made quite perfect. The Egyptians had carried the art of spinning thread to a high point of perfection, while in India the use of the spinning-wheel was known long before it was introduced into England.

In the hand method of spinning thread a bunch of carded fibre, of cotton, flax, or wool, was held upon a distaff, under the left arm, while with the thumb and fingers of the right hand the thread was twisted to the right size; the only guide for evenness and regularity of texture being the delicacy of touch in the hand of the operator. As the thread was twisted it was wound upon a spindle.

With this simple and seemingly rude process very fine and even thread was often made. Such spinning being mostly in the hands of women, the term *spinster*, which was formerly used as a synonyme for *woman*, shows how generally this occupation was then performed by them.

The use of the spinning wheel, as an improved method of twisting the thread, was introduced into England in the time of Henry VIII. from India, where it had long been in use. By this invention the production of thread was greatly increased; but the industry was chiefly a domestic one, and really a process of hand labor.

The modern application of machinery to spinning thread began in England in 1767 by James Hargreaves's invention of the spinning jenny.

At first this machine was intended to spin eight threads at once. The name of the machine is said to be derived from a corruption of *gin*, which was itself a contraction from *engine*. An improvement upon this machine was made by Richard Arkwright, who introduced the principle of spinning by rollers, which draw out the slivers, or rolls of the carded fibre. As these rollers are in sets of two, each set revolving faster than the last, the roll is extended sometimes four times its original length.

This improvement, and others introduced by Arkwright, enabled him to make a thread even and firm enough to be used in weaving for both the warp and woof. This improvement was so great upon that introduced by Hargreaves, that he is said to have died from mortification at its success. Arkwright, having patented his invention, acquired an enormous fortune from it, and it has been estimated that his machine, enabling one man to do as much as one hundred and thirty could before, has added to the effective productive force of England as much as a population of forty millions of men would have done.

In 1779 Samuel Crompton, of Bolton, England, completed a machine which combined the jenny of Hargreaves and the roller spinning of Arkwright, and was called the *mule jenny*, or, as generally known, the *mule*.

The original machine used from twenty to thirty spindles; but this carried over two thousand, and needed the attention of only a single operative. It was only through these inventions that the enormous spinning industry of the world became possible, and the production of modern times enabled to attain the proportions and the cheapness which place the luxury of clean clothes within the reach even of the very poor.

In the United States thread spinning was an important branch of industry from the earliest times. Here, as in England, it was at first entirely a domestic industry, and the spinning-wheel was

considered an indispensable utensil in every well-furnished household. When, with the disorganization of trade produced by the revolution, the importance of supplying the demand for home consumption became more apparent, this industry was stimulated by premiums voted by many of the local governments, and the societies instituted for the general encouragement of manufactories.

The first sewing thread ever made of cotton was produced in 1794, at Pawtucket, Rhode Island. Previously to this, flax was the material used in this manufacture. The idea of using cotton is said to have been suggested by Mrs. Samuel Slater, who, while spinning some Sea Island cotton, noticed the evenness and beauty of the yarn it made. The manufacture was introduced by her husband, Samuel Slater, who is so well known as the pioneer of the cotton industry of this country.

With the introduction of machine-made thread, the manufacture of the machinery for this industry has kept pace, and become of itself an important industrial interest. One of the chief representative houses engaged in this business is that of Messrs. Fales, Jenks & Sons, of Pawtucket, R. I.

This firm has made more of the machinery used for making thread which has been manufactured in this country than any other single firm; and the perfect organization of their works, with their promptness in taking advantage of every improvement, are an earnest that in the future they will retain the reputation they have so legitimately earned.

In their extensive works at Pawtucket, covering about eight acres, they have every accommodation requisite for their business, and the organization of the various departments necessary in the various operations enables them to combine the best excellence with the greatest economy of manufacture. The business of the firm is not, however, limited to the production of thread machinery, and under the head of FIRE PUMPS, a condensed history of its origin and progress will be found.

