

#### HOSIERY AND KNIT GOODS

Greater progress has not been made in any branch of textile manufacture than in hosiery and knit goods. By hand knitting, only one hundred loops could be formed per minute; by the earliest knitting machine the number of loops possible in the same time was increased fifteen fold; to-day the automatic machines will make as high as four hundred thousand loops, and at the same time produce a finer web, shaped into any form. Nine hundred concerns, located in every State, are manufacturing goods in this country, and eighty-five thousand persons are employed. The industry is new in the South, but in the Middle and Western States it has thriven for fifty years. New York is the leading State in respect to value of product. The chief centres of manufacture are Philadelphia; and Cohoes and Amsterdam, New York.

One of the most interesting processes of manufacture in this industry is that of knitting a stocking or sock by machinery. This is briefly as follows: The yarn is first wound on bobbins of a length to fit the machines, and from these it is reeled off as required. There are two machines employed in the work, both constructed on the same general principles, although differently

adjusted for the special work by a modified form of Jacquard cards, so familiar in looms. In the first machine, the "cuffs" or tops of socks are separately knitted in a continuous piece, having raised welts to mark the end of each, so that they may be cut apart by hand in the evenest manner possible. The leg and foot part of the sock is knitted in a barrel-shaped machine having a number of needles—generally about 200, or one for every stitch—in the circumference, and disposed in the length of the cylinder, their movements being accurately controlled by a Jacquard chain, so as to produce the decreasing diameter of the ankle toward the foot; to make the turn at the heel, and to add a third thread, for extra strength, at the heel and toe. The knitting of the sock begins at the cuff, which is joined at the point of section, already mentioned, and placed upon the "transfer cup," a cylindrical machine carrying a number of steel quills, fine or coarse, according to the size of the stitches used; one quill being inserted in each stitch, in order to permit knitting on the remainder of the sock. Into these quills, therefore, the needles of the knitter are fitted at the beginning of the work, taking up the work, as it were, at the point of completing the cuff.

The same operation is followed for all weights of yarn, as well as for different materials—cotton, wool, worsted, merino or linen. The cotton yarn is usually prepared for knitting by a special process, which has for its object the production of the peculiar silky lustre possessed by machine-knit cotton stockings. Briefly described, it consists in combing the carded cotton, so as to remove the shorter fibres, to the assurance of greater strength and durability; then spinning it into fine, round, even threads, which are singly run quickly through burning gas jets, to remove all "fuzz." Two of these "gassed" threads are next twisted together, making a lisle yarn, which is reeled and then stretched on frames. The process is completed by a chemical treatment, giving greater durability and added lustre, which is improved, rather than diminished, by repeated washings. Plain-colored socks are dyed after knitting in the plain white, but the mixed and striped patterns are dyed in the thread. After dyeing, they are dried and pressed on form boards; being then placed between paper boards and put under a fifty or sixty ton weight, greatly to the benefit of the lustre and finish.