

Quality silk thread that would withstand the rigors of machine stitching could be produced, but it was quite expensive also. A new type of inexpensive thread was needed; the obvious answer lay in improving the cotton thread.⁸⁵

In addition to the popular three-ply variety, cotton thread was also made by twisting together either two single yarns or more than three yarns. Increasing the number of yarns produced a more cylindrical thread. The earliest record of a six-ply cotton thread was about 1840.⁸⁶ And in 1850 C. E. Bennett of Portsmouth, New Hampshire, received a gold medal for superior six-cord, or six-ply, spool cotton at the Fair of the American Institute. But the thread was still wiry and far from satisfactory. By the mid-1860s the demonstrated need for thread manufacturers in America brought George A. Clark and William Clark, third generation cotton-thread manufacturers of Paisley, Scotland, to Newark, New Jersey, where they built a large mill. George Clark decided that a thread having both a softer finish and a different construction was needed. He produced a six-cord cabled thread, made up of three two-ply yarns (see fig. 67). The thread was called "Clark's 'Our New Thread,'" which was later shortened to O.N.T. The basic machine-thread problem was solved. When other manufacturers used the six-cord cabled construction they referred to their thread as "Best Six-Cord"⁸⁷ or "Superior Six-Cord"⁸⁸ to distinguish it from the earlier variety made up of six single yarns in a simple twist. Another new side industry of the sewing machine was successfully established.

MANUFACTURE AND EXPORT, TO 1900

Sewing machines were a commodity in themselves, both at home and abroad. In 1850, there were no establishments exclusively devoted to the manufacture of sewing machines, the few constructed were made in small machine shops. The industry, however, ex-

perienced a very rapid growth during the next ten years. By 1860 there were 74 factories in 12 States,⁸⁹ mainly in the East and Midwest,⁹⁰ producing over 111,000 sewing machines a year. In addition, there were 14 factories that produced sewing-machine cases and attachments. The yearly value of these products was approximately four and a half million dollars, of which the amount exported in 1861 was \$61,000. Although the number of sewing-machine factories dropped from 74 in 1860 to 69 by 1870, the value of the machines produced increased to almost sixteen million dollars.

The number of sewing-machine companies fluctuated greatly from year to year as many attempted to enter this new field of manufacture. Some were not able to make a commercial success of their products. The Civil War did not seem to be an important factor in the number of companies in business in the North. Although one manufacturer ceased operations in Richmond, Virginia, and a Vermont firm converted to arms manufacture, several companies began operations during the war years. Of the 69 firms in business in 1870, only part had been in business since 1860 or before; some were quite new as a result of the expiration of the Howe patent renewal in 1867.

Probably due to the termination of many of the major patents, there were 124 factories in 1880, but the yearly product value remained at sixteen million dollars. The 1890 census reports only 66 factories with a yearly production of a little less than the earlier decade. But by 1900, the yearly production of a like number of factories had reached a value of over twenty-one million, of which four and a half million dollars worth were exported annually. The total value of American sewing machines exported from 1860 to 1900 was approximately ninety million dollars. The manufacture of sewing machines made a significant contribution to the economic development of 19th-century America.

⁸⁵ See Appendix VII, p. 216, "A Brief History of Cotton Thread."

⁸⁶ *The Story of Cotton Thread* (New York, The Spool Cotton Company, 1933).

⁸⁷ J. and P. Coats spool cotton.

⁸⁸ Willimantic spool cotton.

⁸⁹ New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, Delaware, Ohio, Indiana, Illinois, Kentucky. *Eighth Census, 1860, Manufactures* (United States Census Office, published by Government Printing Office: Washington, D.C., 1865.)

⁹⁰ Sewing-machine manufacture in the South was just beginning to blossom when it was curtailed by the outbreak of the Civil War. See Lester sewing machine, figure 109 on page 104.