Figure 56.—HARRIS' patent thread cutter, 1872.
(Smithsonian photo P-6397.)

Figure 57.—WEST's patent thread cutter, 1874.
(Smithsonian photo P-63100.)

Figure 58.—KARR's patent needle threader. 1871.
(Smithsonian photo P-63101.)

the shoe in the early and mid-1850s, it was not until 1858 that a machine was invented that could stitch the sole to the inner sole and to the upper part of the shoe. This was the invention of Lyman R. Blake and was patented by him on July 8, 1858; the patent model is shown in figure 55. Blake formed a chain-stitch by using a hooked needle, which descended from above, to draw a thread through the supporting arm. Serving as the machine's bedplate, the arm was shaped to accommodate the stitching of all the parts of the shoe.

The increased number of shoes required by the Army during the Civil War spurred the use of the sewing machine in their manufacture. The first "machine sewed bootees" were purchased by the Army in 1861. Inventors continued their efforts; the most prominent of these was Gordon McKay, who worked on an improvement of the Blake machine with Robert Mathies in 1862 and then with Blake in 1864. Reportedly, the Government at first preferred the machine-stitched shoes as they lasted eight times longer than those stitched by hand; during the war the Army purchased 473,000 pairs, but in 1871 the Quartermaster General wrote:

> No complaints regarding the quality of these shoes were received up to February 1867 when a Board of Survey, which convened at Hart's Island, New York Harbor reported upon the inferior quality of certain machine sewed bootees of the McKay patent, issued to the enlisted men at that post. The acting Quartermaster General, Col. D. H. Rucker, April 10, 1867, addressed a letter to all the officers in charge of depots, with instructions not to issue any more of the shoes in question, but to report to this office the quantity remaining in store. From these reports it appears that there were in store at that time 362,012 pairs M. S. Bootees, all of which were ordered to be, and have since been sold at public auction.[81]

The exact complaint against the shoes was not recorded. Possibly the entire shoe was stitched by machine. It was found that although machine-stitched shoes were more durable in some respects and the upper parts of most shoes continued to be machine stitched, pegged soles for the more durable varieties remained the fashion for a decade or more, as did custom hand-stitched shoes for those who could afford them.

OTHER USES

The use of sewing machines in all types of manufacturing that required stitching of any type continued to grow each year. While the principal purpose for which they were utilized continued to be the manufacture of clothing items, by the year 1900 they were also used for awnings, tents, and sails; cloth bags; bookbinding and related book manufacture; flags and banners; pocketbooks, trunks, and valises; saddlery and harnesses; mattresses; umbrellas; linen and rubber belting and hose; to the aggregate sum of nearly a billion dollars—$979,988,413.[82]

SEWING-MACHINE ATTACHMENTS

The growing popularity of the sewing machine offered still another boost to the economy—the development of many minor, related manufacturing

[81] Letter of Nov. 4, 1871, to Col. Theo. A. Dodge, USA (Ret.), Boston, from Quartermaster General M. C. Meigs, in the National Archives, Record Group 92, Quartermaster General's Office, Letters Sent, Clothing Supplies, 1871.

[82] *Twelfth Census of the United States, 1900*, vol. 10, *Manufactures*, Part 4, Special Reports on Selected Industries (United States Census Office, Washington, D.C., 1902).