

approached from opposite sides, seized the needles, pulled the threads firmly, and passed the needles through to repeat the operation. The working model that Corliss completed could unite two pieces of heavy leather at the rate of 20 stitches per minute.

Corliss, lacking capital, went to Providence, Rhode Island, in 1844 to secure backers. After months without success, he was forced to abandon the sewing machine and accept employment as a draftsman and designer. Though he considered himself a failure, this change of employment placed him on the threshold of his more rewarding life work, improvement of the steam engine.<sup>29</sup>

On July 22, 1844, James Rodgers was granted U.S. patent 3,672, the fourth American sewing-machine patent. The patent model is not known to be in existence, but this machine was of minor importance for it offered only a negligible change in the Bean running-stitch machine. The same corrugated gears were used but were placed in different positions so that one bend in the needle was eliminated. When Bean secured a reissue of his patent in 1849, he had adapted it to use a straight needle. Rodgers' machine is not known to have had any commercial success, although this type of machine experienced a brief period of popularity. By the early 1900s, however, the running-stitch machine was so little known that when one was illustrated in the *Sewing Machine Times* in 1907<sup>30</sup> it excited more curiosity than any of the other early types.

<sup>29</sup> *The Life and Works of George H. Corliss*, privately printed for Mary Corliss by the American Historical Society, 1930. The Corliss family records were turned over to the Baker Library, Harvard University. In a letter addressed to this author by Robert W. Lovett of the Manuscripts Division on August 2, 1954, it was reported that there was a record on their Corliss card to the effect that a model of his sewing machine, received with the collection, was turned over to the Massachusetts Institute of Technology; however, Mr. Lovett also stated that from a manuscript memoir of Mr. Corliss that it would seem that he developed only the one machine—the patent model. In a letter dated November 15, 1954, Stanley Backer, assistant professor of mechanical engineering, stated that after extensive inquiries they were unable to locate the model at M.I.T. In 1964, Dr. Robert Woodbury, of M.I.T., turned over to the Smithsonian Institution the official copies of the Corliss drawings and the specifications which had been awarded to the inventor by the Patent Office. It is possible that this may have been the material noted on the Harvard University card as having been transferred to M.I.T.

<sup>30</sup> *Sewing Machine Times* (July 10, 1907), vol. 26, no. 858, p. 1.

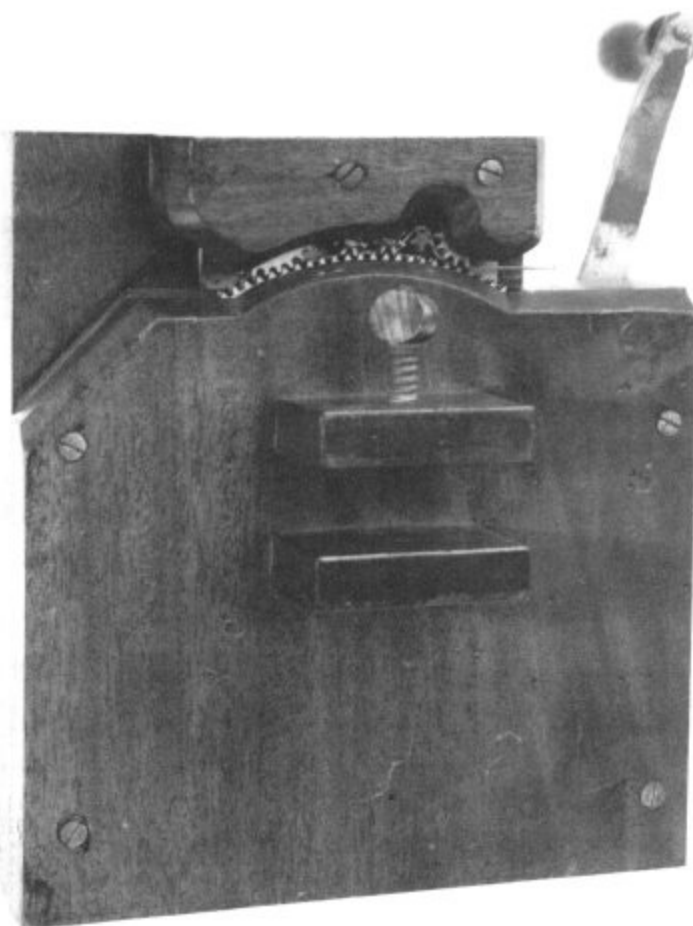


Figure 12.—BEAN'S PATENT MODEL, 1843.  
(Smithsonian photo 42490-C.)

On December 7, 1844, the same year that Rodgers secured his American patent, John Fisher and James Gibbons were granted British patent 10,424 for "certain improvements in the manufacture of figured or ornamental lace, or net, or other fabrics." From this superficial description of its work, the device might seem to be just another tambouring machine. It was not. Designed specifically for ornamental stitching, the machine made a two-thread stitch using an eye-pointed needle and a shuttle.<sup>31</sup> Several sets of needles and shuttles worked simultaneously. The needles were secured to a needlebar placed beneath the fabric. The shuttles were pointed at both ends to pass through each succeeding new loop formed by the needles. Each shuttle was activated by two vibrating arms worked by cams. Each needle was curved in the form of a bow, and in addition to the eye at the point each also had a second eye at the bottom of the curve. The shape of the needle

<sup>31</sup> This is the earliest known patent using the combination of an eye-pointed needle and a shuttle to form a stitch.