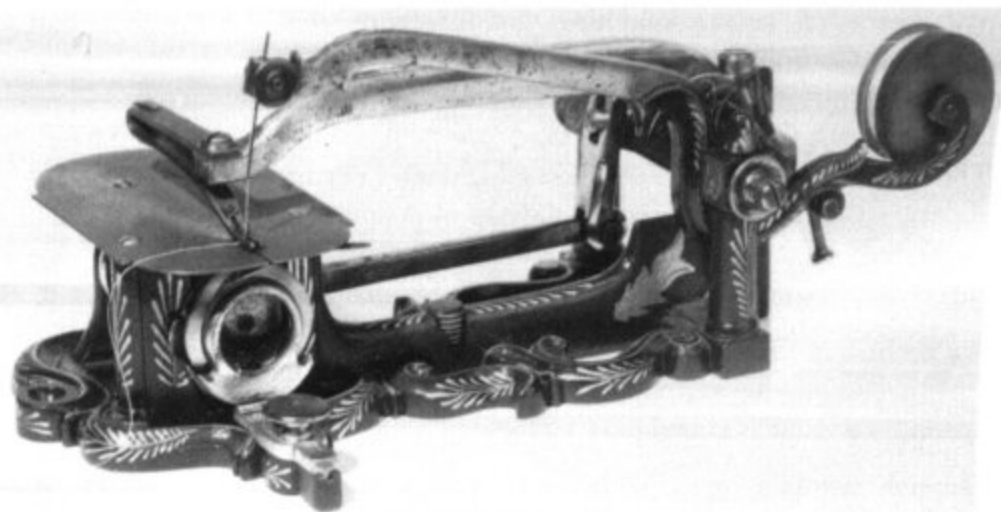


Figure 27.—WILSON'S four-motion-feed patent model, 1854, is not known to be in existence; this is a commercial machine of the period. The plate is stamped "A. B. Wilson, Patented Aug. 12, 1851, Watertown, Conn., No. 1. . . ." (Smithsonian photo 45504.)



This agreement was important to sales, as Elias Howe was known to have sued purchasers of machines, as well as rival inventors and companies.

The business was on a substantial basis by October 1853, and a stock company was formed under the name of Wheeler & Wilson Manufacturing Company.<sup>51</sup> A little more than a year later, on December 19, 1854, Wilson's fourth important patent (U.S. patent 12,116)—for the four-motion cloth feed—was issued to him (fig. 27). In this development, the flat-toothed surface in contact with the cloth moved forward carrying the cloth with it; then it dropped a little, so as not to touch the cloth; next it moved backward; then in the fourth motion it pushed up against the cloth and was ready to repeat the forward movements. This simple and effective feed method is still used today, with only minor modifications, in almost every sewing machine. This feed with the rotary hook and the stationary circular-disk bobbin, completed the essential features of Wilson's machine. It was original and fundamentally different from all other machines of that time.

The resulting Wheeler and Wilson machine made a lockstitch by means of a curved eye-pointed needle carried by a vibrating arm projecting from a rock shaft connected by link and eccentric strap with an eccentric on the rotating hook shaft. This shaft had at its outer end the rotary hook, provided with

a point adapted to enter the loop of needle thread. As the hook rotated, it passed into and drew down the loop of needle thread, which was held by means of a loop check, while the point of the hook entered a new loop. When the first loop was cast off—the face of the hook being beveled for that purpose—it was drawn upward by the action of the hook upon the loop through which it was then passing. During the rotation of the hook each loop was passed around a disk bobbin provided with the second thread and serving the part of the shuttle in other machines. The four-motion feed was actuated in this machine by means of a spring bar and a cam in conjunction with the mandrel.

From the beginning, Wheeler and Wilson had looked beyond the use of the sewing machine solely by manufacturers and had seen the demand for a light-running, lightweight machine for sewing in the home. Wilson's inventions lent themselves to this design, and Wheeler and Wilson led the way to the introduction of the machine as a home appliance. Other manufacturers followed.

When the stock company was formed, Mr. Wilson retired from active participation in the business at his own request. His health had not been good, and a nervous condition made it advisable for him to be freed from the responsibility of daily routine. During this period Wilson's inventive contributions to the sewing machine continued as noted, and in addition he worked on inventions concerning cotton picking and illuminating gases.

Wheeler and Wilson's foremost competitor in the

<sup>51</sup> J. D. VAN SLYCK, *New England Manufactures and Manufactories*, vol. 2, pp. 672-682.