

The needles are cleaned on an emery-cloth, being held in gangs of about 20 between the finger and thumb, and rotated while being pressed upon the cloth. They are then taken by a flat-jawed tongs which holds 70 at a time, being arranged with the long groove upward, and are held against a scratch-brush of brass wire, which revolves 8000 times a minute, and polishes the grooves: this is followed by a bristle brush. While yet held in the clamps the needles are threaded in gangs on cotton threads, covered with oil and emery, and the needles drawn back and forth in various slanting positions, so that the polishing powder shall act upon all parts of the eye. Being removed from the thread, the needles are cleaned by a revolving hair brush, and then pass the first inspection, the eyes, points, and blades being examined with the aid of a glass. Imperfect ones are thrown aside, and the good ones sent to the hand straightener. In this operation they are rolled on an anvil, at the level of the eye of the operator, who detects any curvature, and corrects it by a tap of a small hammer. The needles then pass the second inspection.

The final operations are finish-pointing on a fine emery, and finish-polishing by a revolving hair brush, with crocus and alcohol. They are then ready for packing.

The machines at the Centennial Exhibition made 4000 needles per day.