A. Morrall.

Making Sewing-Needles.

No. 1,437. Patented Dec. 21, 1839.

Fig. 1

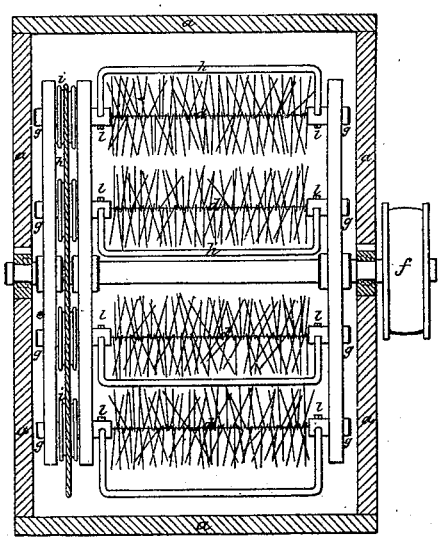


Fig. 2

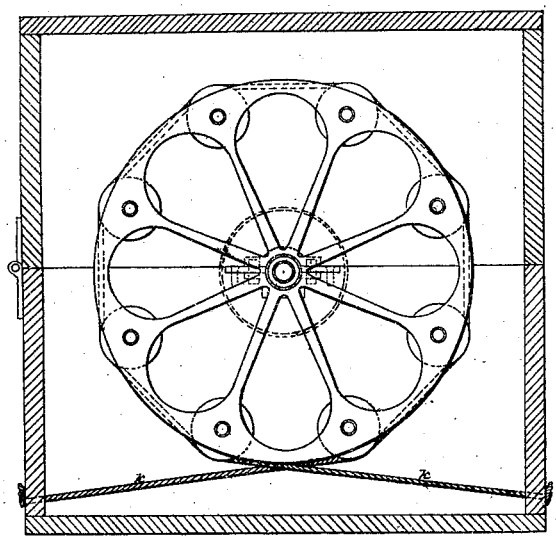


Fig. 3

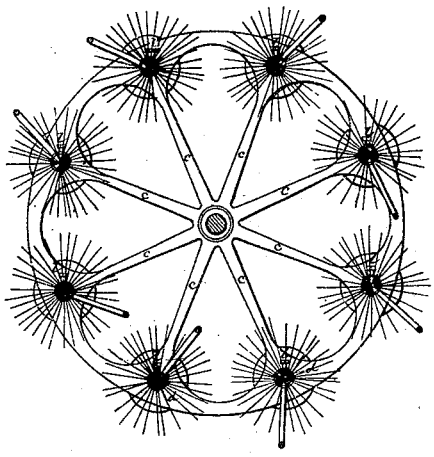
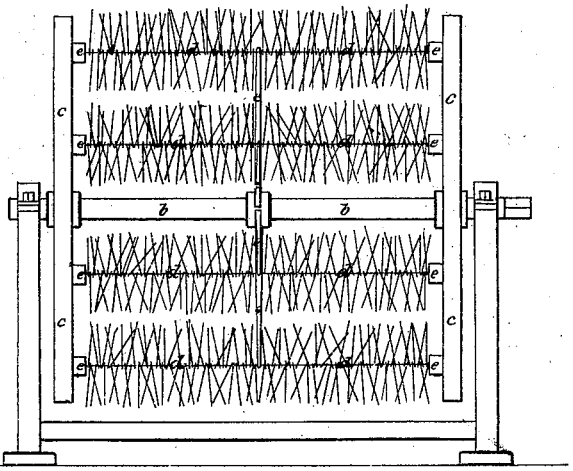


Fig. 4



Witnesses:

Chas. Corbett

John Austin Bampton

Inventor:

Abel Morrall

UNITED STATES PATENT OFFICE.

ABEL MORRALL, OF STUDLEY, WARWICK, GREAT BRITAIN.

MANUFACTURE OF NEEDLES.

Specification of Letters Patent No. 1,437, dated December 21, 1839.

To all whom it may concern:

Be it known that I, ABEL MORRALL, a subject of the Queen of Great Britain, and now residing in the parish of Studley, in the county of Warwick and Kingdom of England, needle-maker, have invented or discovered a new and useful Invention of Certain Improvements in the Making or Manufacturing of Needles and in the Machinery or Apparatus Employed Therein; and I do hereby declare that the following is a full and exact description thereof.

My improvements in making or manufacturing needles and in the machinery or apparatus to be employed therein consist in an improved mode of clearing and finishing the eyes of sewing needles by removing any burs, feathers, or sharp edges from the inside of the eyes of such needles, which without being so cleared and finished would be subject to cut the thread in the operation of sewing. As I do not propose any variations in the other parts of the operations of manufacturing needles it will be unnecessary for me to describe the usual modes by which that manufacture is conducted. I shall therefore confine this specification or description to my improved process and to the construction of the machinery by which I effect the object above stated.

I take any convenient number of needles in any state of their manufacture after the eyes have been pierced, punched, or otherwise formed, either before or after the needles have been hardened or scoured and what is technically called cured or drilled, and through the eyes of a series of these needles I pass a fine wire the surface of which I prefer to be roughed or indented by a file or otherwise, or the wire may be made with an angular edge or edges or charged with a composition of some grinding or polishing material as emery and oil or it is possible that some string or cord of animal, mineral, or vegetable matter charged with a grinding or polishing material might answer the purpose. When a series of these needles have been thus spitted or strung I then distend the wire, string, or cord carrying the needles, in arms or bearings in any convenient machine or apparatus for the purpose of giving to the needles a very considerable shaking or reciprocating agitation when the rubbing of the interior of the eyes of the needles against the wire string or cord on which they are spitted or strung will cause the burs, feathers, or sharp edges to be ground, polished, or burnished off and the eyes to be rendered perfectly smooth within.

In the accompanying drawing, Figure 1 represents a front view of my most improved construction of machine to be employed for this purpose. The machine is inclosed in a box or case shown in section at *a a a;* Fig. 2 is an end view of the same machine; and Fig. 3 a vertical section taken through the middle of Fig. 1 looking toward the left.

An axle *b* mounted in plummer blocks in the case has the wheels or arms *c c c* fixed upon it in which wheels or arms are distended the wires, string, or cords *d d d* when the needles have been spitted or strung upon them.

A more simple plan of the machine is represented at Fig. 4 by means of which in the first instance I will describe the mode of conducting the operation.

The needles having been spitted or strung upon the wires as said (which wire I prefer to be of hardened steel) the ends of these wires are made fast to the arms or rims of the wheels *c c c* and they may be supported in the middle by standard rods *e e* extending from the axle *b* having a spring at the end to receive the wire. The axle is then put into motion by any convenient means capable of giving to the arms or wheels a quick reciprocating action; that is moving them to and fro through a small part of a rotation and back again with great rapidity. By these means the needles will be made to swing about upon the wires in a confined way and the roughness of the wire operating upon the interior of the needles will grind, polish, or burnish off all burs, feathers, or other sharp edges which may have been left by the cutting tools in the piercing or opening of the eye.

The operation is performed by similar means in the improved construction of machines shown at Figs. 1, 2 and 3. The axle *b* carrying the arms or wheels *c c c* with the wires on which the needles are spitted or strung receives a rapid reciprocating movement for the purpose of shaking about the needles by means of a bow and string applied to the pulley *f* or by any other convenient contrivance; but in this instance the wires are made to turn in the arms or wheels and in an opposite direction to that in which the arms or wheels move, thereby causing

the wires to produce additional friction on the eyes of the needles and consequently performing the clearing polishing, or burnishing operation with greater effect and in much less time than would be required by the more simple machine shown at Fig. 4 in which the wires *d* are fixed. And in order to give the required movements to the wires *d* I fix their ends by means of screws *l l* in loose studs *g g g* which turn in the arms or rims of the wheels *c c c*. Each pair of studs are connected together by a bent rod *h h h* and upon one of the studs is fixed a pulley *i i i* and a tight stationary band *k* is passed over all the pulleys and made fast at its ends to the box or case as shown at Figs. 1 and 2. By this arrangement when the arms or wheels are made to move around in one direction the wires are turned in the opposite direction and hence the eyes of the needles are subject to the double effect of their own friction against the surface of the wire as they fly around and the abrasion of the rough surface of the wire turning the reverse way.

Lastly I desire it to be understood that though I have shown in Figs. 1, 2 and 3 a peculiar construction of machine which I have found to be well suited to the effective performance of the operation of clearing, polishing, or burnishing the eyes of needles yet I do not intend to confine myself to such a peculiar construction of machine, as the effect might be obtained by a variety of other forms of apparatus in which needles being spitted or strung upon wires or strings and submitted to quick agitation might have their eyes cleared, polished, or burnished by such means, and therefore should consider any such variation as embracing the principles of my invention as set out above.

The invention claimed by me and intended to be secured by Letters Patent consists in—

The spitting or stringing of needles upon a steel or other wire or on any suitable substance which may be passed through the eyes thereof and which either by means of edges or teeth formed thereon or by the application of some grinding or polishing material thereto shall remove the asperities from said eyes and render them perfectly smooth by giving to said needles while so strung a shaking or reciprocating motion substantially in the manner herein set forth.

In witness whereof I, the said ABEL MORRALL, have hereunto set my hand and seal this second day of May, one thousand eight hundred and thirty nine.

ABEL MORRALL. [L. S.]

Witnesses:
CHARLES BARTLETT,
JAMES GODSO.