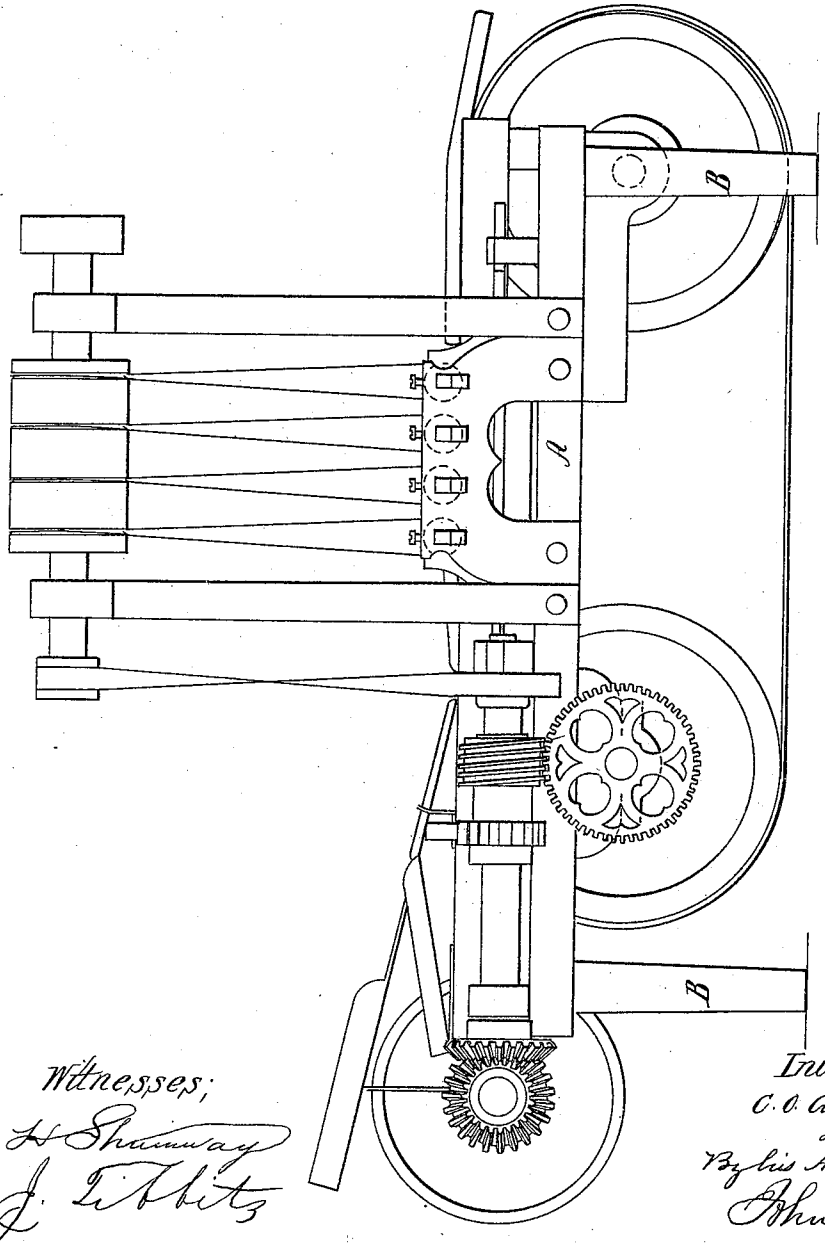
Sheet 1-2 Sheets.

C. O. Crosby.

Needle Polisher.

No. 87,826. Patented Mar. 16, 1869.



Witnesses;
J. L. Shumway
A. J. Tibbits

Inventor;
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J
By his Attorney
John C. Earle

Sheet 2-2 Sheets.

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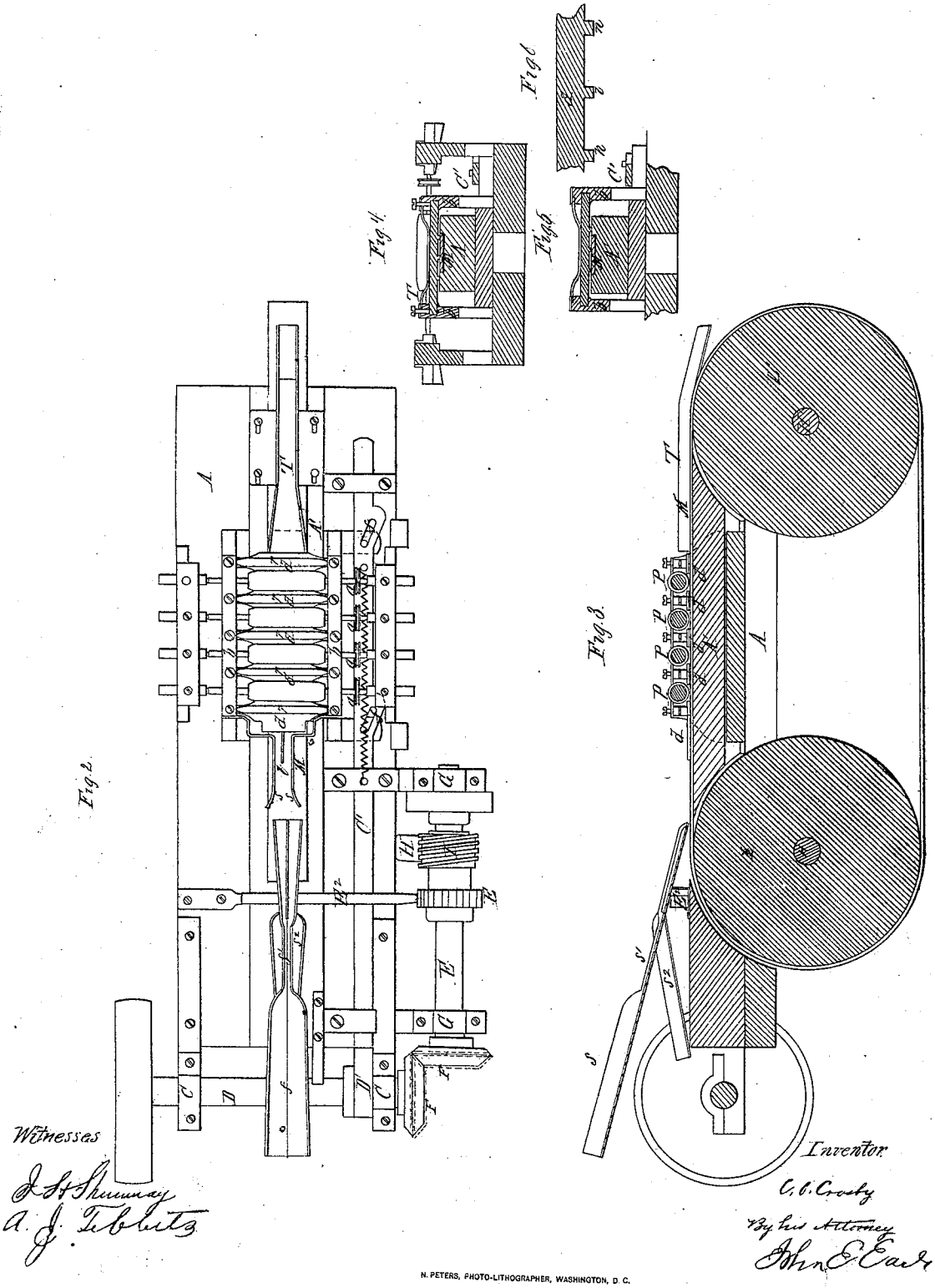

Witnesses

J. L. Shumway

A. J. Tibbetts

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United States Patent Office.

C. O. CROSBY, OF NEW HAVEN, CONNECTICUT.

Letters Patent No. 87,826, *dated March* 16, 1869.

IMPROVED MACHINE FOR POLISHING NEEDLES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, C. O. CROSBY, of New Haven, in the county of New Haven, and State of Connecticut, have invented a new Improvement in Machine for Polishing Needles; and I do hereby declare the following, when taken in connection with the accompanying drawings, and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view;

Figure 2, a top view;

Figure 3, a longitudinal central section; and in

Figures 4 and 5, transverse sections.

The object of this invention is the construction of a machine which, receiving the needles, will automatically polish and finish the needles after they have been tempered; and

The invention consists in combining, with a carrying-device, an apparatus which, while the needles are travelling longitudinally, shall rotate the needles on the said carrying-device during their passage under the polishing-cylinder.

To enable others skilled in the art to construct and use my improvement, I will fully describe the same as illustrated in the accompanying drawings.

A is the bed-plate, supported upon legs B, and upon which, in proper bearings, C, the driving-shaft D is arranged, and, through a bevel-gear, E F, communicates motion to a second shaft, E, supported in bearings G, and from which last-named shaft power is communicated to a third shaft, H, through a worm, I; and in the said shaft H is arranged a wheel, L, and upon the opposite side of the table, upon a shaft, H′, is arranged a corresponding shaft, L′, and around the two passes a band, M, as more clearly seen in fig. 3.

Upon the table is arranged a platform, A′, upon the surface of which the band lies, and passes freely thereover.

Above the upper surface of the band are arranged polishing-cylinders, P, more or less in number, here represented as four, the said cylinders being driven rapidly by the application of power thereto, through pulleys, *a*.

The needles being placed upon the band, the band traversing and the cylinders revolving, the needles are carried along endwise between the cylinders and band, and should be points first. In thus carrying the needles, it is necessary that a rotary movement be given to the needles, in order that all parts of the needle be presented to the polishing-cylinders. To this end, I arrange between the cylinders, and also upon the outside, plates *d*, which are supported in a carriage, *b*, and to which said carriage a vibrating movement is given, by a cam, D′, on the driving-shaft, through a rod, C′, having an inclined slot, *f*, in which said slot the connection of the carriage is placed, so that, as the rod C′ passes back and forth, by the action of the cam D′, the said plates *d* pass transversely back and forth across the band, as from the position in fig. 4 to that in fig. 5, and *vice versa*, and, resting upon the needles, impart to the needles a rolling motion as they pass along beneath the cylinders, by the movement of the band.

I find it advantageous, in maintaining parallelism of the needles, to arrange, upon the under side of the plates *d*, a downward-projecting flange, *n*, as seen in Figure 6, enlarged, of a little less depth than the diameter of the needles, and so that, as the plates pass back and forth, the flange upon one side will strike the outside needle upon the same side, and the other flange, upon the return of the plate, will strike upon the opposite side, and thus maintain the needles parallel, if they are inclined to turn from such line in their passage.

A third flange, *i*, may be arranged in the centre, forming two channels, through which the needles pass, and thus increase the facility for retaining the needles parallel.

From the carriage to the rear, or entrance, I extend out arms, *s*, which vibrate with the carriage, and produce a similar effect to that described for the flange *n*, so that the needles may properly enter beneath the first; and in case the central flange *i* be used, I arrange, upon the rear plate, a corresponding arm, *t*, between the two arms *f*.

I arrange a spring, *r*, so as to give to the plates *d* a slightly-elastic pressure, which spring may be applied in various ways.

By this construction, the needles placed upon the band are passed along beneath the cylinders, and, by the rotary motion given them by the plates *d*, are polished and finished in the most perfect manner.

To deliver the needles on to the band, I arrange a conductor, S, into which the needles are placed, points downward, and by any gentle agitation given to the said conductor, or by its own inclination, the needles are conducted and delivered on to the said band, in the proper position to pass along and be finished.

The agitation is here represented as given by a many-sided, or toothed cam, E^1, acting upon a lever, E^2, upon which the conductor S rests.

To prevent the needles from going too rapidly on to the carrying-device, I narrow the conductor S at S^1, so that more than a certain number passing over that portion of the conductor will fall from the conductor into a receiver, S^2.

Having passed along beneath the rollers, in being finished, the needles are carried to a conductor, T, which should be so inclined that the needles, by their own gravitation, will slide down and pass into a receptacle, polished and finished, with their heads all in one direction.

The nicety of finish of the needles depends entirely upon the polishing-cylinders.

To those skilled in the art, it will be readily seen that the cylinders may be multiplied in number to any

extent, and each succeeding cylinder from the first being of finer quality than the preceding one, will more perfectly polish and finish the needles.

Other carrying-devices, equivalent to the band M, may be employed for passing the needles beneath the polishing-cylinders, and it will be observed that it will be advantageous to give to the polishing-cylinders a lateral movement, in order to change the surface presented to the needles, so as to wear the surface of the cylinders more even.

Having fully described my invention,

What I claim as new and useful, and desire to secure by Letters Patent, is—

1. The combination of the inclined feeding-device, guides, transversely-moving pressure-plates, polishing-cylinders, and discharging-conductor, all arranged and operating together, as set forth.

2. The arrangement of the transversely-moving pressure-plate, polishing-cylinders, and carrying-device, as and for the purpose specified.

3. The construction and arrangement, with reference to each other and to the polishing-cylinders, of the conductor S S', and guides *s s t*, with a carrying-device, in the manner shown and described.

4. The arms *s*, constructed and arranged as described, in combination with the revolving cylinders and band, or carrying-device, so as to guide the needles, substantially as described.

5. The improved machine herein described, the constituent parts of whose mechanism are constructed and arranged as described.

6. In combination with the carrying-device, pressure-plates, and polishing-cylinders, the discharge-conductor T, substantially as and for the purpose specified.

C. O. CROSBY.

Witnesses:

A. J. TIBBITS,
J. H. SHUMWAY.