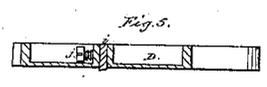
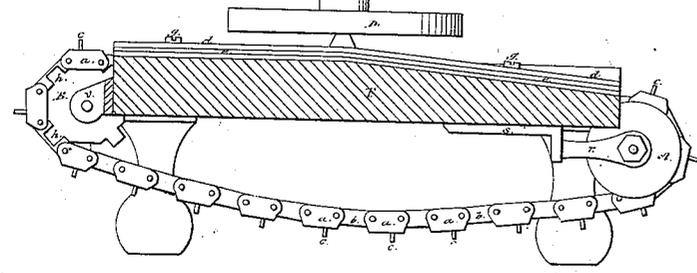
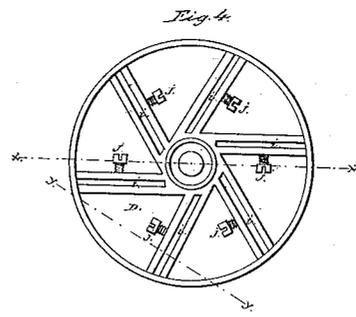
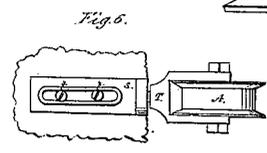
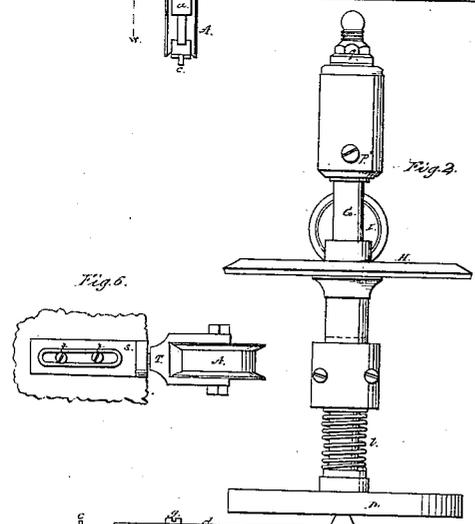
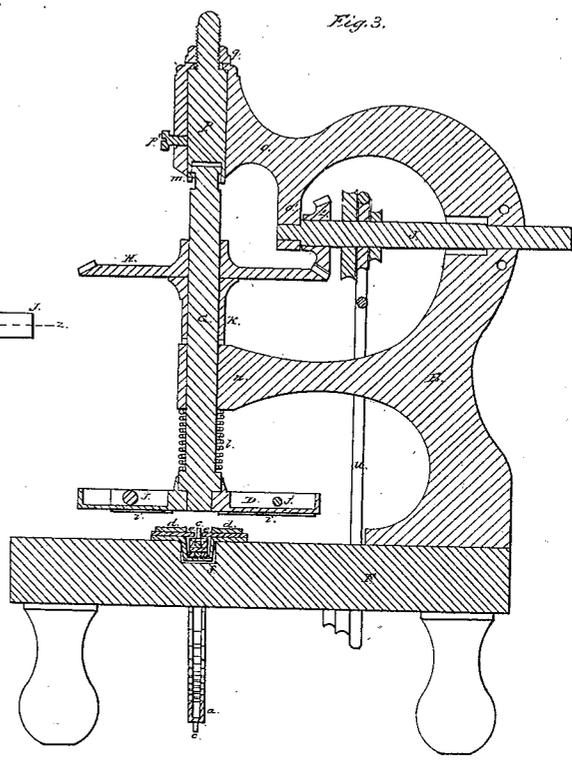
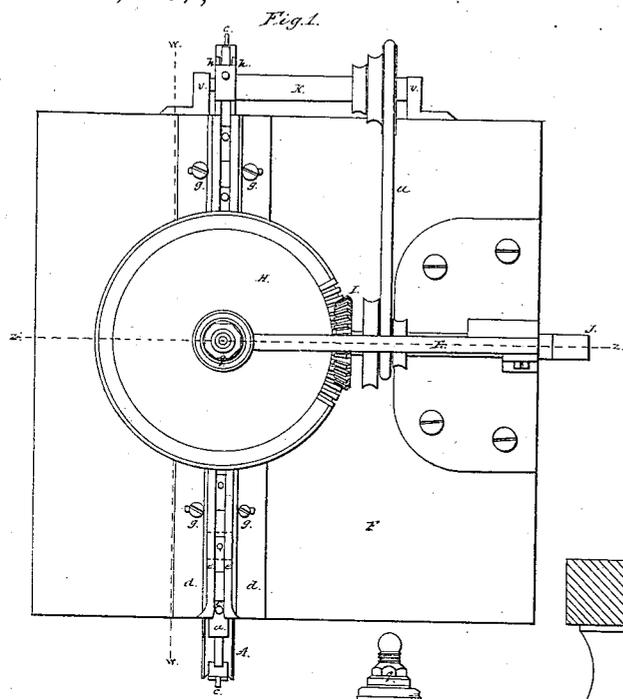


*R.H. & J.C. Cole,*

*Dressing Nuts and Bolts,*

*N<sup>o</sup> 15,004,*

*Patented June 3, 1856.*



# UNITED STATES PATENT OFFICE.

R. H. COLE AND J. C. COLE, OF ST. LOUIS, MISSOURI.

## MACHINE FOR POLISHING METALLIC NUTS.

Specification of Letters Patent No. 15,004, dated June 3, 1856.

*To all whom it may concern:*

Be it known that we, RICHARD H. COLE and JOHN C. COLE, of the city of St. Louis, in the State of Missouri, have invented a new and Improved Machine for Smoothing the Sides of Metallic Nuts; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, Figure 1, being a top view; Fig. 2, a side elevation of the machine with the portion of its platform outside of the line *w w* of Fig. 1 cut away; Fig. 3, a vertical section in the line *z z* of Fig. 1; Fig. 4, a plan of the planing wheel detached from the machine; and Figs. 5, 6, and 7, are views of detached portions of the machine.

Similar letters indicate like parts in all the figures.

The rough surfaces of metallic nuts are smoothed off in the aforesaid machine, by the action of cutters *i, i*, projecting below the under surface of the horizontal planing wheel D. The said cutters *i, i*, are placed between flanches which rise inwardly from the edges of slots in the face of the wheel D, and they are secured therein in any desired position, by means of set screws *j, j*, as shown in Figs. 4 and 5. The metallic nuts are operated upon by the planing wheel D, as they are carried in a guiding-channel under the center of said wheel upon pins *c, c*, which project from alternate links of an endless chain composed of the links *a, a*, and *b, b*, as shown in the drawings. During a portion of its revolution, the said endless chain passes through a metal-lined groove *f*, in the platform F, of the machine, which passes directly under the center of the planing wheel D. Plates *e, e*, rest upon the outwardly projecting flanches of the lining of the groove *f*, and project inward over said groove nearly to the pins *c, c*, which rise from the links *a, a*, of said endless chain;—which plates are firmly secured and form supports for the nuts while they are carried under the face of the planing wheel and are operated upon by its cutters. The edges of said nuts are supported during their progress under the planing wheel D, by the side plates *d, d*, which rest upon the aforesaid plates *e, e*, and which are secured in any desired position by means of the set screws *g, g*, which pass through transverse slots in said side plates and also through

apertures in the plates *e, e*, and the flanches of the lining plate of the groove *f*, into the platform F.

From the front side of the machine to a point under the center of the planing wheel D, the chain groove *f*, inclines upward; and from said point, the said groove passes horizontally forward to the rear side of the machine. The upward inclination of the said chain-groove, enables the nuts to be brought gradually under the cutter wheel, and prevents the periphery of said wheel from striking against the sides of the nuts as they approach, and arresting their progress.

The endless chain passes over the grooved roller A, placed at the front end of the chain groove *f*, and over the actuating horned wheel B, situated at the after end of said groove. The series of double horns *h, h*, of the wheel B, embrace between them the narrow links *b, b*, of the endless chain, and pass between the ends of its broad links *a, a*, which enables said wheel, when put in motion, to impart the requisite movement to the endless chain. The shank of the forked bearing support *r*, of the wheel A, is secured in a projection from the slotted plate *s*, which is secured to the under side of the platform F, by means of the set screws *t, t*; which enables the endless chain to be tightened or loosened as circumstances may require. The horned wheel B, is secured to the shaft K, which works in the bearings *v, v*, that are secured to the rear side of the platform F.

The shaft G, of the planing wheel D, is secured within its supporting-boxes in such a manner that it can be so adjusted as to be brought within any desired distance of the platform F, and also in such a manner that the said shaft can be moved lengthwise in its journal-boxes and be pressed downward by the action of a spring. The lower journal box of the shaft G, is at the extremity of the arm *n*, which projects from the upright E; and the upper end of said shaft is received into a socket in the adjustable journal box *p*, that is secured in an aperture in the extremity of the arm *o*, which forms the upper extremity of the upright E.

Near the upper end of the shaft G, an annular groove is formed in its periphery, and a feather *m*, which passes through a transverse slit in one side of the socket in the box *p*, passes into the said annular groove in the shaft. The feather *m*, being consid-

erably narrower than the annular groove in the shaft G, and the socket in the box *p*, being of the requisite depth, the said feather serves to secure the upper end of the shaft G, within the box *p*, and at the same time allows the shaft to play upward until its upper end is brought in contact with the bottom of the reversed socket in said box.

A helical spring *l*, incloses the lower portion of the shaft G, which spring rests upon a shoulder on the shaft, just above the hub of the planing wheel, and the upper end thereof bears against the under side of the outer extremity of the supporting arm *n*, and which therefore serves to give the face of the planing wheel D, an elastic bearing upon the face of the nuts operated upon thereby, when the said shaft is secured within its suspending box in such a manner as to allow longitudinal play therein.

Above the lower journal box of the shaft G, a sleeve *k*, is placed upon said shaft, the weight of which is received upon a washer resting upon the said journal box. A bevel-wheel H, on the shaft G, rests upon the upper end of the aforesaid sleeve *k*. The shaft G, plays freely through the bevel-wheel H, and the sleeve *k*, but is prevented from turning within said wheel and sleeve, by a feather and groove, or other equivalent device. The inner end of the shaft J, which carries the driving bevel-pinion I, is supported by the pendent *o'*, from the curved portion *o*, of the standard E, and the outer end of said shaft works in a journal box secured to the side of said standard.

Motion is communicated from the driving shaft J, to the nut-carrying-endless chain, by means of the band *u*, which connects a pulley on said driving shaft with a pulley on the shaft K, of the horned wheel B.

The planing wheel D, may be adjusted to the proper position to suit the thickness

of the nuts operated upon, by means of the nut *q*, which works on a screw-shank projecting from the upper end of the socket-journal box *p*, and the set-screw *p'*, which passes through a vertical screw-aperture in the side of the perforation in the arm *o*, and bears against the side of said journal-box as shown in Fig. 3.

The metallic nuts to be operated upon in our nut smoothing machine, are placed upon the steadying pins *c*, *c* rising from the links *a*, *a*, of the endless chain, at any portion of the space between the grooved roller A, and the periphery of the planing wheel. The said nuts are gradually brought in contact with the cutters of the planing wheel, as they pass up the inclined plane to a point under the center of said wheel, and from that point to the opposite side of the planing wheel, the cutters *i*, *i*, trim off all the rough portions of the upper sides of the nuts and reduce them to perfectly smooth surfaces.

Having thus fully described our improved machine for smoothing the sides of metallic nuts, what we claim therein as new and desire to secure by Letters Patent, is—

The arrangement of the planing wheel D, and the nut-carrying-endless-chain, with the partially inclined and partially horizontal groove *f*, the sustaining-plates *e*, *e*, and the edge-grinding-plates *d*, *d*, or their equivalents, substantially in the manner and for the purpose herein set forth.

The above specification of our improved machine for smoothing the outer surfaces of metallic nuts, signed and witnessed this 23d day of February 1856.

R. H. COLE.  
J. C. COLE.

Witnesses:

EDW. W. SHANDS,  
J. W. SKINNER.