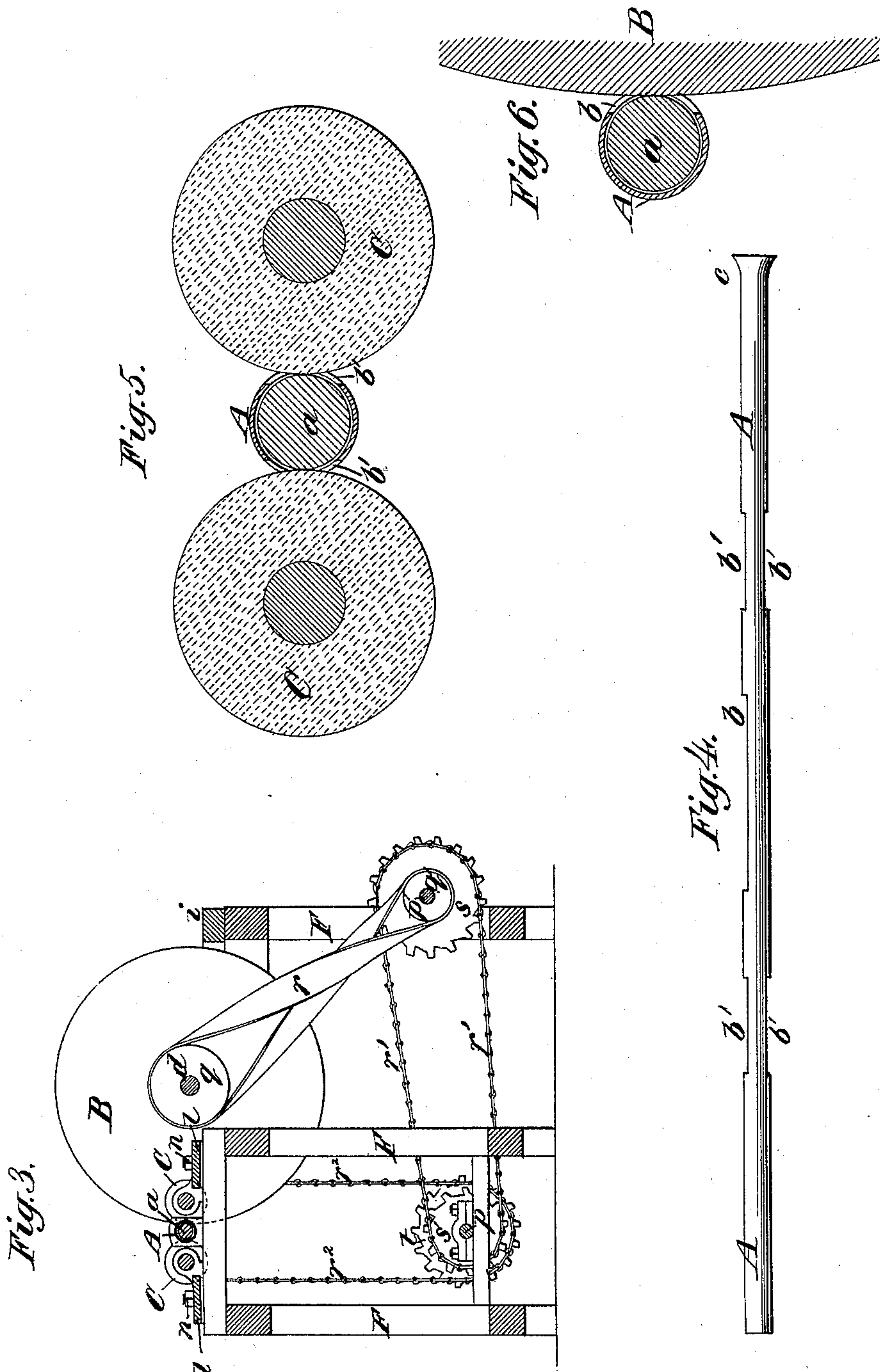


H. FERGUSON.

MACHINE FOR FINISHING POLES OR RODS.

No. 398,243.

Patented Feb. 19, 1889.



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UNITED STATES PATENT OFFICE.

HARRY FERGUSON, OF NEW YORK, N. Y.

MACHINE FOR FINISHING POLES OR RODS.

SPECIFICATION forming part of Letters Patent No. 398,243, dated February 19, 1889.

Application filed July 11, 1888. Serial No. 279,659. (No model.)

To all whom it may concern:

Be it known that I, HARRY FERGUSON, of New York, in the county of New York and State of New York, have invented a new and useful Improvement in Machines for Finishing Poles or Rods, of which the following is a specification, reference being had to the accompanying drawings.

The object of my invention is to provide a machine for finishing round poles or rods of wood or other material more rapidly and better than the same work can be done by hand or in an ordinary lathe with emery, sand, sand-paper, or other cutting, finishing, or polishing surface.

The invention consists in the combination, with a fixed holder guide-tube for the pole or rod, of a finishing-wheel on one side of said tube and driving-rolls for producing the rotary motion of said pole or rod, the said tube having lateral openings, through which the said finishing-wheel and driving-rolls may operate upon the pole or rod therein; and it further consists in certain combinations of parts hereinafter fully described and claimed.

Figure 1 in the drawings represents a longitudinal vertical sectional view of a machine for finishing poles or rods embodying my invention. Fig. 2 represents a plan view, and Fig. 3 a transverse vertical sectional view, of the same machine. Fig. 4 represents a front view of the holder guide-tube. Fig. 5 represents a transverse vertical sectional view of the holder guide-tube, a pole or rod contained therein, and a pair of driving-rolls. Fig. 6 represents a vertical sectional view of the holder guide-tube, the contained pole or rod, and a portion of the finishing-wheel.

Like letters of reference indicate corresponding parts in all the figures.

A indicates the fixed holder guide-tube, open at both ends to permit the unobstructed passage through it of poles or rods a a' a^2 , and having a lateral opening, b , through which the finishing-wheel B, situated on the same side of the tube, may operate upon the pole or rod contained therein, and having lateral openings b' , through which may operate the several driving-rolls C, producing a rotary motion of the contained pole or rod. The said finishing-wheel B and driving-roll C are made adjustable toward and from the respective

openings b and b' in said tube A, to adapt them severally to the diameter of the pole or rod at any time contained in said tube.

The poles or rods a to be finished may be fed into the tube A by hand or otherwise, each rod a being pushed through and out of tube A by a following similar pole, a' , which may in turn be followed by a third pole or rod, a^2 , and the third by a fourth, and as many others as are to be finished, the same as pole or rod a . The last one to be finished may be pushed through by any rod or pole convenient for the purpose.

For the purpose of feeding the poles or rods regularly and automatically into and through the tube A, I have provided grooved guiding feed-rollers D, distant a little more than the length of a rod or pole, a , from the nearest driving-rollers. Such distance being necessary in order that the poles or rods may have passed through and be clear of the feed-rollers D before they enter between the driving-rollers C.

When two pairs of feed-rollers D are employed, they may be fixed, as represented in the drawings, in such positions and alignment relatively to the receiving end of the tube A that the poles or rods will be delivered by the feed-rollers, without any other guide, directly into that end of the tube A. The end of the tube A may be enlarged or flared, as represented at c , the more certainly to receive the end of the entering pole or rod. When only one pair of feed-rollers D are employed, or the more certainly and easily to guide and support the entering pole or rod, a guide-tube, E, may be provided.

c' represents a guide-rest to facilitate the insertion of the end of a pole or rod between the grooved feed-rollers D.

The finishing-wheel, where it comes in contact with the revolving pole or rod to be finished by such contact, must present thereto a cutting, finishing, or polishing surface, as of sand or emery-powder, and the revolving pole or rod, moving in a straight line through the tube A across the face of the revolving finishing-wheel, will be finished to the same diameter or uniform size throughout its length, and be smoothed or polished in accordance with the coarseness or fineness of the cutting-surface of the finishing-wheel. The tube A

should not be larger in diameter than is required to allow the previously rough-turned poles or rods to pass freely through, and the nearer the poles are previously turned to the finished size the more nearly equal will the diameter of the finished poles or rods be throughout their length.

In the example of the invention represented in the drawings the axle d of the finishing-wheel is parallel with the tube A and is carried in bearings e and e' . The distance between axle d and tube A is made adjustable by attaching the bearings e and e' adjustably to the frame F of the machine—the former by slotted holes f and bolts g , and the latter by attaching them by bolts h to a sliding frame, i , which is adjustably secured to the frame F by bolts j and slots k . The bearing-boxes l of the axles of the driving-rollers are made adjustable relatively to the tube A or pole or rod a by slots m therein, through which pass the bolts n , by which they are attached to the frame F.

Two pairs of grooved guide and feed rollers D are represented arranged in a feed-roller frame, o , in which they are so adjusted that a pole or rod, a^2 , placed in the grooves, as represented, will, when the rollers are in motion, be moved at a uniform speed in the direction of the nearest pair of driving-rollers C. $o'o'$ represent feed-roller-adjusting screws.

E is a guide-tube to insure the entrance of the end of the poles or rods into the end of tube A. Wooden rods which may be warped or curved may make necessary the employment of the guide-tube E even when two pairs of rollers D are employed. When no guide-tube E is employed, the tube A may and should extend farther toward the feed-rolls, preferably a little more than half-way to the feed-rolls, in order that when the pole or rod leaves the feed-rolls it may have more than half its length inserted in the tube A.

p and p' indicate counter-shafts having bearings in or attached to frame F; q , a driving-pulley on axle d of the finishing-wheel; q' , a driven pulley on shaft p' . The shaft p' is driven by belt r , running over pulleys q and q' . Upon shaft p' is a chain-wheel, s , driving chain-wheel s' and its shaft p by an endless chain, r' . Upon each end of shaft p are chain-wheels t , driving chain-wheels t' on the axles of the driving-rolls C, to which they are attached by means of the endless chains r^2 .

u , u' , and u^2 indicate counter-shafts, also having bearings in or attached to frame F.

v indicates a driving-pulley on axle d of the finishing-wheel. The shaft u is driven by a belt, w , from pulley v , passing around the driven pulley v' of said shaft u .

Shaft u drives shaft u' by means of beveled wheels v^2 and v^3 . Upon shaft u' is a chain-wheel, v^4 , which drives shaft u^2 by means of the endless chain w' working over the driven chain-wheel v^5 , fixed on shaft u^2 . Upon shaft u^2 is a driving chain-wheel, v^6 , (represented in dotted lines in Fig. 1,) which drives the grooved guide feed-rollers D by means of an endless chain, w^2 , passing around chain-wheels v^7 , of which one is fixed upon the extremity of each of the feed-roller axles u^3 . The course of the endless chain w^2 is indicated partially in dotted lines in Fig. 1.

Upon axle d of the finishing-wheel are fixed a loose pulley, d^2 , and a fast pulley, d^3 , which may be driven by an endless belt from any convenient source of power, thereby imparting motion to all parts of the machine, which are propelled by belts r and w from the axle d , as set forth.

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

1. In a machine for finishing poles or rods, the combination, with a fixed holder guide-tube for the pole or rod, of a finishing-wheel on one side of said tube and driving-rolls for producing the rotary motion of said pole or rod, the said tube having lateral openings, through which the said finishing-wheel and driving-rolls may operate upon the pole or rod therein, substantially as described and set forth.

2. In a machine for finishing poles or rods, the combination, with the fixed holder guide-tube A, the finishing-wheel B, and the driving-rolls C, for producing the rotary motion of said pole or rod, of the grooved guiding feed-rollers distant the length of a rod or pole from the nearest driving-rollers, substantially as herein described, for the purpose of producing the feed of the pole or rod which is being turned by the pressure behind it of the following pole or rod, which is being pushed forward without turning, as herein set forth.

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Witnesses:

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