(No Model.)

J. M. PERRY & A GORDON.

MACHINE FOR ROUNDING AND POLISHING METAL RODS.

No. 346,943. Patented Aug. 10, 1886.

Fig: 1.

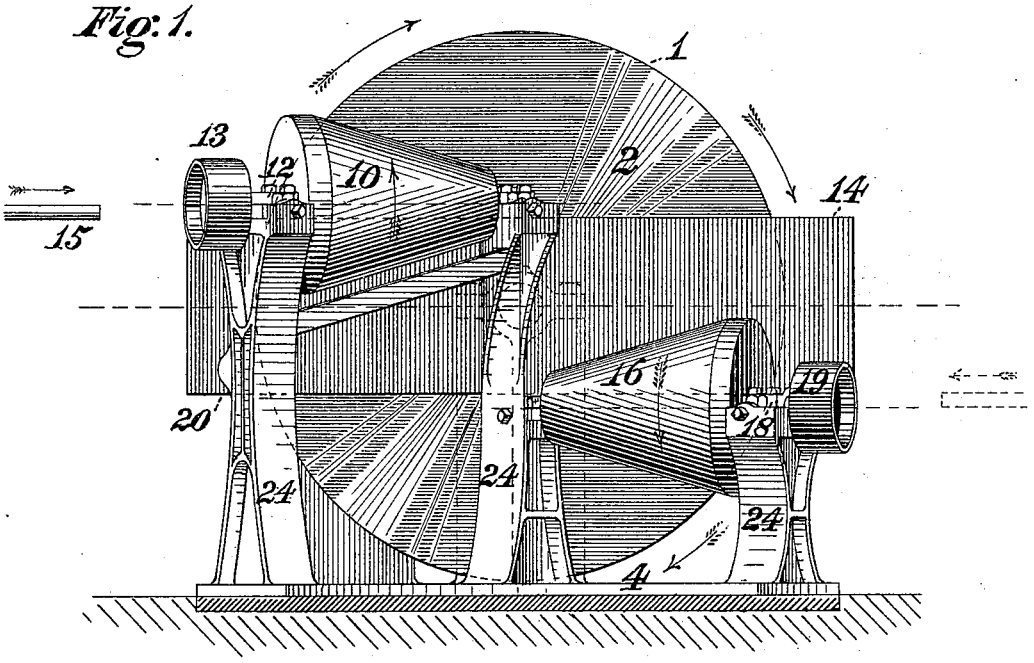
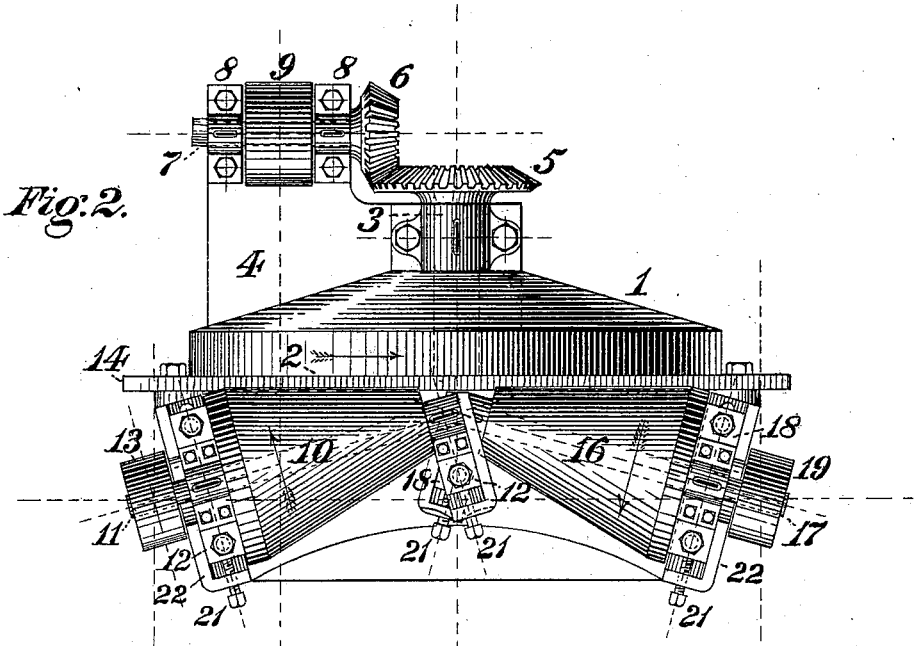


Fig: 2.



WITNESSES:

J. Worden Bell.

D. M. Clarke.

INVENTORS,

James M. Perry.

Alexander Gordon.

BY George H. Christy

ATTORNEY.

UNITED STATES PATENT OFFICE.

JAMES M. PERRY, OF SHARON, AND ALEXANDER GORDON, OF PITTSBURG, PENNSYLVANIA.

MACHINE FOR ROUNDING AND POLISHING METAL RODS.

SPECIFICATION forming part of Letters Patent No. 346,943, dated August 10, 1886.

Application filed November 30, 1885. Serial No. 184,273. (No model.)

To all whom it may concern:

Be it known that we, JAMES M. PERRY, of Sharon, in the county of Mercer and State of Pennsylvania, and ALEXANDER GORDON, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, both citizens of the United States, have invented or discovered certain new and useful Improvements in Machines for Rounding and Polishing Metal Rods, of which improvements the following is a specification.

In the accompanying drawings, which make part of this specification, Figure 1 is an end view, in elevation, of a machine for rounding and polishing metal rods embodying our invention; and Fig. 2, a plan or top view of the same.

The object of our invention is to provide simple and effective means for reducing metal rods to truly cylindrical form, and in such operation smoothly polishing their surfaces; to which end our invention, generally stated, consists in the combination of a rotating disk and a rotating conical roll having its side parallel with and adjacent to the plane face of said disk.

The improvements claimed are hereinafter fully set forth.

In the practice of our invention we provide a disk, 1, formed of cast iron or steel, of sufficient thickness to effectually resist deflection in operation, and having a truly plane face, 2, perpendicular to its axis. The disk 1 is formed integral with or is secured to a shaft or spindle, which is mounted in one or more bearings, 3, fixed upon a base or bed-plate, 4, and carries a bevel-gear, 5, meshing with a similar gear, 6, on a counter-shaft, 7, which is mounted in bearings 8 on the bed-plate 4. A driving-pulley, 9, fixed upon the counter-shaft 7, receives a belt, through which power is transmitted from any suitable prime mover. A conical roll, 10, is secured upon a shaft, 11, which is mounted in bearings 12 on the bed-plate, and carries a driving-pulley, 13, through which it is rotated from the prime mover. The axis of the conical roll 10 is located at such angle in a vertical plane to the surface of the disk 1 that the side or slant height of the former shall be parallel to the plane face 2 of the latter, and the distance between the side of the roll 10 and the face 2 is slightly less than the diameter of the rods on which the machine is designed to operate. The horizontal location of the axis of the roll 10 is in a plane parallel to one passing through the axis of the roll 1, and preferably above its center. A transverse guide or rest, 14, is secured upon the bed-plate parallel and closely adjacent to the face 2 of the disk 1, its surface, which serves as a bearing for the rods operated on, being either truly plane or grooved throughout its length, and being parallel horizontally with the axis of the roll 10, and at a distance therefrom less than the diameter of the rods operated on.

In the operation of the machine rotation is imparted to the roll and the disk, respectively, in the directions of the arrows, Fig. 1—that is to say, the conical roll leads the movement of the plane-faced disk or turns toward the same in a direction opposite to that of its rotation. A rough rod, 15, being laid upon the guide 14, is engaged between and subjected to the pressure of the plane face 2 of the disk 1 and the conical surface of the roll 10, and is thereby rotated axially and drawn longitudinally in the direction of the arrow along the surface of the guide 14, its rotation being induced by the action of the conical roll 10, and its longitudinal movement by that of the plane-faced disk 1. In the traverse of the rod between the disk and roll the combined pressure and attrition thereof reduces it to a truly cylindrical contour, and coincidently imparts to it a smooth and polished surface.

In cases where it may be deemed desirable to perfect the finish of the rod by subjecting it a second time to the action of the disk and roll, such operation may be desirably provided for, so as to be effected in a return pass of the rod, by the addition of a supplemental conical roll, 16, fixed upon a driving-shaft, 17, mounted in bearings 18, and carrying a driving-pulley, 19, said roll being located in relation to the plane face 2 of the disk 1 similar to that of the roll 10, except upon the opposite side of the horizontal central plane of the disk 1, and being rotated so as to lead the movement of the disk 1 in a similar manner to the roll 10. In such case a supplemental guide-surface, 20, should be provided between the axis of the roll 16 and the horizontal central plane of the

disk 1. In order to adapt the machine to operation on rods of different diameters, as may from time to time be desired, the bearings 12 18 of the conical rolls may be made adjustable toward and from the face 2 of the disk 1, such adjustment being conveniently effected by securing the bearings to the standards 24, upon which they are supported by bolts passing through holes, which are slotted or elongated transversely to the axes of the rolls, and providing adjusting-screws 21, which engage nuts in the standards and bear against the outer ends of the bearings. Transverse guides 22 on the standards 24 act to further insure true rectilineal movement of the bearings in their range of adjustment relatively to the disk 1.

It will be obvious that the means for rotating the disk and rolls and other constructive details of the machine may be modified in sundry particulars without departing from the spirit of our invention, so long as its essential features, which pertain to the form and relation of the disk and rolls, are in substance retained.

We claim herein as our invention—

1. In a machine for rounding and polishing metal rods, the combination of a rotating disk and a conical roll having its side parallel and adjacent to the plane face of said disk, and adapted to rotate in a direction opposite to the direction of rotation thereof and about an axial line parallel to a plane passing through the axis of the disk, substantially as set forth.

2. In a machine for rounding and polishing metal rods, the combination of a rotating disk, a conical roll having its side parallel and adjacent to the plane face of said disk, and its axis parallel to a plane passing through the axis thereof, and a guide or rest transverse to the plane face of the disk and between the same and the conical roll, substantially as set forth.

3. In a machine for rounding and polishing metal rods, the combination of a rotating disk, a conical roll having its side parallel and adjacent to the plane face of said disk, and its axis parallel to a plane passing through the axis thereof, and a supplemental conical roll located relatively to the disk similarly to the first-named conical roll, but on the opposite side of the central plane of the disk, substantially as set forth.

4. In a machine for rounding and polishing metal rods, the combination of a rotating disk, a conical roll mounted in bearings with its side parallel and adjacent to the plane face of the disk, and its axis parallel to a plane passing through the axis thereof, and devices for adjusting the bearings of the conical roll toward and from the plane face of the disk, substantially as set forth.

In testimony whereof we have hereunto set our hands.

JAMES M. PERRY.
ALEXANDER GORDON.

Witnesses:
J. SNOWDEN BELL,
R. H. WHITTLESEY.