(No Model.)

A. PATERSON.

MACHINE FOR TURNING AXLE ENDS.

No. 382,725. Patented May 15, 1888.

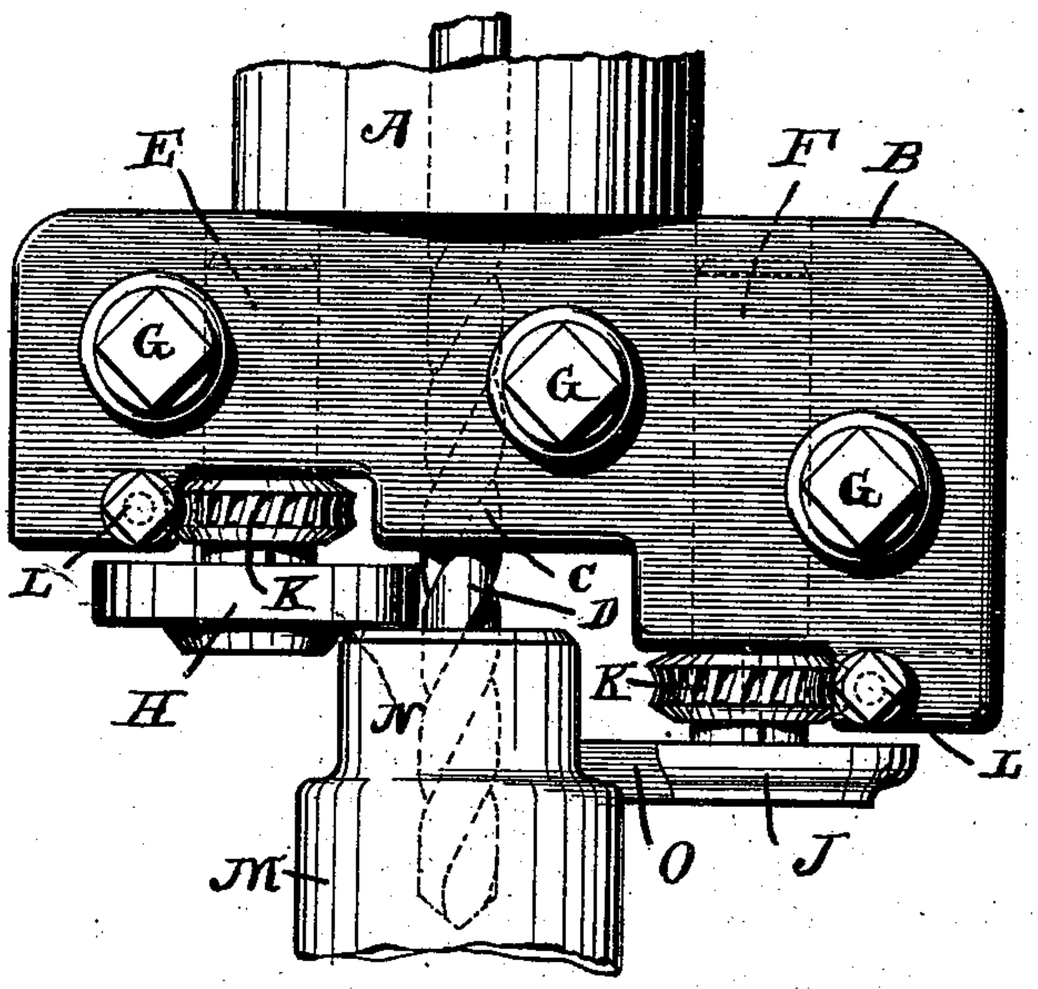


Fig. 1.

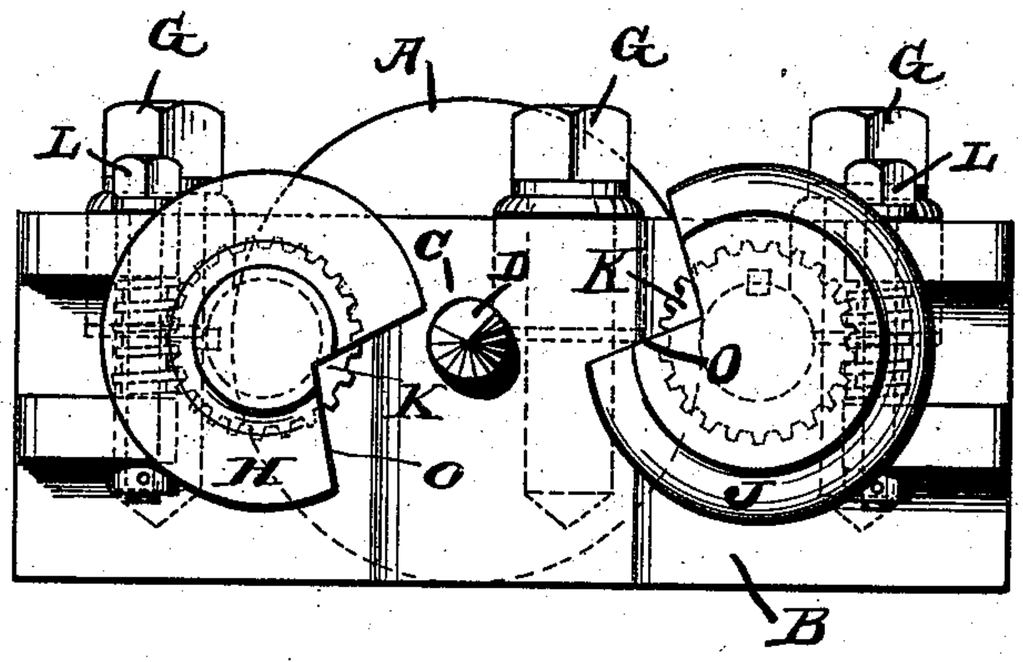
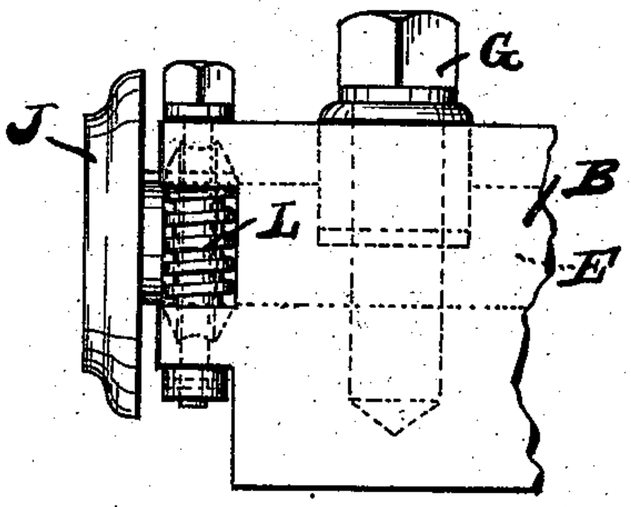


Fig. 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR TURNING AXLE-ENDS.

SPECIFICATION forming part of Letters Patent No. 382,725, dated May 15, 1888.

Application filed February 23, 1888. Serial No. 264,958. (No model.)

To all whom it may concern:

Be it known that I, ANDREW PATERSON, of McKeesport, Allegheny county, Pennsylvania, have invented certain new and useful Improvements in Lathe-Tools, of which the following is a specification.

This invention pertains to lathe-tools to be employed, preferably, in a turret-lathe, the tool being of that general variety known as "box-tools," consisting of a block carrying several tools intended to perform simultaneously several cutting operations upon a piece. The exemplification chosen for illustration has been employed in working up the nipples of tubular wagon-axles.

My improvements will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a plan of my improved lathe-tool, shown as operating upon the nipple of a tubular wagon-axle; Fig. 2, an end view of the tool, and Fig. 3 a side view of the front portion of the same.

In the drawings, A indicates the shank of the tool, adapted to be held in an ordinary turret; B, a block formed on the front end thereof; C, an axial socket in the tool adapted to receive a bit or drill; D, a twist-drill in this socket, the office of this drill being to bore into the end of the axle-nipple and produce a hole which may be tapped to receive a block to close the oil-cavity of the axle; E, a socket to one side of the central socket and parallel therewith; F, a similar socket upon the other side of the tool, all these sockets being cylindrical and adapted to receive the cylindrical shanks of tools; G, pinching-screws disposed vertically alongside the several sockets and adapted to serve in firmly clamping the shanks of the tools in the sockets, these screws being simple collar-screws whose collars go down into counter-bores and bite upon the tool-shanks; H, a disk-tool provided with a shank engaging the socket E, the cutting portion of this tool in the illustration consisting of a disk whose faces take the facing cut upon the end of the axle-nipple, and provided with a central conical boss which takes a chamfering cut at the point of the nipple; J, a disk tool whose shank is secured in the socket F, this disk having an ogee periphery contour adapted to produce the desired shape at the nipple-shoulder, the extreme periphery of the disk forming the cutting-tool for taking the sliding cut upon the nipple; K, worm-wheels, one upon the shank of each of the disk tools, these worm-wheels being slipped upon the tool-shanks behind the disks and secured thereto by keys or feathers; L, worms, one for each worm-wheel, these worms being journaled in the block vertically alongside the worm-wheels and provided at their tops with square heads, by which they may be readily turned by means of a wrench; M, the end portion of a wagon-axle in position to be operated upon; N, a gap or notch cut in each disk tool, so as to produce a cutting-edge thereto, which edge may be radial or a proper tangential departure from it.

The tools being properly adjusted and the axle in rotation, the tool is fed endwise to the axle. The drill bores the central hole, the disk O turns off the body of the nipple, and finally finishes the shoulder of the nipple, and at this time the disk K faces the end of the nipple and chamfers it. The disk tools are adjusted to produce the proper diameter of work by rotating them until their innermost cutting portions occupy the proper positions, and this adjustment is effected in a most obvious manner through the medium of the worms, the pinching-screws being properly slackened, of course, during the adjusting operation. The disk tools are kept sharp by grinding the proper wall of the notch. This grinding away of the wall of the notch would, obviously, increase the diameter of the work produced by the cutting; but this may be compensated for by readjustment of the tools through the medium of the worms. The disk tools may be made cheaply and in quantity and with interchangeable shanks to fit the sockets and worm-wheels. Changes in the character of work produced may be made by changes in the contour character of the disk tools, the same worm-wheels, however, being employed. For more complicated work more sockets may be provided in the block and more disk tools employed in an obvious manner.

I have referred to the outer sockets as being

parallel with the center socket and with each other. In practice it will be highly desirable that these sockets be thrown a trifle out of parallelism with the axis of the revolving axle, in order that proper clearance may be given to the faces of the cutting-disks.

I claim as my invention—

1. In a lathe-tool, the combination, substantially as set forth, of an attaching-shank, a block upon the forward end thereof, an axial socket therein, one or more sockets parallel thereto, pinching-screws for the sockets, a bit secured in the axial socket, and disk tools provided with shanks engaging the other sockets.

2. In a lathe-tool, the combination, substantially as set forth, of an attaching-shank, a block upon the forward end thereof, an axial socket therein adapted to receive a boring bit or drill, one or more outer sockets in the block parallel to said axial socket, pinching-screws for the sockets, a worm-wheel disposed before each of said outer sockets, a worm journaled in said block at each of said worm-wheels and engaging the same, and a disk cutter for each of said outer sockets provided with a shank engaging said worm-wheel and socket.

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