(No Model.)

D. HOUGHTON.

LATHE CENTER GRINDING MACHINE.

No. 292,227. Patented Jan. 22, 1884.

Fig. 3.

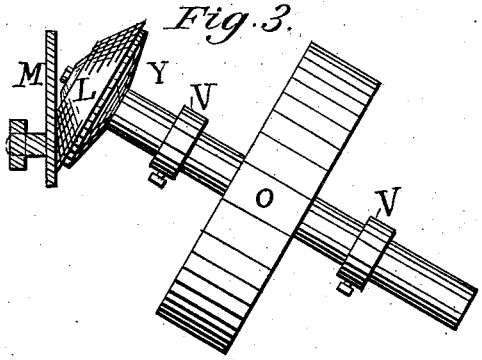
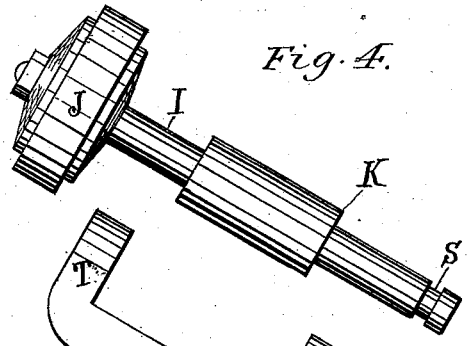


Fig. 4.



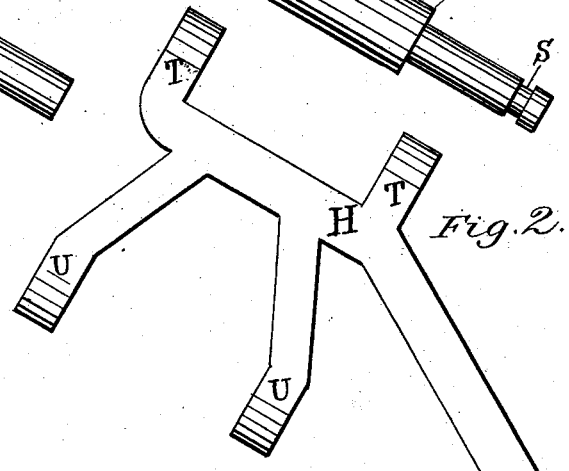
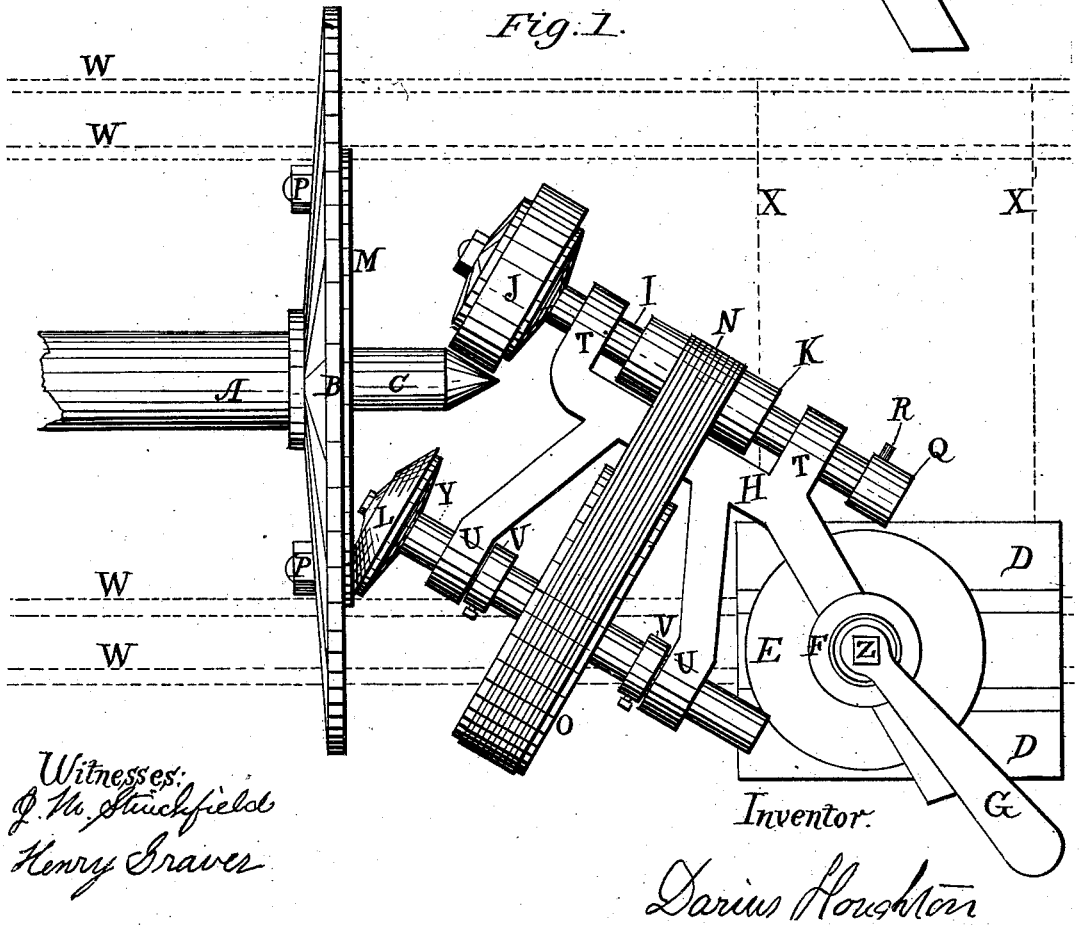


Fig. 2.

Fig. 1.



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UNITED STATES PATENT OFFICE.

DARIUS HOUGHTON, OF SKOWHEGAN, MAINE.

LATHE-CENTER-GRINDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 292,227, dated January 22, 1884.

Application filed May 31, 1883. (No model.)

To all whom it may concern:

Be it known that I, DARIUS HOUGHTON, a citizen of the United States, residing at Skowhegan, in the county of Somerset and State of Maine, have invented a new and useful Improvement in Lathe-Center-Grinding Machines, of which the following is a specification; and I do not know or believe the same has been in public use or on sale in the United States for more than two years prior to this application.

My invention relates to machines for grinding the hardened steel centers of lathes used for turning metals, when, by using, they become worn to an imperfect shape.

My object in this invention is to connect and disconnect the machine with the face-plate of the lathe in such way as shall require less time and skill than the machines now in use, using the motion of the face-plate to give the necessary motion to the grinding-machine. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan showing the machine complete, attached to the lathe with such parts of the lathe as are necessary to show the position of the machine when in operation. Figs. 2, 3, and 4 are detached parts of the machine.

In Fig. 1, A is the main spindle or arbor of a common lathe.

B is the face-plate, and C is the center.

Dotted lines W show the position of the track on the lathe-bed, on which the carriage runs when the lathe is in use.

Dotted lines X show the position of the track on the lathe-carriage on which the tool-holder D E F and Z is moved in adjusting the tool to the work.

H is the frame of the machine, (shown detached in Fig. 2,) and is secured to the tool-holder by a set-screw, Z, the same as the tool is secured in the ordinary use of the lathe.

M is a smooth ring, of any substance suitable for friction-wheels, which, when the grinding-machine is to be used, is attached to the face-plate and secured by nuts P P. Its use is to cover the holes in the face-plate and make a smooth surface for the friction-wheel L to run against.

L is a bevel-edged wheel, of any substance suitable for friction-wheels.

U U are bearings, in which shaft Y revolves.

V V are collars secured to shaft Y with set-screws, to prevent motion of the shaft endwise when the machine is in operation, and when the machine is being attached to the lathe they can be loosed on the shaft by means of the set-screws, and the shaft can be moved endwise through the bearings U U to such place as shall bring the emery-wheel J the right distance from face-plate B to reach the point of center C. This adjustment is necessary, because lathe-centers are not all of the same length.

I is a shaft revolving in bearings T T, and to which is attached emery-wheel J, pulley K, and collar Q. Collar Q is loosely fitted to shaft I, and prevented from moving endwise on shaft by a pin, R, which projects on the inside of the collar into groove S. (Shown in Fig. 4.) This collar is used to move the shaft endwise when in operation, to prevent any irregularities in the emery-wheel from grinding corresponding irregularities in the center.

In practical operation, after securing the machine to tool-holder, friction-wheel L is brought in contact with and pressed against friction-wheel M, and emery-wheel J is brought in contact with center C, at the will of the operator, by the mechanism found on all lathes for moving the tool-holder lengthwise and crosswise of the lathe. The arrangement of the friction-wheels M and L is such that moving the machine crosswise of the lathe to bring emery-wheel J in contact with center C does not change the contact of friction-wheels M and L, as the line of motion is parallel with the face of friction-wheel M. When face-plate B is set in motion and friction-wheel L is pressed against friction-wheel M, the motion of the face-plate is transmitted through friction-wheel L, shaft Y, pulley O, belt N, pulley K, shaft I, to emery-wheel J, and the revolutions multiplied by friction-wheel M; and pulley O being larger than friction-wheel L, and pulley K giving the necessary speed to the emery-wheel, then by moving the tool-holder, the emery-wheel is kept in contact with the lathe-center until it is ground to proper shape and position.

I make no claim to originality of the idea of grinding hardened centers with emery-wheels

without removing them from lathe, as I am aware that machines have long been in use for that purpose.

My invention relates entirely to the arrangement of the friction-wheels for transmission of motion from the face-plate to the machine, the important feature of which is that the machine can be moved crosswise of the lathe, to bring the emery-wheel in contact with or away from the center without changing the contact of friction-wheels M and L.

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

In a lathe-center-grinding machine, the combination, with the face-plate of the lathe, of the plane-faced friction-wheel M, secured thereto, and the friction-wheel L and its shaft, with means for transmitting the motion therefrom to the grinding-wheel, as and for the purpose set forth.

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