F. D. RANDALL & L. D. DANA.

Grinding-Machine.

No. 205,416. Patented June 25, 1878.

Fig.1.

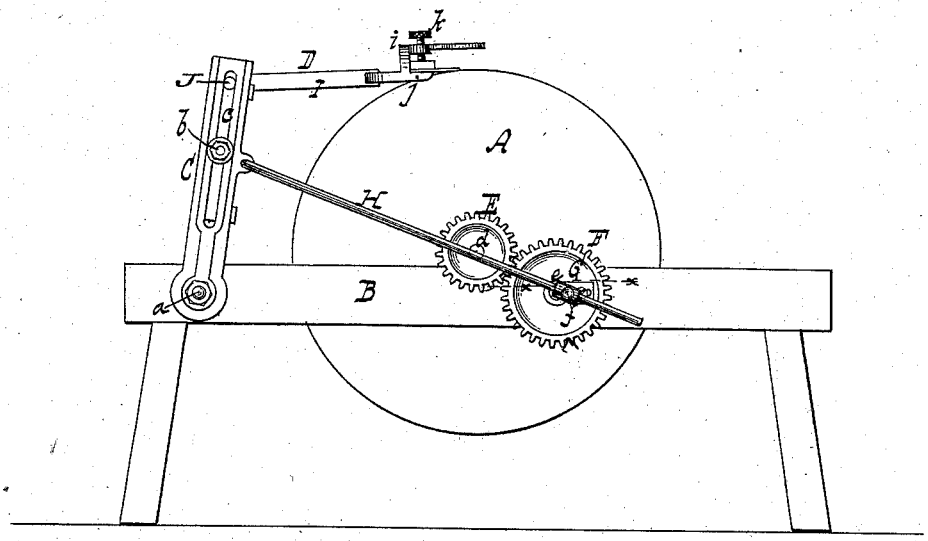


Fig.4

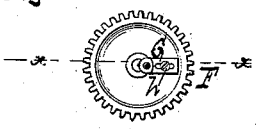


Fig.2.

Fig.5.

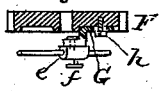
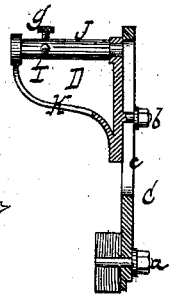


Fig.3.



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UNITED STATES PATENT OFFICE.

FRANCIS D. RANDALL AND LESTER D. DANA, OF WAUPACA, WISCONSIN.

IMPROVEMENT IN GRINDING-MACHINES.

Specification forming part of Letters Patent No. **205,416**, dated June 25, 1878; application filed May 14, 1878.

To all whom it may concern:

Be it known that we, FRANCIS D. RANDALL and LESTER D. DANA, both of Waupaca, in the county of Waupaca and State of Wisconsin, have invented a new and useful Improvement in Edge-Tool Grinders, which improvement is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a side elevation of a machine embracing our invention. Fig. 2 is a plan or top view thereof, partly in section. Fig. 3 is a longitudinal section of the oscillating standard. Fig. 4 is a front view of the wheel for driving the standard. Fig. 5 is a section on line *x x*, Figs. 1 and 4.

Similar letters indicate corresponding parts.

This invention relates to improvements in that class of tool-grinding machines in which are employed a grindstone, a vertical oscillating standard, and a tool holder or rest, attached to the upper end of said oscillating standard; and our invention consists in the combination, with a vertical standard, pivoted at its lower end to the frame of the grindstone, and adapted to have an oscillating motion imparted to it, of a tool-rest constructed of two bars arranged at right angles to each other, one of which is journaled at its ends in a bracket attached to the oscillating standard, and the other bar having its rear end arranged in a cylindrical opening in the first-mentioned bar, whereby the latter bar enables the tool to be raised from the grindstone, and the other is adapted to rotate for presenting the tool at different oblique angles to the grinding-stone, all of which will be fully hereinafter set forth.

In the drawing, the letter A designates a grindstone, which is hung in a bench or frame, B, in the usual way. C is the oscillating standard, which is mounted on a pin, *a*, near one end of the frame B. The letter D designates the rest or device for holding the tool while being ground. This tool-rest is supported on the standard C, and is by preference attached thereto by means of a screw-bolt, *b*, extending through a slot, *c*, in the standard, so that the tool-rest is rendered adjustable, and any desired bevel can be given to the tool.

The standard C receives an oscillating motion from the axle *d* of the grindstone; and to accomplish this object we mount on said axle a cog-wheel, E, which meshes with a similar wheel, F, mounted in the bench A, the last-named wheel being provided with an eccentric, G, to which is connected one end of a pitman, H, the other end of which is connected to the standard. The pitman H is connected to the eccentric G by means of a pivoted button, *e*, through which the pitman passes, and in which it is held by a set-screw, *f*. The eccentric G has the form of a radial bent arm, which is slotted, and is secured to the wheel F by a set-screw, *h*, passing through its slot.

The tool-rest D is constructed of two bars, I J, which are situated at right angles to each other, the bar I being arranged in a corresponding plane to the stone A, and one end thereof being inserted in a hole in the bar J, where it is held by a set-screw, *g*, while the bar J is mounted and turns in a bracket, K, attached to the standard C. The bar I, moreover, is provided at its free end with two jaws, *i j*, for the reception of the tool, and with a clamping-screw, *k*.

It will be seen that when a revolving motion is imparted to the stone A the standard C is oscillated, whereby the tool confined in the rest D is moved back and forward on the periphery of the stone, which has the effect of grinding the tool upward or inward from the edge.

By lengthening or shortening the pitman H the position of the standard C can be regulated with relation to the stone A—that is to say, the tool can be brought to a higher or lower portion of the stone in its forward movement. By moving the eccentric G at a greater or less distance from the axis of the wheel F, a shorter or longer movement can be given to the standard C, and the wear or run of the tooth on the grindstone can be regulated, while the stone, moreover, can thus be run at a high rate of speed, and a slow movement can be given to the tool.

The object of constructing the tool-rest D so as to swivel, as described, is to adapt our machine for grinding tools having irregular edges—as, for instance, a cutter or sickle having pointed teeth, as represented in Fig. 2—

the bar J permitting of lifting the tool off the stone, while the bar I allows of holding the tool in an oblique position, so that either of the edges of its teeth can be brought in contact with the stone, which edges are then ground along their entire lengths by moving the tool back and forth on the stone through the oscillating standard C, either by the axle of the grindstone, as described, or in any other suitable way.

It is obvious that, instead of the cog-wheels E F, other mechanism may be used with a like result.

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

1. The combination, with the pivoted standard C, adapted to have an oscillating motion imparted to it from suitable driving mechanism, of the tool-rest D, constructed of the bar J, journaled in the bracket K, and the bar I, arranged at right angles to the bar J, and having its end inserted in a cylindrical opening in said bar, and adapted to be rotated therein for presenting the tool in a more or less oblique position to the grinding-stone, substantially as and for the purpose described.

2. The combination, with the eccentric G, adjustably attached to the wheel F, and with the pitman H, attached at one end to the pivoted standard C, of the pivoted button *e*, attached to the eccentric, and through which button the pitman passes, and the set-screw *f*, passing transversely through the said button, and adapted to bind on the pitman, substantially as and for the purpose described.

In testimony that we claim the foregoing we have hereunto set our hands and seals this 7th day of May, 1878.

FRANCIS D. RANDALL. [L. S.]
LESTER D. DANA. [L. S.]

Witnesses:
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