

J. H. LAKEY & J. G. MILLS.

MACHINE FOR CUTTING IRON.

No. 171,233.

Patented Dec. 21, 1875.

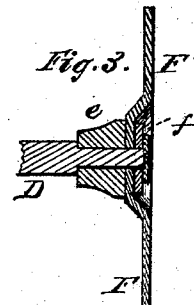
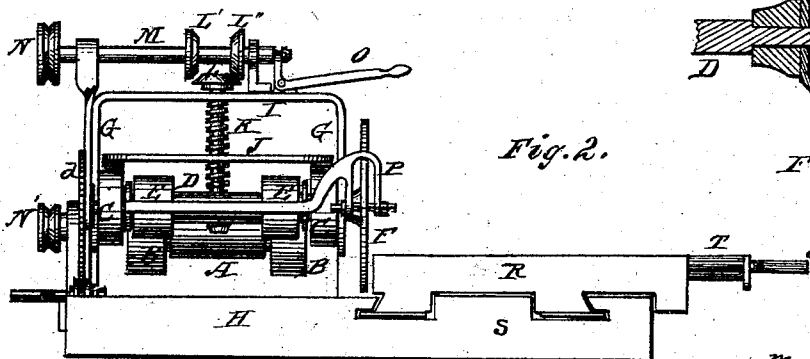
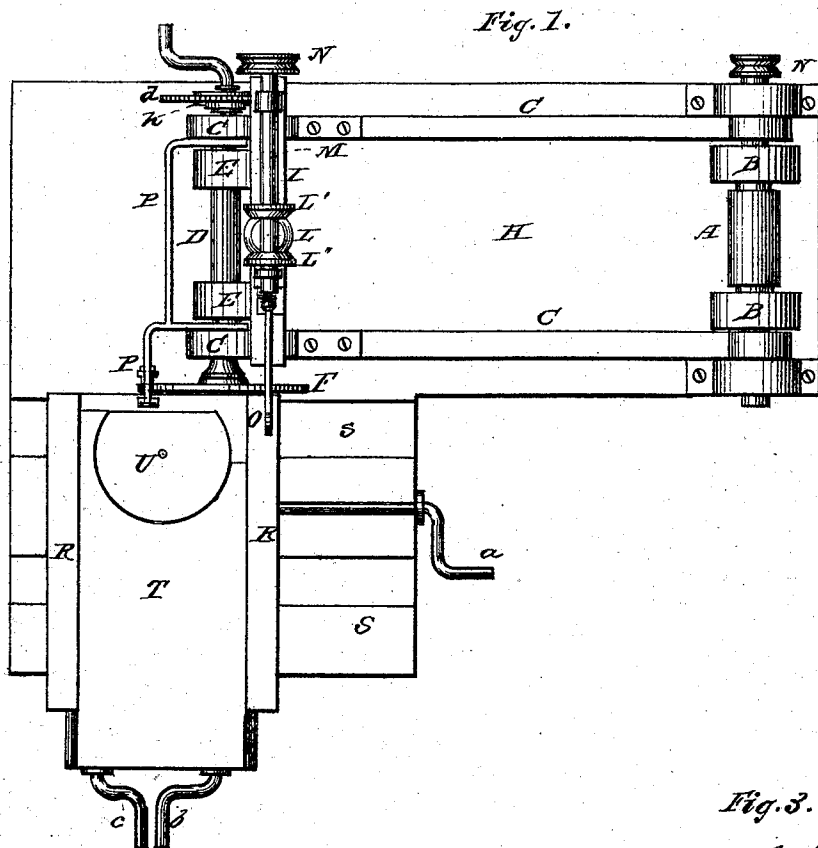
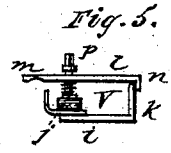
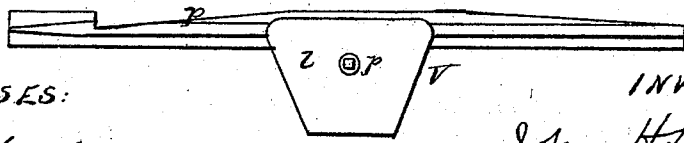


Fig. 4.



WITNESSES:

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JOHN H. LAKEY AND JAMES G. MILLS, OF TURNER JUNCTION, ILLINOIS.

IMPROVEMENT IN MACHINES FOR CUTTING IRON.

Specification forming part of Letters Patent No. **171,233**, dated December 21, 1875; application filed May 22, 1875.

To all whom it may concern:

Be it known that we, JOHN H. LAKEY and JAMES G. MILLS, of Turner Junction, Du Page county, State of Illinois, have invented new and useful Improvements in Machine for Cutting Cold Iron, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view; Fig. 2, a front elevation; Fig. 3, a detail in section, showing the mode of attaching the saw; Fig. 4, a top or plan view of the clamping device, and Fig. 5 an end view of the same.

This invention consists in providing a frame which carries the cutting-tool so that it can be raised and lowered; in providing a rotary turntable to which the metal to be cut may be secured for the purpose of adjusting the same to any desired angle; in combining such circular table with movable tables, as herein described; and in the other combinations and devices hereinafter described and claimed.

In the drawings, A represents a shaft running in suitable bearings, upon which are two fixed driving pulleys, B. C are two arms, loosely connected at their rear ends with the shaft A. At the front end of these arms, and rotating therein, is another shaft, D, upon which are two driving-pulleys, E E. Upon this shaft D is secured the cutting-tool F. The center of the cutting-tool F is counter-sunk or recessed, as shown, and it is secured to the shaft by means of suitable collars *e f*, the end of the shaft being riveted down, or it may be secured by a nut. The construction is such that there is no projection upon the face of F, so that the bar of iron may be cut lengthwise, and brought up close to the face of the cutting-tool at the center thereof, if necessary. The cutting-tool F has a smooth edge, and it can be made from soft fire-box steel. It may be about three feet in diameter, and about a quarter of an inch thick. G G are two standards secured to the bed H of the machine. They are connected at their upper ends by the cross-bar I. G G I may be made of a single piece. J is a cross-bar secured to the arms C. The cross-bar I is provided with screw-threaded holes, through which passes the screw K, on the top of which is a beveled friction or gear wheel, L. L' L'' are two bev-

eled or friction gear-wheels, located upon a small shaft, M, which is supported in suitable bearings. This shaft M may be driven by a chain running over pulleys N N', or otherwise. O is a lever for the purpose of bringing either one of the beveled wheels L' L'' into contact with the wheel L, as may be desired, for the purpose of rotating the screw K in either direction, in order to raise or lower the cutting-tool, without interfering with its operation. P is an adjustable guide for the purpose of steadying the edge of the cutting-tool. It is pivoted upon the shaft D, and can be raised or lowered, as occasion requires. R is a movable table, sliding in grooves in the extension S of the bed-plate, and moved in any well-known manner, this movement to be parallel with the main bed of the machine H. T is another movable table sliding in grooves in the table R, its movement being at right angles to that of the table R. This table T is operated by hand, by means of a crank, *b*, and other suitable well-known devices. U is a revolving table located in a recess in the table T. It is rotated by means of a crank, *c*, and other well-known devices. The crank *a*, with other devices, operates the table R. The surface of the three tables R T U is in the same plane. *d* is a gear-wheel, designed to be removed from the machine when in use, and to be attached thereto for the purpose of being used in connection with the small driving-wheel *h*, for the purpose of rotating the shaft D slowly while sharpening the cutting-tool F. V is a clamping device, by means of which the bar is secured to the revolving table.

We do not limit ourselves to the specific clamping devices shown, as others may be used.

In use, the shaft D is driven by belts passing over the pulleys B, or by other suitable means.

The table U is designed to be used when cutting at an angle, and will be found especially useful in cutting railroad-rails for frogs, as well as for other purposes, where an angular cut is required. In such cases, the bar to be cut is to be secured to the table U by means of suitable clamping devices; then the table is to be turned by means of the crank *c*, until the bar is brought to the desired angle, which may be determined by a scale upon the table, or otherwise; then, by means of the crank

b, the two tables *T U* are moved until the bar is brought to the edge of the cutting-tool *F*; then by means of the crank *a*, which can be rotated by machinery, if desired, the table *R* and the other tables connected thereto will be moved toward the rear of the machine, carrying the bar along.

When a long cut is to be made longitudinally, it will be necessary to cut into the side of the bar at suitable intervals before commencing the longitudinal cut, in order that the portions cut away may fall down, one after another; otherwise that portion of the bar upon the inside of the saw would run against the collar *e*. The vertical movement of the front of the frame and the cutting-tool is essential in performing this operation, thereby making the end of the saw-kerf perpendicular instead of curved, as would be the case if the cutting-tool did not have this vertical movement. While straightening the end of the kerf, of course the bar must be held stationary. This vertical movement will be found desirable for other purposes. For example, in cutting rails for frogs, the head of the rail must be cut, but not the flange, and this can be done by sufficiently elevating the cutter.

It is evident that the tables themselves might be raised and lowered, but this construction would not be desirable.

The front ends of the bars *C* and their connections are raised and lowered by means of the screw *K* and the wheels *L L' L''*.

It is necessary to have strong clamping devices to hold the rail in place while it is being cut. These are shown in Figs. 4 and 5, in which *i* represents one portion of the clamping device *V*. It is permanently secured to the table *U*, and at one end is curved up, as shown at *j*, forming a recess between the curve and the bed of the machine to receive the flange of

the rail. The other end is bent up, as shown at *k*. *l* is the upper portion of the clamping device, so formed that one end, *m*, will project over and partially encircle the head of the rail, while the other end will rest upon *k*, and is provided with a flange, *n*. *p* is a strong screw, by means of which *l* is clamped down upon the rail, the lower end passing into a female screw in the bed of the machine. *r* represents a rail.

In Fig. 4 are represented cuts which must be made in forming a frog.

The machine can be used for cutting irons of various forms, but will be especially useful in all kinds of work requiring angular cuts.

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

1. The arms *C C* and shaft *D*, carrying the cutting-tool *F*, in combination with the supports *G*, bars *I J*, screw *K*, wheels *L L' L''*, and shaft *M*, substantially as and for the purposes set forth.

2. The cutting-tool *F*, having a central depression or recess upon its face, in combination with the shaft *D* and collars *e f*, substantially as and for the purpose specified.

3. In a machine for cutting metals, the rotating table *U*, in combination with the sliding tables *T* and *R*, substantially as and for the purposes specified.

4. The adjustable guide *P*, pivoted on the shaft carrying the cutting-tool *F*, whereby the guide swings on a circle corresponding with the outer edge of the cutting-tool, substantially as described.

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