

UNITED STATES PATENT OFFICE.

JAMES J. RIGNEY, OF SHAMOKIN, PENNSYLVANIA, ASSIGNOR, BY DIRECT
AND MESNE ASSIGNMENTS, OF ONE-HALF TO CURTIS Q. McWILLIAMS
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CUTTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 638,065, dated November 28, 1899.

Application filed March 27, 1899. Serial No. 710,686. (No model.)

To all whom it may concern:

Be it known that I, JAMES J. RIGNEY, of Shamokin, in the county of Northumberland and State of Pennsylvania, have invented a new and Improved Cutting-Machine, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved cutting-machine which is simple and durable in construction, very effective in operation, more especially designed for cutting pipes and other articles, arranged for use on different-sized pipes, and constructed to insure a firm engagement of the jaws on the pipe to avoid undue strain on the cutting-tool.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

A practical embodiment of my invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a front elevation of the improvement with parts broken out. Fig. 2 is a side elevation of the same. Fig. 3 is a sectional front elevation of the same on the line 3 3 in Fig. 2. Fig. 4 is a sectional plan view of the same on the line 4 4 in Fig. 1. Fig. 5 is a detail plan view of the tool-post, and Fig. 6 is a detail side view of the same with part broken away.

The improved cutting-machine is provided with a hollow frame or casing A, preferably made in two sections A' A², removably connected with each other by eyebolts A³, arranged on the sides of the casing, as is plainly illustrated in the drawings. On the face of the casing A are arranged annular bearings A⁴ A⁵, on which is mounted to turn a worm-wheel B, likewise made in sections removably connected with each other on their faces by eyebolts B', as is plainly indicated in Fig. 1.

On the face of the worm-wheel B is arranged a suitable tool-post C for carrying the tool D to cut the pipe with, and the said worm-wheel B is in mesh with a worm E, secured on a

shaft E', journaled in suitable bearings on the front of the casing A, a handle E² being on the said shaft to turn the latter and the worm-wheel and give the desired rotary motion to the worm-wheel B and the tool D to cut the pipe. The worm-wheel B and also the casing A have registering central openings for the passage of the pipe, adapted to be engaged on its peripheral surfaces at a number of places by sets of shoes F F', of which the shoes F are removably secured in a jaw G, and the shoes F' are similarly held in a jaw G', as is plainly illustrated in the drawings, said jaw G being engaged by the threaded end H' of a screw-rod H, formed with a reduced portion H², mounted to turn in a bearing H⁵, made in sections and secured to the top of the casing, as indicated in the drawings.

The outer end of the screw-rod H is formed with a square offset H³ for applying a suitable crank to turn the screw-rod in its bearing H⁵. The screw-rod H is provided with a threaded portion H⁴, having threads in an opposite direction to the threads on the portion H', said threaded part H⁴ carrying a carrier I, provided with tenon ends I', engaging bars J, formed with guideways J' for the tenon ends G² of the jaw G, so as to guide the latter in its up-and-down movement. The lower ends of the bars J are provided with apertures J² for the under-cut ends G³ of the jaw G', the latter being provided with offsets G⁴, fitted to slide in bearings A⁶, formed on back of the casing A, there being nuts on the other ends of the offsets to hold the jaw against lateral movement. Springs K are held in the casing A and press against the bars J to hold the same in firm contact or engagement with the carrier I and the jaw G'.

When the operator turns the screw-rod H in one direction, then the jaw G, with its shoes F, is moved inward, and at the same time the carrier I is moved outward in an opposite direction to the jaw G, and as the said carrier I is connected by the bars J with the other jaw G' it is evident that this jaw moves inward—that is, toward the inwardly-moving jaw G. The shoes F and F' are thus simultaneously moved inward to firmly engage the peripheral surface of the pipe and to center

the same in the casing relative to the center of the worm-wheel B. When the screw-rod H is turned in an opposite direction, the jaw G moves outward and the carrier I moves inward, thus moving the other jaw G' outward—that is, away from the outwardly-moving jaw G. The shoes now release the pipe to permit its removal from the casing.

When the pipe or other article is engaged by the shoes of the jaws and the operator turns the crank-arm E², then a rotary motion is given to the worm-wheel B to carry the tool D around on the peripheral surface of the pipe to cut the pipe in the usual manner, it being understood that the said tool D is fed inward by the usual feeding device on the tool-post C. The tool D is for this purpose removably held in a slide C', fitted to slide in bearings C² on said tool-post, and said slide is provided with an offset C³, held on a screw-rod C⁵, screwing in the tool-post and provided with a handle C⁶ under the control of the operator for turning the screw-rod C⁵ and moving the slide C' inward to feed the tool upon the pipe to be cut.

From the foregoing it is evident that the casing can be readily opened and different-sized jaws can be inserted to suit the conditions of the work under treatment. It will further be seen that the shoes F F' can be independently removed from the jaws and different ones inserted, according to the nature of the article to be cut.

By the construction of the worm-wheel B and its bearings it is evident that grit and other impurities are not liable to lodge in the bearings, so that the worm-wheel has at all times a free turning movement. It will further be seen that the cutting-tool is in the immediate neighborhood of the jaws engaging the work, so that all unusual strain on the cutting-tool is avoided, especially as the shoes can be very firmly set on the peripheral surface of the work.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a cutting-machine of the character described, the casing, the screw-rod turning in said casing and having right and left hand threaded portions, a jaw mounted on one of such portions, a carrier mounted on the other portion, bars held on said carrier and formed with guideways for the jaw, and a second jaw secured to the ends of said bars, as and for the purpose described.

2. A cutting-machine provided with movable jaws for engaging a pipe, a screw-rod having right and left hand threaded portions, of which one portion screws in one of said jaws, a carrier in which screws the other portion of the screw-rod, bars held on said carrier and supporting the other jaw, so that when the screw-rod is turned the jaws are simultaneously moved toward or from each other, and springs pressing on said bars, as set forth.

3. A cutting-machine provided with movable jaws for engaging a pipe, a screw-rod having right and left hand threaded portions, of which one portion screws in one of said jaws, a carrier in which screws the other portion of the screw-rod, and bars held on said carrier and supporting the other jaw, so that when the screw-rod is turned the jaws are simultaneously moved toward or from each other, said bars being formed with guideways in which are received the ends of the jaw moved by the said screw-rod, substantially as shown and described.

4. The herein-described cutting-machine, comprising the casing formed with annular bearings, a worm-wheel mounted to turn in said bearings, and carrying a tool-post and cutting-tool, jaws fitted to move in said casing and adapted to grasp the article to be cut, a rod mounted to turn in said casing and having right and left hand screw-threads, one of which receives one of said jaws, a carrier fitted on the other thread, bars inserted on the ends of said carrier, the said bars extending to the other jaw, being formed with apertures to receive the ends of such jaw and guideways for the ends of the jaw mounted on the threaded rod, and springs interposed between the casing and bars, as and for the purpose described.

5. A cutting-machine comprising a casing, a screw-rod mounted to turn in said casing, a jaw engaged by said screw-rod, a carrier engaged by the screw-rod and moving in an opposite direction to said jaw upon turning said screw-rod, bars engaged by the tenon ends of said carrier, and a second jaw having tenon ends engaging corresponding apertures in said bars, the latter being also provided with guideways for the tenon ends of the first-named jaw, as set forth.

JAMES J. RIGNEY.

Witnesses:

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