D. W. BURNHAM.

DEVICES FOR CUTTING SCREW-THREADS.

No. 185,723. Patented Dec. 26, 1876.

Fig. 1.

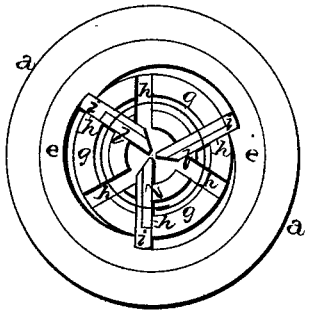


Fig. 2.

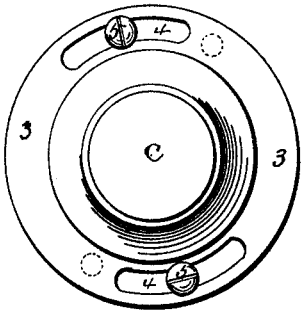


Fig. 3.

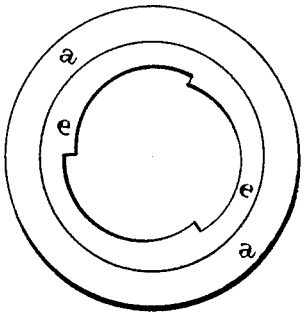


Fig. 4.

Fig. 5.

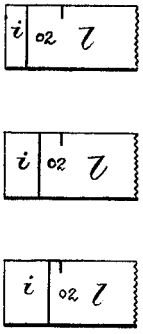
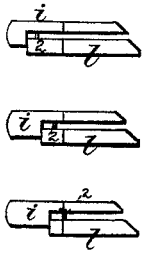


Fig. 6.



WITNESSES,

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UNITED STATES PATENT OFFICE.

DANIEL W. BURNHAM, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO H. B. BROWN & CO., OF SAME PLACE.

IMPROVEMENT IN DEVICES FOR CUTTING SCREW-THREADS.

Specification forming part of Letters Patent No. **185,723**, dated December 26, 1876; application filed January 15, 1876.

To all whom it may concern:

Be it known that I, DANIEL W. BURNHAM, of New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Bolt-Cutter Heads; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in bolt-cutter heads, and consists in making slots in the cutter-head to receive both right and left hand dies, and in making the cutting parts of each die interchangeable, so that when it has become worn to a certain extent it can be changed from one to the other until it is too short to be further used, all of which will be more fully described hereinafter.

The accompanying drawing represents my invention.

a represents an ordinary cutter-head, having one or more flanges formed in it, in which are cut the cams for operating the dies. Heretofore, when these cams became worn and blunt from use, it was necessary to either get a new head, or have them repaired at considerable expense of time and labor. In order to obviate this, I take an old head, ream it out, and then insert into the cylinder thus left a re-enforcing lining of hardened metal, *e*, into which the cams are cut, and thus produce a better head than in the first instance.

When this inserted ring has become worn, it can be readily removed and replaced by a new one. Or, in making the head in the first instance, the outside cylinder may be made entirely separate, and then the ring *e* inserted into it.

Keyed to the end of the shaft *c* is the internal head *g*, in the outer end of which are cut a number of slots, *h*, one-half of which are for right-hand dies, and the others for left-hand ones. Each one of these slots is so cut that the cutting-edge of the die points directly toward the center of the bolt being cut. By taking out the right-hand dies and inserting left hand ones left-hand screws can be cut as well as right-hand screws.

Each one of the dies is made of two parts, the frame *i* and the cutting-part *l*. The frames are all of the same length, and each one has a recess formed in one side, in which the cutting parts *l* are placed.

The recess in each frame and each of the dies, is of a different length, as shown, so that when the die or cutter on either one of the longer frames is worn down to a certain point, it can be removed and placed upon another frame having a shorter recess. In this manner the cutting part of the die having the longest recess can be placed upon each of the other frames.

Rising from each frame there is a small pin, 2, which catches in each die and holds it in position.

In the outer end of the head is a circular recess, in which is placed a flat spring, that serves to throw the dies outward as soon as the pressure of the cams is removed from them. Either this spring or levers, as in the Merriman patent, may be used for this purpose.

Through the flange 3 there are cut two segmental slots, 4, through which pass the two set-screws 5 into the end of the cylinder in which the cams are formed. In the end of this cylinder are four holes, into which the set-screws enter. When the screws are in two of these holes, the cams in the cylinder are in proper position for operating one set of dies, and when the cylinder is shifted around and the set-screws put in the other holes, the cams are arranged for the other set of dies.

Having thus described my invention, I claim—

1. The combination of a series of frames, *i*, with a series of cutters, *l*, the frames having recesses of different lengths in their faces, so that when the cutters become too short for one frame, they can be transferred to another, substantially as shown.

2. The combination of the head *a*, hard-

ened lining *e*, head *g*, having grooves *h*, and cutters *i l*, substantially as set forth.

3. The head *g*, having slots in its end to receive both right and left hand dies, substantially as specified.

4. The combiuation of the flange 3, slots 4, set-screws 5, head *a*, head *g*, and dies, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand.

DANIEL W. BURNHAM.

Witnesses:
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