

E. H. JONES.  
 Device for Extracting Teeth from Coal-Breaking  
 Cylinders.

No. 215,131.

Patented May 6, 1879.

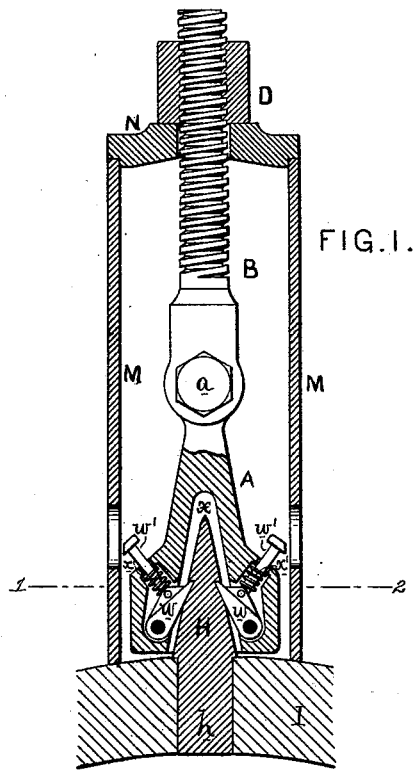


FIG. 1.



FIG. 2.

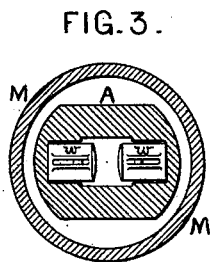


FIG. 3.

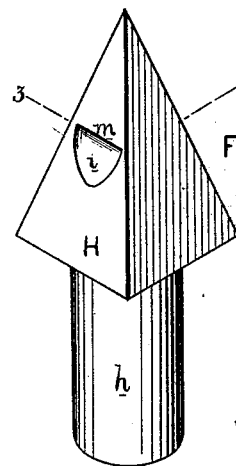


FIG. 4.

FIG. 5.



WITNESSES

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# UNITED STATES PATENT OFFICE

EDWARD H. JONES, OF WILKESBARRE, PENNSYLVANIA.

## IMPROVEMENT IN DEVICES FOR EXTRACTING TEETH FROM COAL-BREAKING CYLINDERS.

Specification forming part of Letters Patent No. **215,131**, dated May 6, 1879; application filed March 1, 1879.

*To all whom it may concern:*

Be it known that I, EDWARD H. JONES, of Wilkesbarre, Luzerne county, Pennsylvania, have invented a new and useful Improvement in Devices for Extracting Teeth from Coal-Breaking Cylinders, of which the following is a specification.

My invention consists of an instrument, fully described hereinafter, by which the teeth, of peculiar construction, also explained hereinafter, can be readily extracted from a coal-breaking cylinder when they become blunt or otherwise defective.

In the accompanying drawings, Figure 1 is a vertical section of the instrument for extracting teeth from coal-breaking cylinders; Fig. 2, an edge view of part of Fig. 1; Fig. 3, a sectional plan of Fig. 1 on the line 1 2; Fig. 4, a perspective view of one of the teeth to which the extractor is adapted, and Fig. 5 a sectional plan of the tooth on the line 3 4.

A substantial block, A, of wrought-iron, is hinged at its upper end, *a*, to a screw-rod, B, which is furnished with a nut, D. The block A is chambered at *x*, from below, for the reception of the tooth, Fig. 4, which consists of the tapering pointed portion or tooth proper, H, and a cylindrical or slightly tapering shank, *h*, the latter being tightly driven into the cylinder of the coal-breaker, the tooth proper being preferably of pyramidal form with a square base.

Two opposite sides of the tooth are plain throughout, and each of the remaining opposite sides is so indented at *i* as to form an abrupt shoulder, *m*, at the upper end of the indentation.

It will be seen on referring to the sectional plan, Fig. 5, that these indentations are made concave, and do not extend across the tooth, but are mere local depressions in the metal, and hence that they neither detract from the strength of the tooth to any appreciable extent, nor present any impediment to its proper action on the coal.

To the block A are pivoted two opposite dogs or pawls, *w w*, the outer ends of which project into the chamber *x*, and are formed to fit snugly in the upper corners of the indentations in the tooth, as shown in Fig. 1. These

pawls are so inclined in contrary directions that their tendency to gripe the tooth will be increased as the force applied to raise the block A is increased.

In using the instrument a hollow cylinder, M, is placed over the tooth to be extracted, and against the cylinder I of the coal-breaker, into which the shank of the tooth is fitted. The block A, attached to the screw-rod B, the latter carrying the nut D and cover N of the cylinder, is lowered into the latter, the pawls *w* yielding as their points pass down the opposite inclined sides of the tooth until they reach the indentations, which the said points, owing to springs *x x*, will enter.

The nut D is now turned by a suitable wrench, so as to elevate the block A, and with it the tooth, owing to the hold which the pawls have acquired on the opposite sides of the same.

When the tooth has been extracted, it may be removed with the block A from the cylinder M, and may be released by pulling the small rods *w' w'*, which are loosely connected to the pawls and pass freely through the block.

The block A and screw-rod B may be made in one piece; but I prefer to hinge them together in the manner shown and described, so as to permit the block to readily accommodate itself to the tooth.

The cover N may form a part of the cylinder M, and the releasing-rods *w' w'* may be operated through suitable holes in the cylinder.

Any suitable frame or stand which will form an abutment for the nut and serve to suspend the gripping-block in a proper position in relation to the tooth may be substituted for the tube M, and in some cases, where great power is required, a hydraulic lifting device may be substituted for the screw-rod and nut, the ram of said lifting device being connected to the block A by suitable means, and the hydraulic cylinder being supported by the cylinder M or other abutment which is used in place of the same.

I claim as my invention—

1. The chambered block A, having inclined pawls *w w*, adapted to indentations of the tooth, in combination with a lifting device,

substantially as described, and a cylinder or frame, M, for the said lifting device, all substantially as set forth.

2. The combination of the block A and its inclined pawls, and the screw-rod B, hinged to the block, with the cylinder or frame M and the nut D, as set forth.

3. The combination of the chambered block A and its pawls with rods  $c'$ , by which the

said pawls are operated, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD H. JONES.

Witnesses:

JOS. B. MILLER,

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