P. A. OLIVER.

Device for Extracting Keys.

No. 202,457. Patented April 16, 1878.

Fig: 1.

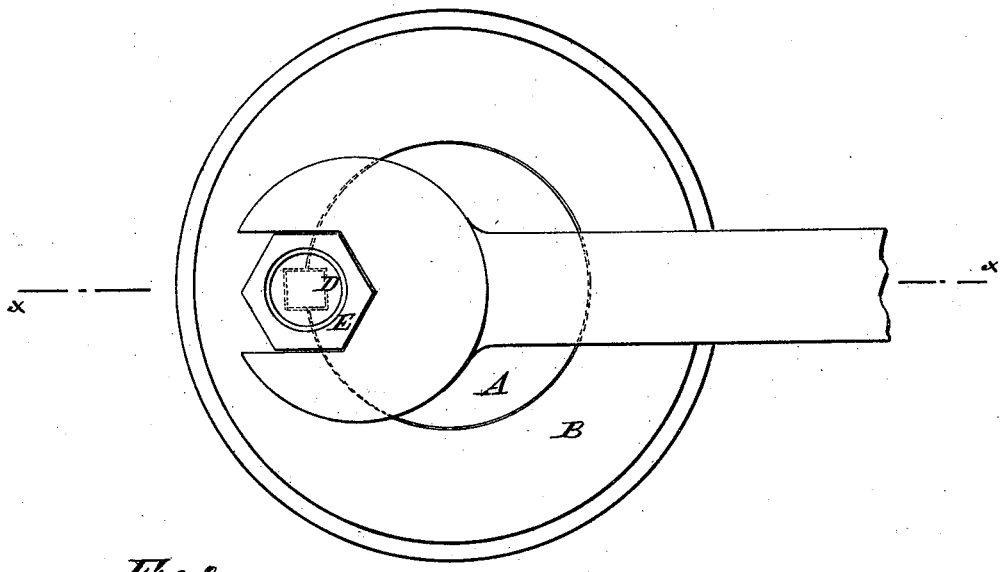
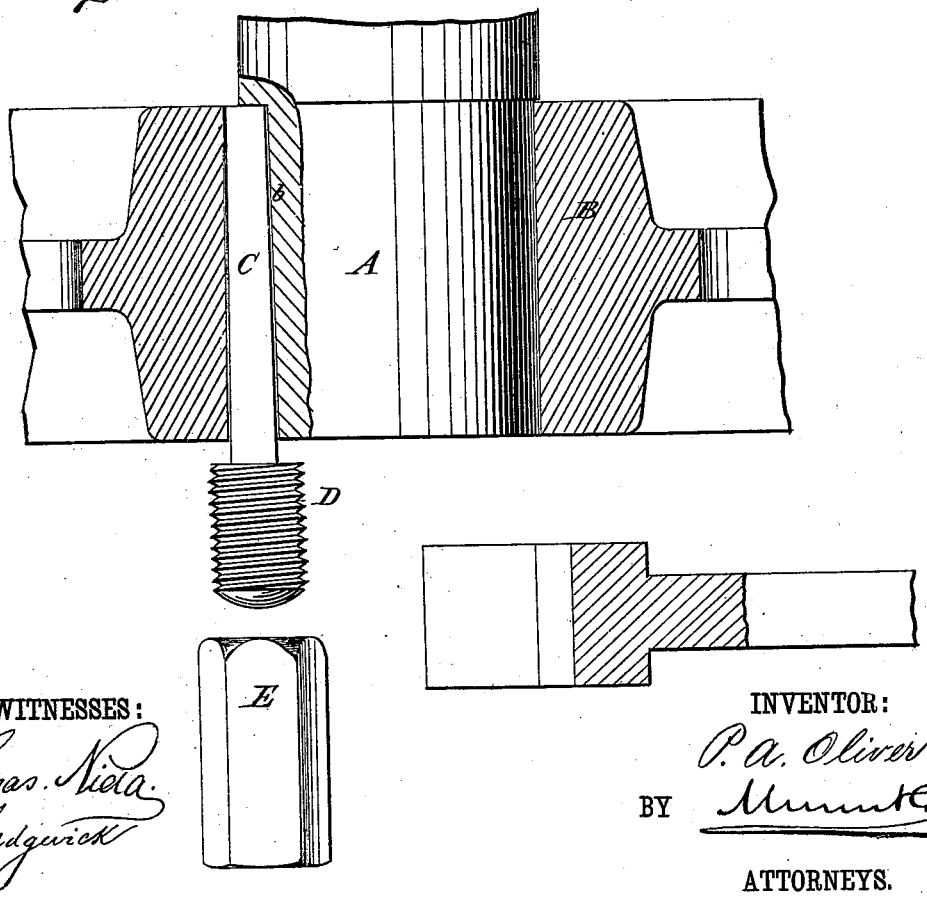


Fig: 2.



WITNESSES:

Chas. Nieda.

C. Sedgwick

INVENTOR:

P. A. Oliver

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

PAUL A. OLIVER, OF WILKESBARRE, PENNSYLVANIA.

IMPROVEMENT IN DEVICES FOR EXTRACTING KEYS.

Specification forming part of Letters Patent No. **202,457**, dated April 16, 1878; application filed March 19, 1878.

To all whom it may concern:

Be it known that I, PAUL A. OLIVER, of Wilkesbarre, in the county of Luzerne and State of Pennsylvania, have invented a new and Improved Device for Extracting Keys, of which the following is a specification:

Figure 1 is a side elevation of the boss of a wheel having my improvement applied. Fig. 2 is a horizontal section, taken on line *x x* in Fig. 1.

Similar letters of reference indicate corresponding parts.

My invention relates to an improved device for extracting keys employed in fastening the bosses of wheels and levers to their shafts.

The invention consists in a key having a cylindrical externally-threaded head, to which is fitted an internally-threaded sleeve or nut, which is made externally polygonal to receive a wrench, by which it is turned in the operation of extracting the key.

Referring to the drawings, A is a shaft having an ordinary key-seat, *b*, and B is the boss of a wheel that is fitted to the shaft A, and slotted to receive a key in the usual way. To the key-seat in the shaft and slot in the boss B is fitted a key, C, which is provided with a cylindrical externally-threaded head, D, that is larger in diameter than the larger end of the body of the key, and is rounded or made conical at its outer end to admit of driving it home without injury to the screw-thread.

To the head D is fitted an internally-threaded sleeve or nut, E, which, in the present case, is made externally hexagonal, to receive the wrench by which it is turned. The end of the sleeve or nut that is in contact with the end of the shaft and boss is slightly rounded to insure a proper bearing and to lessen friction.

The key is fitted to the keyway and driven in the usual way, and, when it becomes necessary to extract it, the sleeve E is screwed on the head D, by hand or by means of a small wrench, until it touches the wheel-boss, when a large and very strong wrench is applied, and the sleeve is turned until the key is loosened.

By means of my improved device the use of wedges, key-drifts, and hammers is avoided, and the key may be easily and quickly removed without danger of breaking, thereby obviating the expense and delay common to the usual method of removing keys.

Another important feature of the invention is, that when used in mills where explosives are employed or manufactured, there can be no danger of explosion, as no blows are required to remove the key; consequently no spark can be produced.

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

1. A key having a cylindrical screw-threaded head, substantially as and for the purpose specified.

2. The combination of an internally-threaded sleeve or nut with a key having a screw-threaded head, substantially as herein shown and described.

PAUL A. OLIVER.

Witnesses:

C. SEDGWICK,

GEO. M. HOPKINS.