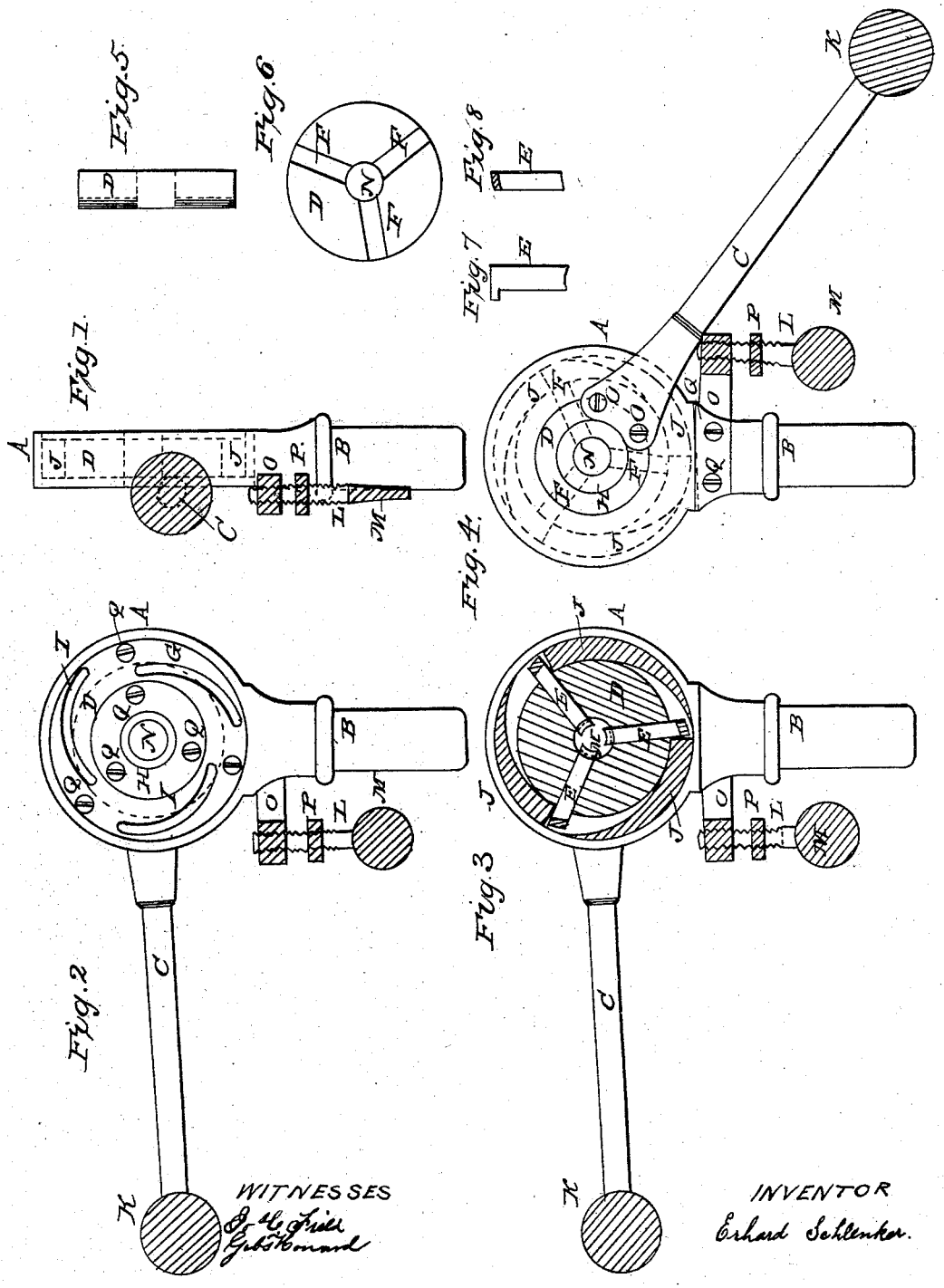
E. SCHLENKER.

Bolt Cutter.

No. 48,594. Patented July 4, 1865.



UNITED STATES PATENT OFFICE.

ERHARD SCHLENKER, OF BUFFALO, NEW YORK.

IMPROVED BOLT-CUTTER.

Specification forming part of Letters Patent No. **48,594**, dated July 4, 1865.

To all whom it may concern:

Be it known that I, ERHARD SCHLENKER, of the city of Buffalo, in the county of Erie and State of New York, have invented a new and Improved Bolt-Cutter for Cutting the Threads of Bolts; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in making a bolt-cutter for cutting the threads of bolts, which shall have at least three cutters or dies, adjustable by means of cams, so as to cut different-sized bolts, the threads of which are cut by passing only once through the opening between the dies, and the dies are then immediately drawn back by means of cams and the bolt released without the delay of running it back by the thread; and also in making the bolt-cutter stationary, while the bolt revolves and is cut from the head to the point, and in preparing the dies by tapping them with a tap smaller than the bolt to be cut, so that as the circle made by the dies, when thus tapped, is enlarged by drawing the dies back to admit a bolt larger than the tap, the thread of the bolt is then cut only by a small portion of the face of the dies, friction is lessened, and greater ease, execution, and perfection of the thread is attained.

Figure 1 is a plan, looking down upon the rim of the circular casting containing the dies, with the arm by which the dies and cams are operated placed vertically. Fig. 2 is a representation, looking upon what I call the "top" or "upper" side of the bolt-cutter. Fig. 3 represents the cams upon the inner side or surface of the rim and the casting fitted inside of the cams, with grooves or recesses therein in which the dies are placed, and as they are located before they are operated upon by the internal cams, and before the bolt to be cut is inserted. Fig. 4 is the same view after the dies are operated upon by the cams. Fig. 5 is a sectional view of the entire cover of the large circular casting. Fig. 6 is a top view of the casting in which the dies are placed, and Figs. 7 and 8 represent the dies.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

I make a circular metallic casting about four inches in diameter, but varied in size to suit different-sized bolts, the rim of which is about one inch wide and one-quarter of an inch thick, entirely open upon one side, which I call the "top" or "upper" side, and with a circular opening of about one-half of the diameter upon the under side. Upon the inner surface of the rim there are cast three semi-crescent-shaped projections, so arranged as to form three cams to act upon the back end of the dies, in order that they may be adjusted to form a proper opening in the center for the size of the bolt to be cut. The outer rim of this circular casting is represented by the letter A, and the three cams upon the inner surface of the rim by the letter J. The rim is cast so as to leave a ledge on the inside, upon which a cover is nicely fitted and upon which it rests. This cover has an opening in the center of the same size as the circular opening upon the opposite side, and has three openings in circular form arranged in such a manner in reference to the cams on the inside of the rim that the lugs attached to the dies, and projecting upward in these openings, will traverse therein and draw back the dies after the thread is cut upon the bolt. These circular openings of the cover are represented by the letter I, and, Fig. 7, letter E represents one of the dies with the lug or projection at the back and which traverses in these openings in the cover.

The letter B represents a shank attached to the circular casting, by means of which it is held or secured for operation; and the letters C K represent an arm with a ball at the outer end to give it weight, by means of which the dies are adjusted; and the letters O P L M represent a set-screw, which arrests the lever or arm C K and holds the same when the dies are adjusted to fit a given-sized bolt. When once adjusted and in operation the action of the dies upon the bolt will keep them in position and preserve the same-sized opening, and when the thread is cut, by throwing up the

arm C K the dies are thrown back from the center and the opening is enlarged and the bolt released and removed.

Inside of the large circular casting is fitted a solid circular casting, (marked D D D,) rising as high as the top of the inside cams and the bottom of the cover, and so as to revolve inside of said cams, and with a circular projection on what I call the "lower" side, which fits the circular opening of the outer or main circular casting. This casting D has a circular opening in the center, in which the bolt to be cut is inserted, and radiating from said center of said casting, at equal distances from each other, there are three recesses or grooves extending from the center to the outside, and deep enough for the size of the dies and wide enough for the same purpose. These grooves are marked E E E, and the dies are placed therein and are moved backward and forward by means of the cams heretofore described and the lugs traversing the circular opening in the cover. They are made of steel, with a grooved or creased end for cutting the thread upon the bolt, and are secured in the recesses or grooves in casting (marked D) by the cover, but allowed to traverse backward and forward. The arm C K is securely fastened to the casting D on the lower side, by means of which this casting is made to revolve. The outer portion of the circular covering is screwed firmly to the main or large circular casting, and the inner circular portion of the cover (marked H) is firmly screwed to the inside casting, in which the dies are placed, and revolves with it for the purpose of increasing or diminishing the size of the opening or space between the dies where the bolt is inserted, but when in operation, cutting the thread upon the bolt, the dies are stationary and the bolt to be cut revolves.

I have used springs instead of cams for the purpose of adjusting the dies; but there are many important objections which are remedied by the use of cams.

In the usual way of preparing the dies, by tapping them with a tap of the same size of the bolt to be cut, the whole face of the dies operates upon the bolt to be cut and causes a large amount of friction, and the thread is not so perfect. My mode of tapping the dies remedies these difficulties. I always make the face of my dies by tapping them with a tap smaller than the bolt to be cut, and when the dies are drawn back and the circle enlarged to admit the bolt only a small portion of the faces operate upon and cut the bolt, friction is very much diminished, greater execution and a more perfect thread are attained. As my bolt-cutter does not revolve, the best way is to cut the bolt from toward the head to the point, as a better bolt is then made, and the depth of the thread will generally be the greatest toward the point.

Some of the advantages of my invention are the rapidity with which bolts are cut, it being necessary to pass the bolt through but once, and it is then immediately released by opening the dies as soon as the thread is cut, and the facility of repairing or sharpening the dies or replacing them when worn by new ones.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows:

A bolt-cutter with the die-carrying disk D and handle C attached, when all are combined, arranged, and operated as and for the purposes specified.

ERHARD SCHLENKER.

In presence of—
GIB. F. HOWARD,
JOS. C. FIELD.