(No Model.)

C. W. LEVALLEY.

BOLT CUTTER.

No. 308,267. Patented Nov. 18, 1884.

Fig. 1.

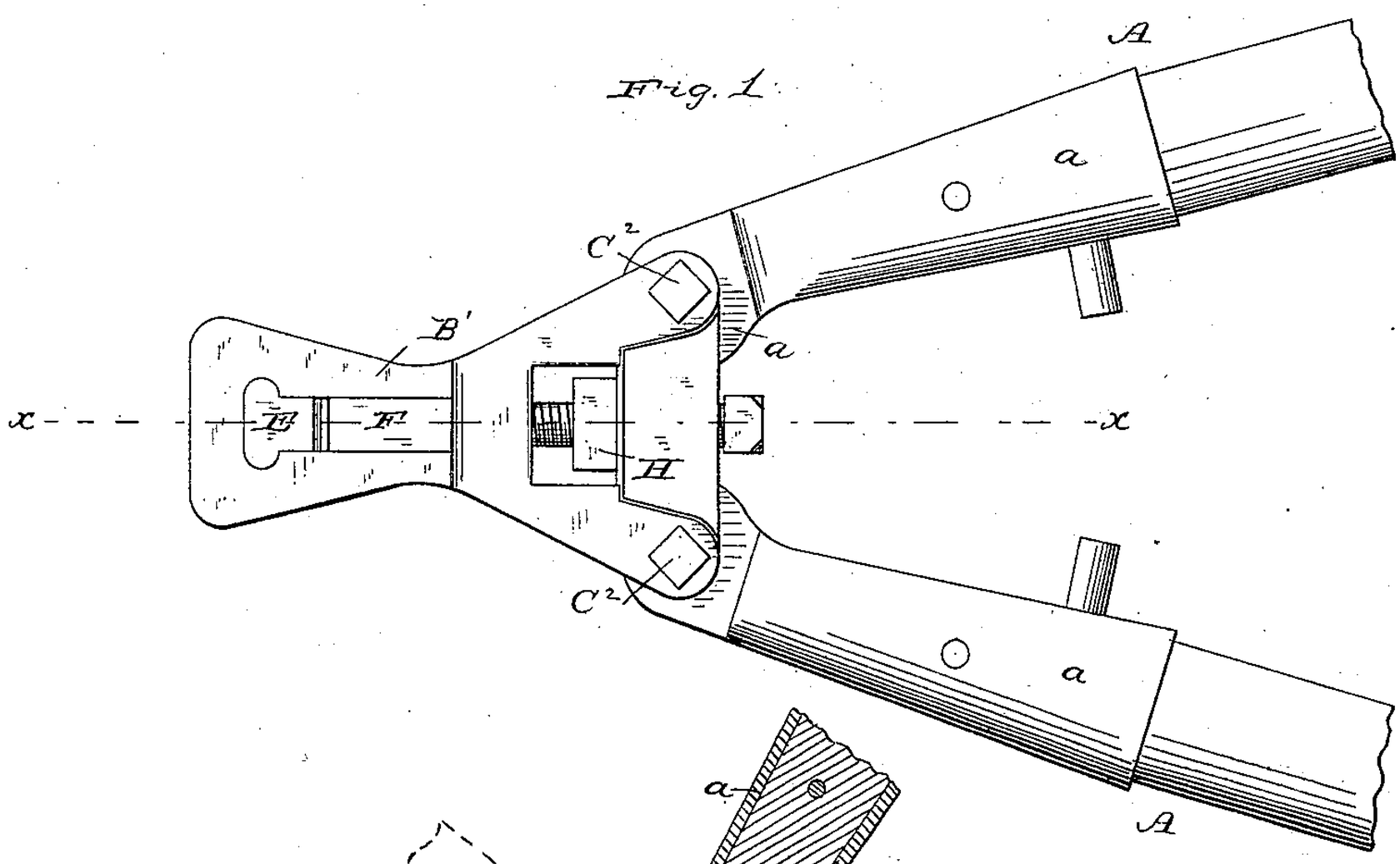


Fig. 3.

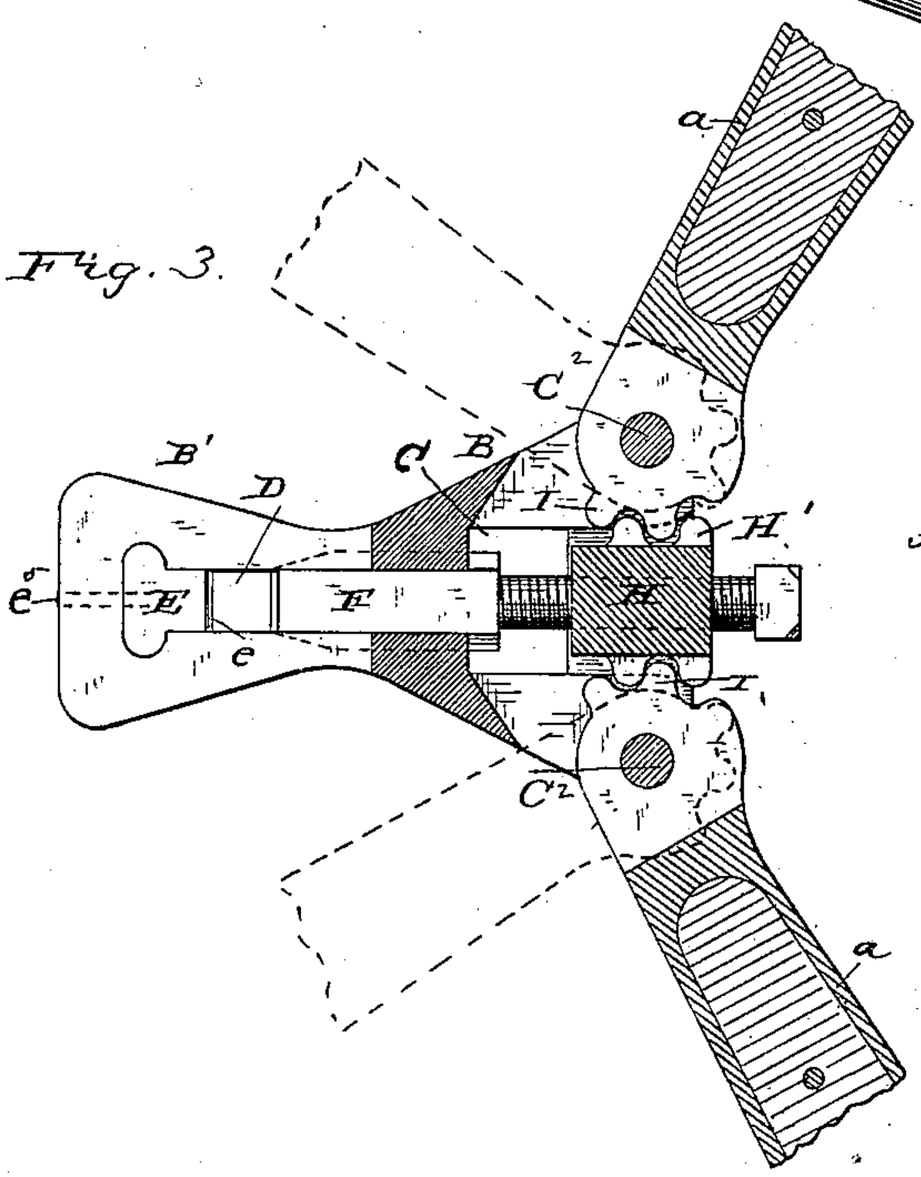


Fig. 4

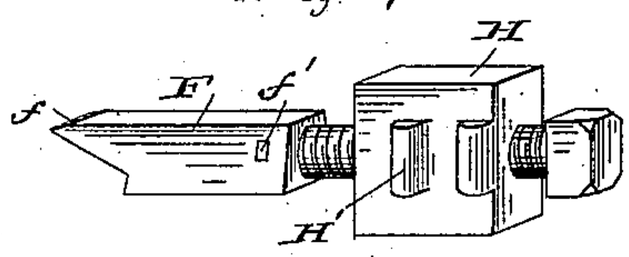


Fig. 5

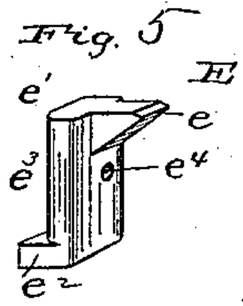


Fig. 2

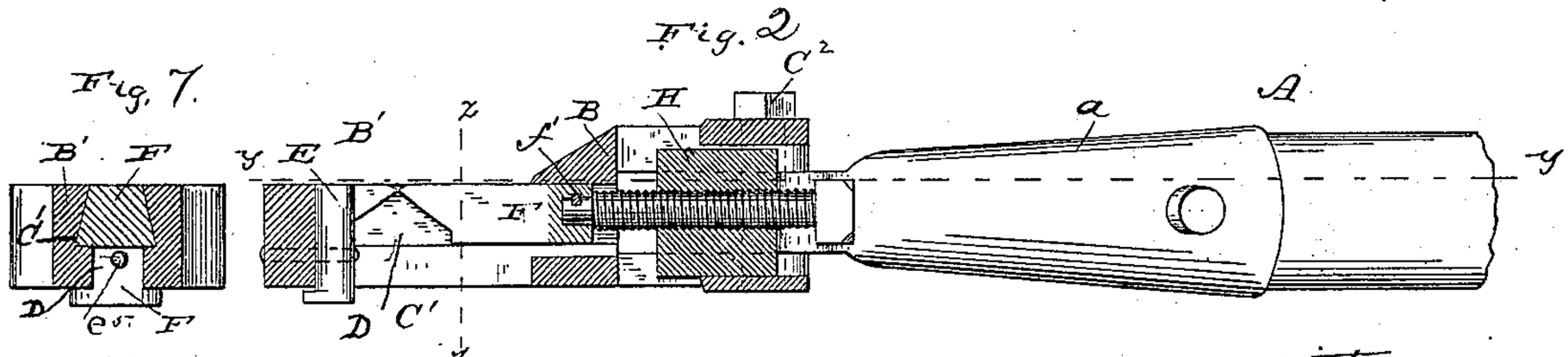
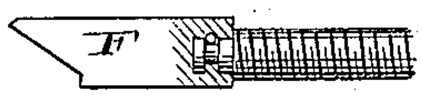


Fig. 7.

Fig. 6.



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UNITED STATES PATENT OFFICE.

CHRISTOPHER W. LEVALLEY, OF ST. PAUL, MINNESOTA.

BOLT-CUTTER.

SPECIFICATION forming part of Letters Patent No. 308,267, dated November 18, 1884.

Application filed October 18, 1882. (No model.)

To all whom it may concern:

Be it known that I, CHRISTOPHER W. LEVALLEY, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Bolt-Cutters, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 is a face or plan view of a cutter embodying my improvements. Fig. 2 is a longitudinal section on the line *x x*, Fig. 1. Fig. 3 is a section on the line *y y* on Fig. 2. Fig. 4 is a perspective of the sliding knife and the rack detached. Fig. 5 is a perspective of the stationary knife detached. Fig. 6 shows a modified means of connecting the screw-rod with the knife. Fig. 7 is a cross-section on line *z z*, Fig. 2.

One of the objects of this invention is to provide a bolt and rivet cutter with a sliding knife that shall be supported entirely independently of the rack, which, together with the oscillating handles, serves to reciprocate the knife. The knife is connected to the rack by means of a bolt or threaded rod, the knife and knife-stock being situated entirely outside of said rack, and the handles being so related to the rack that the latter can be easily and quickly withdrawn far enough to permit a rotation or partial rotation of it for the purpose of adjusting the knife without the necessity of removing the latter.

Another object is to provide a simpler and more effective means of connecting the bolt with the knife than those heretofore used.

Another object is to provide a stationary knife of an improved character, all of which features will be more fully hereinafter set forth.

In the drawings, A A represent the handles of the cutter, they consisting, preferably, of outer wooden parts and inner metallic sockets, *a a*. These latter are pivoted in the stationary head B B′ by means of bolts or rivets C^2. The head B B′ consists of a knife-holding portion, B′, and the part B carrying the handles and the rack. C is a chamber in the part B, and C′ is a way or passage formed in the part B′.

D represents a slot extending from the top to the bottom of the part B′ and communicating with the passage C′. At the outer end this slot is expanded laterally in both directions, being at one end somewhat T-shaped. In this T-shaped end a stationary knife, E, is arranged, said knife consisting of a cutting-edge, *e*, a laterally-extended head, *e′*, a flat shank, e^3, and an expanded foot-piece, e^2. By shaping and constructing the parts of the stationary knife thus, as described, it can be driven up from the under side to the proper point, the expanded bottom portion, e^2, operating to stop it at the proper place and also assisting in bracing it, this part e^2 and the laterally-expanded shank and head *e′* acting to prevent the knife from being twisted or thrust out of proper relation to the other parts. e^5 is a pin passing through the end of the part B′ and through an aperture, e^4, of the knife to lock it in position.

F represents the sliding knife. It is formed with a beveled or inclined edge, *f*, and is considerably wider at the bottom than at the top, as shown in Fig. 7.

H represents the rack. It is situated in the chamber C in the part B of the head and provided with two teeth, H′, on each side, with which teeth engage the teeth I on the handle-sockets *a a*. This rack is provided with a central threaded aperture, through which passes the rod or bolt G, which latter extends considerably inside of the rack and passes a short distance into the knife, the knife having no other connection with the rack. The bolt G, in the construction shown in Figs. 2 and 4, is fastened rigidly in the knife by means of a pin or key, *f′*, passing through the knife-shank and engaging with a slot or groove on the side of the rod G. The teeth I are so disposed relatively to the teeth H′ and the rack that when the handles are opened, as shown in dotted lines, Fig. 3, the teeth I are entirely out of engagement with the rack, and the latter can be withdrawn far enough to permit it to be rotated or partially rotated on the screw rod or bolt sufficiently to change the position of the knife to bring it to the desired point—that is to say, the teeth on each handle-socket and the opposing teeth on the block are so related to each other that when the handles are turned forward until they strike the part B B′ (the latter having shoulders or stops, as will

be seen in Fig. 3, to limit the forward movement of the handles) those teeth of each socket which engage with the rack to drive it forward are turned outward far enough to be entirely outside of the line of the outer ends of the opposing rack-teeth, and therefore the disengagement of the rack can be readily effected.

I am aware that use has heretofore been made of a head, a sliding knife, a toothed rack connected with the knife by means of a threaded shank or bolt, and toothed handle-sockets, the teeth on the sockets and the teeth on the rack being so related that after the handle-sockets have been placed in position and their points inserted the teeth in said sockets which effect the forward driving of the rack can be thrown out of engagement with the rack and the rack and knife removed, the adjustment of the knife being attained by means of the screw, but without turning the rack relatively to the knife; and I do not claim such devices as my invention. After the adjustment the parts can be again joined by throwing the handles back into the position shown in full lines. The parts can be similarly disengaged to permit the entire withdrawal of the knife, though this will not be absolutely essential in adjusting.

Heretofore in cutters of this class the knife-stock has been more or less rigidly connected with the rack, so that the latter could not be revolved upon the adjusting-screw independently of the knife. Again, the method of constructing has been much more expensive, as the knife-stock had to have peculiarly-formed apertures therein, requiring considerable labor and pains in constructing them, whereas in mine it is merely necessary to form the central aperture to receive the projecting end of the bolt and a small transverse aperture to receive the pin.

If desired, two methods of adjustment may be provided by forming an annular slot or groove entirely around the bolt in the plane of the pin *f'*, as shown in Fig. 6.

When thus constructed, the bolt can be turned by means of a wrench, or when a wrench is not at hand the rack can be readily withdrawn in the manner previously described, after which the rack can be turned upon the bolt.

Under many circumstances the only adjustment required can be effected by turning the cogged rack upon the threaded bolt or rod, because the rod should be fitted to its socket in the lower end of the knife so tightly that it will be held by frictional contact to permit the rack to be rotated upon it; but of course no adjustment can be made by simply turning the rack, except such as results from making a half-revolution thereof, and if such adjustment be not sufficiently accurate resort may be had to a wrench, by means of which the sliding knife may be held accurately relatively to the stationary knife E. However, some of the features of the cutter may be retained, though the bolt be held in place in the knife-stock in other ways.

What I claim is—

1. In a bolt-cutter, the combination of the head or support having a central longitudinal passage-way, the knife situated in said passage-way, the screw-rod extending backwardly from the knife, the rack or toothed block H, having a central threaded aperture engaging with the threaded rod carried by the knife and adapted, substantially as set forth, to be rotated around said rod independently of the other parts, and the toothed handle-sockets which engage with the rack or block, the teeth on the socket and the teeth on the block being related, substantially as described, to permit the handles to be thrown forward and disengaged from the rack, as and for the purposes set forth.

2. In a bolt-cutter, the combination of the head B B', having a longitudinal passage-way, the sliding knife mounted therein, the threaded rod attached at one end to the knife and capable of independent rotation relative to the knife, the cogged rack on the threaded rod, and the toothed handle-sockets, the teeth on the sockets and the teeth on the rack being related, substantially as described, whereby the handles can be disengaged from the rack and the rod and the rack can be rotated independently of each other and of the knife, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CHRISTOPHER W. LEVALLEY.

Witnesses:

WM. WYED,

D. C. S. KNOWLES.