(No Model.)

J. HELWIG.

BOLT AND RIVET CUTTER.

No. 444,635. Patented Jan. 13, 1891.

Fig. 2.

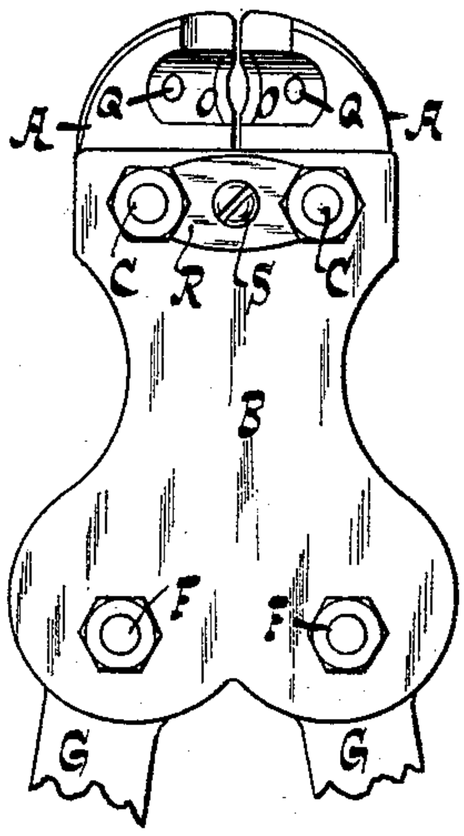


Fig. 1.

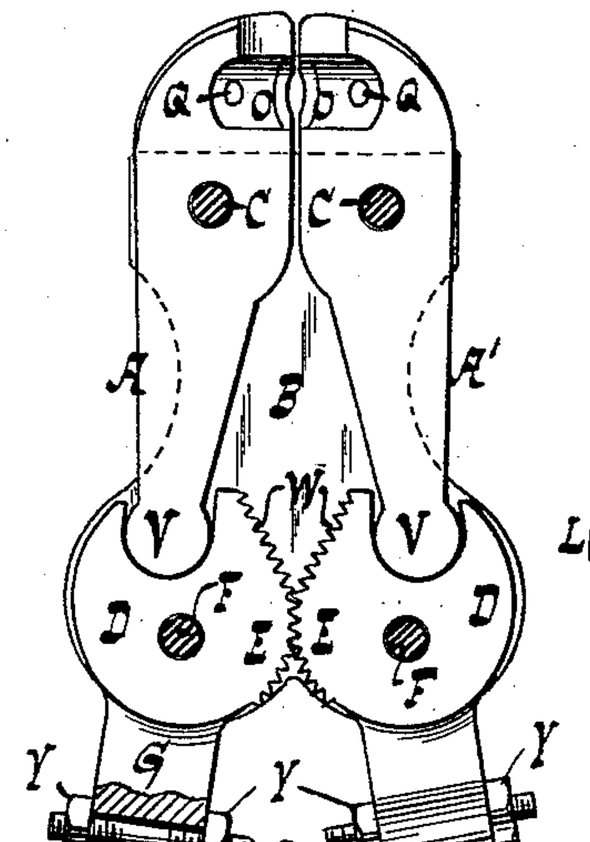


Fig. 3.

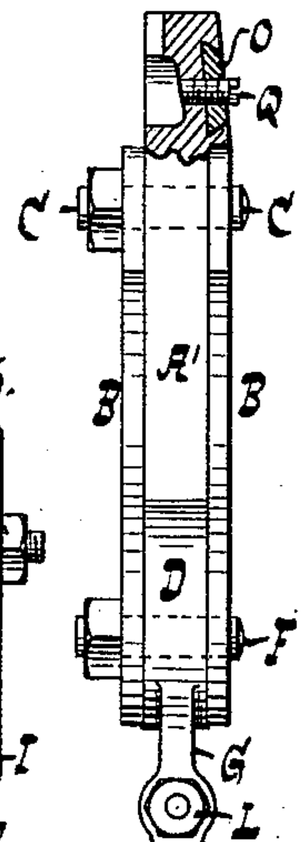


Fig. 4.

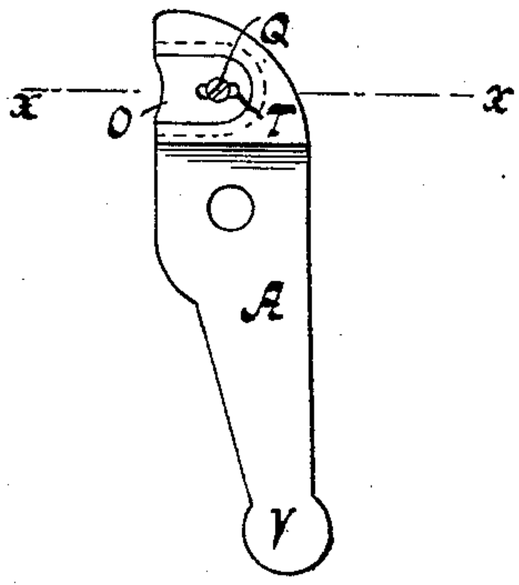


Fig. 5.

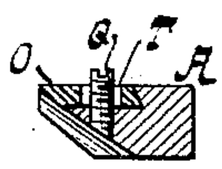


Fig. 6.

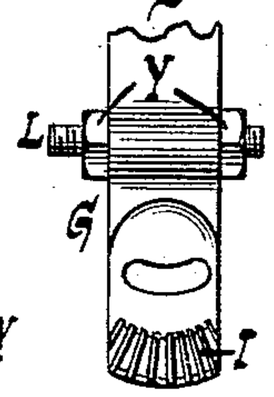
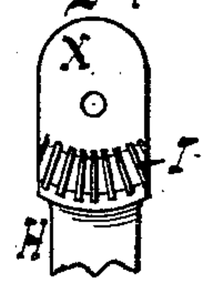


Fig. 7.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN HELWIG, OF DUBUQUE, IOWA.

BOLT AND RIVET CUTTER.

SPECIFICATION forming part of Letters Patent No. 444,635, dated January 13, 1891.

Application filed July 10, 1890. Serial No. 358,252. (No model.)

To all whom it may concern:

Be it known that I, JOHN HELWIG, a citizen of the United States, residing at Dubuque, in the county of Dubuque and State of Iowa, have invented new and useful Improvements in Bolt and Rivet Cutters, of which the following is a specification.

This invention relates to a device adapted for heavy cutting, such as the cutting or clipping of stay-bolts on locomotive fire-boxes and boilers; and the invention consists in the details of construction set forth in the following specification and claims and illustrated in the accompanying drawings, in which—

Figure 1 is a face elevation of a bolt or rivet cutter containing my invention, partly in section and with a plate removed. Fig. 2 is a similar view with the plate in position. Fig. 3 is an end elevation, partly in section, of Fig. 1. Fig. 4 is a detail view of a jaw. Fig. 5 is a section along *x x*, Fig. 4. Figs. 6 and 7 are detail views of handle-sections.

In the drawings, the letters A A′ indicate two cutting-jaws swinging about the pivots C, supported by the plates B. The cutting-edges of the jaws are formed on two blades or knives O O, dovetailed into suitable sockets in the jaws. The screws Q, which retain the knives, can be adjusted or screwed farther in or out, so that said screws hold the cutting-edges of the knives more or less away from the plate or boiler, so that the knives cut off the bolt nearer to the surface of the plate or boiler or farther away therefrom, as desired. The holes T in the knives are somewhat larger than the screws Q, so that the latter are not exposed to strain, but simply serve to prevent the knives from falling out of the dovetailed sockets, while the screws are always free to be adjusted. The strain on the knives during the cutting is taken up by the socket-walls.

The cutting-edges of the knives are concave and situated in the same plane with one another, so that when desired said edges can be made to cut a bolt close to the plate from which it projects. The concave cutting-edges enable the knives to get a grip on the bolt, so that they will not slip during the cutting. As the concave cutting-edges enable the cutters to readily sit about the edge of the bolt to be cut, said cutters will make a clean cut about said bolt-edge.

The pivots C can be formed by screws which hold the plates B together, and a locking-plate R, secured by a screw S, engages the heads of the screws C, so that said screws will be prevented from accidentally turning or loosening. The inner ends of the jaws are provided with knuckles V, which enter sockets in the heads D, forming the upper ends of the actuating-handles. The gears E connect the handles to one another, and the upper ends W of the gears are straight. Said straightened ends form stops to prevent excessive spreading of the handles. Such excessive spreading is to be avoided, since thereby the outer ends of the walls of the sockets in the heads D would be liable to breakage by being forced against the jaws A A′. The handles are each shown made in two parts G H, held together by teeth or cogs I and screws K. One section of each handle has a knuckle X entering a suitable recess in the other handle-section, and when the screws K are loosened and the cogs I freed from engagement with one another, the handle-section H can be swung or set to any desired angle in relation to the handle-section G and fixed at such angle. The handles are prevented from too close approach to one another by stops L. When the stops L or the cutting-edges are worn down, the handle-sections H will gradually approach so close to one another that the hand or fingers cannot be passed between said handle-sections to spread the latter. By then adjusting the said handle-sections H at a suitable angle with relation to the sections G said sections H will be separated sufficiently to enable a hold to be obtained on said sections H.

The stops L consist of screw-stems, which pass loosely through holes or sockets in the handle-sections G, and are fixed in position by nuts Y. One nut is screwed onto each stem or screw on the outside of the sections G, and another nut is screwed onto said stem on the inside of said section. Said nuts being screwed onto the stem, so as to press firmly against the section G, will hold the stem or stop L in place.

A cord or cable M, running over sheaves

or blocks Z and wound on a handle or crank N on a suitable drum, can be used for moving the handles. Each handle has two sheaves, so that considerable force can be obtained for contracting the handles.

The handles are adapted to oscillate about suitable pivots F, supported by the plates B B. The gears E E connect the handles, so that said handles will separate and approach one another equally, thus causing the motion of one jaw to equal the motion of the other jaw. Formerly this equality of action of the jaws was secured by a so-called "equalizer," said equalizer being a stud which limited each jaw in its motion toward the other jaw, each jaw being provided with a recess or cut-out portion to engage said equalizer or stud. By omitting the equalizer the device is cheapened, and as the jaws no longer need to be recessed to accommodate the equalizer, said jaws remain much stronger than when they were recessed, as described.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the jaws A A′, provided with dovetailed sockets and knives seated in said sockets, of retaining-screws for said knives, said screws being adjustably secured to the jaws, so as to regulate the place at which the knives are to act, said knives being provided with slots or enlarged holes for the passage of the screws, so that the screws are not exposed to the strain on the knives during the operation of cutting, substantially as described.

2. The combination, with the actuating-handles, of cutters having longitudinally-concaved cutting-edges situated in the same plane with one another, so as to cut on a bolt close to the plate and prevent the cutters slipping across the bolt, substantially as described.

3. The combination, with the jaws A A′, the plates B, and the screws C, forming pivots for the jaws and made to hold the plates B together, of a locking-plate R, interposed between and having its extremities fitted against the screws C to prevent turning of the latter, and a screw S passed through the locking-plate and screwing into one of the plates B, substantially as as described.

4. The combination, with the jaws A A′, of handles for actuating said jaws, each handle being made in two sections G H, adjustably united by a screw K, and cogs I for moving the lower handle-section to and from the other section, one handle-section being provided with a semicircular knuckle X, made to fit into a corresponding recess in the other handle-section, so that part of the strain is taken off the cogs and taken up by the knuckle and recess, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN HELWIG.

Witnesses:
WM. C. HAUFF,
E. F. KASTENHUBER.