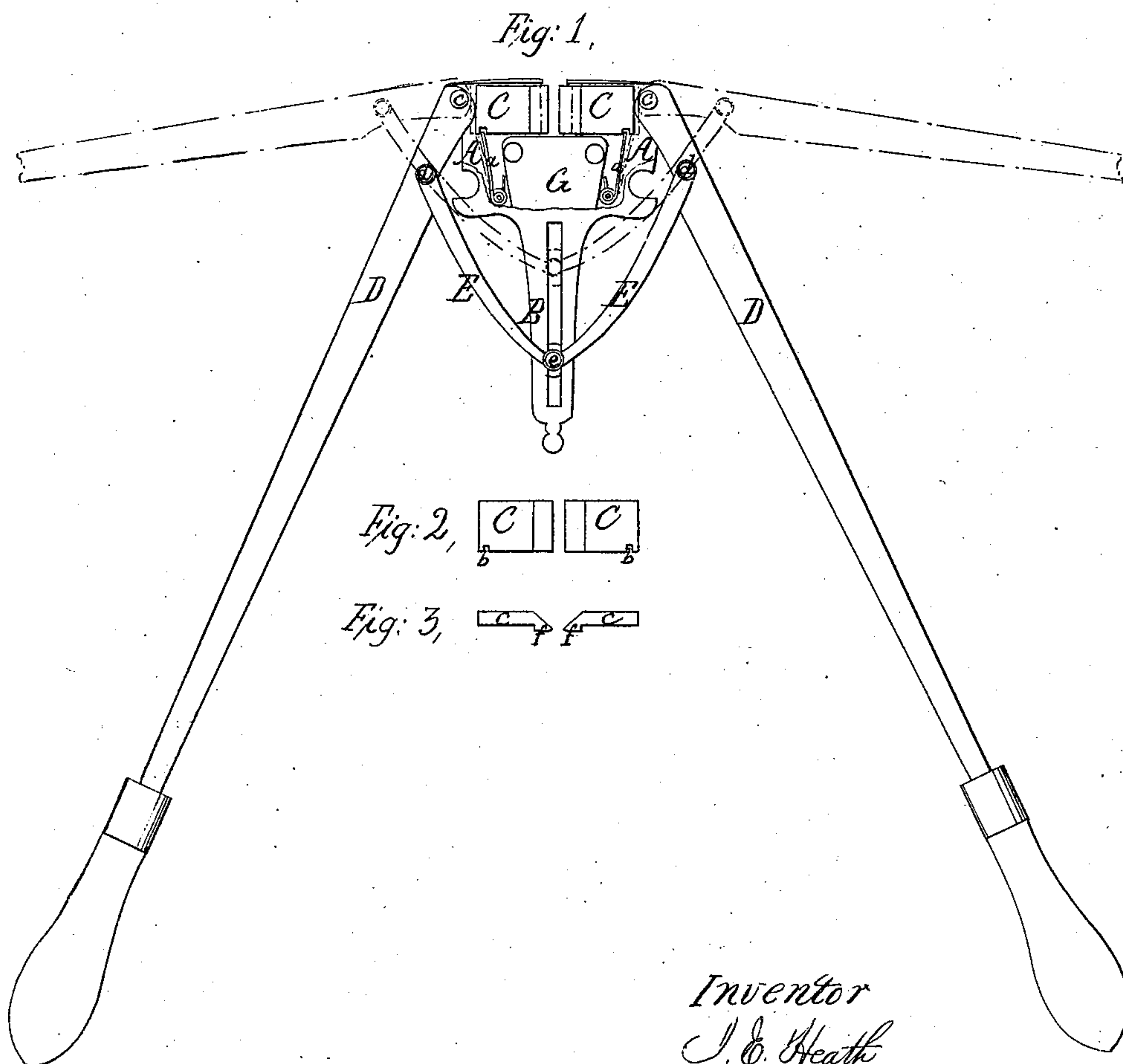


J. E. Heath,
Bolt Cutter,
N^o 70,563, Patented Nov. 5, 1867.



Witnesses:
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JOHN E. HEATH, OF NILES, MICHIGAN.

Letters Patent No. 70,563, dated November 5, 1867.

IMPROVED TOOL FOR CUTTING BOLTS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, J. E. HEATH, of Niles, in the county of Berrien, and State of Michigan, have invented a new and useful improvement in Bolt-Cutters; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 shows a plan of my bolt-cutter, with a portion of the front plate removed, to show the different parts thereof.

Figure 2 shows a plan of the cutters; and

Figure 3, a section of the same.

My invention consists in a new and useful improvement in bolt-cutters, and consists in the combination of levers and cams operating directly upon the cutters. These cutters approach each other with their edges moving in the same plane, and always parallel to each other. In cutters worked by two arms or levers, like the common pliers, they approach each other in the arc of a circle, whose centre is the pivot of the two levers; and in those which operate like shears the cutters lie in different planes, and, as they approach each other, those portions of the edge nearest the pivot meet first, and do not become parallel until after the bolt is separated. In such cutters it is not easy to cut off a bolt squarely; but in my invention these difficulties are obviated, and the work is much better done with a very small outlay of power.

In order that others may understand the construction and operation of my invention, I will proceed to describe it more particularly.

Fig. 1 shows the arrangements of the several parts of my invention, a portion of one of the plates being removed for that purpose. For convenience, I will designate that plate having the guide-way B as the upper, and the other as the lower plate, that being the position of the two, with the handles toward the operator, when in use. These plates are made of iron or other suitable metal, and the lower one is about the form shown in fig. 1. It has its further edge turned up at right angles, and at such a distance as is equal to the thickness of the cutters, in order to form one side or wall of the chamber in which the cutters move. There is an opening made in this turned-up edge of the plate, large enough to admit the passage of the bolt to be cut, so that it may be brought between the edges of the cutters. This opening is further enlarged in the lower plate, so as to permit the cutters to be separated the thickness of the bolt. Upon the upper surface of this lower plate, and at a distance from the edge equal to rather more than the width of the cutters, is a piece of iron or steel, secured by brazing or other suitable means, the further edge of which is straight, and forms the opposite side or wall of the chamber in which the cutters move. This piece is of such thickness that when the upper plate is secured to the lower, the cutters will move freely between them.

The cutters are made of steel, and are substantially of the form represented at figs. 2 and 3, which shows a section of one. From the lower surface of each cutter, and beginning with a line at proper distance from the edge, a portion is cut away, leaving a lug or projection, *f*, of the thickness of the lower plate, which sets down in the opening, so that the edge of the cutters is in the same plane as the lower surface of the lower plate, and thereby is enabled to cut off bolts closer than it otherwise would. These cutters are kept in place by the edge of the lower plate, and the piece G, secured to it, between which they are moved freely by means of the levers D D, which have their pivots or fulcra at *c c*. On that part of the levers which presses upon the cutters cams or eccentrics are forged, and as the levers are brought together these cams force the cutters against the bolt to be cut. As the handles of the levers are extended, the cutters are separated from each other by the springs *a a*, secured at *g g*, the ends of which work in notches cut on the inner edges of the cutters at *b b*. In order that the cutters may cut squarely across the bolt, a small back bevel is given to each.

The upper plate is, in its general outline, similar to the lower, and is secured to it by screws passing through both. It has at its further end an opening, to admit the bolt, corresponding with that in the edge of the lower plate, and of a depth equal to the width of the cutters, and at its inner or near edge it is prolonged a suitable length to B, having a slot in it to receive and guide the pin *e*, which is attached to the levers D D by the braces E E, pivoted to them by the pins *d d*. The upper plate has also a small portion cut out on the sides, to receive the pins *d d*, and so allow the levers to be brought nearer together. The object of this slot or guide-way for the pin *e*, and the braces attached to the levers, is to compel the two levers to move together, and to keep the

two plates, with the cutters, in the same relative position to the levers D D, no matter in what position they may be placed.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination of the plate A, cutters C C, levers D D, and springs *a a*, arranged as described.
2. The slotted guide-plate B, projecting between the cam-levers D D from the plate A, as shown, in combination with the jointed arms E E, cam-levers D D, and cutters C C, substantially as and for the purpose set forth.

J. E. HEATH.

Witnesses:

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