C. CHAMBERS, Jr., & W. MENDHAM.

Bolt-Clipping Machine.

No. 207,252. Patented Aug. 20, 1878.

Fig. 1.

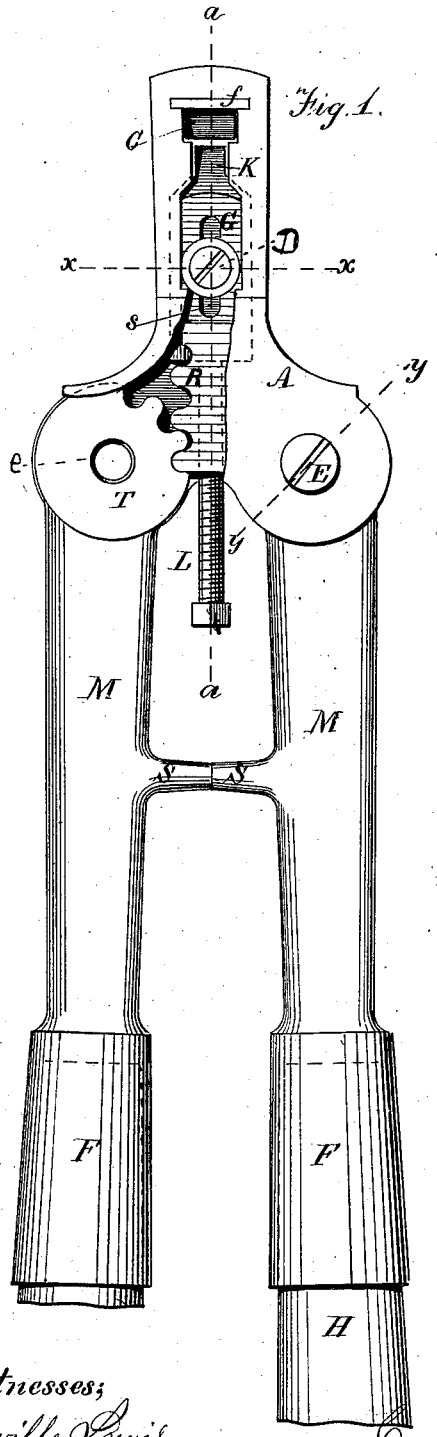



Fig. 2.

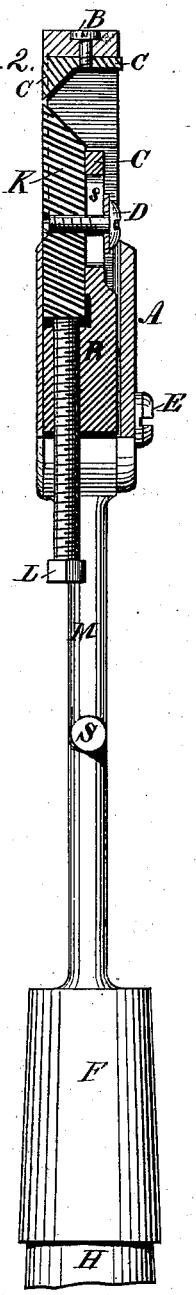



Fig. 3.

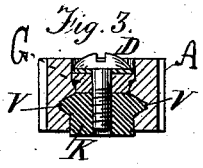



Fig. 4.

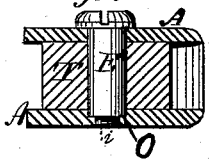
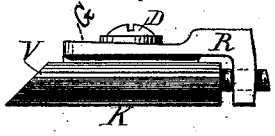



Fig. 5


Fig. 6

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# UNITED STATES PATENT OFFICE.

CYRUS CHAMBERS, JR., AND WILLIAM MENDHAM, OF PHILADELPHIA, PENNSYLVANIA; SAID MENDHAM ASSIGNOR TO SAID CHAMBERS.

## IMPROVEMENT IN BOLT-CLIPPING MACHINES.

Specification forming part of Letters Patent No. **207,252**, dated August 20, 1878; application filed March 13, 1876.

*To all whom it may concern:*

Be it known that we, CYRUS CHAMBERS, Jr., and WILLIAM MENDHAM, of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Bolt-Clipping Machines; and we do hereby declare the following to be a full and correct description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of the machine, the head being partly broken away to show the interior parts. Fig. 2 is a longitudinal section on line *a a* of Fig. 1. Fig. 3 is a transverse section on line *x x* of Fig. 1. Fig. 4 is a section on line *y y* of Fig. 1. Fig. 5 shows the stationary cutter C in face and edge view. Fig. 6 is a side elevation of the movable cutter K.

The same part is indicated by the same letter of reference wherever it occurs.

Our invention consists in improvements in the details of construction of the bolt-cutter originally patented by J. Johnson, June 4, 1867, and by William Mendham, April 4, 1870, said improvements having for their object to make the instrument more durable, adjustable, and accurate than it was in its original form.

The general construction of the original machine is not essentially changed.

The instrument consists of a head, A, provided with a stationary cutter, C, and a movable cutter, K, the latter sliding in suitable ways V V, and operated by a rack, R, driven by toothed segments T attached to and forming part of the levers M M, by which the instrument is held and worked.

Referring to the patents before mentioned, our first improvement consists in the manner of securing the stationary cutter to the head. Near the end of the instrument a wide recess is made across the head for the reception of the wide flange *f*, which forms the back of the cutter C. This recess unites with the **V**-shaped guideways V V, in which the movable cutter K traverses. The flange of cutter C is beveled at its front corners, as at *p p*, to correspond with the under side of bevel of the guideways V V, and when the flange is driven home against the front surfaces of the ways V V the edge of the stationary cutter is exactly in its proper position relatively to the edge of the movable cutter. The screw B, passing through the top of the head into cutter C, prevents it from slipping back.

Our second improvement relates to the mode of securing the movable cutter K in position and maintaining the coincidence of the two cutters. The cutter K is formed of steel, and is attached, by a screw, D, passing through slot *s*, to the tongue G of rack R, which forms its stock. The edges of the cutter are beveled to a **V** shape, to correspond with the shape of the ways in which they move. Each cutter K is made of such a thickness and shape, as shown, that when its beveled edges are in the guideways V its cutting-edge shall be in the same plane with that of cutter C, and flush, or nearly so, with the face of the head of the instrument. The longitudinal adjustment of cutter K is made by means of the screw L, as heretofore.

Our third improvement consists in giving such a shape to the tongue G of rack R, to which the cutter K is attached, that it shall not cut off the lower **V**-guide of the cutter. This we effect by narrowing the projecting face of the tongue G, to which face the cutter is affixed, in the manner clearly shown in Fig. 3.

Our fourth improvement consists in making the upper or outer end of tongue G a little thicker than the other end, so that if the screw D, which confines the cutter to the tongue, should become a little slack or loose, the cutter would not slide toward the outer or thicker end of the tongue on account of the binding between the surfaces which would result from the inclination of one of them.

Our fifth improvement consists in making the edge of the stationary cutter wider than the largest bolt the instrument is adapted to cut, for the purpose of preventing the breaking of the corners of the cutting-edge, which would be likely to occur if the cutter were of the exact width of the bolt to be severed. This construction is clearly shown in Fig. 1. The width of the slot in which cutter K moves limits the diameter of the bolt which the instrument is intended to cut.

Our sixth improvement consists in making

the screw-pivots E, on which the levers M turn, so that the entire thickness of the screw-blank passes through the eyes *e* of the levers M and enters the opposite jaw of the casting A, in which the segments T move, said opposite jaw being counterbored or recessed, as at O, about half-way through, and tapped or threaded the remainder of its thickness to receive the threaded ends of the pivots E, as clearly shown in Fig. 4 at *i*. By this construction the full strength of the screw bolt or pivot E is left to bear the powerful shearing strain to which it is subjected when the machine is in use.

Having thus fully described our improvements, what we claim, and desire to secure by Letters Patent, is—

1. In combination with the stationary cutter C, having a wide flange, *f*, beveled at *p p*, as described, the recess in the head A, having a corresponding beveled form and connecting with the V-shaped guideways of the movable cutter, in the manner and for the purpose set forth.

2. The movable cutter K, formed of steel and having a double bevel on each side, as shown, in combination with the V-shaped guideways in the head A, having the form and location indicated, the whole so arranged that when the beveled edges of the movable cutter are in their guideways its cutting-edge shall be in the same plane as that of the stationary cutter and flush with the face of the implement, all as specified.

3. The tongue G of rack R, having the narrow projecting face, as stated, in combination with the movable cutter K, having a double bevel on each edge, and the guides V V, all constructed in the manner and for the purpose pointed out.

4. The combination of the tongue G, having its upper end made thicker than the lower end, with the cutter K and set-screw D, in the manner shown, and for the purpose stated.

5. The stationary cutter C, having its cutting-edge made wider than the diameter of the largest bolt the instrument is capable of cutting, in combination with a movable cutter, K, working in a slot narrower than the blade of the stationary cutter, and limiting the diameter of the bolts to be cut, all as described, and for the purpose referred to.

6. The screw-pivots E, constructed as described, in combination with the counterbored and tapped jaws of the head A and the toothed segments T, all as and for the purpose indicated.

The above specification of our said invention signed and witnessed at Philadelphia this 10th day of March, A. D. 1876.

CYRUS CHAMBERS, JR.
WILLIAM MENDHAM.

Witnesses:
BERNARD CHAMBERS,
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