

No. 713,600.

Patented Nov. 18, 1902.

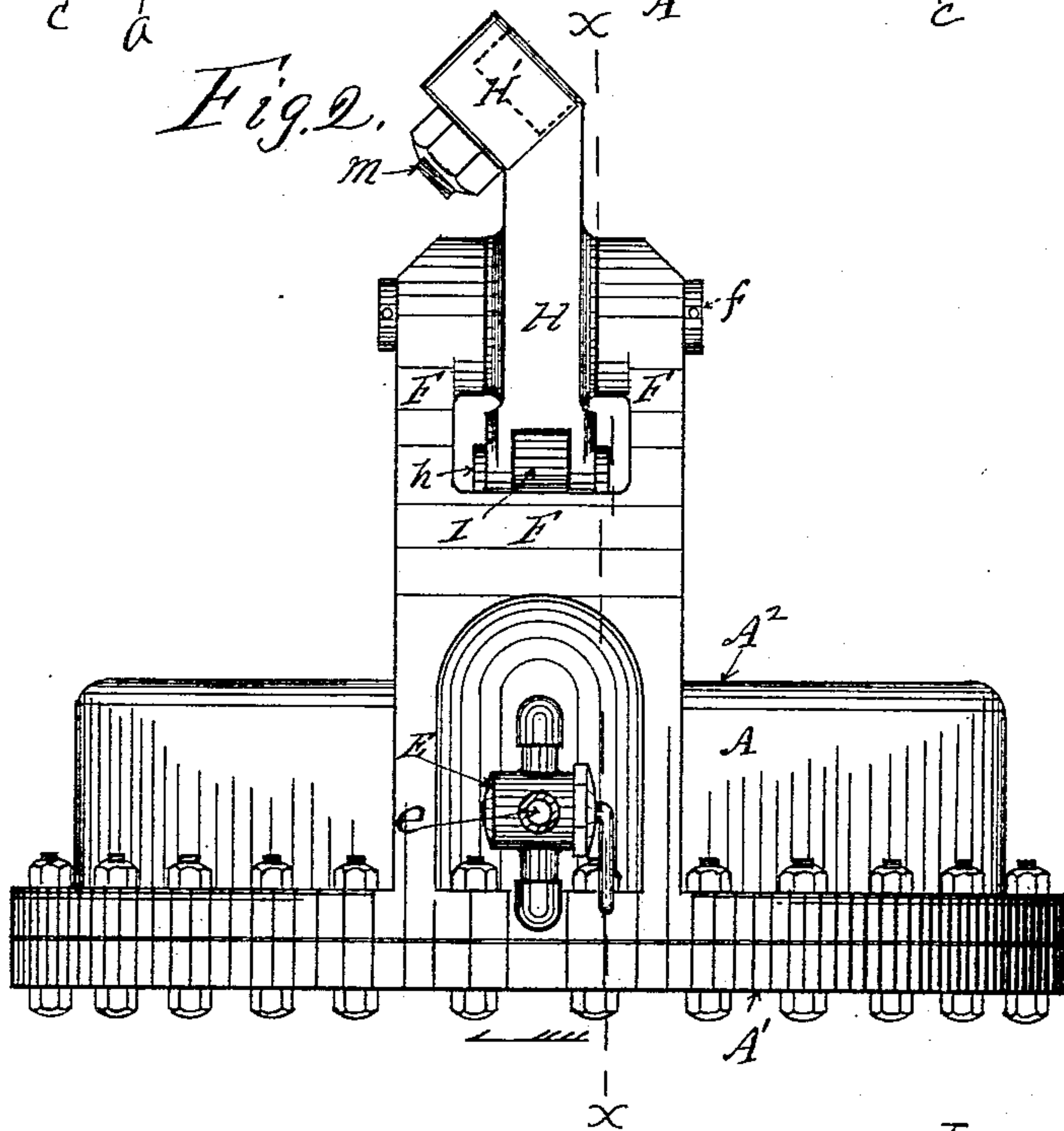
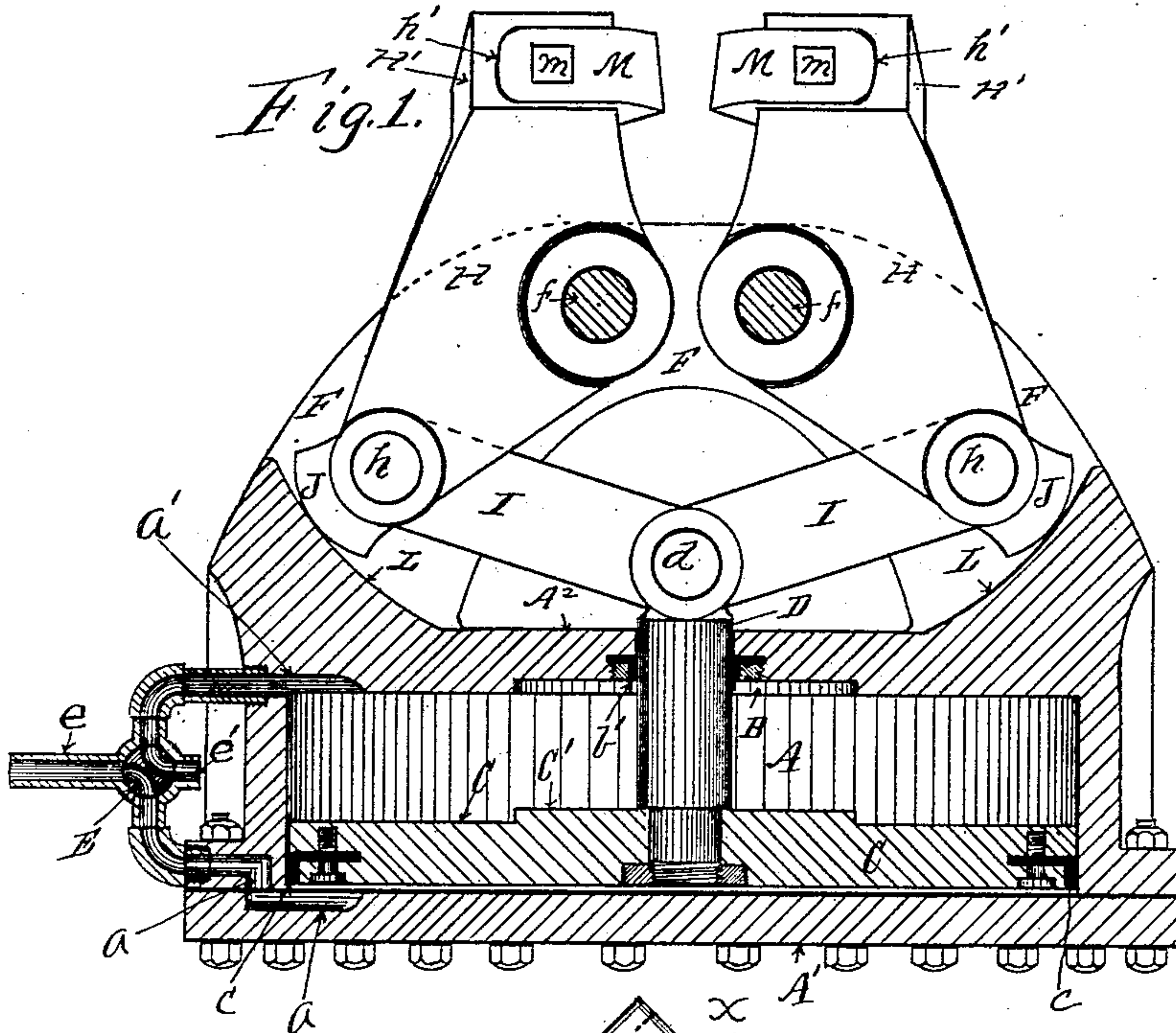
C. J. CARNEY & J. C. GORTON.

STAY BOLT CUTTER,

(Application filed Jan. 20, 1902.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES.
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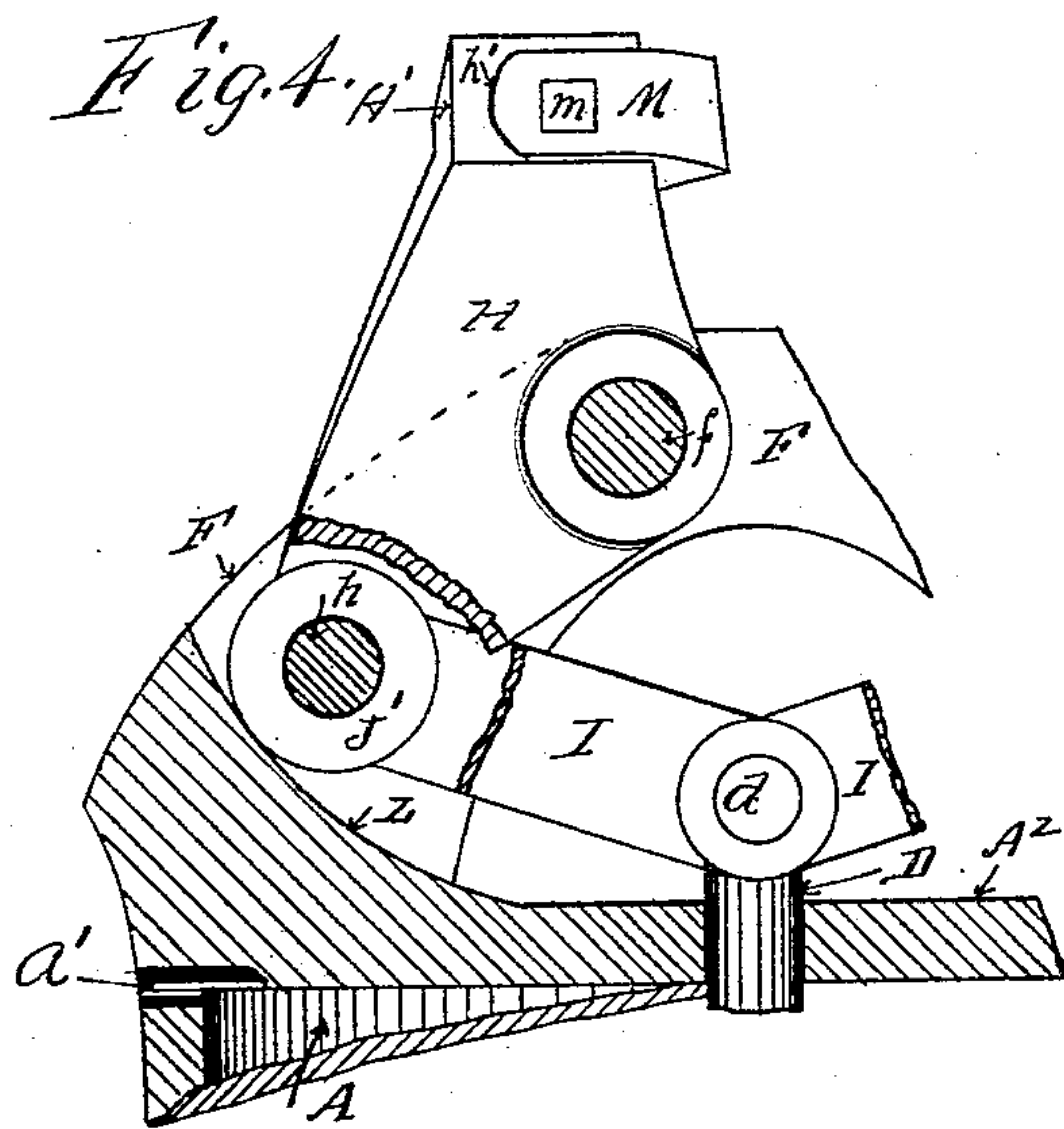
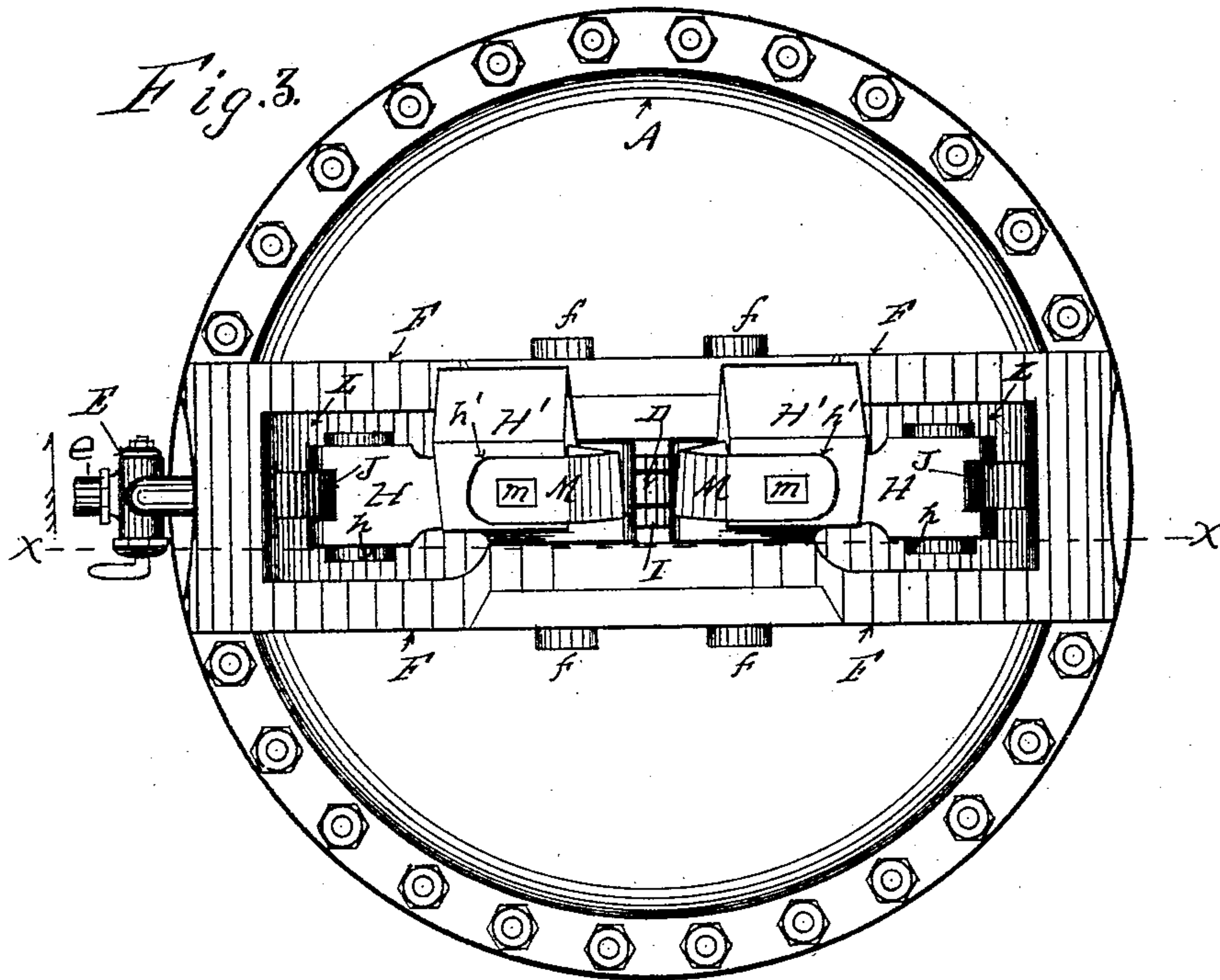
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

CHARLES J. CARNEY AND JOHN C. GORTON, OF DUNKIRK, NEW YORK.

STAY-BOLT CUTTER.

SPECIFICATION forming part of Letters Patent No. 713,600, dated November 18, 1902.

Application filed January 20, 1902. Serial No. 90,463. (No model.)

To all whom it may concern:

Be it known that we, CHARLES J. CARNEY and JOHN C. GORTON, citizens of the United States, residing at Dunkirk, in the county of Chautauqua and State of New York, have jointly invented certain new and useful Improvements in Stay - Bolt Cutters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

This invention relates to improvements in stay-bolt cutters of the type in which the cutter-jaws are operated by toggle-joint mechanism actuated by means of a piston operating in a compressed-air cylinder and is designed to overcome defects in such machines as now constructed. In furtherance of this end we construct our machine in such a manner that the lower ends of the cutter-jaws are firmly supported when in operation. The cylinder is also provided with a cushion-chamber adapted to take up the shock at the termination of the cut.

Another feature of our construction is that the cutters seated in the upper ends of the cutter-jaws are inclined at such an angle to their traverse that a stay-bolt projecting any distance may be cut off.

These and other features of our invention are hereinafter fully set forth and described, and illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of our improved stay-bolt cutter on the line xx in Figs. 2 and 3. Fig. 2 is an end view of the same in elevation. Fig. 3 is a top or plan view of the same. Fig. 4 is a detail view showing an alternative construction of a part of the same.

In the drawings thus illustrating our invention, A is a cylinder provided with a piston-head A', which forms the base of the machine. In the upper end of the cylinder A there is a chamber B, as and for the purpose hereinafter set forth. In this cylinder there is a piston C, provided with packing c and also provided with a projection C', adapted to enter the chamber B in the upper head of the cylinder and compress the air therein during

the latter part of its upward traverse, so as to operate as a cushion to take up the shock caused by the sudden relaxation of the strain when the bolt is severed. From the piston C a piston-rod D extends up through a packing-gland b in the top of the chamber B for the purpose hereinafter set forth. The cylinder A is provided with ports $a a'$, leading by suitable connections to a valve E, adapted to control an air-inlet e and an exhaust-outlet e' . Upon the top A² of the cylinder A there are two upright frames F F, and between these frames cutter-jaws H H are mounted upon pins $f f$, passing through the frames F F, so that they will swing freely thereon. In the lower ends of the jaws H we pivot upon pins $h h$ the outer ends of the links I I, the inner ends of these links I I being pivoted to the upper end of the piston-rod D by means of a pin d , so that these parts operate as a toggle mechanism for forcing the lower ends of the jaws H H apart when the piston C moves upward in the cylinder A.

Upon the outer ends of the links I I we preferably make extensions J J, the lower ends of which are curved and rest upon curved bearing-surfaces L L on the frame, so that as the inner ends of the links I I are raised and lowered the extensions J J will rock freely on the bearing-surfaces L L without sliding thereon. We can, however, if desired, use rollers J' J', mounted on the pins $h h$, as shown in Fig. 4, in lieu of the extensions J J on the links I I, the operation of both constructions producing the same result—viz., the support of the lower ends of the cutter-levers H H, so as to relieve the pins $f f$ to a great extent from the strain upon them during the operation of cutting a stay-bolt. The upper ends H' H' of the cutter-jaws H H are inclined from the perpendicular at an angle preferably of about forty-five degrees, and in the upper faces thereof we mill out cutter-sockets h' , in which removable cutter-blades M M are mounted and secured in place by means of bolts $m m$. This construction enables us to operate the machine for cutting off stay-bolts projecting to any extent from a boiler, as the projecting portion thereof will not contact with any part of the frame of the machine.

In operation compressed air or other suitable actuating fluid is let into the cylinder A through the port *a*, which operates to drive the piston C upward, causing the links I I to assume a horizontal position, which rocks the extensions J J upon the bearing-surfaces L L and forces the lower ends of the jaws H H outward, so as to move the cutters M M on their upper ends toward each other. It will be observed that the extensions J J operate to receive the greater part of the downward thrust of the jaws H H during their operation, and thereby relieve the pins *f f* of a great part of the strain thereon.

We have thus shown and described a stay-bolt cutter embodying our invention, so as to enable others to utilize the same. We do not, however, desire to confine ourselves to the exact construction herein shown and described, as we are aware that the construction thereof may be considerably modified without departing from the spirit of our invention.

Therefore what we claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination in a stay-bolt cutter, of a cylinder a frame thereon, cutting-jaws pivoted in said frame, a piston in said cylinder, a piston-rod extending therefrom upward through the cylinder-head between the lower ends of said jaws, links connecting the lower ends of the jaws with said piston-rod, and cutters on said jaws at an inclination to a vertical line parallel with the sides of the jaws, substantially as and for the purpose set forth.

2. The combination in a stay-bolt cutter, of a cylinder, a frame thereon, cutter-jaws pivoted therein, cutters on the upper ends of said jaws, bearings on the lower ends of the cutter-jaws contacting with bearings on the frame, a piston in said cylinder, a piston-rod extending therefrom upward between the lower ends of said jaws, and links connecting the lower ends of the cutter-jaws with said piston-rod, substantially as set forth.

3. The combination in a stay-bolt cutter, of a cylinder, a frame thereon, cutter-jaws pivoted therein, inclined cutters on the upper ends of said jaws, bearings pivoted on the lower ends of said jaws operating on bearing-surfaces on the frame, a piston in said cylinder, a piston-rod extending therefrom upward between the lower ends of the cutter-jaws, and links connecting the lower ends of the cutter-jaws with said piston-rod, substantially as set forth.

4. The combination in a stay-bolt cutter, of a cylinder having a recess or chamber in the upper head thereof, a frame on said head of the cylinder, cutter-jaws pivoted in said frame, cutters on the upper ends of said jaws, a piston in said cylinder, a projection thereon to fit and enter the recess or chamber in the cylinder-head, a piston-rod extending from said piston through the upper cylinder-head, and links connecting the lower ends of the cutter-jaws with said piston-rod, substantially as set forth.

5. The combination in a stay-bolt cutter, of a cylinder having a recess or chamber in its upper head, a frame on said upper cylinder-head, cutter-jaws pivoted in said frame, inclined cutters in the upper ends of said jaws, bearings pivoted on the lower ends of said jaws operating on bearing-surfaces on the frame, a piston in said cylinder, a projection thereon adapted to enter and fit the recess or chamber in the upper cylinder-head, a piston-rod extending from said piston out through the upper cylinder-head, and links pivoted to the lower ends of the cutter-jaws and to said piston-rod, substantially as and for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

CHARLES J. CARNEY.
JOHN C. GORTON.

Witnesses:

C. D. MURRAY,
J. L. HURLBERT.