2 Sheets--Sheet 1.

C. H. MORGAN.

Holders for Screw-Threading Dies.

No. 155,588. Patented Oct. 6, 1874.

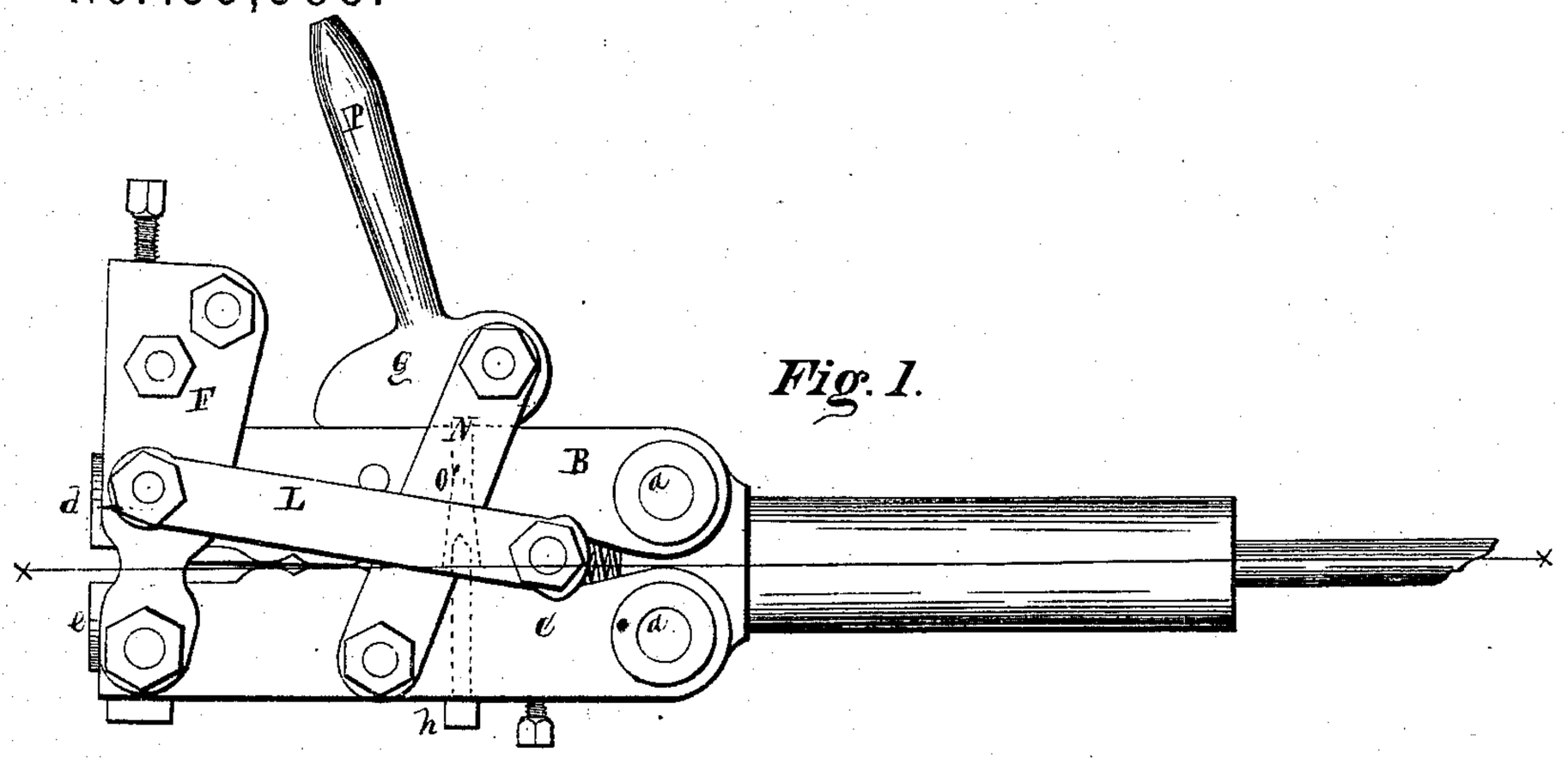


Fig. 1.

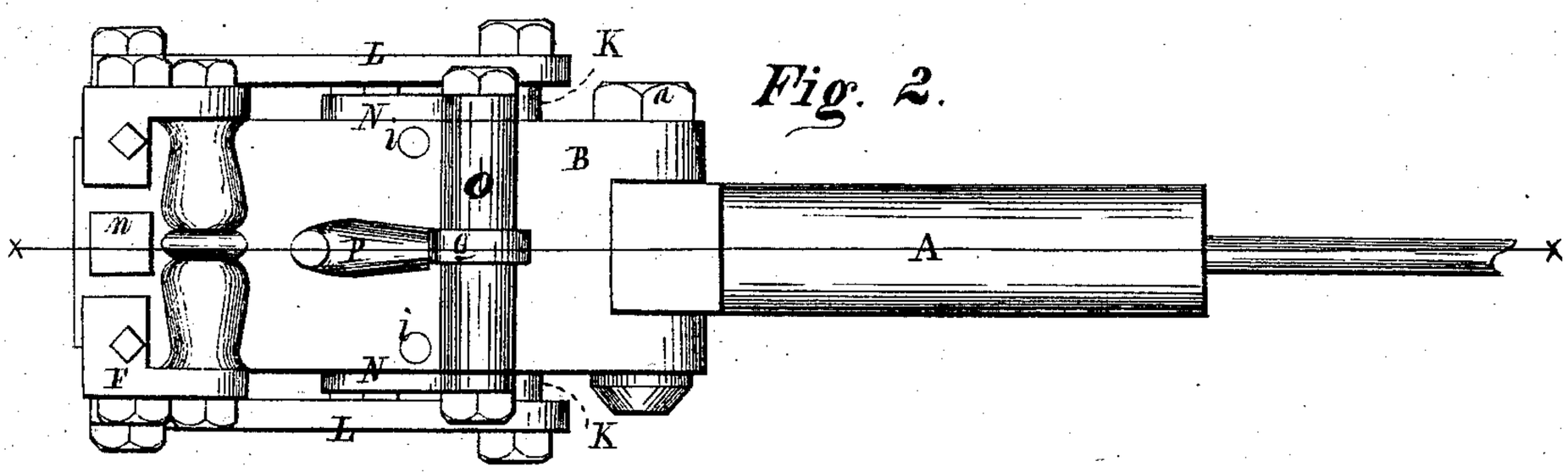
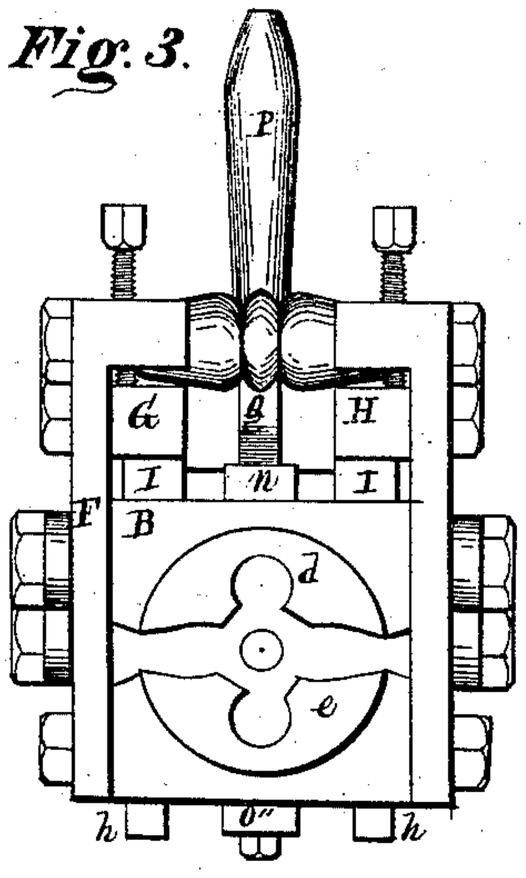


Fig. 2.

Fig. 3.



Witnesses.

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2 Sheets--Sheet 2.

C. H. MORGAN.

Holders for Screw-Threading Dies.

No. 155,588. Patented Oct. 6, 1874.

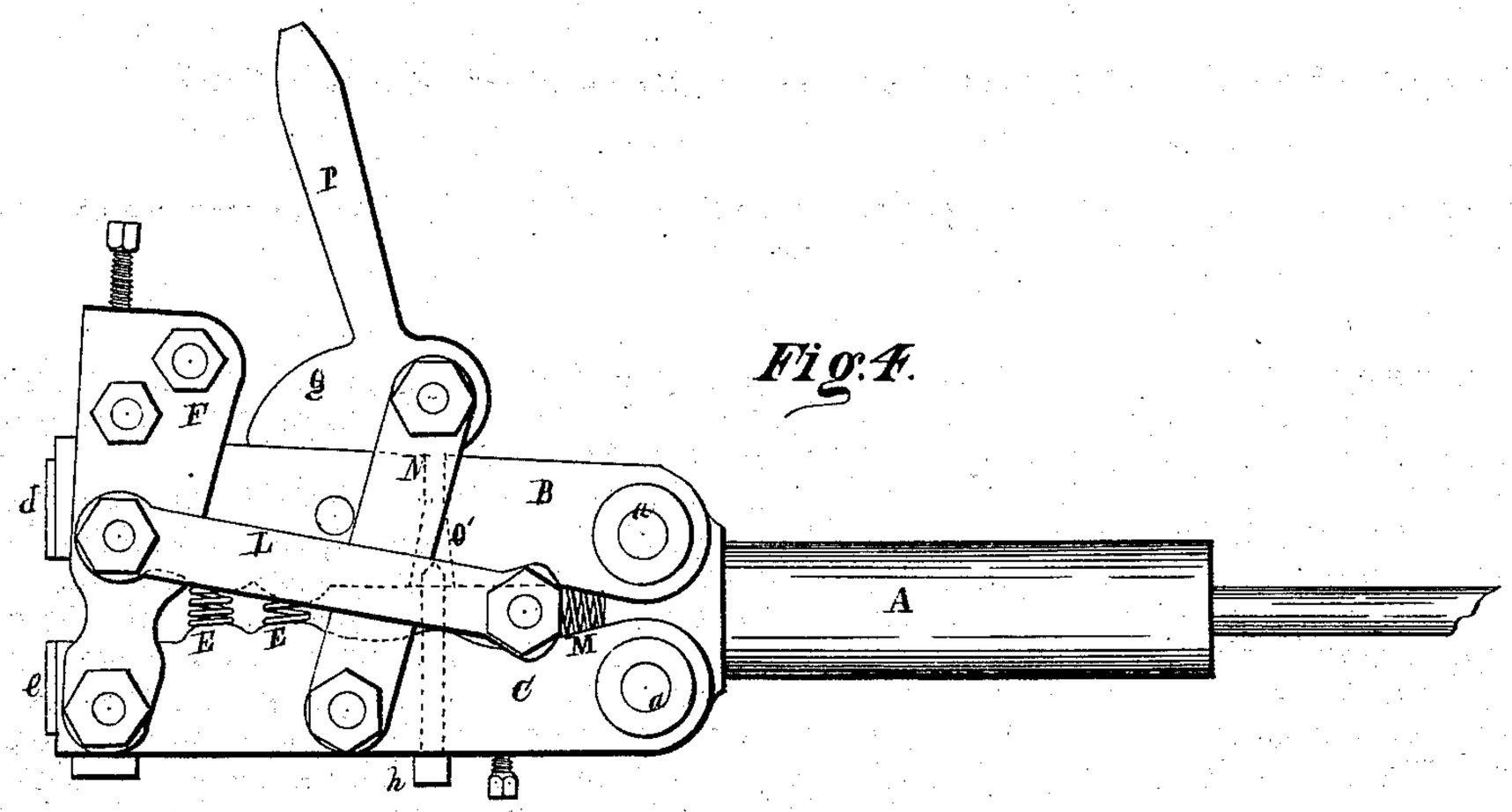

Fig. 4.

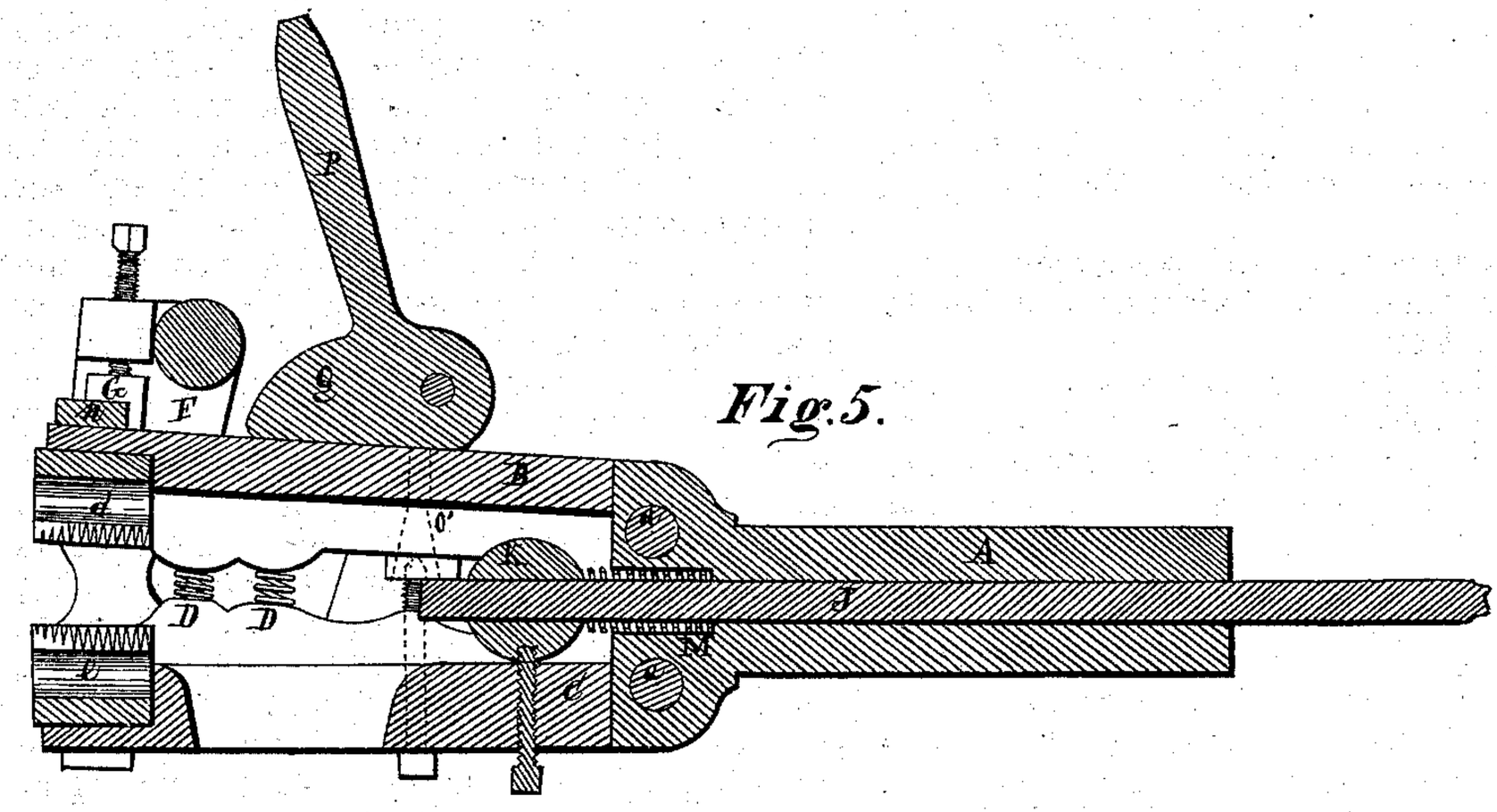

Fig. 5.

Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES H. MORGAN, OF CLEVELAND, OHIO.

IMPROVEMENT IN HOLDERS FOR SCREW-THREADING DIES.

Specification forming part of Letters Patent No. **155,588**, dated October 6, 1374; application filed May 4, 1874.

To all whom it may concern:

Be it known that I, CHARLES H. MORGAN, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and Improved Holder for Die for Cutting Bolts, of which the following is a complete description, reference being had to the accompanying drawings, making a part of this specification.

Figures 1 and 4 are side views of the die-holder. Fig. 2 is a plan view. Fig. 3 is a front view. Fig. 5 is a longitudinal vertical section.

Like letters of reference refer to like parts in the several views.

This invention is for holding the dies for cutting screw-bolts; and the special object of the invention is to open the dies at the moment they have done cutting, so that the bolt can be withdrawn from them without marking the thread.

Of the construction and operation of the aforesaid invention the following is a full detailed description.

In the drawings, A represents a stem, whereby the holder is secured in the screw-machine lathe by inserting the stem in the mandrel or in the turret thereof. To said stem is hinged a pair of jaws, B C, at *a a*. The two jaws are opened by springs D E, Figs. 4 and 5, and are closed by a yoke, F, Figs. 1 and 3. The lower end of the yoke is pivoted in the sides of the lower jaw, whereas the upper end extends across the upper one, as will be seen in Figs. 2 and 3. On the inside of each side of the yoke is secured a block, G H, Fig. 3. Said blocks are adjustable vertically by having the bolt whereby they are secured to the yoke fitted in a slot. Fixed to the top of the jaw B, and directly under the blocks above referred to, are blocks I, Fig. 3, upon which the blocks G H respectively rest when the two jaws are closed, as shown in said Fig. 3. In the stem A is loosely fitted a rod, J, Fig. 5, to the inner end of which is secured a cross-head, K, which is attached to the yoke by links L, one on each side of the jaws, as seen in Fig. 2. Around the rod J is coiled a spring, M, back of the cross-head, as shown in Fig. 5, the purpose of which will presently be shown. N, Figs. 1 and 2, are links, the ends of which are pivoted to the side of the jaw C. The upper ends of the links are attached to each other by a bar, O. To said bar is secured a handle, P, having a head, Q.

The above-described die-holder is operated as follows: As above said, the die-holder is held in the lathe or screw-machine by inserting the stem A into the turret thereof. The dies *d e*, Fig. 3, are held in the jaws by screws *n o*. The position of the jaws and the dies therein, as shown in Fig. 1, is such as when they are closed for the admission of the bolt. This position of the jaws is maintained by the yoke F, which, to that end, is pushed forward so far as to allow the blocks G H to rest upon the blocks or steps I, thereby closing the die for cutting the bolt. As the die-holder and dies revolve (or, instead thereof, the bolt may revolve and the holder remain still) the end of the bolt is inserted in the die and the thread thereon cut. When the end of the bolt, on being drawn into the die, reaches the end of the rod J, the pressure of the bolt forces back the rod, together with the cross-head to which it is connected. This backward movement of the cross-head draws back the yoke F so far as to cause the blocks G H to slip from off the steps I, at which moment the jaws and dies spring open by the recoil of the springs D E placed between them, thereby releasing the bolt from the dies, which is now withdrawn for the insertion of another bolt. To this end the dies are again closed by means of the handle P, which the operator pulls forward, thereby bringing the head Q thereof down upon the top of the jaw B, which will draw the two jaws together, and which are retained thus by the yoke F, at this moment pushed forward by the reaction of the spring M so far as to bring the blocks again upon the steps I, thus clamping the dies together, but which yoke is again pushed back by the bolt on coming in contact with the end of the rod J, pushing the blocks from off the steps, allowing the dies to instantly open for the withdrawal of the bolt.

It will be observed that the two jaws have not one common pivoted point, but that each one has its own, and that placed distant from the central line *x x* of the holder. The purpose of placing the pivotal points of the jaws eccentric to said line is to cause the jaws to open nearer a right angle to the line of the

cut or threaded bolt than they would do had the two jaws a common pivotal point. By this means the thread of the dies will leave the thread of the bolt almost at right angle, and thus avoid all possible marring of the thread by contact therewith after cutting.

In consequence of having each jaw move on its own pivotal point it becomes highly important that the two jaws should move exactly at the same time, and at the same distance in such time, toward the central line *x x;* otherwise the dies will not close evenly together, in consequence of the end chasing of the jaws, should one jaw, for any reason, not move so fast as the other. To guard against this end chasing or longitudinal movement of the jaws that may possibly take place in the closing together of the jaws is the purpose of the screws *h*. The ends of said screws are cone-shaped, and made to fit into corresponding cone-shaped holes *i*, Fig. 2, in the upper jaw. Said holes are indicated by the dotted lines *o'*, Fig. 1. Said holes are lined with a steel bush, and the ends of the screws enter them on closing the jaws, which serve, in the character of dowel-pins, to prevent end chasing of the jaws upon each other.

The purpose of having the blocks G H adjustable is to permit of the dies to be opened more or less wide, so that different-sized bolts may be cut with them.

The rod J is adjustable in the cross-head K to allow of its being pushed through the head more or less, and thereby regulate the length of the thread to be cut on the bolt. Thus, if a short length of thread is required on the bolt, the rod is pushed in farther, so that the end of the bolt will strike it by the time that the length of thread is cut, and thereby open the dies in the manner as aforesaid.

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

1. The yoke F, links L, cross-head K, rod J, and spring M, and springs D E, in combination with the jaws B C, in the manner substantially as described, and for the purpose set forth.

2. The adjustable blocks G H and steps I I, in combination with the yoke F and jaws B C, substantially in the manner as described, and for the purpose specified.

3. The dowel-screws *h h*, in combination with the cone-shaped holes *i* and the jaws B C, substantially as described, and for the purpose specified.

Witnesses: CHAS. H. MORGAN.

J. H. BURRIDGE,

A. F. CORNELL.