

D.E. Adams,
Bolt Machines,
Nº 58,040, *Patented Sept. 18, 1866.*

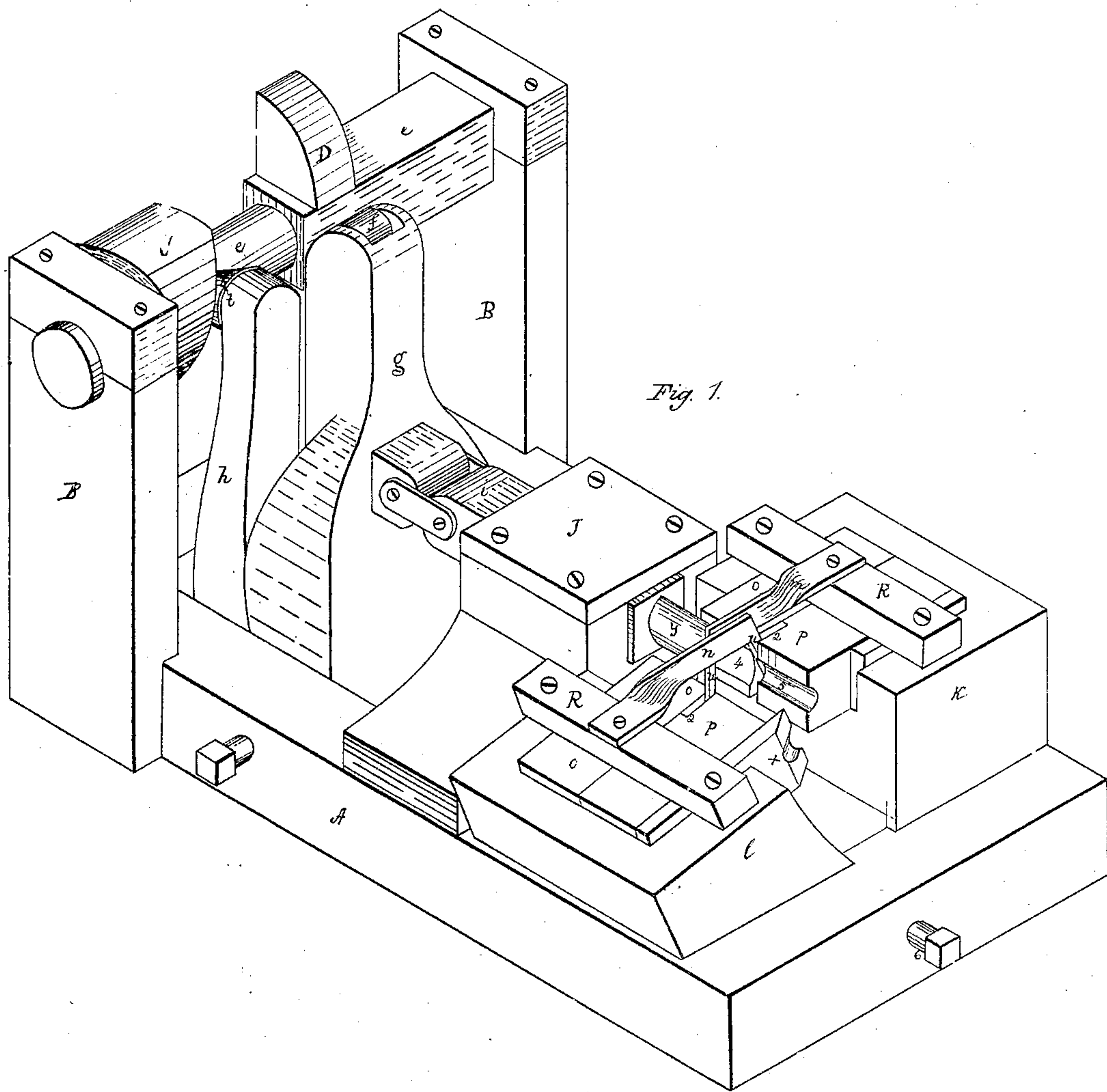


Fig. 1.

Fig. 2.

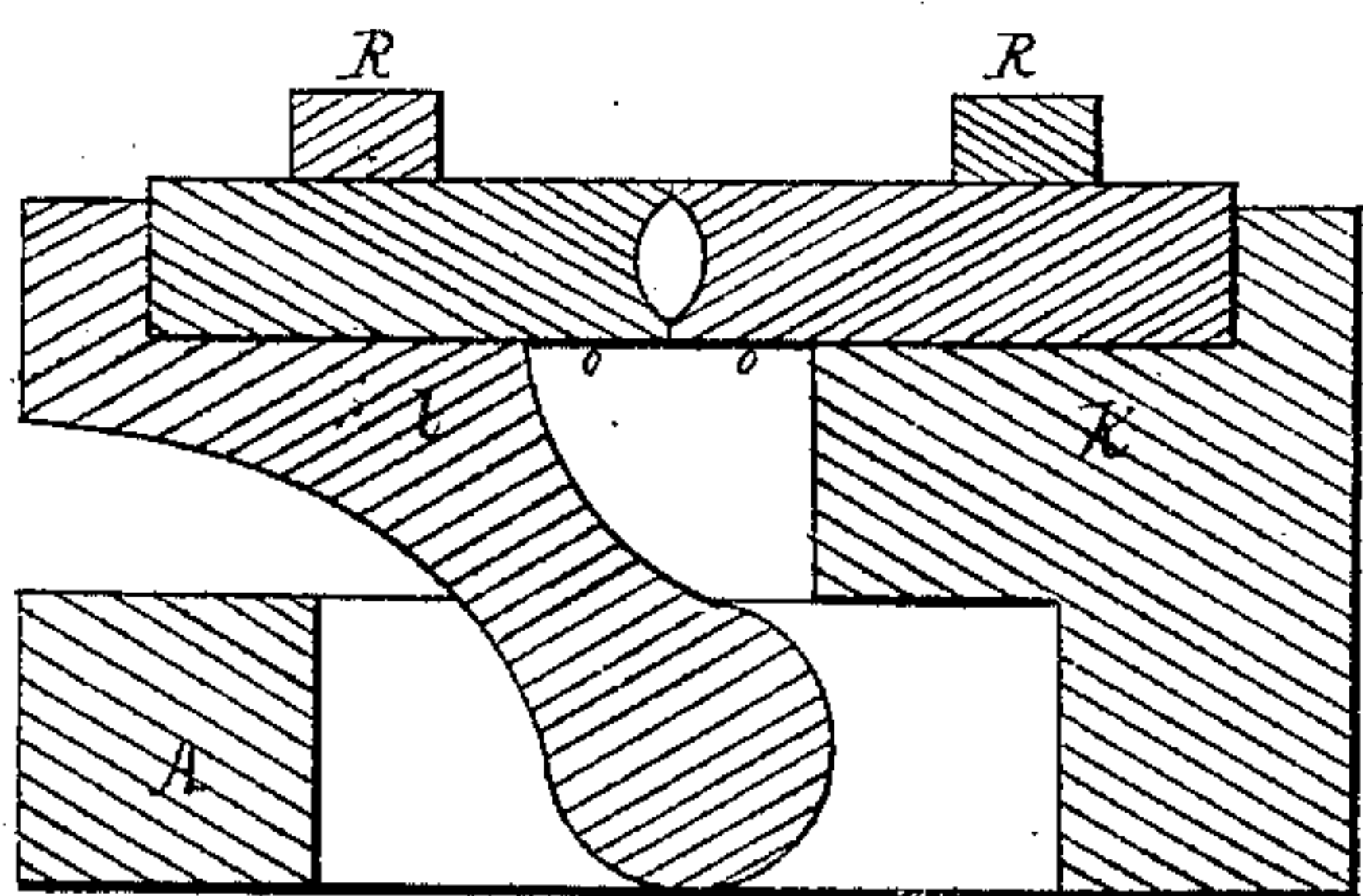


Fig. 4.

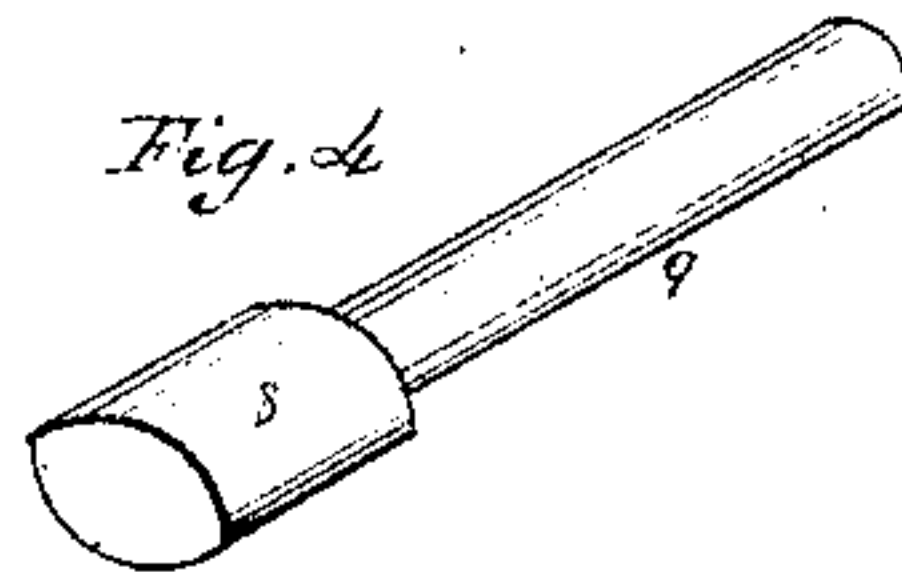


Fig. 3.

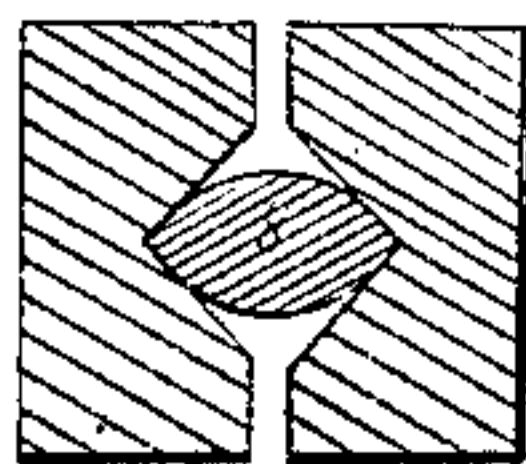
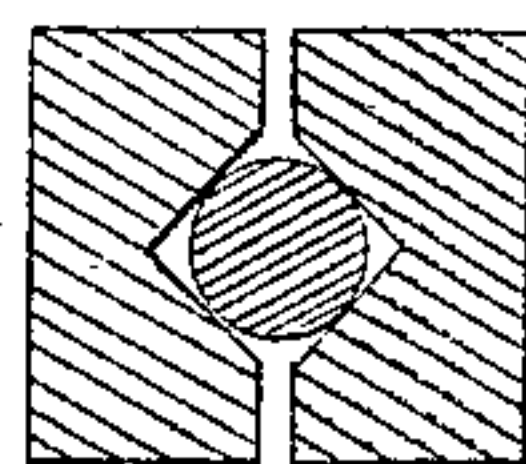


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

DAVID E. ADAMS, OF ALLEGHENY CITY, PENNSYLVANIA.

IMPROVEMENT IN MAKING BOLTS.

Specification forming part of Letters Patent No. 58,040, dated September 18, 1866.

To all whom it may concern:

Be it known that I, DAVID E. ADAMS, of the city and county of Allegheny, and State of Pennsylvania, have invented a new and useful Improvement in Bolt-Machines; and I do hereby declare the following to be a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in staving up or enlarging and forming into an oval or elliptic form (when viewed in cross-section) that part of the rod of iron intended for the head and square of the neck of bolts having square necks, said staving or enlarging into said oval or elliptic form being done previous to the formation of the squaring of the neck and forming of the head of the bolt, which squaring and heading are performed at a subsequent operation.

My invention also consists in providing bolt-machines with dies formed in sections and furnishing said dies with strippers for removing the bolt from the dies, the whole being constructed, arranged, and operating in the manner hereinafter described.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the accompanying drawings, Figure 1 represents an isometric perspective view of my improved bolt-machine. Fig. 2 represents a transverse section of the same, cut through at line marked 10 in Fig. 1. Fig. 3 represents the manner of placing the staved or enlarged part of the iron in the dies for forming the square on the neck of the bolt. Fig. 4 represents the iron for forming the bolt after said iron has been staved or enlarged into the desired form for squaring it for the neck and for forming the head of the bolt. Fig. 5 represents the old cylindrical form of staved iron placed in dies previous to being squared, said figure being used for illustration.

Figure 1 in the drawings represents an ordinary bolt or rivet machine. A represents the frame; B, the bearings for the shaft *e*, which is furnished with cams C and D. *g* represents the lever for operating the piston *i*, in which is placed a plunger, *y*, which in form and size corresponds to the form, size, and en-

largement made on the rod for forming the neck and head of the bolt. J represents the support and guide of the plunger *i*. 7 and 8 represent set-screws, which are used for regulating the position of the shaft of the clamping-jaw *l* and bearing of the lever *g*. *h* represents the lever used for operating the clamping-jaw *l*, in which is placed one half of the die which is used for holding and forming the iron into the desired shape. The other half of the die is placed in the stationary head *k*. Each half of the die is made in two sections, marked *o* and *p*. The part of the die marked *p* has a recess, 2, made in it, for the tongue *u* of the strippers *m* and *n*, which are secured to the pieces marked R, which are used for holding the dies in their proper place. The part of the die, marked *p*, is made so that it clamps around the rod of iron from which the bolt is to be formed, and holds it firmly, and the part marked 9 is made so that it will, in connection with the plunger, marked *y*, form the oval or elliptic enlargement on the rod. The part marked 9 in Fig. 4 represents the rod which is held by the part of the die marked *p*, and the part marked 8 in the same figure is the enlarged or staved part, which is formed in the part of the die marked *o*.

The advantages of making the die in sections will readily be understood by stating that it is often necessary to change the length and thickness of the neck of the bolt without changing the size or gage of iron in the shank or screw part of the bolt. This change in the neck of the bolt can be made by simply removing the part of the die marked *o* and supplying its place by a part of larger size.

Another advantage gained by making the die in section is ease of construction. This will be readily seen and understood by the mechanic without further description.

The operation of my improvement in connection with the bolt-machine herein represented is as follows: Power is applied to the shaft *e*, and the cam C will operate the lever *h* by its action on the friction-roller *t*, and cause the clamp-jaw *l* to close the dies *o* and *p* upon the rod of iron fed into the dies, and at the same time cut off that part in the die from the rod by means of the cutter *x* which is secured to the clamping-jaw *l*. The cam D then comes

in contact with the friction-roller *f* of lever *g* and moves said lever forward, which movement of the lever *g* will move forward the piston *i* and its plunger *y*, which will enter the cavity 4 in the sections *o* of the die and force or stave back the iron so as to form the enlargement desired. The lever *g* is then drawn back by a spring, and the clamping-jaw falls by its own gravity and opens the dies, and the strippers *m* and *n* will cause the formed iron to leave the die and drop down into a suitable vessel provided for that purpose.

Experience has demonstrated the fact that it is almost impossible to form a perfect square neck on bolts by machinery when the staved-up or enlarged part of the iron is made in a cylindrical form. Now, to overcome this difficulty, I make the staved or enlarged part of the iron for the bolt oval or elliptic in form, and place said form in the dies for the squaring or heading process, so that the plane of the long diameter of the oval or ellipse will come in the corners or angles of the die, as

shown in Fig. 3, and thereby cause the pressure of the die to so act on the iron that the lines of pressure on the iron will diverge toward the other two corners or angles of the dies and form a perfect square.

Having thus described the nature, construction, and operation of my improvement, what I claim is—

Staving up or enlarging and forming into an oval or elliptic form (when viewed in cross-section) that part of the rod of iron intended for the head and square of the neck of bolts, said staving or enlarging into said oval or elliptic form being done previous to the formation of the squaring of the neck and forming of the head of the bolt, which squaring and heading are performed at a subsequent operation.

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Witnesses:

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