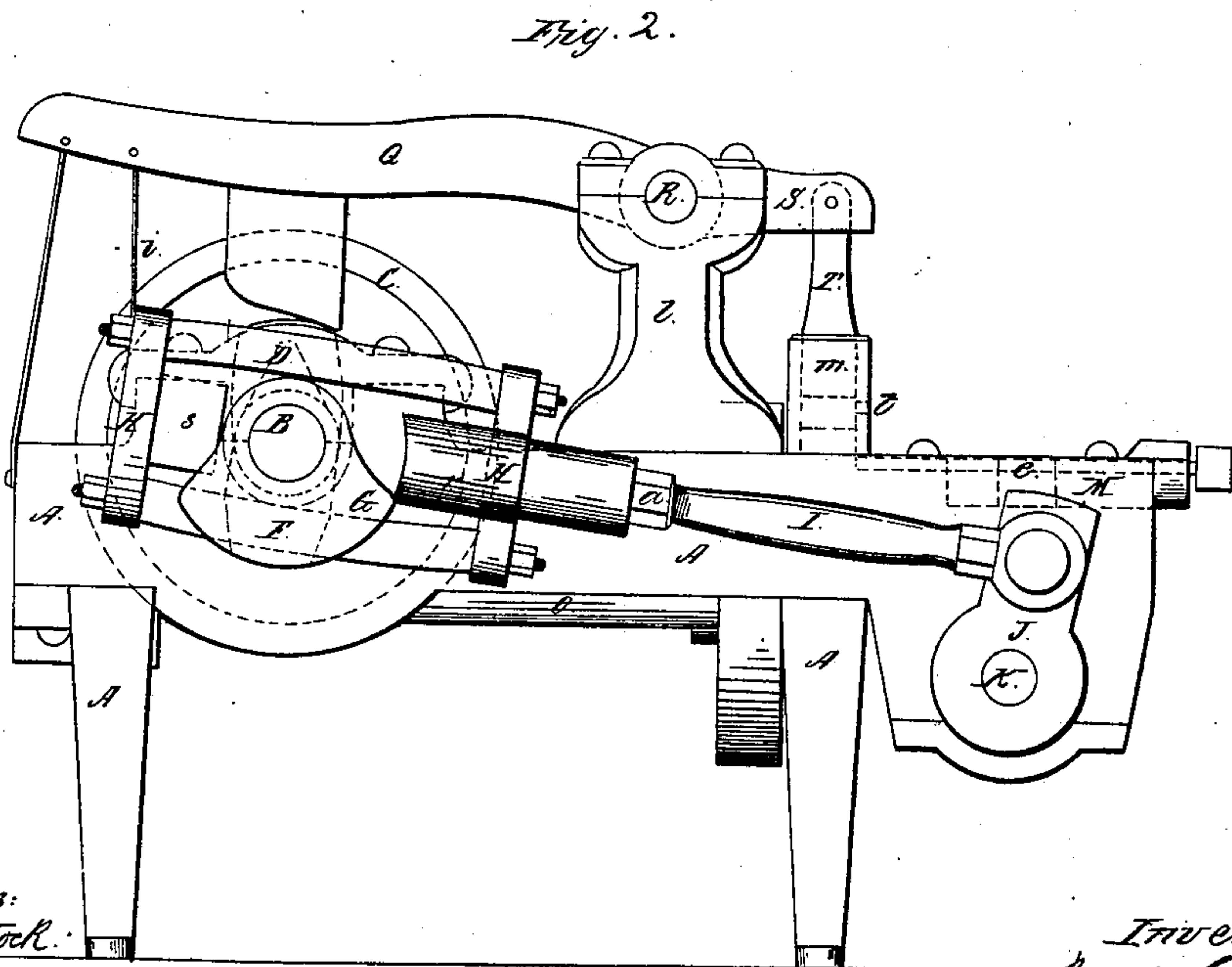
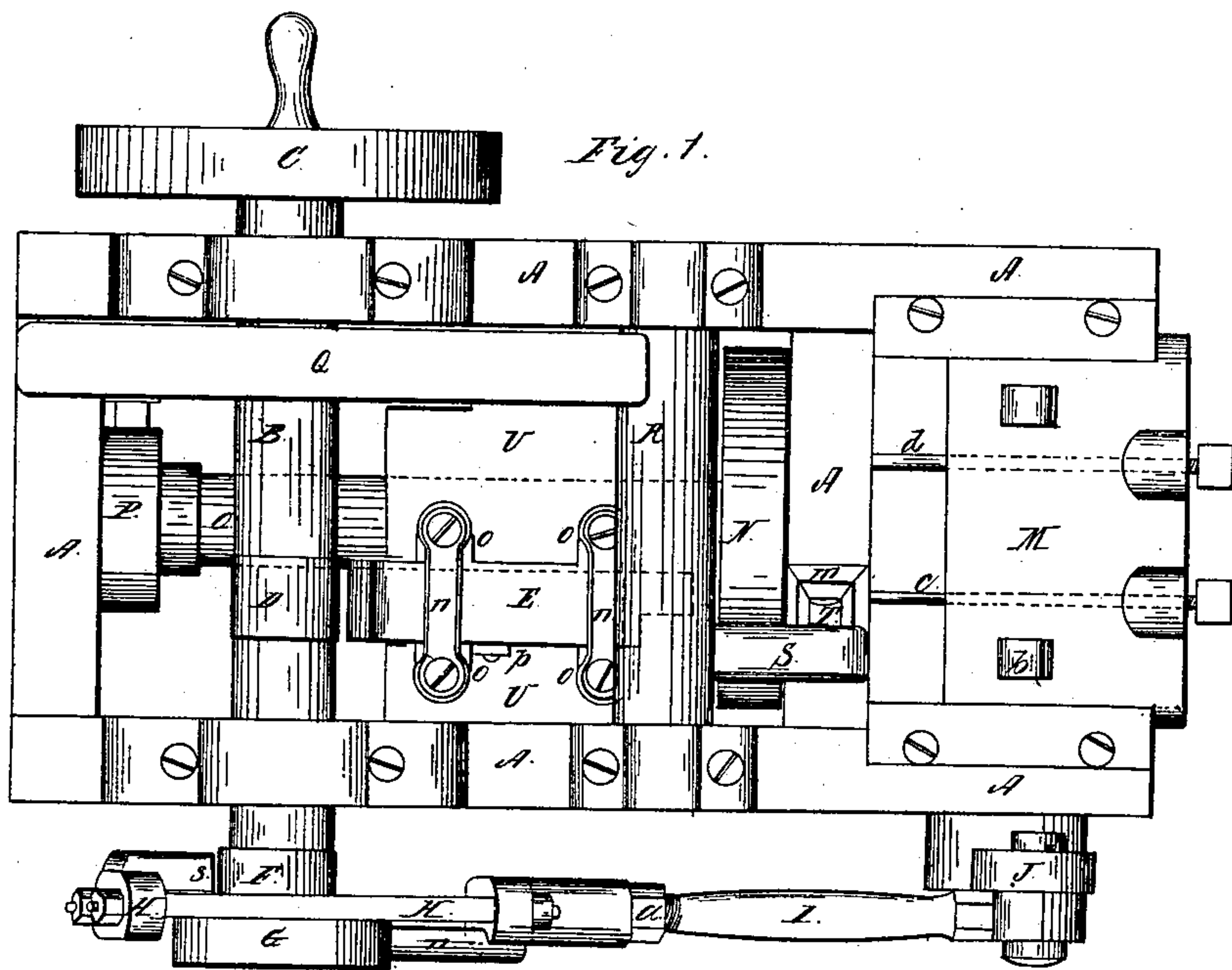


J. H. SWETT.
MACHINE FOR MAKING RIVETS.

No. 79,516.

Patented June 30, 1868.



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Louis L. Solomon.

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2 Sheets—Sheet 2.

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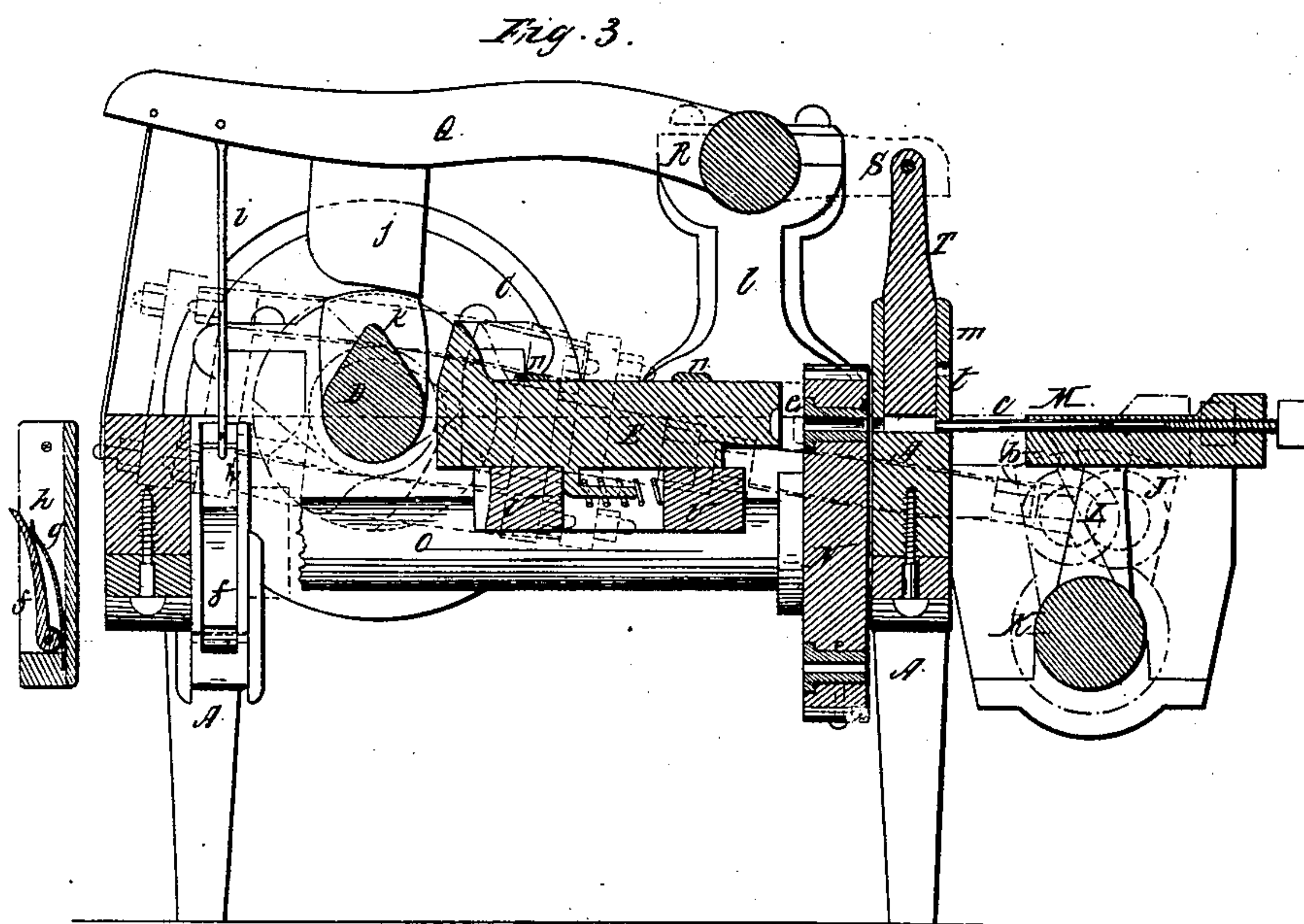


Fig. 4.



Fig. 5.

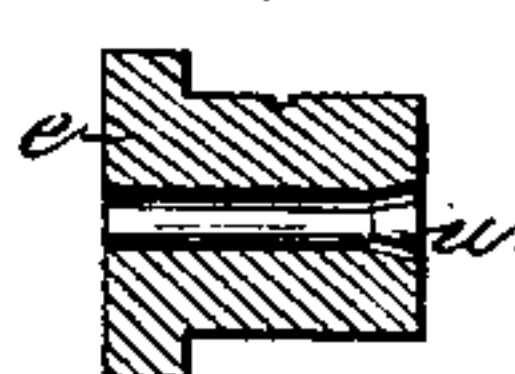


Fig. 6.

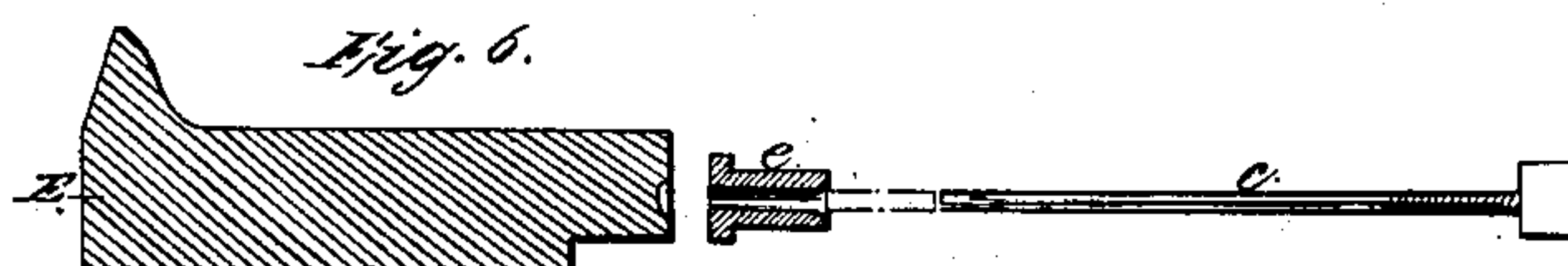


Fig. 7.

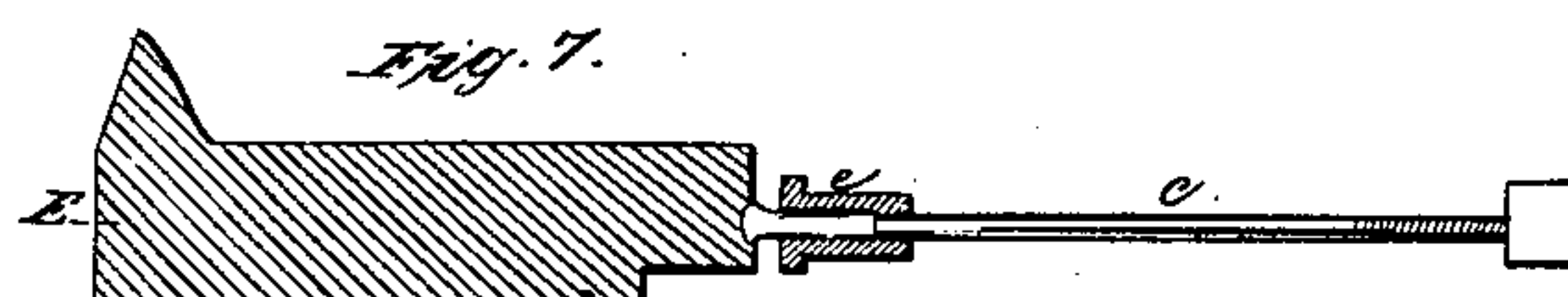
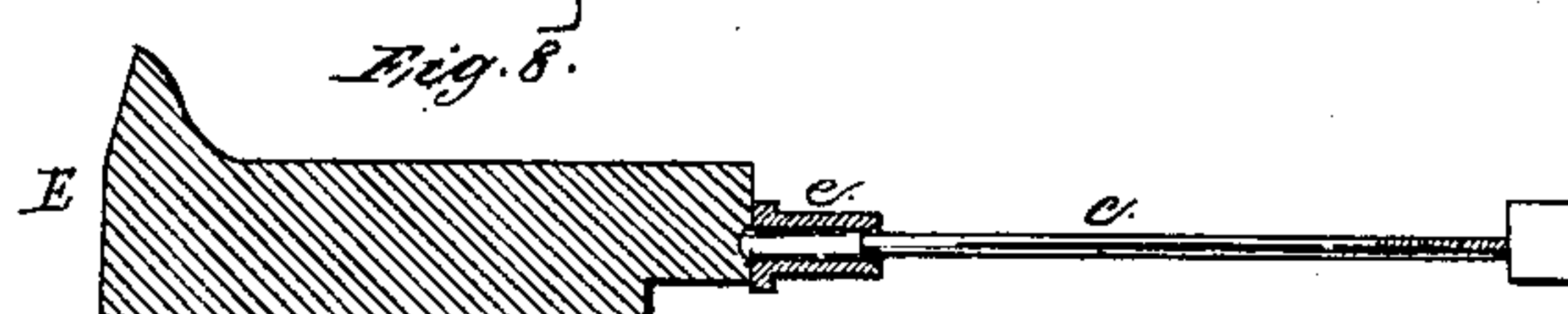


Fig. 8.



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JAMES H. SWETT, OF BIRMINGHAM, PENNSYLVANIA.

Letters Patent No. 79,516, dated June 30, 1868.

IMPROVED MACHINE FOR MAKING RIVETS.

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, JAMES H. SWETT, of Birmingham, county of Allegheny, in the State of Pennsylvania, have invented a new and useful Improvement in Machines for Making Boiler or other Rivets; and I do hereby declare the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like parts are represented by like letters in the several figures.

The nature of my invention consists in so constructing a machine for making boiler-rivets as to produce rivets of different lengths, with very nicely-shaped and rounded or other heads, at the same time avoiding the danger of breaking any part of the machinery, which is usually caused by imperfect modes of cutting off the rod which furnishes blanks for the rivets.

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

In the accompanying drawings—

Figure 1 is a top view of my machine, the frame of which is represented by A.

Figure 2 is an elevation of the same.

Figure 3 is a vertical section on line *a b* of fig. 1.

Figure 4 is an elevation or detached view of the die, whilst

Figure 5 is an axial section of the same.

Figures 6, 7, and 8 show sections of the header, the die, as also the plunger.

In the drawings, A shows the frame of my machine; B represents the main shaft, driven by a pulley, C, or by other equivalent machinery. Attached to this shaft B is a cam, D, which moves the header E. At the other end of shaft B are two cams, F and G, which move the frame H, to which is connected the rod I, adjustable by means of nut *a*, to transfer the motion to lever J, which is secured or fastened to rock-shaft K. To this rock-shaft are fastened two levers, L L, with cylindrical heads, *b*, which fit into two recesses in carriage M, as seen in figs. 1, 2, and 3. In this carriage are two plungers, *c* and *d*, adjustable by screw-threads, as seen in figs. 3, 6, 7, and 8.

N is a circular wheel containing a number of dies, *e*, placed in said wheel at equal distances, concentric to the axis, and properly secured to said wheel.

Die-wheel N is fastened to a shaft, O, having on its rear end a ratchet-wheel, P. This ratchet-wheel is operated by a pawl, *f*, in connection with a spring, *g*, enclosed in a box, *h*, as seen in fig. 3, detached. This box is suspended and operated from arm Q, by a rod, *e*. Attached to and suspended from arm Q is a cam, *j*, operated by another cam, *k*, attached to main shaft B.

Arm Q is attached by a rock-shaft, R, supported by standards *l l*. To the rock-shaft R is attached a short lever or arm, S, which operates a cutting-plunger, T, working in a small box, *m*.

The heading-plunger E is guided in its straight motion by means of straps *n* and lugs *o*, connected with supporting-plate U. The upper rear end of plunger E, which is pressed forward by cam D, is bevelled or curved, as seen in the drawings, plate 2, figs. 3, 7, and 8.

In this position, fig. 7, plate 2, the plunger *c* drives the blank through the die *e*, against the front dished end of the header E, thereby upsetting it partially. After this, the header E is forced forward by cam D, thus completing the head of rivet, so that the rivet will be formed with proper length of shank, as seen in fig. 8.

After this operation, the plunger E is brought back to its normal position, by means of a spiral or other spring, *p*, encircling an arm, *q*, as seen in fig. 3. This arm is fastened to header E, placed in a slot in supporting-plate U, (see fig. 1.) This retraction takes place as soon as the header is relieved from the action of the cam D.

The die-wheel N is rotated by means of ratchet-wheel P, attached to shaft O, and operated as previously described.

The table or carriage M has a second adjustable screw-plunger, *d*, which performs this operation or func-

tion, viz, that after the rivet is made, and the die-wheel presses on plunger *d*, pushes the forward rivet out of the die, discharging the same. The two cams, F and G, on the shaft B, govern the movements of the carriage M through the frame H, and the two bearings, *r s*, attached to it, motion being transmitted to the carriage, as previously described, through adjustable rod I.

The operation is simply as follows:

A heated rod, from furnace, is inserted in hole *t*, fig. 3, and pushed back to the rear end of box *m*. The plunger or cutter T comes down and shears it off to the proper length, after which it drops down to the bottom of the said box, and the plunger T follows the blank thus cut off to the bottom of the box, and holds it firmly, whilst the rod *c* pushes it from under said plunger through the die in the die-wheel, that is opposite to it. The object in thus holding the blank under the plunger is, that it may go only in a direct line, and the upsetting be done centrally of the blank. If not thus controlled whilst being fed through the die and against the header, the least obliquity of the blank will cause the head to be upset to one side, and thus make an imperfect rivet. The bottom of the plunger T, and the bottom of the box, are made to form a seat for giving the blank its accurate position for being thus pushed through in a direct line, when the plunger *c*, in its backward motion, pushes it into the die *e*.

This die, it will be seen in figs. 4 and 5, is enlarged at the front end of its chamber, or reamed cut, (see at small *u*.) The purpose of this is to prevent accident, or a more certain passage of the sheared blank into the chamber of the die.

The dies may be changed, as also die-wheel plungers *c c*, to suit different-sized and shaped rivets. The dies are secured by set-screws, or in any other suitable mechanical manner.

The stop *p*, fig. 1, limits the backward movement of the header T, and it can be made adjustable, to suit the heading of the rivet.

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 header, die, and rod *c*, all arranged and operating substantially as described.
2. In combination with the header, die, and rod *c*, the holder T, for keeping the blank straight whilst being pushed up to the header, substantially as described.

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