

(No Model.)

C. O. & A. D. PORTER.
SAW TOOTH SWAGE.

No. 411,055.

Patented Sept. 17, 1889.

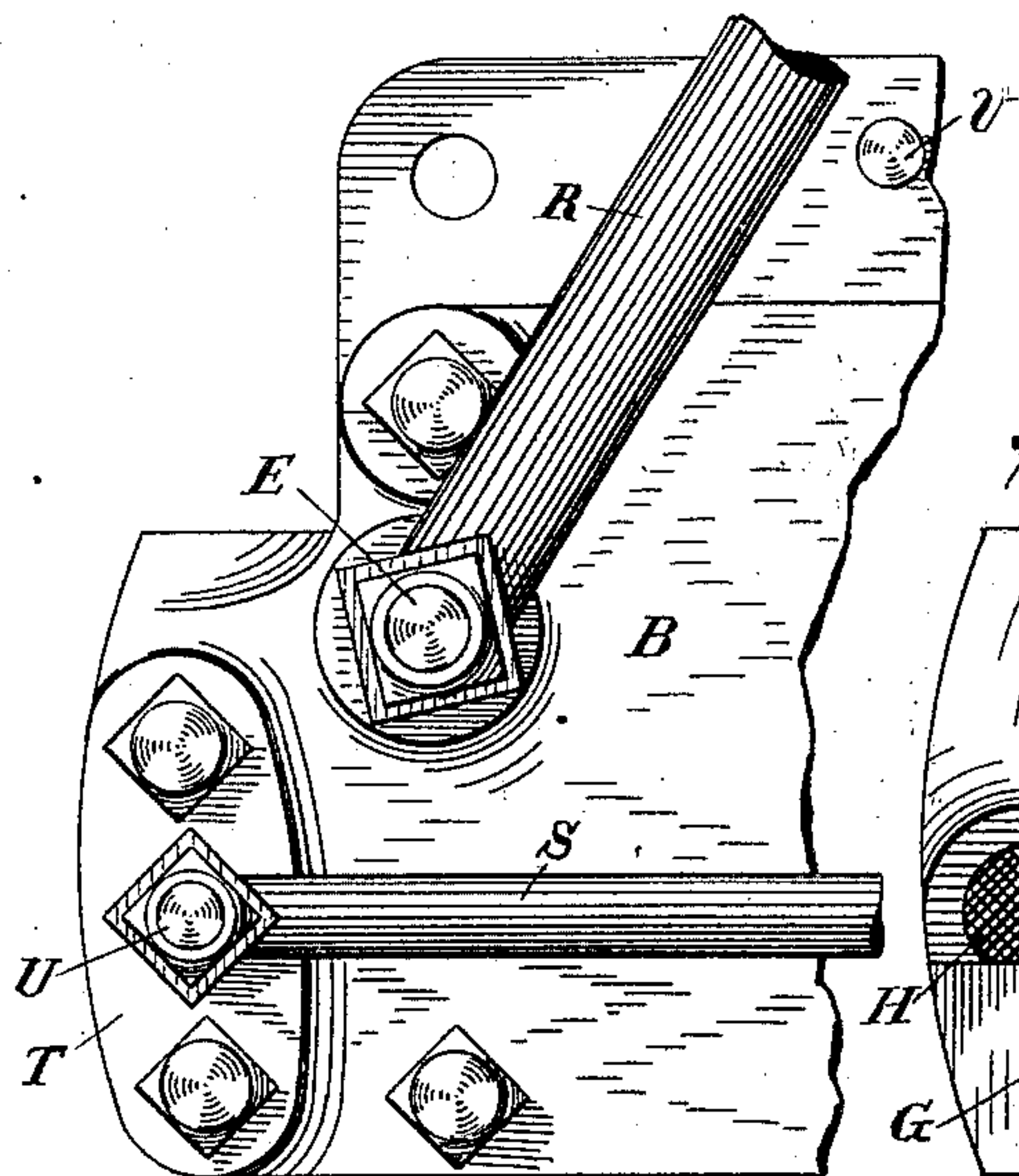


FIG. 2.

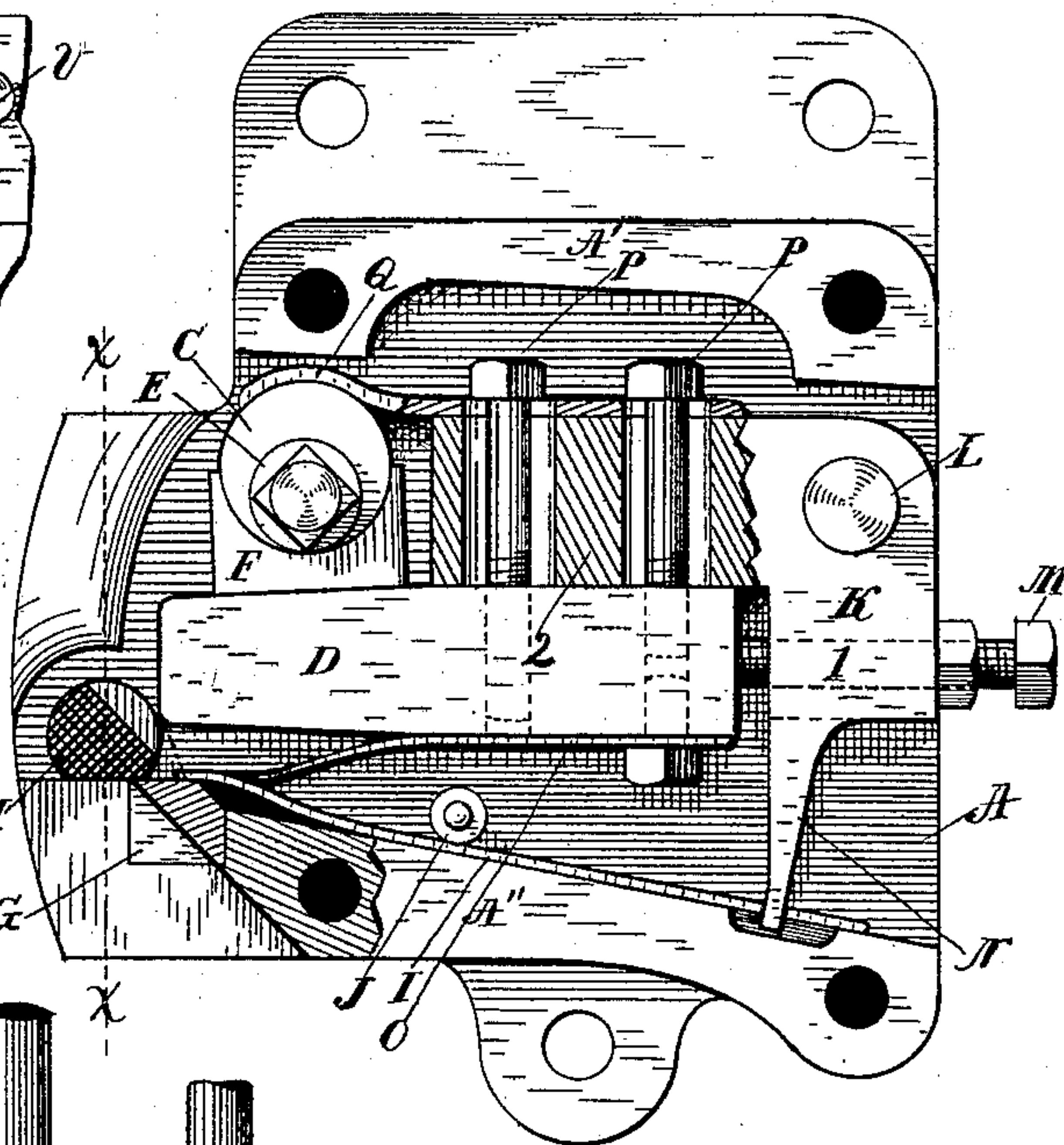


FIG. 1.

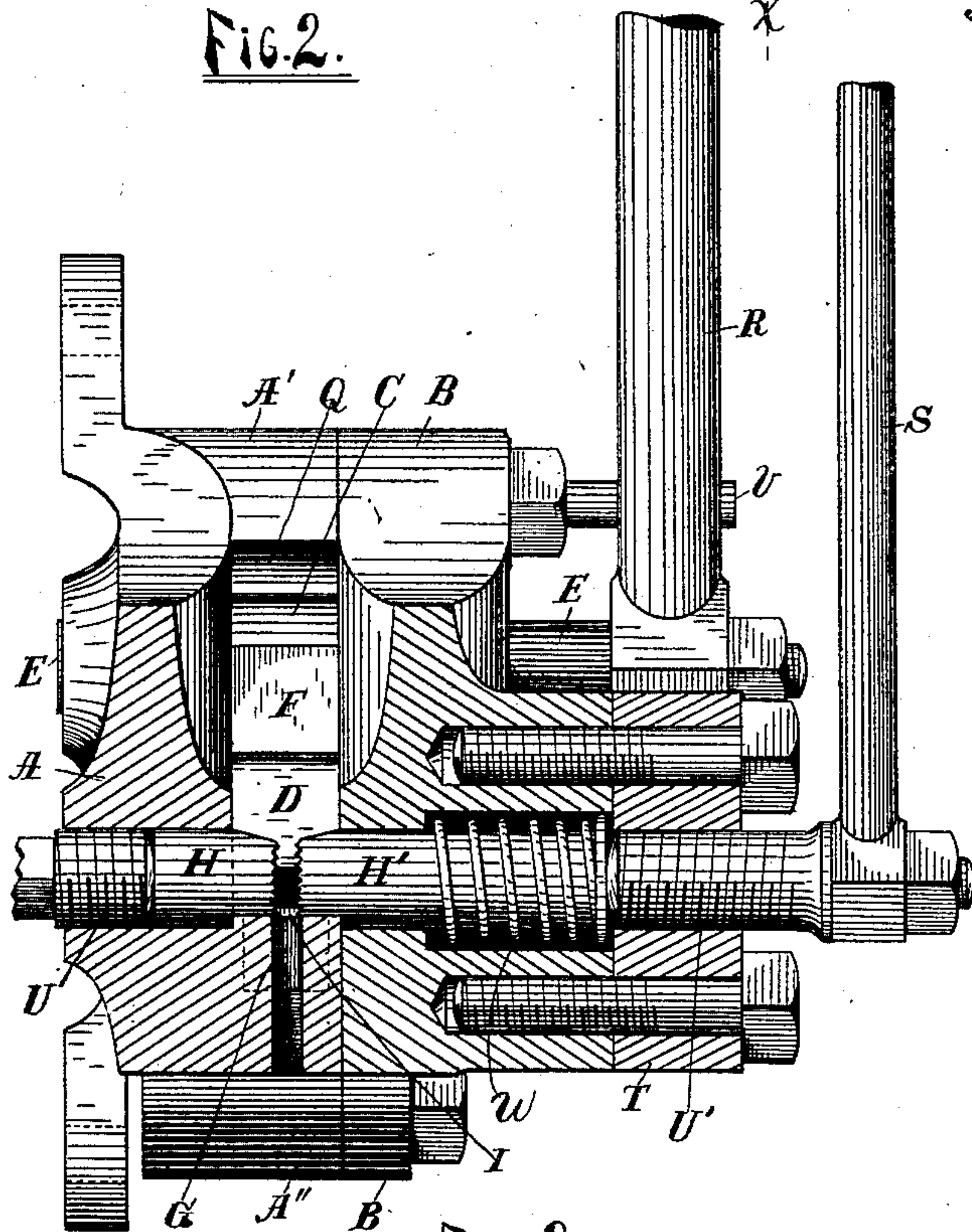


FIG. 3.



FIG. 4.

Witnesses

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C. OSCAR PORTER AND ALVIN D. PORTER, OF GRAND RAPIDS, MICHIGAN.

SAW-TOOTH SWAGE.

SPECIFICATION forming part of Letters Patent No. 411,055, dated September 17, 1889.

Application filed January 28, 1889. Serial No. 297,812. (No model.)

To all whom it may concern:

Be it known that we, C. OSCAR PORTER and ALVIN D. PORTER, citizens of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Saw-Tooth Swages; and we 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.

Our invention relates to improvements in a saw-tooth swage; and it consists in the peculiar construction and combination of devices, that will be hereinafter more fully set forth, and pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of our improved swage, partly in vertical section, with the cap removed for the purpose of showing the construction and arrangement of parts. Fig. 2 is also a side elevation of a part with the cap on and partly broken away. Fig. 3 is a front elevation, partly in section on the line xx of Fig. 1. Fig. 4 is a detail of the anvil.

Similar letters of reference refer to corresponding parts throughout these several figures.

A is a bed-plate having ledges A' A'' . B is a cap resting upon these ledges.

C is a cam actuated by lever R, and is journaled in A and B by shaft E, and has the cam-block F resting upon the die D, which is adjustably attached to the horizontal arm of lever K.

Anvil G consists of a cylindrical steel plug set into the ledge A'' .

H and H' are clamps for holding the saw-tooth during the operation of swaging. H is adjustable by means of the screw U, and H' is retracted by the spring W and forced against the tooth by the screw U' , actuated by lever S.

I is a tooth-stop, held down by the pin J, and is adapted to slide on the inner surface of A'' , the forward end resting upon the top of the anvil and extending forward a sufficient distance to avoid drawing the tooth over the corner of the anvil.

K is a bell-crank lever having vertical arm 1 and horizontal arm 2, provided with the die D, the vertical arm being provided with the prolongation N for actuating the tooth-stop I,

and is journaled in A B by the pin L. This construction imparts to the die D a drawing downward stroke, which is very effective for drawing out the point of the saw-tooth during the operation of swaging.

M is an adjusting-screw for the die.

O is a spring, which may be secured to the under side of the die to hold the end of the tooth-stop down upon the anvil.

P P are adjusting-screws passing through arm 2, securing the die D and the cap Q thereto. The function of Q is to lift the arm 2 when actuated by cam C, thus actuating I through arm 1 and prolongation N and causing it to move forward and backward as the cam is turned right or left.

V is a stop-pin for lever R.

This device operates in use as follows: The tooth to be swaged is placed between the clamps with the bottom resting upon the anvil and the point against the stop, where it is securely held by jaws $H H'$, actuated by lever S. Then motion being communicated to shaft E by lever R causes a revolution of cam C and brings the die D down upon the point of the tooth. At the same time the tooth-stop I is drawn backward out of the way and the tooth is swaged by pressure communicated as described.

We are aware of patent to J. B. Rhodes, No. 382,325, May 8, 1888, in which a rear pivoted swage is journaled in a case and actuated by a cam and block, and having an anvil and tooth-stop actuated by a spring. To this we make no claim.

What we claim, and desire to secure by Letters Patent, is—

1. In a saw-tooth swage, and in combination, a case, a bell-crank lever pivoted therein, a lifting-cap secured to the upper side, and a die secured to the under side of the horizontal arm thereof, and having the vertical arm thereof prolonged and diminished toward the lower end, for the purposes herein set forth.

2. In a saw-tooth swage, and in combination, a case constructed as described, having a bed-plate A and ledges A' and A'' and a cap B, a bell-crank lever journaled in said case, provided with a die secured to the under side of the horizontal arm, and a set-screw adapted for adjusting the die arranged in the vertical arm, a tooth-stop arranged upon the ledge

A'' and having a notch engaging with the vertical arm of said lever, and a pin J, arranged as described, and for the purpose specified.

3. In a saw-tooth swage, and in combination
5 with a case having a bed-plate having ledges A' and A'' and a cap B, and an anvil arranged in ledge A'', substantially as described, the clamping or grip jaws H and H', the jaw H
10 provided with an adjusting-screw, whereby it may be adjusted more or less toward the anvil, and the jaw H' provided with its spring and hand-lever, substantially as described.

4. In a saw-tooth swage, and in combination
15 with the bed-plate A and ledge A'' and the clamping-jaws H H', as described, the anvil G, consisting of a cylindrical steel plug having one flat top and one rearwardly-inclined face arranged in said ledge A'', substantially as described.

20 5. In a saw-tooth swage, substantially as described, and in combination, the lever K, pivoted in said case, having the lifting-cap Q and the die D secured upon the upper and lower
25 sides of the horizontal arm thereof, respectively, and provided with the cam O and block F, for the purpose specified, the anvil G, and the clamping-jaws H H', arranged as described, and for the purposes herein specified.

30 6. In a saw-tooth swage, and in combination with a case having a ledge A'' and an anvil G, arranged as described, and a bell-crank lever supporting a die and a lifting-cap upon its horizontal arm, and having a cam and block for lifting the same, substantially as described,

and a vertical arm provided with an adjusting- 35 screw for the die and a prolonged and diminished extension, pivoted in said case, a tooth-stop arranged upon said ledge, connected to said vertical arm, whereby the same is moved
40 toward and away from the anvil, and clamping-jaws H and H', arranged substantially as described.

7. In a saw-tooth swage, substantially as described, and in combination with the anvil G
45 and the bell-crank lever K, having the die D, lift Q, cam O, and block F, and the vertical arm N, arranged as described, tooth-stop I, arranged as described, provided with the pin J and engaging with the arm N, for promoting its longitudinal movement, substantially
50 as described and set forth.

8. In a saw-tooth swage, and in combination,
55 the lever K, pivoted in the case, having the lift Q and die D secured to its horizontal arm, and provided with the cam O and block F, and having the arm N for engaging the tooth-stop I, in combination with the anvil G,
60 jaws H and H', with their set-screw and hand-levers, respectively, and the tooth-stop I, arranged substantially as described.

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

C. OSCAR PORTER.
ALVIN D. PORTER.

Witnesses:

DENNIS L. ROGERS,
L. V. MOULTON.