No. 624,426. Patented May 2, 1899.

Q. W. BOOTH.

HAMMERING MECHANISM FOR BEADING MACHINES.

(Application filed Mar. 6, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

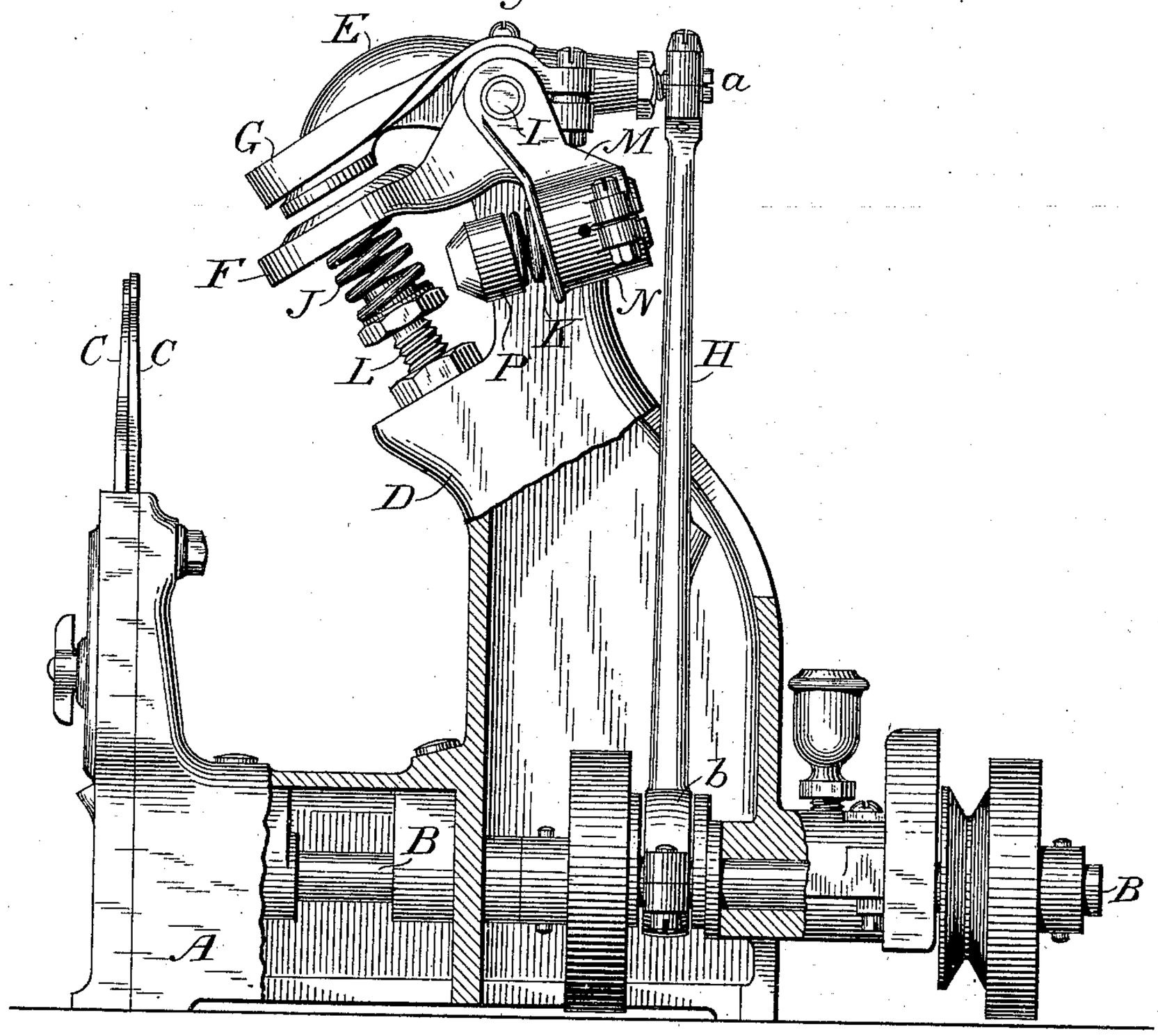
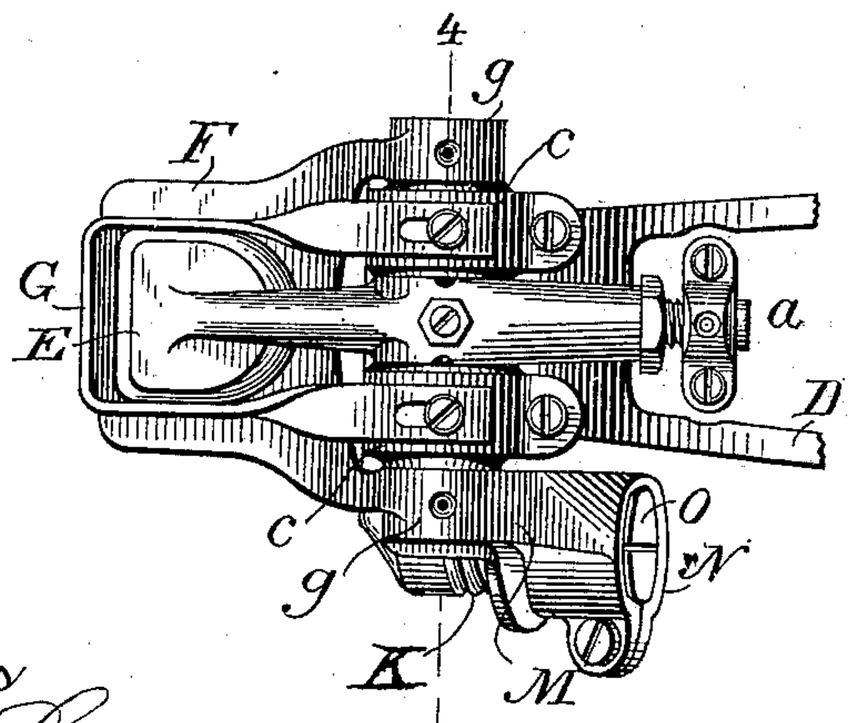


Fig. 2.



Witnesses
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Fig. 3.

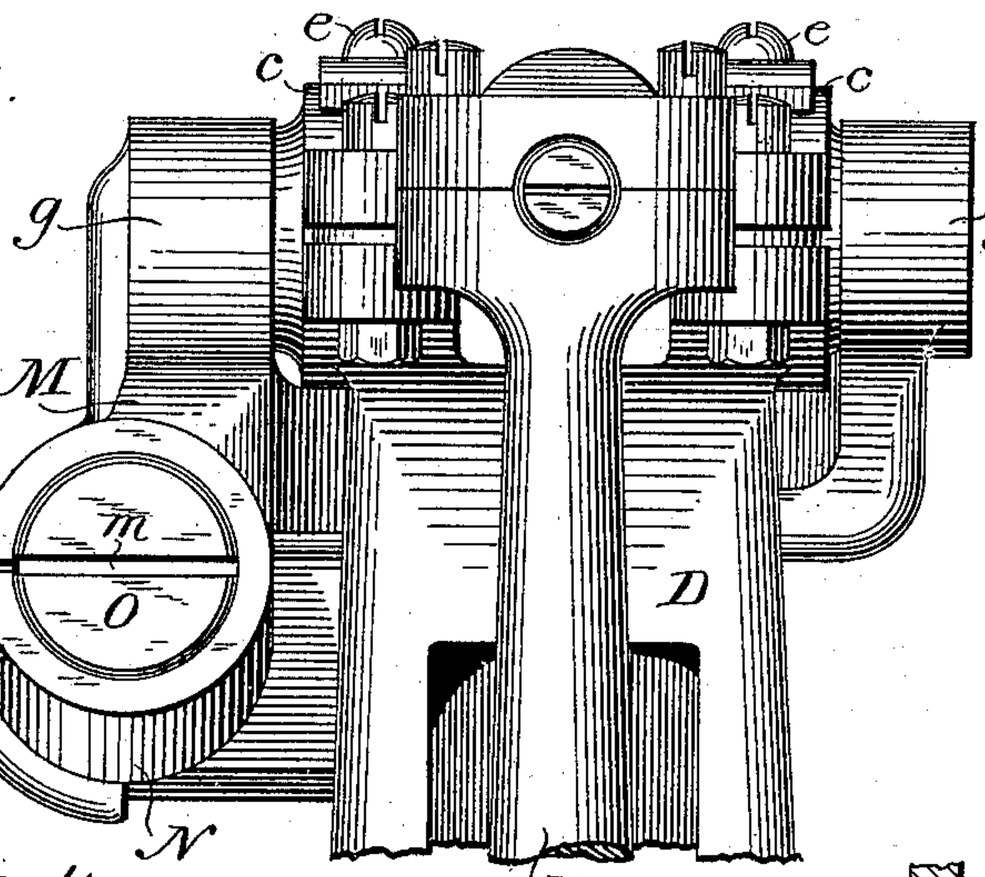


Fig. 4.

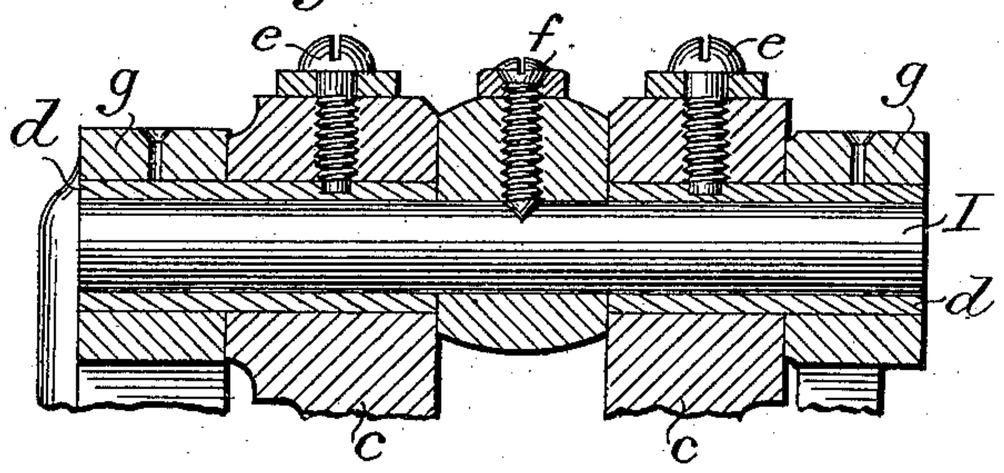


Fig. 5.

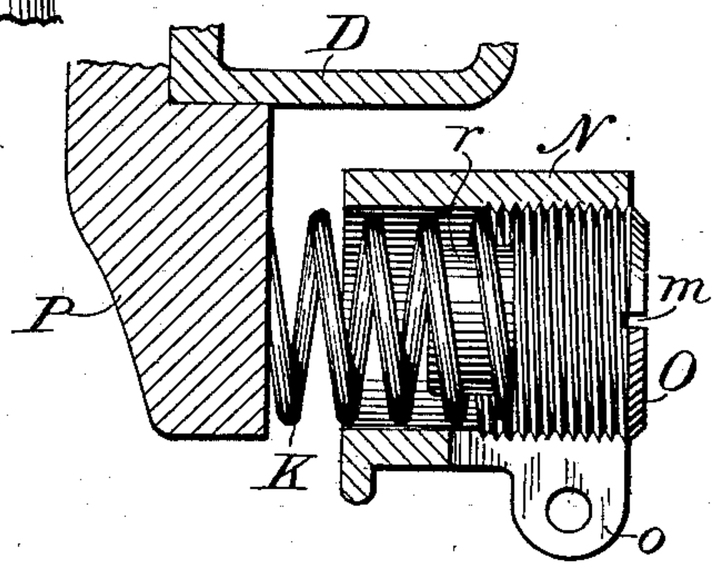
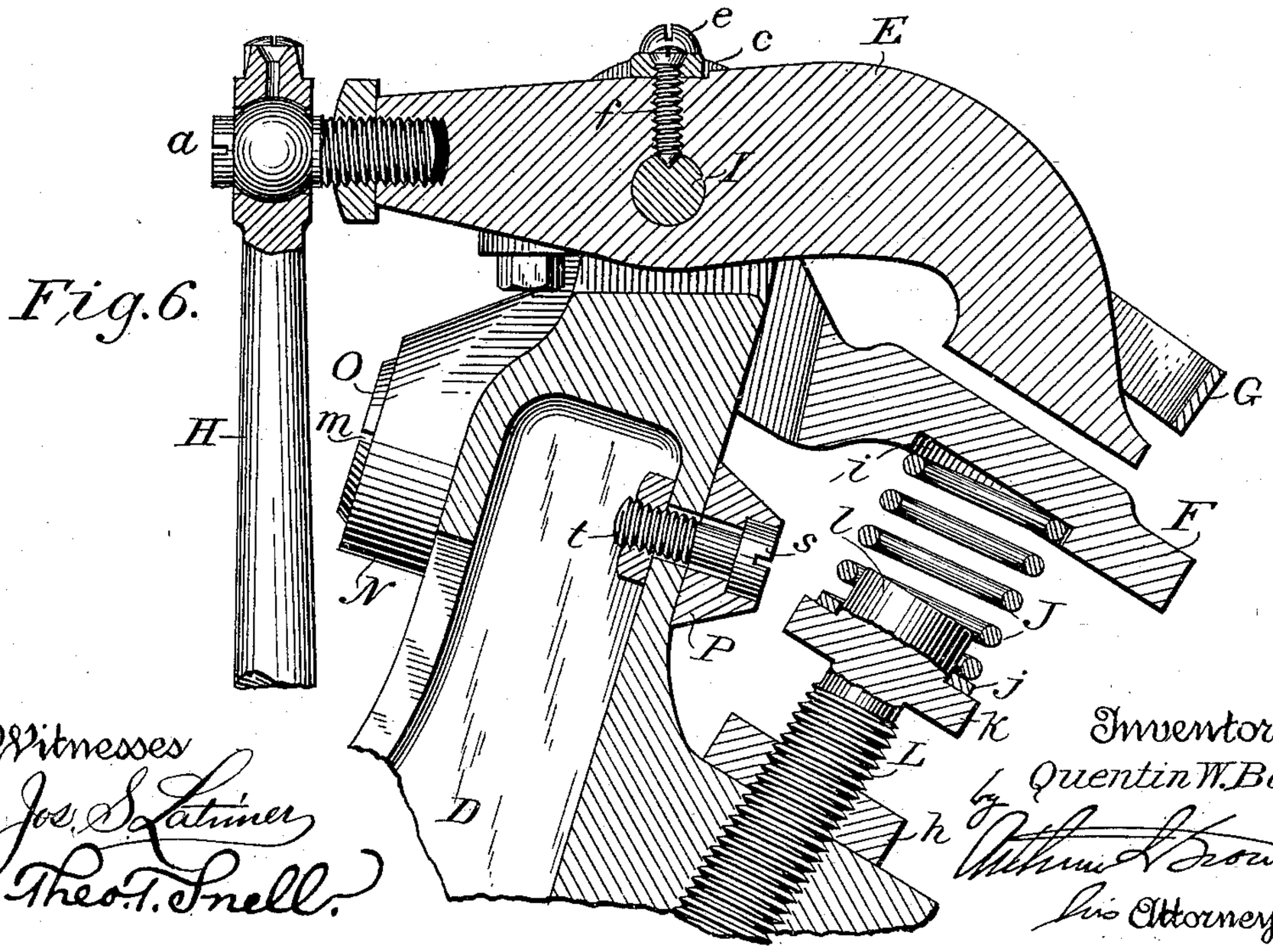


Fig. 6.



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UNITED STATES PATENT OFFICE.

QUENTIN W. BOOTH, OF ROCHESTER, NEW YORK.

HAMMERING MECHANISM FOR BEADING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 624,426, dated May 2, 1899.

Application filed March 6, 1899. Serial No. 707,939. (No model.)

To all whom it may concern:

Be it known that I, QUENTIN W. BOOTH, of Rochester, Monroe county, New York, have invented certain new and useful Improvements in Hammering Mechanism for Beading-Machines, of which the following is a specification.

This invention consists in certain improvements specially applicable to the well-known machines the object of which is to finish seamed edges, and particularly the seamed edges of shoe-uppers which are sewed wrong side out, such machines being usually called "beading-machines." Such machines ordinarily comprise two necessary and coöperating elements—to wit, first, one or more rapidly-moving turners the functions of which are to turn the lined upper to bring the right side out and to smooth and push out the seam, the latter function being particularly important in the case of the scalloped button-flies of ladies' and misses' shoes, and, second, a hammer which flattens out the turned seam.

The present improvements consist in an improved construction of the hammering mechanism and are illustrated in the accompanying drawings as applied to a beading-machine the general characteristics of which are similar to the machine set forth in United States patent to Peter W. Minor, No. 494,259, granted March 28, 1893.

In the accompanying drawings, Figure 1 is a side view of the machine, partly broken away to show the interior construction; Fig. 2, a plan view of the head of the machine; Fig. 3, a rear view of the head; Fig. 4, a vertical cross-section in a plane indicated by the line 4 4 in Fig. 2; Fig. 5, a sectional detail, and Fig. 6 a central vertical section, of the head.

A is the housing of the machine, B the drive-shaft, and C C the rapidly-moving turners, which may have any of the motions known in the art, though preferably they have the movements of the turners set forth in the United States application of Irving E. Booth, Serial No. 556,230, filed July 17, 1895.

D is the upright hollow standard or head, constituting an integral part of the housing A, which supports the movable hammer E, the anvil F, and the fixed hammer-guard G. The hammer E is rapidly rocked by means of the pitman H, which is connected with it by a universal joint *a* and which at its lower end has an eccentric-strap *b*, embracing an eccentric on the drive-shaft B, in which respects the construction is similar to the machine of the said Minor patent, No. 494,259.

As shown in Figs. 4 and 6, the hammer E is pivotally mounted between vertically-extending ears *c c*, which are integral parts of the upright standard or head D. Within these two projecting ears are carried brass bushes *d d*, respectively, which are held in place by means of screws *e e*, which tap through the upper portions of said ears. The hammer E is secured by set-screw *f* to a horizontal hammer-shaft I, which extends through and rocks in the brass bushes *d d*.

The anvil F, which is a movable one, is forked at its rear and upper end, as best shown in Fig. 2, and is formed with tubular sleeves or journals *g g*, which straddle the ears *c c* of the head and surround and embrace the outwardly-projecting ends of the brass bushes *d d*, upon which they rock, said projecting bushes constituting the journal-bearings upon which said anvil swings. It will be noted on reference to Fig. 4 that the hammer-shaft I extends outwardly as far as do the brass bushes, so as to afford a support for their projecting ends. By virtue of this construction it will be noted that the anvil when it moves swings on the same axis as does the hammer, so that no matter how the anvil is adjusted the movable jaw has the same relation thereto. It is not, however, essential that the anvil be pivoted about the same axis as the hammer; but such construction is preferred.

The anvil is cushioned in both directions by means of independently-adjustable coiled expansive springs J and K. The coiled spring J is located between the under side of the head of the anvil and a tension-regulating bolt L. This bolt L taps into the head D and is locked in any desired position of adjustment by means of a lock-nut *h*. The spring J seats at its upper end within a recess *i* on the under side of the anvil, and at its opposite lower end it seats against a loose ring *j*, which in turn seats against the head *k* of the adjusting-bolt L and is held in place by a projecting boss *l* on said bolt, which also serves to maintain said spring J in position. The

adjusting-bolt L and the spring J are so arranged as to be substantially perpendicular to the outer working face of the anvil F, so that the outward thrust of said spring against the under side of said anvil is substantially at right angles to said working face, so that said spring tends to force the anvil toward the hammer, and said spring directly opposes the stroke and impact of the hammer.

The anvil has an integral crank-arm M, extending at substantially right angles to the working face of the anvil and which coöperates with the other cushioning-spring K. This crank-arm carries at its outer end a socket N, a cross-section of which is shown in Fig. 5, and in which socket the spring K seats. This socket is interiorly screw-threaded, as shown in Fig. 5, and in it fits an adjusting-screw O, which can be turned in an out, being provided with a nick *m* for this purpose, adapting it to be turned by a screw-driver. This adjusting-screw O can be clamped in any position of adjustment, the socket N being for this purpose slit along one side, as shown at *n*, and being provided with outwardly-projecting ears *o*, with which a bolt *p* and nut *q* coöperate. By means of said bolt and nut the socket may be clamped tightly upon the adjusting-screw as desired, so as to hold it in position. The outer end of the spring K seats against the inner face of the adjusting-screw O, surrounding a projecting boss *r* on the inner face of said screw, which assists in keeping the spring K in position. The other end of the spring K seats against the rear surface of a stop or abutment P, which might be an integral portion of the head D, but, as shown, is a separate piece therefrom, rigidly secured thereto by bolt *s* and nut *t*. The spring K presses outwardly upon the crank-arm M of the anvil in a direction substantially at right angles to the direction of the thrust of the other spring J. The tension of spring K is regulated by the adjusting-screw O. The position of the crank-arm M is not necessarily at right angles to the face of the anvil, since it could be in any position about the axis around which the anvil pivots, the abutment P being correspondingly located.

It will be noted that the two springs J K oppose each other, and both are adjustable independently and at will. The spring J resists the impact of the hammer, and the other spring K maintains an initial strain on spring J. By suitably adjusting both springs the position of the anvil when the machine is at rest can be adjusted and maintained, so that the minimum space between it and the opposing working face of the hammer—that is, the space when the hammer most nearly approaches the anvil—can be adjusted and regulated at will, thereby adapting the hammer to operate upon materials of different thicknesses. By suitable adjustment of both springs the anvil may be made more or less yielding, as desired, and compensation for wear is readily secured. When the hammer is in operation, the two springs cushion the anvil against the blows of the hammer and take up the "backlash." The cushioning-springs are comparatively stiff, thereby affording a substantial support for the anvil and holding the anvil to its work, so that an efficient blow may be given to the seam which is being hammered; but at the same time the blow upon the seam is rendered elastic, so that there is no danger of crushing or abrading the seam. This construction also renders the hammer almost noiseless while in operation.

While the anvil is shown arranged at an incline, it is obvious that this same cushioning arrangement for the anvil could be used in case its working surface was arranged substantially vertical, as in the case of the arrangement shown in said I. E. Booth application, Serial No. 556,230.

The interposition of the bushes *d d* between the anvil-journals *g g* and the hammer-shaft I is important, because the bushes not only thus constitute journal-bearings for both hammer and anvil, but also they relieve the hammer-shaft from the stress of the cushioning-springs, thus diminishing the power required to move the hammer and relieving the hammer-shaft from wear.

I do not claim any feature or combination of features which is common to the machine herein set forth and to that set forth in the said I. E. Booth application, Serial No. 556,230, and especially I make no claim to a hammer in combination with a cushioned pivoted anvil, nor to a swinging hammer in combination with a cushioned adjustable anvil pivoted concentrically with said hammer, nor to a swinging hammer in combination with a pivoted anvil adjustable to and from the hammer and pivoted concentrically therewith, nor to the combination of a hammer, a movable anvil, an elastic cushion to resist the impact of the hammer, and a second elastic cushion, which maintains an initial strain on the first cushion.

I claim as my invention—

1. The combination of a hammer, a movable anvil, and independently-adjustable cushions for cushioning said anvil in opposite directions, substantially as set forth.

2. The combination of a hammer, a movable anvil, and independently-adjustable cushioning-springs acting upon said anvil in opposition to each other, substantially as set forth.

3. The combination of a rocking hammer, an anvil movable concentrically with said hammer, and independently-adjustable cushioning-springs acting upon said anvil in opposition to each other, substantially as set forth.

4. The combination of a rocking hammer, an anvil movable concentrically with said hammer, said anvil having a crank-arm with a split socket interiorly screw-threaded, an

adjusting-screw fitting within said socket, means for clamping said socket upon said screw, a fixed stop, an expansive spring interposed between said screw and stop, an adjustable bolt behind the anvil-head, and an expansive spring between said bolt and head, substantially as set forth.

5. The combination of a rocking hammer, a rock-shaft therefor, a swinging anvil, bushes interposed between said shaft and anvil and constituting bearings for both, and cushioning-springs acting upon said anvil in opposition to each other, substantially as set forth.

6. The combination of a rocking hammer, a rock-shaft therefor, a swinging anvil, bushes interposed between said shaft and anvil and constituting bearings for both, and means for cushioning said anvil, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

QUENTIN W. BOOTH.

Witnesses:
E. S. CHESTER,
JOSEPH A. CRANE.