

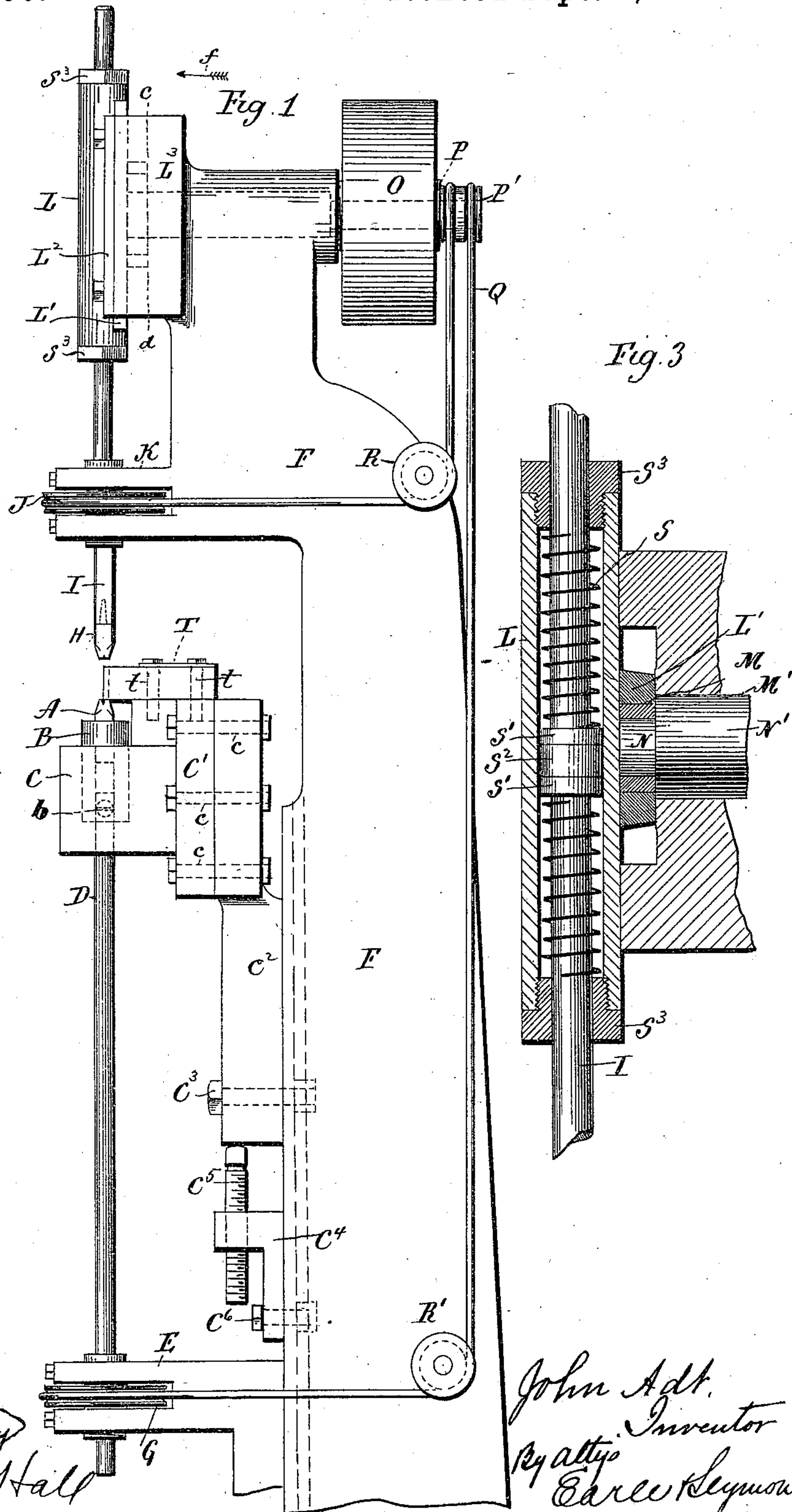
(No Model.)

2 Sheets—Sheet 1.

J. ADT.  
RIVETING MACHINE.

No. 545,756.

Patented Sept. 3, 1895.



Witnesses,  
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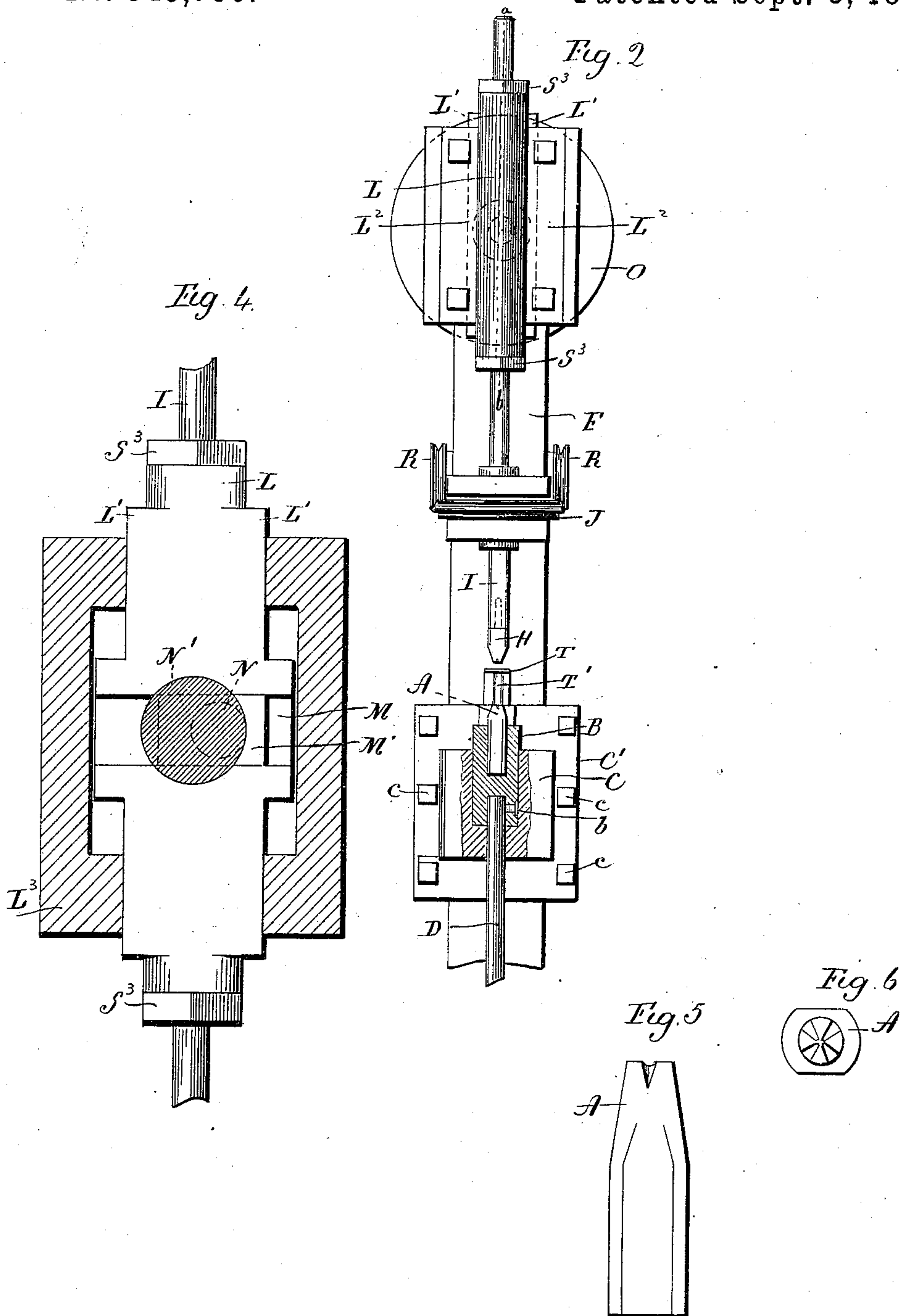
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2 Sheets—Sheet 2.

J. ADT.  
RIVETING MACHINE.

No. 545,756.

Patented Sept. 3, 1895.



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# UNITED STATES PATENT OFFICE.

JOHN ADT, OF NEW HAVEN, CONNECTICUT; ELIZABETH C. ADT EXECUTRIX OF SAID JOHN ADT, DECEASED.

## RIVETING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 545,756, dated September 3, 1895.

Application filed July 23, 1894. Serial No. 518,328. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN ADT, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Riveting-Machines; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a view in side elevation of one form which a machine constructed in accordance with my invention may assume; Fig. 2, a partial front view of the machine with the anvil, anvil-carrier, and anvil-block shown in section; Fig. 3, an enlarged sectional view on the line *a b* of Fig. 2, showing the connection of the hammer-rod with the cylinder by which it is reciprocated; Fig. 4, a view drawn to the same scale on the line *c d* of Fig. 1 and looking forward in the direction of the arrow *f*; Fig. 5, a detached enlarged view, in side elevation, of the anvil; Fig. 6, a similar plan view thereof.

My invention relates to an improvement in that class of riveting-machines designed to simultaneously head the opposite ends of the rivet, the object being to produce a simple, convenient, and effective machine containing few parts, having a large capacity for accurate work, and not liable to derangement.

My improved machine is particularly adapted for heading the rivets of bicycle-chains or other articles in the manufacture of which rivets are used that require heading at both ends.

With these ends in view, my invention consists in the combination, in a riveting-machine, with a reciprocating and rotating hammer, of a rotating anvil held against endwise movement, in an anvil-carrier, and a fixed table or support therefor.

My invention further consists in a riveting-machine having certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

As herein shown the anvil *A*, which may be of any approved construction, is fixed against rotation in the upper end of a rotary anvil-

carrier *B*, which is cylindrical in cross-section and projects at its upper end above the upper face of a fixed table or support *C*, containing a chamber to receive it, the lower end of the said chamber being closed and forming a seat for the carrier-block, which is thus firmly held against downward movement. The said anvil-carrier *B* is rotated by means of a shaft *D*, the upper end of which passes upward through the lower face of the table *C* into the lower end of the chamber formed therein and into the lower end of the block-carrier, to which it is secured by means of a set-screw *b*. I thus provide for the rotation of the anvil, which is held against endwise movement and is virtually stationary so far as direct impact upon it is concerned. The lower end of the shaft *D* passes through a bracket *E*, secured to the machine-standard *F* at a point near the lower end thereof, the said bracket being horizontally slotted to receive a pulley *G*, located in its slot and firmly secured to the lower end of the shaft *D*. The hammer *H*, which coacts with the anvil, has a corresponding face, and is mounted in the lower end of a reciprocating and rotating hammer-rod *I*, to which rotary and reciprocatory movement may be imparted in any desired manner. As herein shown, the said rod passes through a pulley *J*, located in a slot formed in an arm *K*, offsetting from the machine-standard *F*. It will be understood that the hammer-rod *I* is free to play back and forth through the said pulley, with which, however, it is connected, so as to rotate therewith. Thus, as herein shown, the rod is faced upon two sides, such facing calling for an opening in the pulley corresponding to the cross-section of the rod. For the reciprocation of the rod it is passed upward through and connected with a cylinder *L*, formed integral with a plate *L'*, exceeding in width the length of the diameter of the cylinder and forming a guide for it. Two narrow plates *L<sup>2</sup> L<sup>2</sup>* engage with the opposite edges of the plate *L'* for securing the same in the head *L<sup>3</sup>*, formed at the extreme upper end of the standard *F*. Two transverse bars *L<sup>4</sup> L<sup>4</sup>*, arranged parallel to each other upon the back of the plate *L'*, receive between them a sliding block *M*, having an opening *M'* to receive an eccen-



trie N, formed at the forward end of a horizontal shaft N', bearing in the upper end of the said standard and provided at its outer end with a pulley O, through which the machine is driven. The outer end of the shaft is also furnished with two small grooved pulleys P and P', over which runs the belt Q, which passes also over the pulley J', which rotates the hammer-rod I, and the pulley G, which rotates the anvil-shaft D. Two idlers R R, located toward the upper end of the standard, and two idlers R' R', located near the lower end thereof, are provided for the belt Q, to which they give right direction.

The hammer-rod I is connected, as herein shown, with the cylinder by means of two corresponding spiral springs S S impinging at their inner ends upon loose collars S' S', located on the opposite sides of a fixed collar S<sup>2</sup>, rigidly connected with the rod, while their outer ends impinge against nuts S<sup>3</sup> S<sup>3</sup>, located in the ends of the cylinder. Under this construction the hammer-rod partakes of the reciprocating movement of the cylinder, but has an independent throw or end-thrust and also recoil beyond the movement of the cylinder by virtue of its connection therewith by the springs.

The table C, before mentioned, is formed integral with a plate C', secured by bolts c to the upper end of a vertically-adjustable support C<sup>2</sup>, which is secured in any desired position of vertical adjustment by means of a T-bolt C<sup>3</sup>. A vertically-adjustable bracket C<sup>4</sup>, secured to the standard F of the machine at a point below the support C<sup>2</sup>, is provided with an adjusting-screw C<sup>5</sup>, which impinges against the lower end of the support and provides for raising and lowering the same, the bracket being secured in any desired position of vertical adjustment by means of a T-bolt C<sup>6</sup>. To the extreme upper end of the support C<sup>2</sup>, I secure a guide T, by means of screw-bolts t t, the said guide being constructed at its forward end with a vertical groove T', which receives the work and holds it in place while being operated upon by the hammer and anvil. It will be seen by reference to Fig. 1 of the drawings that this guide is located in a horizontal position, and that its forward end extends between the hammer and anvil. This part will of course vary in form with the character of the work to be done. I would have it understood, however, that I do not limit myself to any particular way of mounting and driving the hammer and anvil, so long as provision is made for both reciprocating and rotating the former and rotating the latter while it is rigidly supported against endwise movement. I secure, however, very excellent results by means of

the construction herein shown and described, in which the hammer and anvil are rotated by power communicated from the same belt. They may be rotated in the same or in opposite directions.

By means of my improved machine I am enabled to simultaneously head down the opposite ends of a rivet with obvious economy of time and labor, for the rivet has to be passed through the machine only once. Furthermore, by making the anvil stationary, it is prevented from getting out of line, and accurate work insured, whereas spring-mounted anvils are apt to change in position, owing to changes in the tension of their supporting-springs, whereby inaccurate work results.

I am aware that a riveting-machine adapted to simultaneously upset the opposite ends of a rivet and having two simultaneously rotated dies, which are forced toward each other by steady pressure is old. I am also aware that a machine having a hammer adapted to be simultaneously rotated and reciprocated is old. I do not, therefore, claim a machine having two rotating dies adapted to simultaneously upset the opposite ends of a rivet, nor a machine having a hammer adapted to be both reciprocated and rotated simultaneously.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a riveting machine for simultaneously heading both ends of a rivet by striking blows upon one end thereof, the combination with a hammer, of means for simultaneously rotating and reciprocating the same, an anvil, an anvil-carrier in which the anvil is located, a table or support for the anvil-carrier, and means connected with the said anvil-carrier for rotating the same and hence the anvil, which is held against endwise movement by the carrier and the fixed table or support therefor, but rotates as well as the reciprocating hammer, substantially as set forth.

2. In a riveting machine, the combination, with a hammer and means for simultaneously rotating and reciprocating the same, of an anvil, an anvil-carrier in which the anvil is located, a table containing a socket in which the anvil-carrier is set, and a shaft entering the said chamber and connected with the anvil-carrier for rotating the same and hence the anvil, which is thus held against endwise movement, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOHN ADT.

Witnesses:

FRED C. EARLE,

GEORGE D. SEYMOUR.