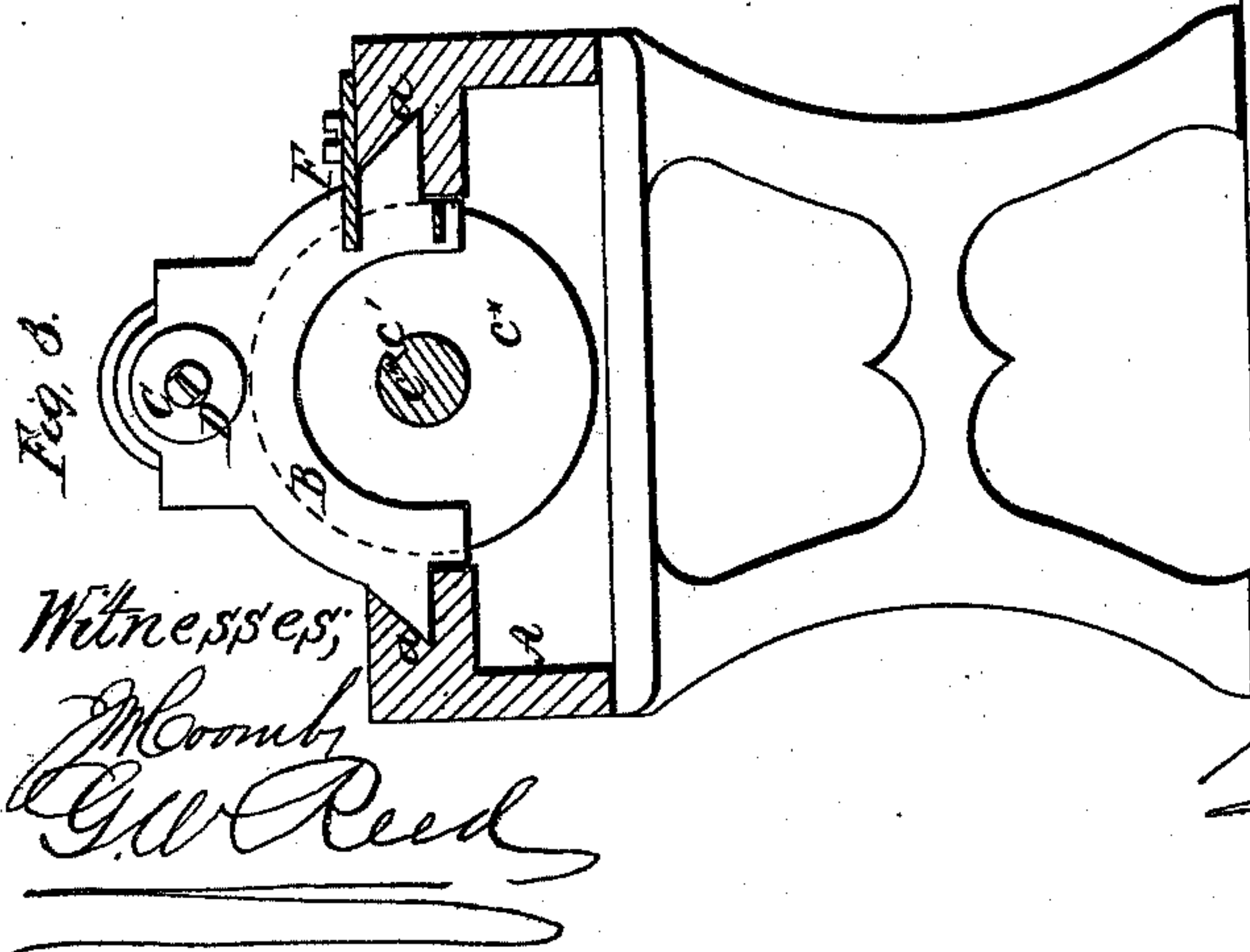
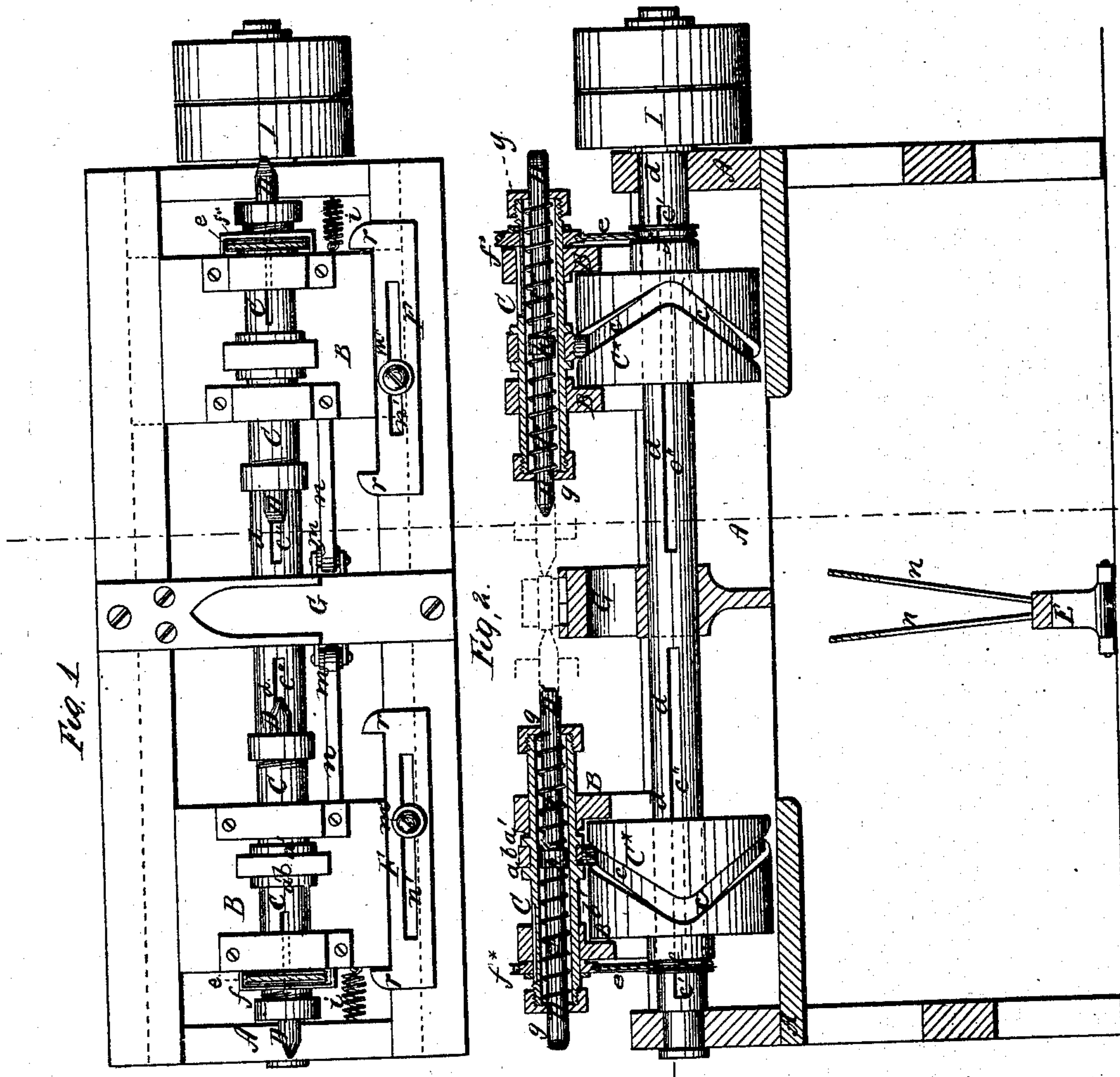


J. ADT.
RIVETING MACHINE.

No. 68,680.

Patented Sept. 10, 1867.



Inventor;

J. A. D.
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Witnesses;

McComb
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United States Patent Office.

JOHN ADT. OF WOLCOTTVILLE, CONNECTICUT.

Letters Patent No. 68,680, dated September 10, 1867.

IMPROVEMENT IN RIVETING MACHINES.

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, JOHN ADT, of Wolcottville, in the county of Litchfield, and State of Connecticut, have invented certain new and useful improvements in Riveting Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings making a portion of this specification, in which—

Figure 1 is a plan or top view of a riveting machine constructed according to my invention.

Figure 2 is a vertical longitudinal section of the same.

Figure 3 is a vertical transverse section, taken in the line *x x* in figs. 1 and 2.

Similar letters of reference indicate corresponding parts in all the figures.

The object of this invention is to provide a means whereby rivets may be simultaneously headed at both ends, as is required, for instance, in the manufacture of furniture-casters and other like articles.

The invention consists in two riveting-hammers, so combined and operated as to strike simultaneously upon the two opposite ends of the rivet, such rivet being, as it were, supported by each hammer against the stroke or impact of the other. The invention further consists in the employment of suitable springs within the sleeves in which are situated the aforesaid hammers whereby the blows of the hammers during the riveting operation are rendered much more efficient than would be the case if such springs were dispensed with. The invention further consists in the combination with the hammers of suitable supporting carriages and operating cams, whereby not only may the required reciprocating movement be communicated to such hammers, but whereby they may also be adjusted at any distance apart that the exigencies of the work may necessitate. The invention further consists in certain novel means whereby the working parts of the machine may, with very great facility, be brought and retained in position for heading rivets of different lengths.

To enable others to understand the construction and operation of my invention, I will proceed to describe it with reference to the drawings.

The supporting frame of the machine is shown at A, and is constructed with longitudinal guides *a*, which receive two sliding carriages B. Situated longitudinally upon the upper side of each of the carriages B, and working in suitable bearings formed thereon, is a cylindrical sleeve, C, placed upon which, and held in position by annular flanges *a'*, is a collar, *b*, from which a stud, *a**, extends downward through a slot, *b'*, formed longitudinally in the top of the carriage, and has its extremity fitted into a cam groove, *c*, provided in a cam-wheel, C*, which is arranged upon a longitudinal shaft, *d*, extending from one end of the frame A to the other, underneath the aforesaid carriages, as shown more fully in fig. 2. Each of the cam-wheels C* is attached to the shaft *d* by means of an internal feather, *c'*, fitting into a longitudinal groove, *c''*, in the shaft *d*, in such manner that the said cam-wheel, when rotating with the shaft, will be free to slide thereon, the upper side of the cam-wheel being furthermore so fitted into a suitable recess, in the under side of the carriage B above it, that a sliding movement of the carriage will communicate a corresponding movement to the cam-wheel, in order that such carriage and cam-wheel may be retained in their proper relative positions during the operation of the machine. Each of the cam-wheels just mentioned is connected with the sleeve C above it by means of a band, *e*, extending from a small pulley, *f*, formed upon the end of the cam-wheel to a similar pulley, *f**, provided upon the sleeve. Each of the sleeves C is provided at its ends with caps *g*, formed centrally, in which are holes through which extend the ends of the sliding-hammer D, which is situated within the sleeve, and is furnished at its central part with an annular rib, *h*. Two spiral springs, marked respectively *e** and *g**, are situated, one upon each end portion of the hammer, between the central annular rib thereof just mentioned and the closed ends of the sleeves; the said springs tending to bring the hammer, with its rib *h*, at or near the central part of the sleeve, as shown in fig. 2, and the purpose of which will be hereinafter fully set forth. The inner ends of the hammers D are bevelled off upon each side, so that the face thereof is made comparatively narrow in proportion to its length. Placed between the outer ends of the carriages B, and the adjacent ends of the frame A, are spiral springs *i*, which act to draw the carriages outward toward the said ends of the frame. Extending inward from the carriages and downward over pulleys *m* are two straps *n*, the lower ends of which are attached to a treadle, E, in such a way that when the treadle is forced downwards the carriages, and consequently the hammers D carried thereon, will be caused to approach each other, as is required in bringing the said hammers in conven-

ient proximity to the work. F indicates adjustable stop-plates, which are secured to the upper side of the frame A, being attached thereto by screws m' , passing downward through long slots n' formed in the said plates, so that by these means the plates may be adjusted longitudinally when desired; the said plates being furnished at their ends with inwardly projecting spurs r , which limit the movement in either direction of the contiguous carriage B. Situated transversely at the centre of the frame A, between the inner ends of the hammers D, is a rest, G, the office of which is to support the article to be riveted, and the upper surface of which may be of any shape required to secure the retention of such article during the riveting operation.

In using the machine a rotary motion is given to the shaft d , through the agency of a suitable band-wheel, I, and the article to be riveted is placed upon the rest G, with the rivet itself in line with the hammers D, whereupon the treadle E is pressed downward until the carriages are brought against the innermost spurs r of the stop-plates F, which, having been previously adjusted, stop the said carriages in that position in which the hammers will be brought to the required distance from the ends of the rivet. The sleeves C, and consequently the hammers D, placed therein, receive a reciprocating motion through the agency of the grooves c , and at their inward strokes strike simultaneously upon the two opposite ends of the rivet to upset or head the same, such simultaneous operation of the hammers enabling the stroke of one to balance, as it were, that of the other, so that one hammer serves to support the rivet against the impact of the opposite one.

Inasmuch as the bands e partially rotate the hammers at each stroke, it follows that the narrow ends or faces of such hammers are turned into a different position, and consequently act upon different portions of the ends of the rivet at each blow, the said ends being thus more uniformly and evenly turned over or upset than is found practicable with hammers made with circular faces, and having simply a longitudinal or vibrating movement, at the same time that the springs $e^* g^*$ being compressed, one at each inward and outward movement of the hammers, tend to bring the said hammers to the position shown in fig. 2, and hereinbefore explained. The motion of the aforesaid hammers is rendered much more steady than would be the case if they were operated by the cams C^* alone, and the efficiency of their action in riveting, is, of course, proportionally increased. The rivet having been thus headed at both ends, the treadle E is released, whereupon the springs i draw farther apart the carriages B, and the riveted article being superseded upon the rest G, by a similar one, the riveting operation is repeated.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The two hammers D, so combined and operated as to simultaneously strike the two ends of the rivet in heading the same, by means substantially as herein set forth.
2. The combination, with the reciprocating hammers D, of sleeves C and springs $e^* g^*$, the whole arranged to operate substantially as and for the purpose herein set forth.
3. The combination of the cam-wheels C^* and carriages B with the reciprocating hammers D, constructed and operating substantially as and for the purpose herein set forth.
4. The adjustable stop-plates F, in combination with the carriages carrying the riveting-hammers, substantially as and for the purpose herein set forth.

JOHN ADT.

Witnesses:

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