

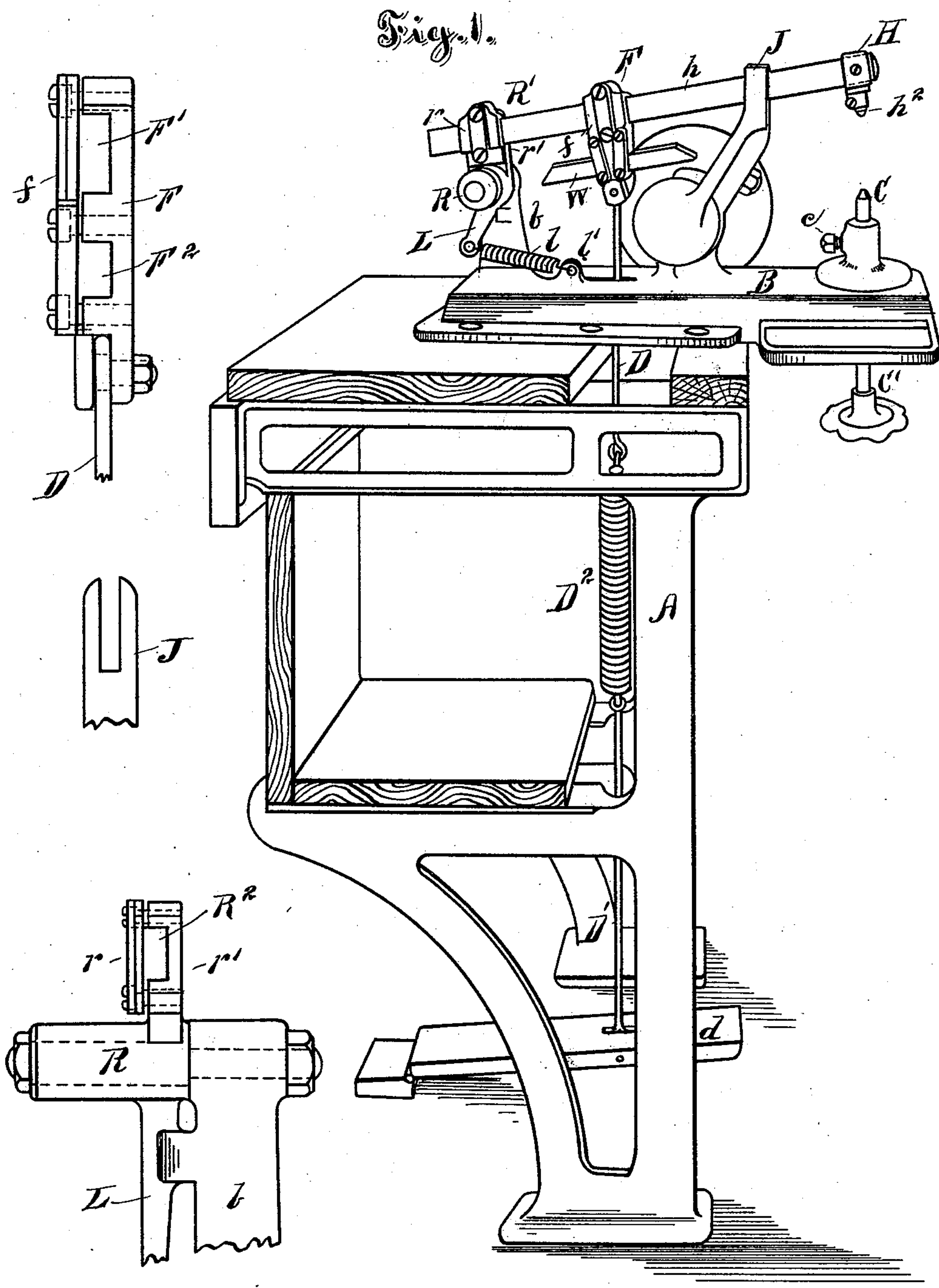
(No Model.)

2 Sheets—Sheet 1.

C. H. NORTON.
RIVETING MACHINE.

No. 507,239.

Patented Oct. 24, 1893.



WITNESSES
H. Clough
W. H. Bradford

INVENTOR
Charles H. Norton
by *Parker & Burton*

Attorneys.

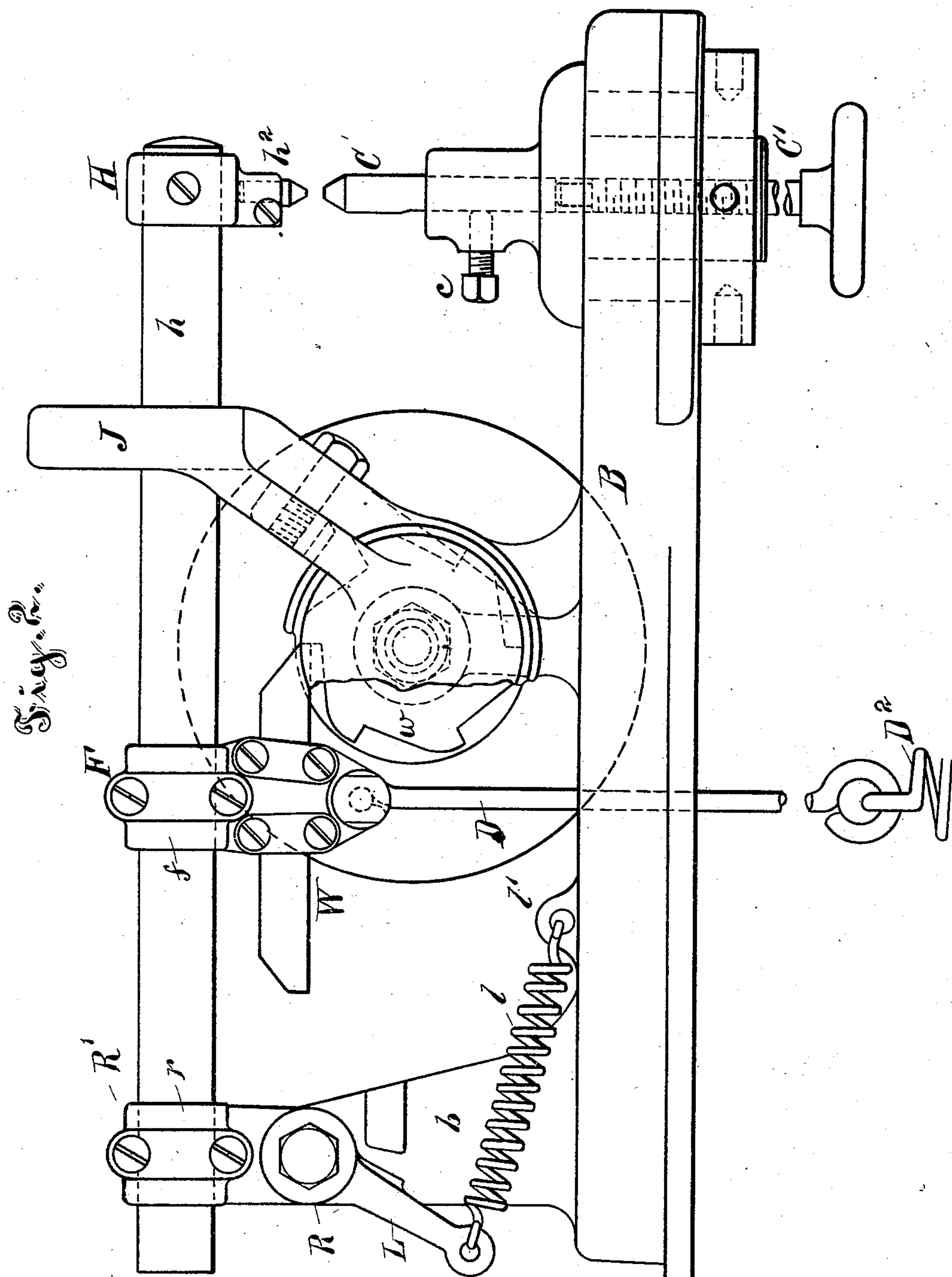
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UNITED STATES PATENT OFFICE.

CHARLES H. NORTON, OF DETROIT, MICHIGAN, ASSIGNOR TO THE LELAND, FAULCONER & NORTON COMPANY, OF SAME PLACE.

RIVETING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 507,239, dated October 24, 1893.

Application filed June 20, 1892. Serial No. 437,363. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. NORTON, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Power Riveting-Machines; and I 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to riveting machines, and has for its object an improvement in that form of riveting machine, in which a succession of short, light blows are given very rapidly to the rivet upon which a head is to be formed.

The machine in which this invention is embodied is especially designed for work upon light material where small parts are to be secured together by light rivets; as specimens of the character of work to be done I would mention, the riveting together of locks, padlocks, the handles of cutlery, &c., and in doing the work, I sometimes give to the hammer a speed of from forty to sixty blows per second. Where such high speed is required, and where exact accuracy of the place of the stroke of the hammer is required, some delicate adjustments are necessary, and to make such accurate adjustments I employ, first, an adjustment of the hammer helve, in the eye on the rockshaft; second, an adjustment of the hammer head along the helve. These two adjustments enable me to bring the stroke properly over the anvil as the adjustments may be made with respect to the thickness of the special article to be treated. There is also an adjustment of the anvil, to enable the machine to be accommodated to the work to be done; there is also an adjustment of the frame which holds the wiper-block which regulates the length of the stroke given.

Another object of the invention, is found in the regulation of the force of the blow through the medium of the foot treadle; the force of the blower is greater if heavier pressure is put on the foot treadle, and lighter if less pressure is put on the foot treadle.

In the special form of riveting hammer

employed by me, the blow is produced by the retractile force of a spring, that is rapidly distended by means of a cam-wheel or wiper-wheel.

In the drawings, Figure 1, shows in perspective the hammer, and its supports and the treadle used to operate it. Fig. 2, shows in elevation the hammer and anvil and the parts immediately connected to the hammer helve.

A, represents a supporting table, and B, represents the bed-plate. *b*, represents a standard upon which is journaled a rock arm R; the upper end R', of the rock-arm R, is made in two parts *r*, *r'*, to form an adjustable eye to receive the helve of the hammer; the part *r'*, is a continuation of the main or body part of the rock-arm R, and the part *r*, is a face plate that presses upon the side of the hammer helve, and holds it in the eye or socket R². The helve is made slightly thicker than the width of the socket R², and the face plate *r*, can be drawn down tightly against the helve in case the helve shrinks or wears away.

Attached to the rock arm R, is a lever L, to the end of which is connected a spring *l*, reaching to and connected with some fixed point on the bed of the frame-work, as with the lug *l'*; the relative position of the lever L, with respect to the eye part R', is immaterial, the only requirement being that the spring L, shall be arranged to be put in a state of tension, when the hammer head is brought down in making a stroke; the object of the spring *l*, is to lift the wiper block W, entirely off the wheel *w*, when not in use.

The hammer head H, is formed with an adjustable eye, made in the same manner as that already described, for the eye through which the tail end of the helve passes. The face of the head of the hammer is formed of a detachable point *h*², the face being finished in any desired shape. Directly under the face of the hammer head is an adjustable anvil C, formed of a rod of metal movable vertically through the bed B, and moved vertically by means of an adjusting screw C'; a setting screw *c*, holds the anvil C, in place after it has been adjusted. The vertical adjustment of the anvil permits the use of the riveting

hammer with articles of different thickness; it also permits the operator to regulate the force of the blow which strikes the end of the rivet because the hammer head is prevented from reaching below a certain fixed point, determined by the relative positions of the hammer head, the wheel *w*, and the wiper *W*. Of these the wheel, *w*, remains fixed in position while both the head *H*, and the wiper *W*, are adjustable with respect to the wheel *w*, according to the requirements of the work to be performed.

w indicates a wiper wheel journaled in supports that spring from the bed *B*, adapted to rotate and receiving its rotative motion from any convenient source of power; its periphery is cut into a number of wiper cams that engage with the wiper block *W*. The wiper block *W*, is held in a frame that is adjustable along the helve *h*, the frame consisting of the main holding piece *F*, provided with two sockets *F'*, *F''*, and a face plate *f*, held to the holding piece *F*, by suitable bolts and forming two eyes traversed by the helve *h*, and the wiper block *W*.

The holder *F*, is adjustable along the helve *h*, and the wiper block *W*, is adjustable through the holder.

J, indicates a *Y*-guide springing from the bed of the riveting machine, and engaging with the helve of the hammer near the head, and operating to prevent lateral motion of the hammer head. As shown in the drawings this guide forms an extension from the journal supports of the wheel *w*, but it may be connected to the bed independently if desired.

From the frame which holds the wiper *W*, a treadle rod made in two parts *D*, *D'*, with an interposed spring *D''*, extends to a treadle *d*, hinged to some point which is fixed with respect to the bed piece *B*.

To operate the hammer, the wiper wheel *w*, is put in motion and kept in continuous motion; the article to be riveted is placed with the rivet to be treated on the anvil *C*. Tension is put upon the spring *D''*, by pressing down upon the treadle *d*, with the foot. This tension operates to pull the wiper block *W*, down against the cam wheel *w*, and as the wheel

w, revolves the hammer rapidly rises and falls, the entire force of the stroke being due to the retractile force of the spring *D''*; the cam-wheel operating to lift the hammer increases the tension of the spring *D''*, and permits the spring to pull the hammer down as the wiper block *W*, drops over the ends of the cams of the wiper wheel.

Having thus described my invention, what I claim as novel, and desire to have secured to me by Letters Patent, is—

1. In a riveting machine, the combination of a helve, a hammer head adjustable thereon, a wiper block adjustable along said helve, a cam wheel adapted to engage with said wiper block, a treadle, and a spring connection between said treadle and said helve, adapted to hold the wiper-block in engagement with the cam wheel substantially as and for the purpose specified.

2. In a riveting machine, the combination of a helve hinged to a bed-plate, a cam wheel, a hammer head adjustable along said helve, a wiper block secured to said helve, a treadle, and a spring connection between the treadle and the wiper block whereby the hammer is lifted by the cam-wheel and the stroke is effected through the retractile force of the spring, substantially as and for the purpose specified.

3. In a riveting machine the combination of a hammer, a cam and wiper adapted to lift the hammer, a treadle a spring connection between the treadle and wiper, and means for lifting the wiper out of engagement with the cam, substantially as and for the purpose specified.

4. In a riveting machine the combination of a hammer and the helve thereof, a treadle, a spring connection between said treadle and said hammer helve, a spring retractor and a guide adapted to direct the hammer end of said helve, substantially as and for the purpose specified.

In testimony whereof I sign this specification in the presence of two witnesses.

CHARLES H. NORTON.

Witnesses:

EFFIE I. CROFT,

CHARLES F. BURTON.