

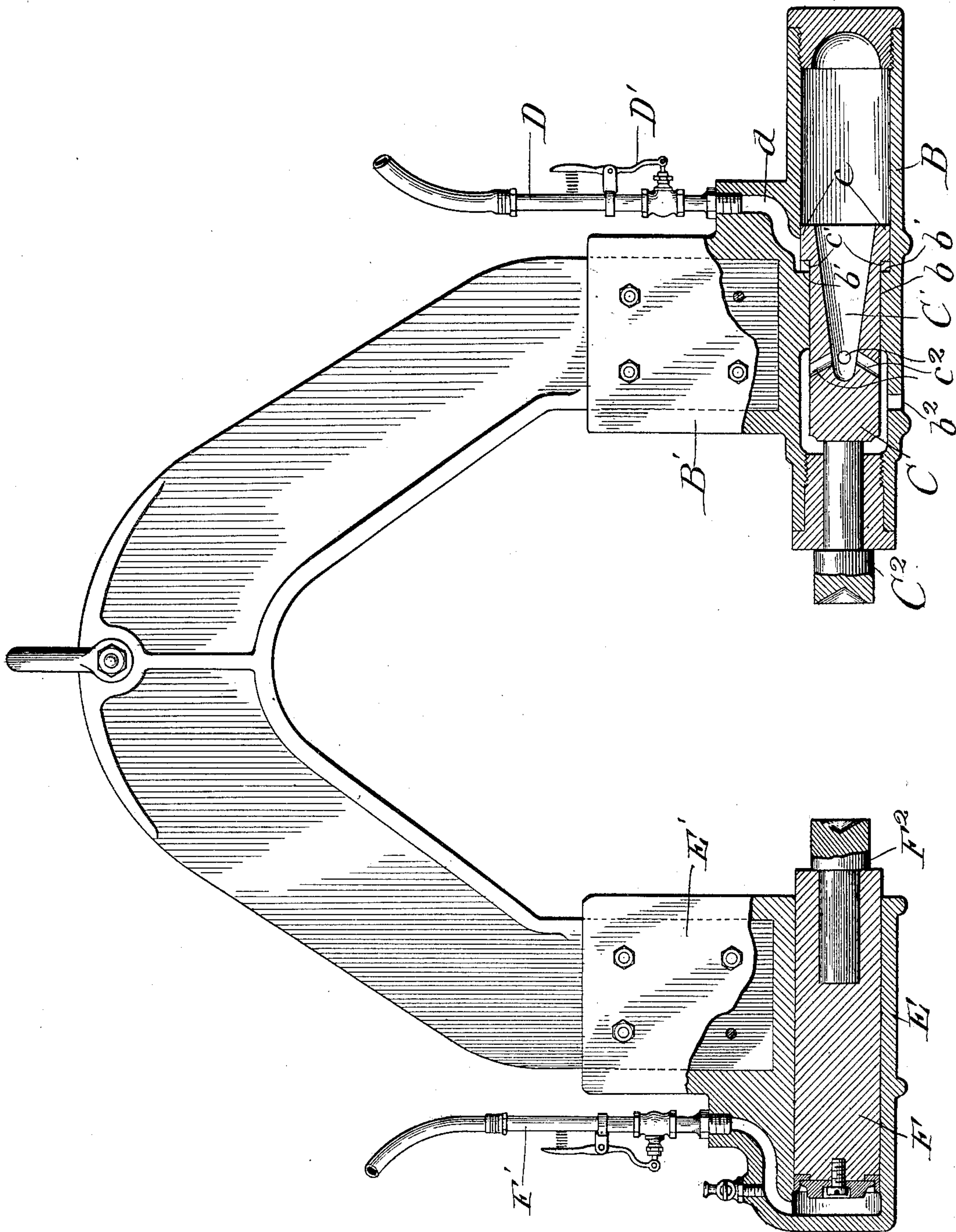
No. 657,904.

Patented Sept. 11, 1900.

C. H. JOHNSON.
RIVETING MACHINE.

(Application filed Dec. 15, 1897.)

(No Model.)



Witnesses:
E. S. Gaylord,
J. H. S. Allen.

Inventor:
Charles H. Johnson,
By *Banning & Banning, Sheridan,*
Attys.

UNITED STATES PATENT OFFICE.

CHARLES HARRIS JOHNSON, OF SPRINGFIELD, ILLINOIS.

RIVETING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 657,904, dated September 11, 1900.

Application filed December 15, 1897. Serial No. 661,932. (No model.)

To all whom it may concern:

Be it known that I, CHARLES HARRIS JOHNSON, a citizen of the United States, residing at Springfield, Illinois, have invented certain new and useful Improvements in Riveting-Machines, of which the following is a specification.

My invention has more particular reference to what are known as "yoke riveting-machines," where the riveting is done with a reciprocating or percussion hammer; and it has for its object to relieve the yoke from the strain and jar given by the blows of the hammer; and my invention consists in the features and details of construction hereinafter described and claimed.

In the drawing I have represented a broken longitudinal sectional elevation of my improved riveting-machine.

In making my improved riveting-machine I make a yoke A, which may be made of the desired size and material. I make a cylinder B, provided with a laterally-extending socket B', adapted to fit over one end of the yoke and to be riveted or otherwise attached thereto, as shown in the drawing. I reduce the interior diameter of the cylinder B a desired distance, as at *b*, providing a shoulder *b'*. I arrange in the cylinder a hammer-piston C of a diameter to fit within the reduced diameter of the cylinder B, but provided with an enlarged head *c*, having a shoulder *c'*. The hammer-piston C is provided with an interior recess C' at what I term its "outer end," into which ports *c²* lead. The cylinder B is also provided with a discharge-port *b²*, as shown in the drawing. When the piston is in its in or advanced position, the shoulders *b'* and *c'* are in proximity to each other. A pipe D leads from a source of fluid-supply, as steam or compressed air, and opens into cylinder B between the shoulders *b'* and *c'* through a port *d*. Valve mechanism, as D', may be employed for admitting or excluding the air or other motive fluid. In operation the compressed air or other motive fluid in the cylinder B between the shoulders *b'* and *c'* forces the hammer-piston back or out until the ports *c²* pass the shoulder *b'*, when the air or other motive fluid that has been operating between the shoulders *b'* and *c'* passes through the ports *c²* into recess C', so as to op-

erate between the outer end of the cylinder and the outer end of the piston and cause the piston to again be advanced or moved in. As the hammer-piston moves in the ports *c²* discharge into the inner space leading to the exhaust-port *b²* and allow the air that had passed in behind the outer end of the piston to escape. At the other end of the yoke I arrange another cylinder E, provided with a lateral socket E', permitting it to be attached by riveting or in any other desirable way to the end of the yoke to which it belongs. I arrange a hold-on piston F in the cylinder and lead a pipe F' from a source of compressed air or other motive fluid into the cylinder behind the hold-on piston, so that by admitting the motive fluid the hold-on piston can be advanced a desired distance and held in its advanced position by the compressed air behind it. Of course it will be understood that the front end of the hammer-cylinder carries a rivet-die C² and that the hold-on piston F carries a second rivet-die F², as shown in the drawing.

In operation the plates intended to be riveted are placed between the rivet-dies with the rivet in place and its head toward the rivet-die F². The compressed air or other motive fluid is now admitted through the pipe F' and the hold-on piston F advanced until its rivet-die rests against the head of the rivet. The air or other motive fluid is then introduced through the pipe D into the cylinder B, so that the hammer-piston is reciprocated, as already described, so as to administer a series of rapid and sharp blows on the end of the rivet-die C². As these blows are administered the hold-on piston F, with its rivet-die, is allowed to give or yield on its cushion of compressed air sufficiently to relieve the yoke from the jar and strain that it would be subjected to were not the yielding cushion provided behind the hold-on piston F to receive the impact of the blows administered by the hammer.

What I regard as new, and desire to secure by Letters Patent, is—

1. In a portable riveter, the combination of a bifurcated yoke, one end of which has a fluid-pressure cylinder in which a clamping-piston is reciprocatingly mounted and the other end with a cylinder having a percus-

sion-hammer arranged therein and a die interposed between the hammer and rivet to be operated on and held in position by the percussion-hammer cylinder, substantially as described.

5 2. In a pneumatic riveter, the combination with a yoke, of a hold-on having a rivet-die, a pneumatic hammer comprising a hammer-cylinder and a hammer-piston, a rivet-die
10 supported by the cylinder of the hammer-

piston, and fluid-pressure means for causing the said hammer and hold-on to automatically clamp and hold the rivet between the rivet-dies during the operation of the pneumatic hammer.

CHARLES HARRIS JOHNSON.

Witnesses:

WM. BARRET RIDGELY,
FRANKLIN RIDGELY.