

No. 776,110.

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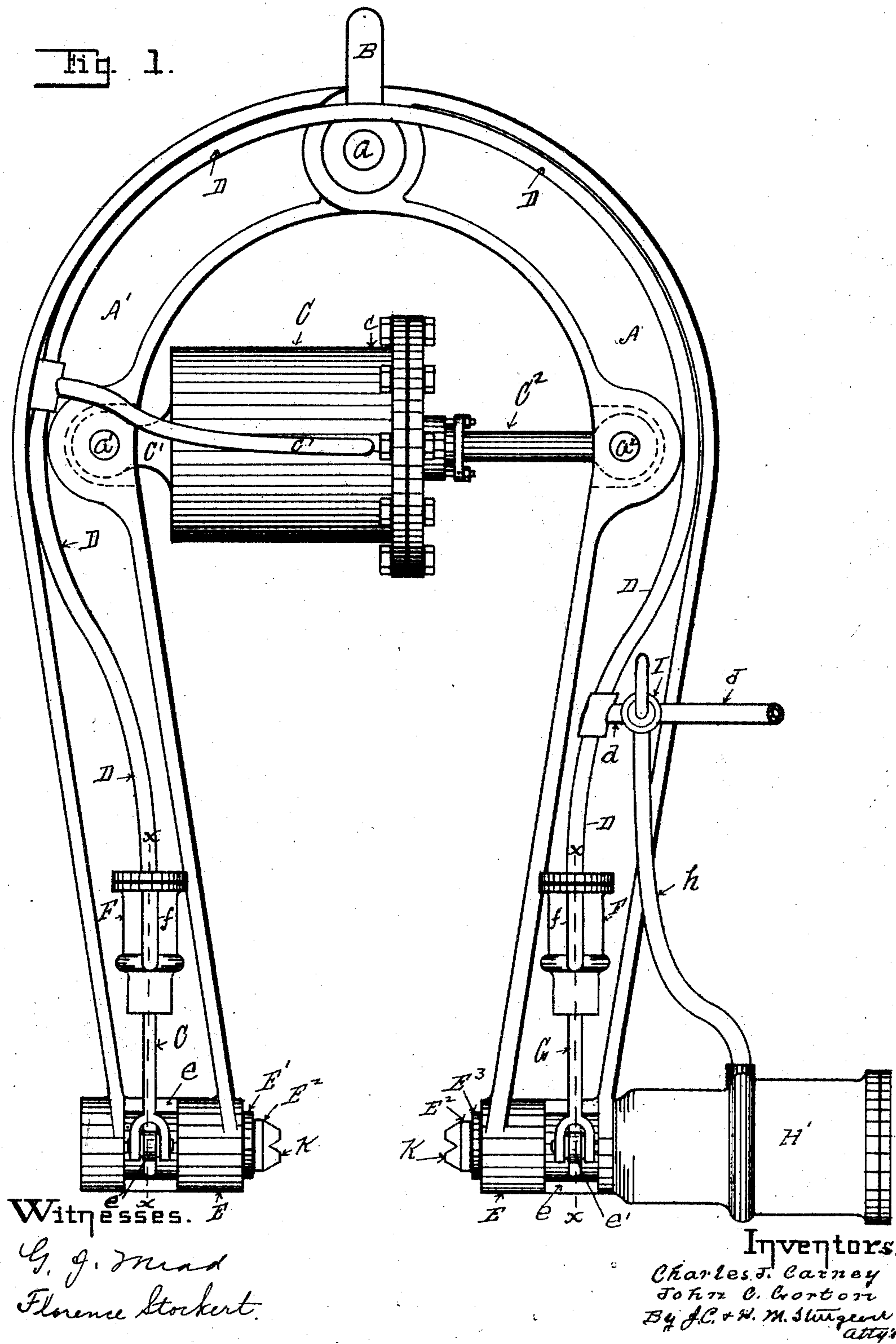
C. J. CARNEY & J. C. GORTON.

RIVETING MECHANISM.

APPLICATION FILED FEB. 6, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



UNITED STATES PATENT OFFICE.

CHARLES J. CARNEY, OF DUNKIRK, AND JOHN C. GORTON, OF
SCHENECTADY, NEW YORK.

RIVETING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 776,110, dated November 29, 1904.

Application filed February 6, 1904. Serial No. 192,435. (No model.)

To all whom it may concern:

Be it known that we, CHARLES J. CARNEY, residing at Dunkirk, in the county of Chautauqua, and JOHN C. GORTON, residing at Schenectady, in the county of Schenectady and State of New York, citizens of the United States, have jointly invented certain new and useful Improvements in Riveting Mechanism; and we do hereby 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming a part of this specification.

This invention relates to riveting mechanism, and particularly to hinged-jaw stay-bolt riveters of the type granted to us by Letters Patent No. 737,344, dated August 25, 1903, and embodies jaws hinged together and provided preferably with a pneumatic cylinder for drawing the free ends of said jaws together, the free end of one jaw being provided with oscillating-die mechanism and the free end of the other jaw with oscillating-die mechanism and pneumatic-hammer mechanism operating thereon, whereby dies can be brought into contact with the ends of a rivet or stay-bolt and the mechanism operated to form heads on both ends thereof.

The mechanism which we have devised and embodied in our invention is hereinafter fully set forth and described, and illustrated in the accompanying drawings, in which—

Figure 1 is a side view in elevation of our improved riveting mechanism. Fig. 2 is a vertical section on the line *x x* in Figs. 1 and 3. Fig. 3 is a vertical section on the line *y y* in Fig. 2. Fig. 4 is a like vertical section through the opposite or hammer arm of the riveter. Fig. 5 is a transverse section on the lines *z z* in Figs. 3 and 4. Fig. 6 is an end view in elevation of a form of die used in our riveter. Fig. 7 is a sectional view of the same.

In the drawings illustrating our invention, A and A' are jaws having their upper portions curved toward each other until they meet and

are pivoted together by means of a pintle *a*, upon which pintle there is a clevis B for suspending the structure.

Between the jaws A A', adjacent to the pivoted junction thereof, we secure a pneumatic cylinder C, provided at one end with an arm C', pivoted to the jaw A' by means of a pivot *a'*. In this cylinder there is the usual piston, (not shown,) the piston-rod C² of which is pivoted to the jaw A by means of a pivot *a''*, and from the end *c* of the cylinder a flexible pipe *c'* extends to an air-supply pipe D, mounted upon the jaws A A' for supplying air to the cylinder C as desired for moving the free ends of the jaws A A' toward each other.

On the lower end of the jaw A' there is a die-support E, in which there is mounted an oscillatory die-socket member E'. The central portion of the die-support is provided with a vertical slot *e*, through which an arm *e'* on the die-socket member E' projects, whereby the die-socket member E' can be oscillated as desired, and the central opening in the die-socket member E' is also provided with a flat side, as illustrated in Fig. 5, so that the stem *e''* of the die E² inserted therein will be oscillated therewith. For oscillating the die-socket E' we secure to the arm A' a pneumatic cylinder F, provided with a piston F', an air-inlet *f*, connecting with the air-supply pipe D, an exhaust-port *f''*, and a by-passage *f'''*, as illustrated in Fig. 2, this mechanism being of what is known as the "valveless-hammer" type, and to the lower end of the piston F' there is pivoted a connecting-rod G, which extends to and is pivoted to the arm *e'* on the die-socket member E', so that when air is supplied to the cylinder F by the pipe D the piston F' therein operates reciprocally and through the connecting-link G operates the die-socket member E'.

On the lower end of the arm A there is a duplicate of the mechanism on the end of the arm A', hereinbefore described, with the exception that in lieu of the die-socket member E' (see Fig. 3) for holding a stationary die, the die-socket member E³ in this has a central die-opening throughout its entire length, as

shown in Fig. 4, so that the die-stem e^3 of the die E^2 extends therethrough far enough to receive the blow of a hammer-piston H, operating in a hammer-cylinder H'. Otherwise this mechanism is the same in construction and operation as that upon the jaw A', hereinbefore described. This hammer H H' is of the ordinary valveless type, and as the construction and operation thereof are well known and form no part of our invention further description thereof is deemed unnecessary.

The air-supply pipe D is secured to the jaws A A' and is sufficiently flexible to permit it to move therewith and extends to and connects with the air-inlets $f f$ of the cylinders F F, and air is supplied thereto by a branch d , leading to an ordinary three-way valve I, from which an air-pipe h leads to the hammer-cylinder H', and a supply-pipe J leads to a source of compressed-air supply, so that the three-way valve I when operated supplies air to the pipe D for the cylinder C and the cylinders F F and to the pipe h for the hammer-cylinder H'.

In Figs. 6 and 7 we show forms of die-faces for the dies E^2 used as a part of our mechanism, this die-face K being provided with a conical central projection K, adapted to enter the opening in the center of a stay-bolt and prevent its being closed up while being riveted. The die-face K is also provided with radial V-shaped grooves k' , adapted to assist in forming the head upon a stay-bolt.

In operation the jaws A A' are brought together, so that the die-faces K K are in contact with the ends of a stay-bolt to be riveted. The operator then opens the three-way valve I, and thereby supplies air to the cylinder C, which operates to clamp the dies firmly against the ends of the stay-bolt and simultaneously starts the pistons F' F' and the hammer-piston H into operation, whereby heads are formed on the stay-bolt, as desired.

We have thus shown and described a convenient construction of mechanism embodying our invention, so as to enable others to construct and utilize the same; but we do not desire to confine ourselves to the exact construction shown and described, as we are aware that many parts thereof may be considerably modified without departing from the spirit of our invention.

Therefore what we claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination in a riveting mechanism, of a pair of jaws pivoted together, mechanism for moving the free ends of said jaws toward and away from each other, a die-socket support, an oscillatory die-socket member therein adapted to receive and retain a grooved-faced die, and mechanism for rotating said die-socket member on the free end of one jaw, a die-socket support, an oscillatory die-socket member therein adapted to retain a grooved-faced die and mechanism for rotating said die-socket member on the free end of the other jaw, and a pneumatic-hammer mechanism on the same jaw operating on the stem of the die on said jaw, substantially as and for the purpose set forth.

2. The combination in a riveting mechanism of a pair of swinging jaws, die-socket supports on each side of said jaws so as to be in opposition, an oscillatory die-socket member in each of said die-socket supports, a removable serrated-faced die in each die-socket member and non-rotatable therein, a pneumatic cylinder and piston mechanism mounted on each jaw, and connections between said pistons and the die-socket members, substantially as and for the purpose set forth.

3. The combination of a pair of jaws pivoted together, pneumatic-cylinder mechanism for moving said jaws toward each other, a die-socket support on the free end of each of said jaws, a rotatable die-socket member in each die-socket support, a die in each socket member non-rotatable therein, a pneumatic cylinder and a piston operating therein on each jaw, a connection between the piston of each of said cylinders with the rotatable die-socket member corresponding thereto, pipe and valve mechanism connecting said cylinders with a suitable compressed-air supply, and a pneumatic hammer on one of said jaws adapted to operate on the stem of the die in one of said die-socket members, substantially as and for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

CHARLES J. CARNEY.
JOHN C. GORTON.

Witnesses as to Charles J. Carney:

JERRY MEEHAN,
JACOB WILLARD.

Witnesses as to John C. Gorton:

GEORGE H. SMITH,
FRANK H. DETTBARN.