J. FRENCH.

MACHINES FOR WELDING TUBES.

No. 194,593. Patented Aug. 28, 1877.

Fig: 2.

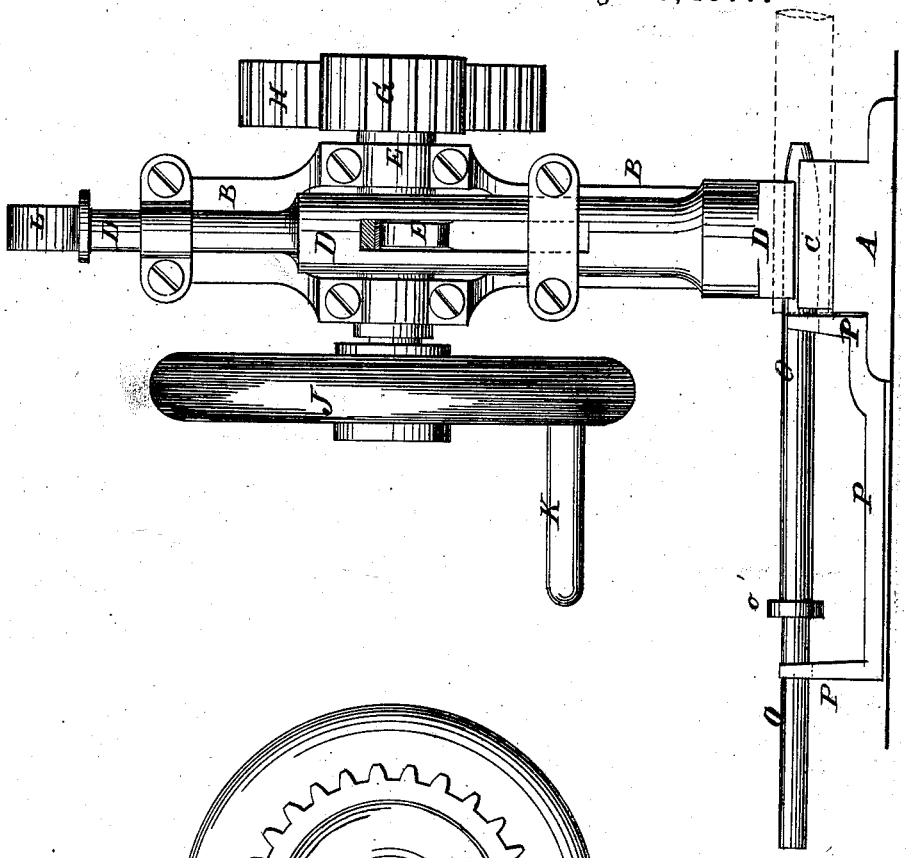


Fig: 1.

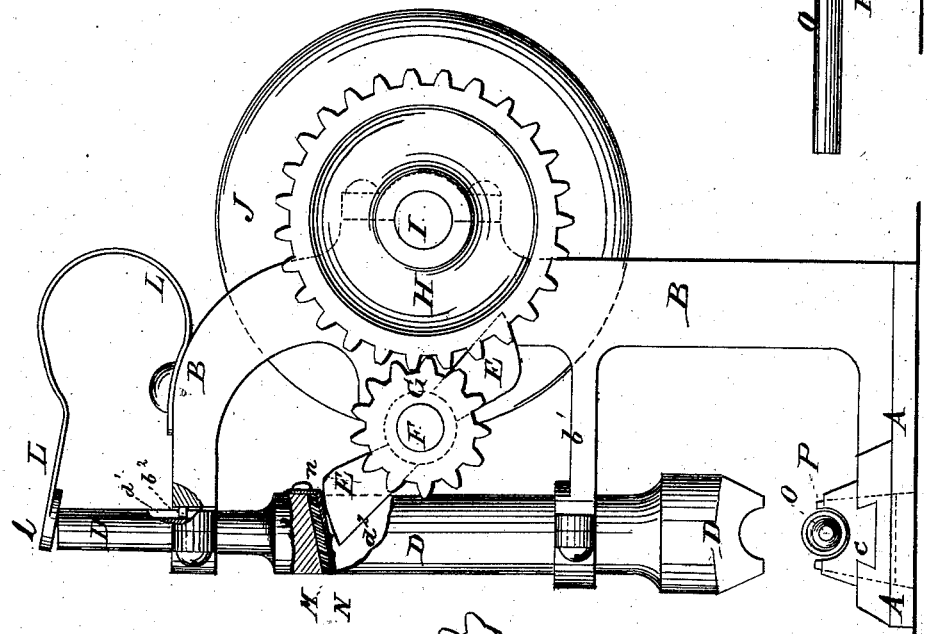
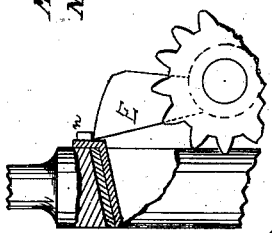


Fig. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN FRENCH, OF SOUTH ST. LOUIS, MISSOURI, ASSIGNOR TO HIMSELF AND JAMES W. HILL, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR WELDING TUBES.

Specification forming part of Letters Patent No. **194,593**, dated August 28, 1877; application filed May 21, 1877.

To all whom it may concern:

Be it known that I, JOHN FRENCH, of South St. Louis, in the county of St. Louis and State of Missouri, have invented a new and useful Improvement in Flue and Tube Welders, of which the following is a specification:

Figure 1 is a side view of my improved machine, part being broken away to show the construction. Fig. 2 is a front view of the same. Fig. 3 is a detail view, showing the hammer held up while the tubes are being placed in the die.

Similar letters of reference indicate corresponding parts.

The invention will first be described in connection with the drawing, and then pointed out in the claim.

A is the base of the machine, to the rear part of which is attached or upon it is formed a standard, B. To the base A is secured the lower die C, the face of which is concaved to receive the tube to be welded.

D is the hammer, the head of which is concaved to fit upon the tube to be welded. The stem of the hammer D passes through bearings attached to the forward end of an arm, b^1, formed upon the standard B, and through bearings attached to the forwardly-projecting upper end of the said standard. The hammer D is kept from turning as it moves up and down by a pin, b^2, attached to the upper bearing, and which enters a groove, d^1, in the hammer stem. The middle part of the stem of the hammer D has a longitudinal slot, d^2, formed in it to receive the cams E, by which the hammer is raised, and which are attached to a shaft, F.

The shaft F revolves in bearings attached to the forward side of the standard B, and to one of its ends is attached a small gear-wheel, G, the teeth of which mesh into the teeth of a large gear-wheel, H, attached to one end of the shaft I.

The shaft I revolves in bearings attached to the rear side of the standard B, and to its other end is attached a fly-wheel, J, to which a crank-pin, K, is attached when the machine is to be driven by hand, and around which is passed a belt when the machine is to be driven by power.

The hammer D, when released from the cams E, is thrown down by its own weight, and by the spring L, which is attached to the upper part of the standard B, and its free end rests upon the upper end of the stem of the hammer D.

In the upper end of the slot d^2 is placed a rubber cushion, M, to prevent jarring when the stem is struck by the cams E, which cushion is kept in place and protected from wear by a metal plate, N.

The bolt n is so placed as to receive the end of a cam, E, when the hammer is held up, in order that the tubes to be welded may be suitably arranged in the die.

The flue or tube to be welded is placed upon the mandrel O, which rests in semicircular notches in the ends of the arms of the holder P. The holder P is secured to the base A, and the notch in its inner arm is made the same size as the cavity of the die C, and is beveled so that when the end of the tube or flue is placed upon the forward end of the mandrel O, and is slipped back, it can readily pass through the said notch. The forward end of the mandrel O is tapered so that the flue or tube can be slipped upon it without its being necessary to take hold of the said mandrel O.

Upon the mandrel O is formed, or to it is attached the collar o', which is placed between the arms of the holder P, to prevent the said mandrel from getting out of place.

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

The friction-plate N, arranged in a slot, d^2, of the hammer D, in combination with a bolt, n, that both secures said plate, and serves as a stop for the cam, as shown and described.

JOHN FRENCH.

Witnesses:

ALPHONSE F. PERRIER,

JOHN DONALDSON.