# Duff & Griffith,

## Making Dentists' Rivets,

No. 46,786. Patented Mar. 14, 1865.

Fig. 1.

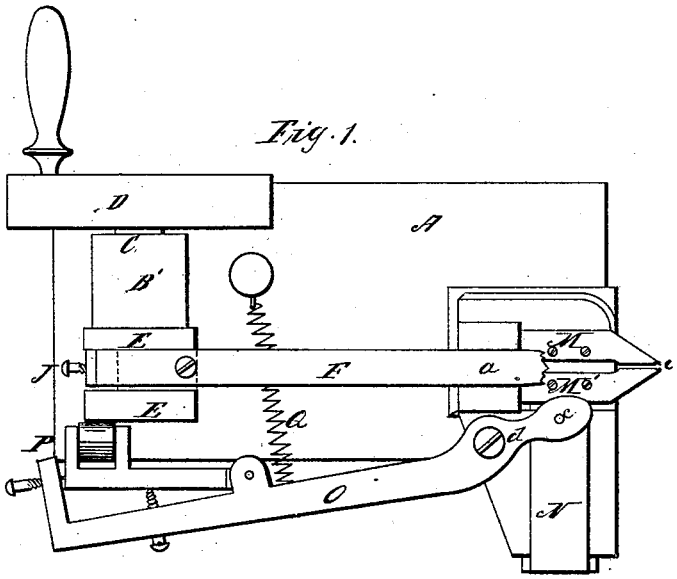


Fig 4.

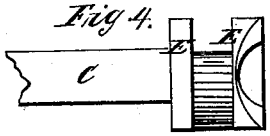


Fig 2.

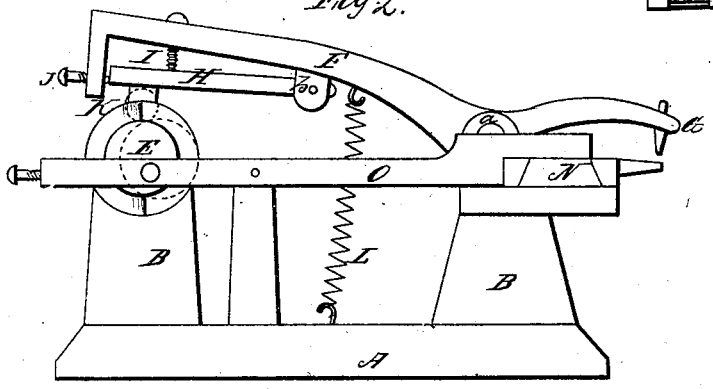


Fig. 3.

Witnesses:

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# UNITED STATES PATENT OFFICE.

WILLIAM A. DUFF AND JETHRO J. GRIFFITH, OF PHILADELPHIA, PA.

## MACHINE FOR HEADING DENTISTS' PINS.

Specification forming part of Letters Patent No. **46,786**, dated March 14, 1865.

*To all whom it may concern:*

Be it known that we, WILLIAM A. DUFF and JETHRO J. GRIFFITH, both of the city of Philadelphia, and State of Pennsylvania, have invented a new and improved machine for heading the exposed ends of the pins used in the manufacture of artificial teeth; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, forming a part hereof, in which—

Figure 1 is a top view, and Fig. 2 a side view, of the machine. Fig. 3 is a section of part of a set of block teeth, showing the pins used in their construction, a portion of the pins being headed and the remainder of them not headed, or as they all are when the teeth come from the mold. Fig. 4 is a side view of the cam detached.

To enable others skilled in the art to make and use our improved machine, we will proceed to describe its construction and mode of operation.

A represents the base of the machine; B B′, upright supports for the several working parts thereof; C, a shaft which passes through an aperture in the upright B′, and carries on one end the wheel or crank D, by which power is applied, and on its other end the double cam E.

F is a lever pivoted at *a*. G is an adjustable plunger, being provided with a screw-thread by which it is let more or less into the end of lever F. This lever F has attached to its outer end an adjustable arrangement of parts, consisting of a small lever, H, pivoted near one end, at *b*, and having its other end free and held in the position in which it is set by means of the screw I by a binding-screw, J. The small lever H carries a friction-wheel, K, which traverses the upper surface of the cam E, as shown in Fig. 2. The whole arrangement composing the levers F and H regulates the pressure applied through the plunger G to the pins to be headed. The friction-wheel is kept in contact with the surface of the cam E by means of a spring, L, or by a weight.

M M′ are two gripping-jaws, of which the jaw M may be stationary and the jaw M′ movable, the latter being fastened to a sliding piece, N, which is moved by the lever O, attached to it by means of a pin or screw, *c*. The lever O is pivoted at *d*, and is provided at its outer end with an adjustable arrangement of parts, such as are above described as being applied to the lever F. The friction-wheel P traverses the surface of the end of the cam E against which it is caused to bear constantly by means of the spring Q, or by a weight suspended from it over a pulley.

The end of the plunger G is made concave, so as to give shape to the heads of the pins.

The gripping-jaws M M′ are tapered, as shown in Fig. 1, in order that the ends of the jaws can be inserted between the pins (shown in Fig. 3) during the operation of heading. These jaws are each cut out on their inner surfaces at or near their outer ends, as shown in Fig. 1, forming, when they are brought together, a small cylindrical aperture, *e*, rather less in size than the size of the wire forming the pins. The inner surfaces of the jaws are corrugated or roughened, and the movable jaw M′ is caused, by the action of the sliding piece N, to come squarely up against the stationary jaw M in order that the pins may be more securely held while the heads are being formed.

By extending the lever O so that its inner end shall form a jaw, and at the same time properly changing the center of the lever, the movable jaw M′ and the sliding piece N may be dispensed with; but the results attained by such arrangement are not so satisfactory as when the movable jaw is employed.

The cam E, the adjustable small levers attached to the outer ends of the levers F and O, and the driving wheel or crank D may be dispensed with, and the movable jaw M′, having attached to it a spring or a weight suspended over a pulley, may be operated by means of a treadle or by hand, and the lever F, carrying the plunger G, may be worked by hand or by a treadle.

Instead of using the described adjustable auxiliary levers and friction-rollers at the outer ends of levers F and O, these auxiliary parts may be dispensed with, and the outer ends of levers F and O, or adjustable pins, like the screw I, may be caused to bear on the double cam E.

Having thus described our invention, what

we claim, and desire to secure by Letters Patent, is—

The combination of the double cam E, the levers F and O, with their adjustable auxiliary levers and friction-rollers, (or the described or other equivalents for these adjustable parts,) the sliding piece N, and jaws M M′, in the manner and for the purpose substantially as described.

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JETHRO J. GRIFFITH.

Witnesses:
J. E. SHAW,
JAMES MCCAHEN.