

(No Model.)

2 Sheets—Sheet 1.

J. J. R. PATRICK.

DIE AND PUNCH FOR MAKING METAL CROWNS FOR TEETH.

No. 381,416.

Patented Apr. 17, 1888.

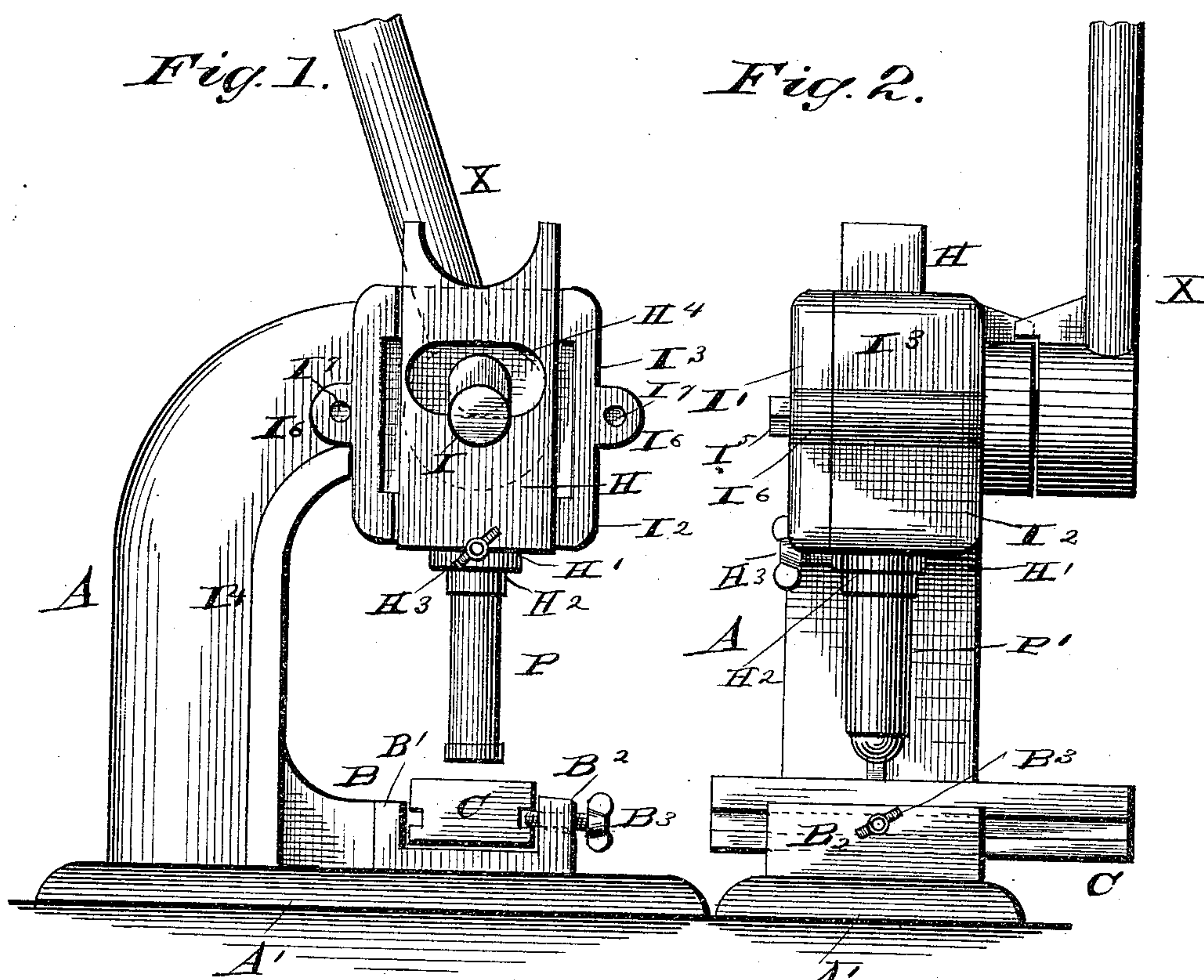


Fig. 5.

Fig. 6.

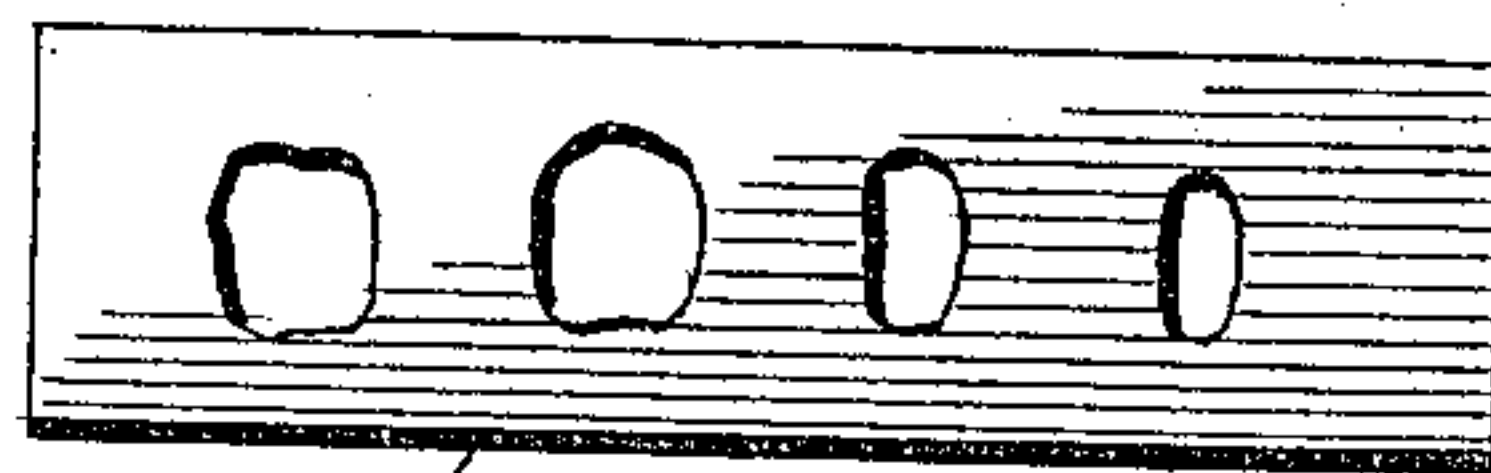
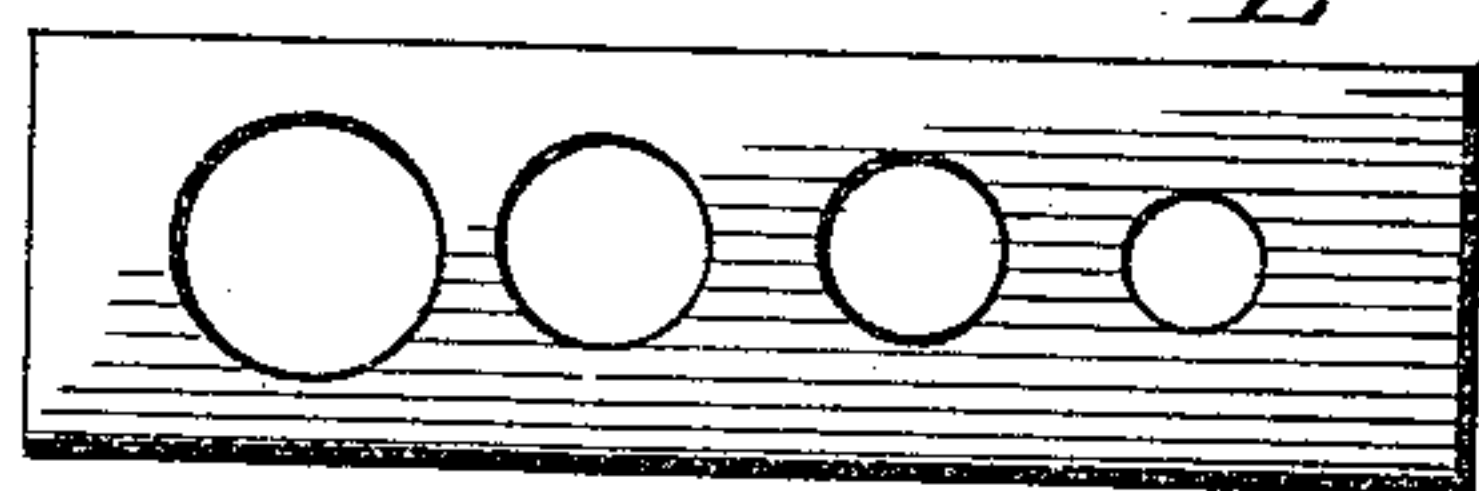


Fig. 7.

Fig. 8.

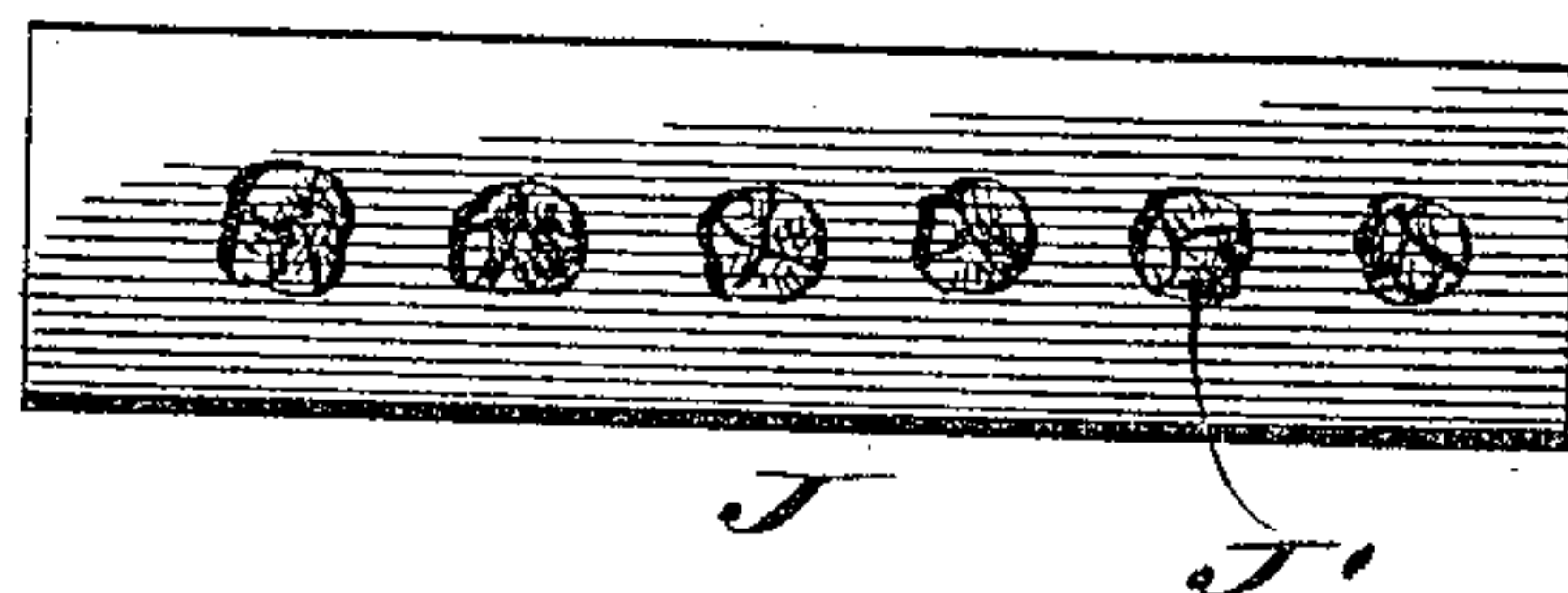
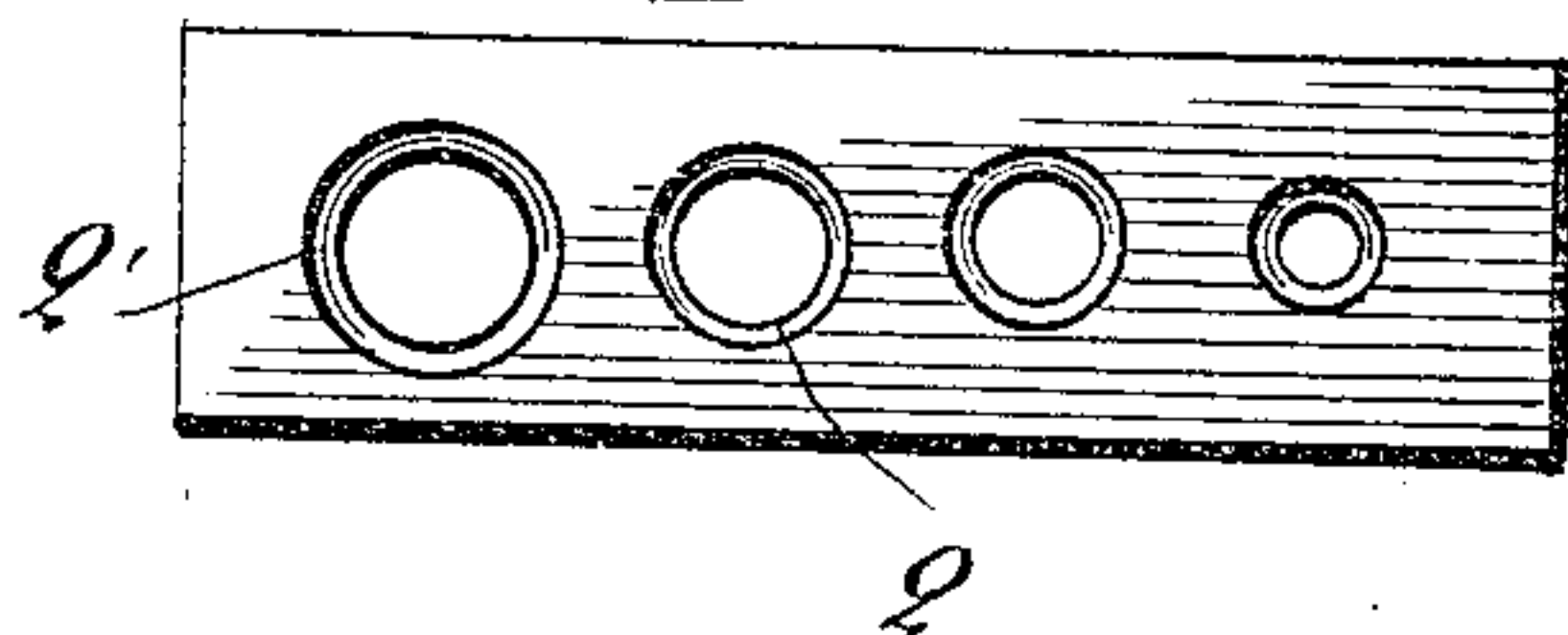


Fig. 9.

WITNESSES.

Phil. Masi.  
Benj. Fugitt.

INVENTOR.

Jno. J. R. Patrick.  
by Anderson & Smith  
his Attorneys.

(No Model.)

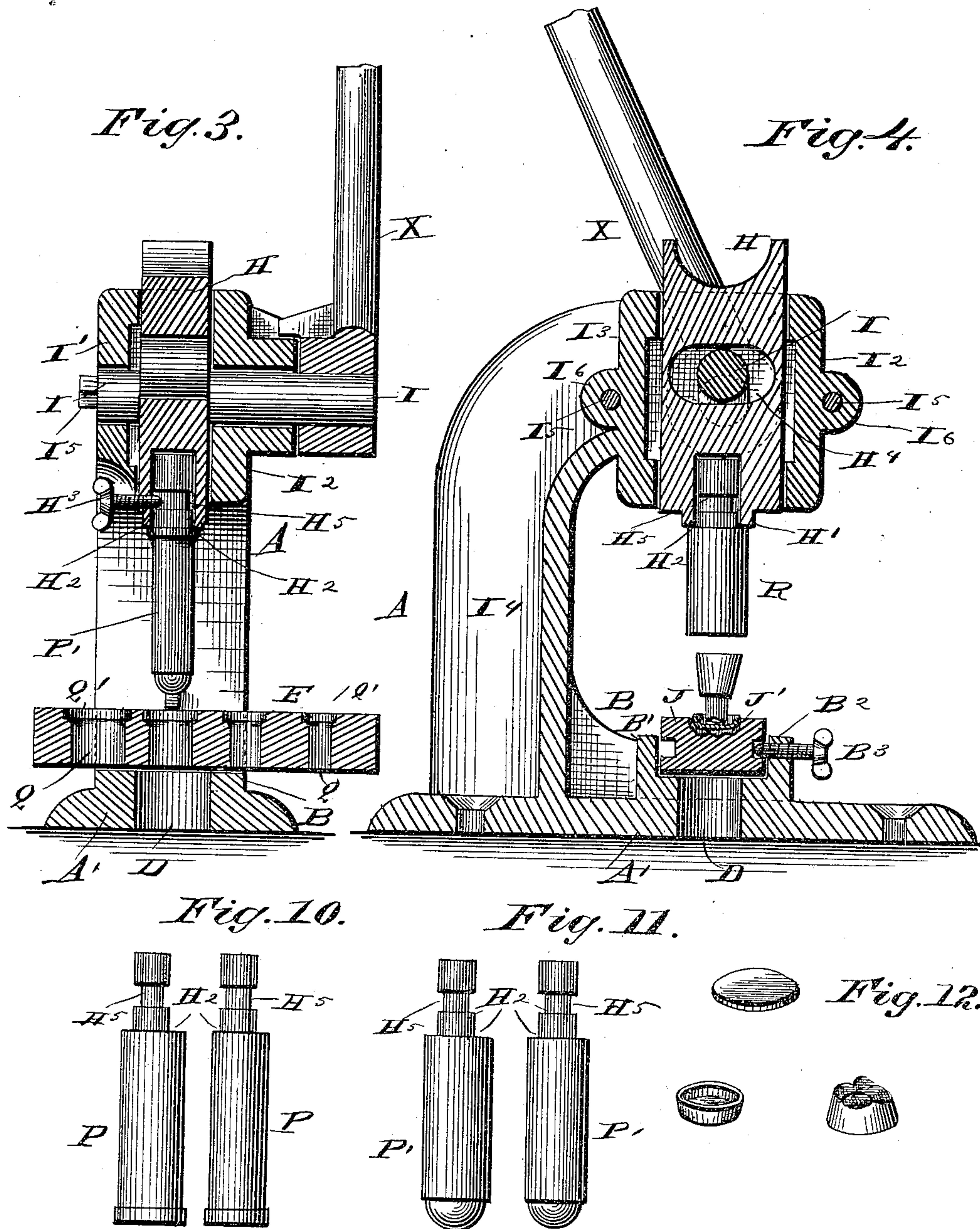
2 Sheets—Sheet 2.

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WITNESSES  
*Phillips*  
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INVENTOR  
*Jno. J. R. Patrick*  
by *Anderson & Smith*  
his Attorneys



# UNITED STATES PATENT OFFICE.

JOHN J. R. PATRICK, OF BELLEVILLE, ILLINOIS.

## DIE AND PUNCH FOR MAKING METAL CROWNS FOR TEETH.

SPECIFICATION forming part of Letters Patent No. 381,416, dated April 17, 1888.

Application filed April 21, 1886. Renewed March 1, 1888. Serial No. 265,868. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN J. R. PATRICK, a citizen of the United States, residing at Belleville, in the county of St. Clair and State of Illinois, have invented certain new and useful Improvements in Dies and Punches for Making Metal Crowns for Teeth; and I do 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 letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a side elevation. Fig. 2 is a front elevation. Fig. 3 is a transverse section. Fig. 4 is a vertical section. Figs. 5, 6, 7, 8, 9, 10, 11, and 12 are detail views of various parts; and Fig. 9 is a view of the male die.

My invention relates to dies and punches for making metal crowns for teeth; and it consists in the construction and novel combination of parts, as hereinafter described, and pointed out in the claim.

Referring by letter to the accompanying drawings, A designates the press, the base A' of which is provided with the integral die-seat B, having the rear flange, B', and the front flange, B<sup>2</sup>, the latter being provided with the set-screw B<sup>3</sup>, which is designed to hold the cutting-die C in place at any required adjustment in the die-seat B.

The die-seat B is provided with a discharge-opening, D, which is slightly greater in diameter than the largest female die in either the cutting-die E, the cupping-die F, or the shrinking-die G, in order that the blanks cut from the metal plates used will fall through said discharge-opening when the punch or male die is raised out of the female die.

H is the tool-holder, which is provided with a seat, H', for the upper or shank ends of the punches, which are provided with shoulders H<sup>2</sup>, which limit the distance to which the upper end of the punches enter the seat H', and a set-screw, H<sup>3</sup>, enters the holder H from one side near its lower end, and when turned up to place holds the punches firmly in the seat H'.

The holder H is provided with a nearly heart-shaped recess or opening, H<sup>4</sup>, extending

laterally through it between its upper and lower ends, and through this opening H<sup>4</sup> the cam-shaft I extends and has its bearings in the vertical side walls, I' I<sup>2</sup>, of the hollow head I<sup>3</sup> of the press standard I<sup>4</sup>. The cam-shaft is operated by a lever, X, to work the holder. The side wall, I', of the hollow head I<sup>3</sup> is removable to permit of the insertion of the tool-holder H, and this removable side wall is secured in place by screw-bolts I<sup>5</sup> I<sup>6</sup>, which pass through lugs I<sup>6</sup> on said side wall, and enter threaded seats I' I<sup>7</sup> on the exterior faces of the end walls of the hollow head I<sup>3</sup>.

J designates the bar containing the female dies J' for the larger and smaller molars. Other bars are provided with female dies for upper and lower, larger and smaller bicuspid, and a sufficient number of these bars with said female dies are provided, so that by their use in conjunction with male dies for each of the female dies all sizes of crowns may be made, so that all sizes of teeth, both rights and lefts and upper and lower jaw-teeth, may be treated and fitted. The thickness of the metal plate for use in the dies should not be greater than No. 29, nor thinner than No. 30, American standard gage.

To form the blanks for the crowns, slip the cutting-punch P, for the size of crown desired, in place in the tool-holder H, and tighten the set-screw H<sup>3</sup> to hold it firmly in place, the point of the same entering the annular groove H<sup>5</sup> in the shank of the tool. Then slide the cutting-die E in place under the cutter gently, so that the latter will pass freely into the die. While there secure the die in place with the thumb-screw B<sup>3</sup> in front of the bed of the press, which will give the true center. For the larger molars I use the larger cutters to cut the blanks, and for the smaller molars I use the smaller cutters to cut the smaller blanks. For large bicuspid I use the third-sized cutter, and for lower or upper small bicuspid I use the smaller cutter. After the blanks have been cut, remove the cutter and die. If a large crown is needed, slip the larger plunger, P', in place and secure it with the thumb-screw H<sup>3</sup>. Then slide the cupping-die F in place under the plunger, bringing down the plunger into the large hole, and while there secure the cupping-die in place in the die-seat B. This gives the



true center. Then lift the plunger P' from the  
 hole Q and slip the large blank into the coun-  
 tersink Q' at the upper end of the hole Q.  
 Then bring down the plunger and force the  
 5 blank through the die. This forms the cup.  
 Anneal the cup thus made and remove the cup-  
 ping-die and plunger from the press. Put the  
 hammer R in place in the same manner as the  
 cutter or plunger was put in. The tooth be-  
 10 ing selected by number, place the annealed cup  
 in the female die of the bar J, and the male  
 die corresponding in position above the metal.  
 Slide both dies and cup under the hammer and  
 press the male die into the cup. Remove the  
 15 metal after the first pressure and anneal as be-  
 fore. After pressure, the cervical border of  
 the crown may not be as close to the male die  
 as desired; but a few taps with a small hammer  
 while the crown is on the die will adjust it.  
 20 If the cervical border of the crown is found  
 to be too large for the band which encircles  
 the root of the natural tooth for which the  
 crown was intended, reverse the crown in the  
 shrinking-die G, and by interposing a piece of  
 25 soft wood between the cup and the hammer R  
 of the press a gentle pressure will shrink the

cervical border, and the deeper the crown is  
 sunk into the shrinking-die the greater will be  
 the contraction of the circumference of the  
 cervical border.

Having described this invention, what I  
 claim, and desire to secure by Letters Patent,  
 is—

An improved apparatus for the manufacture  
 of metal crowns for teeth, comprising a main  
 35 frame carrying a standard adapted to receive  
 a vertically-movable tool-holder, the said frame  
 having a die-seat with outlet base-aperture  
 receiving interchangeably a cutting-die, a clip-  
 ping-die, a shrinking-die, and a female die, as  
 40 described, and provided with means for tru-  
 ing the same with relation to the manipulat-  
 ing-tools, the tool-holder having a slotted body  
 and the shaft of the hand-lever having a cam  
 engaging the said slot, substantially as speci- 45  
 fied.

In testimony whereof I affix my signature in  
 presence of two witnesses.

JOHN J. R. PATRICK.

Witnesses:

THEO. MUNGEN,  
 PHILIP C. MASI.