

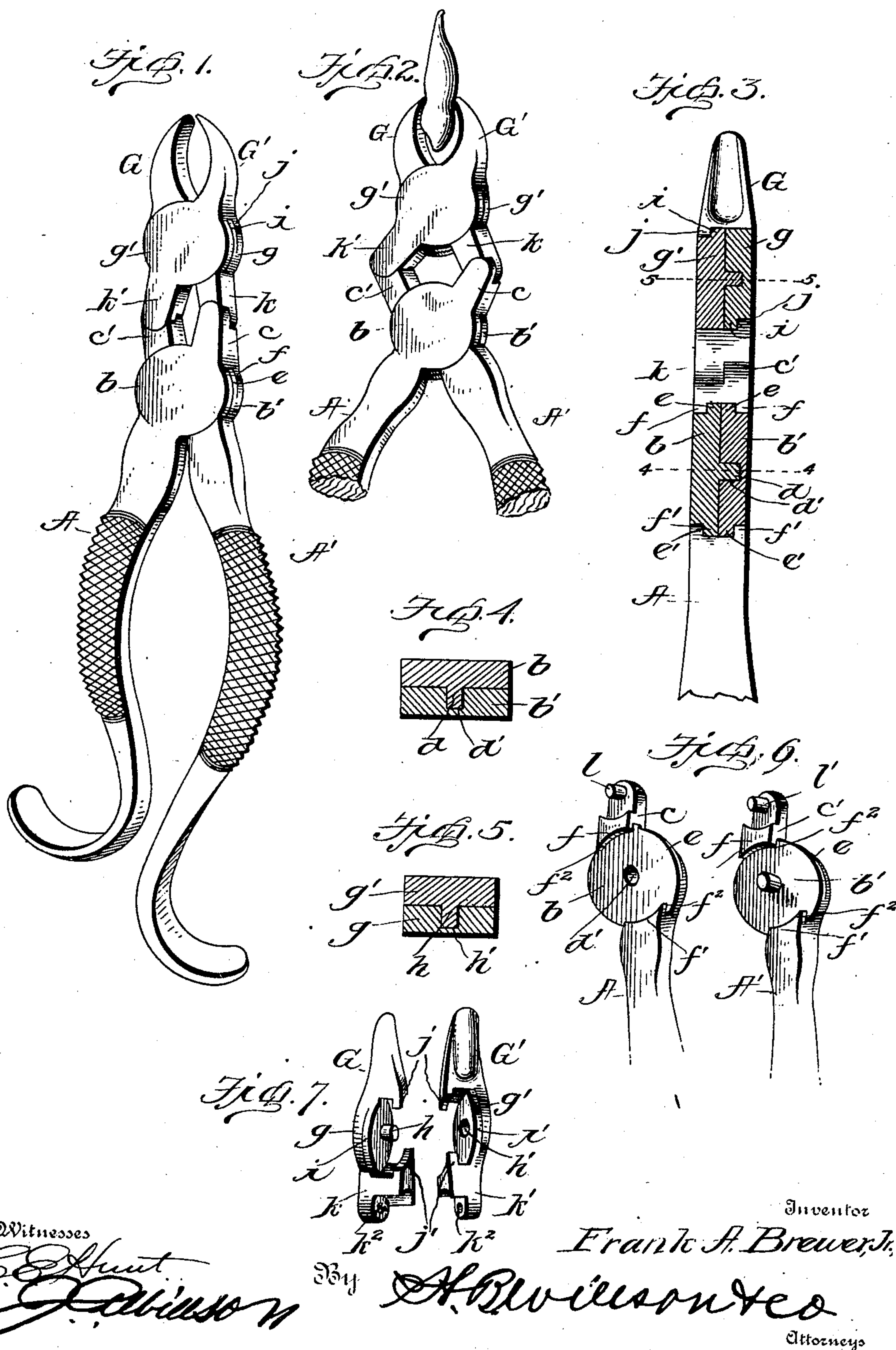
No. 680,119.

F. A. BREWER, JR.  
DENTAL FORCEPS.

Patented Aug. 6, 1901.

(Application filed Mar. 11, 1901.)

(No Model.)



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## DENTAL FORCEPS.

SPECIFICATION forming part of Letters Patent No. 680,119, dated August 6, 1901.

Application filed March 11, 1901. Serial No. 50,642. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK A. BREWER, Jr., a citizen of the United States, residing at Watsonville, in the county of Santa Cruz and State of California, have invented certain new and useful Improvements in Dental Forceps; 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.

My invention relates to improvements in dental forceps of that class wherein the beaks or jaws have a toggle-joint connection with the handles, thus forming an instrument of maximum strength, and wherein the parts are adapted to be readily and conveniently assembled and disassembled for sterilizing, ready repairs, and the use of various kinds of beaks.

The invention consists of certain novel features of construction and combination of parts, as will be hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a pair of dental forceps embodying my invention. Fig. 2 is a similar view of the jaws and cooperating parts, showing the jaws open. Fig. 3 is a longitudinal section on the line of the pivots of the handles and jaws. Fig. 4 is a cross-section on line 4 4 of Fig. 3. Fig. 5 is a cross-section on line 5 5 of Fig. 3. Fig. 6 are detail perspective views of the pivoted ends of the handles. Fig. 7 are similar views of the jaws.

Referring now more particularly to the drawings, the letters A A' represent the curved or bowed handles of the tool, which are provided at their forward ends with substantially circular pivot-plates b b', having forwardly-projecting arms c c'. These plates have a combined width equal approximately to the width of the handles and are connected by a pivot-pin d, formed upon one and entering a socket d' in the other. Each plate is formed on its front and rear edges with a locking flange or rib e e', which curves outwardly gradually from its outer or reduced end to its inner end adjacent to the arm c or c' and which fits and moves within fixed guides and keepers f f' upon the other pivot-plate, said keepers being each formed with a stop flange or lip f<sup>2</sup>, which engages the outer

side of the flange e or e' and normally holds the handles connected. When the handles A A' are moved to the limit of their outward movement, however, the reduced ends of the flanges e e' will clear the flanges f<sup>2</sup>, so as to permit of the handles being readily detached.

The beaks or jaws G G' are provided with similar pivot-plates g g', pivotally connected by a pin h on one and entering a socket h' in the other. The front and rear edges of each plate are formed with locking flanges or ribs i i, similar to the flanges e e', which cooperate with keeper-flanges j j' upon the heels of the opposing jaw and pivot-plate. When the jaws are opened to their fullest extent—a distance greater than required in use—the reduced ends of the locking-flanges will clear the keepers and permit of the jaws being detached. At all other times the jaws are held firmly connected and cannot in the ordinary use of the forceps become casually disengaged. Each jaw is formed with an arm k k', having a socket k<sup>2</sup> to receive pivot-pins l l' upon the arms c c' of the handles. By this construction it will be seen that the arms c c' and k k' act as toggle-jointed levers operated by the handles A A' to open and close the jaws G G', whereby an extremely-powerful form of tool is provided; also, that the mode of connecting the parts permits of their ready assemblage and disassemblage for repairs, sterilizing, and the use of different kinds of jaws or beaks, according to the character of the work to be done, so that one handpiece will serve for a full set of jaws.

It will be noted that the parts are so arranged that when the jaws are closed the arms c c' k k' do not come together, but leave a space between them, the purpose of which is to prevent any liability of catching the lips of the patient in extracting a tooth. In extracting a tooth the pressure of the handles may be employed to project the beaks easily beneath the gums, so as to avoid unnecessary pain to the patient and mutilation of the gums.

Having thus fully described my invention, what I claim as new and useful, and desire to secure by Letters Patent of the United States, is—

1. Forceps comprising operating-handles having beaks detachably and pivotally con-

nected thereto by toggle-levers, substantially as set forth.

2. Forceps comprising pivoted operating-handles, pivoted beaks, and toggle-levers connecting said handles and beaks, said handles, beaks and levers being detachably connected, substantially as set forth.

3. Forceps comprising handles having pivot-plates at their forward ends provided with interfitting detachable pivot connections and forwardly-projecting arms, beaks similarly connected and having rearwardly-extending arms jointed to the arms of the han-

dles, the pivot-plates of the handles and beaks being provided with locking-ribs, and keepers on the handles, jaws and arms contacting with said ribs, substantially as set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FRANK A. BREWER, JR.

Witnesses:

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