

(No Model.)

A. J. BROWN.
DENTAL TOOL.

No. 557,523.

Patented Mar. 31, 1896.

Fig. 1.

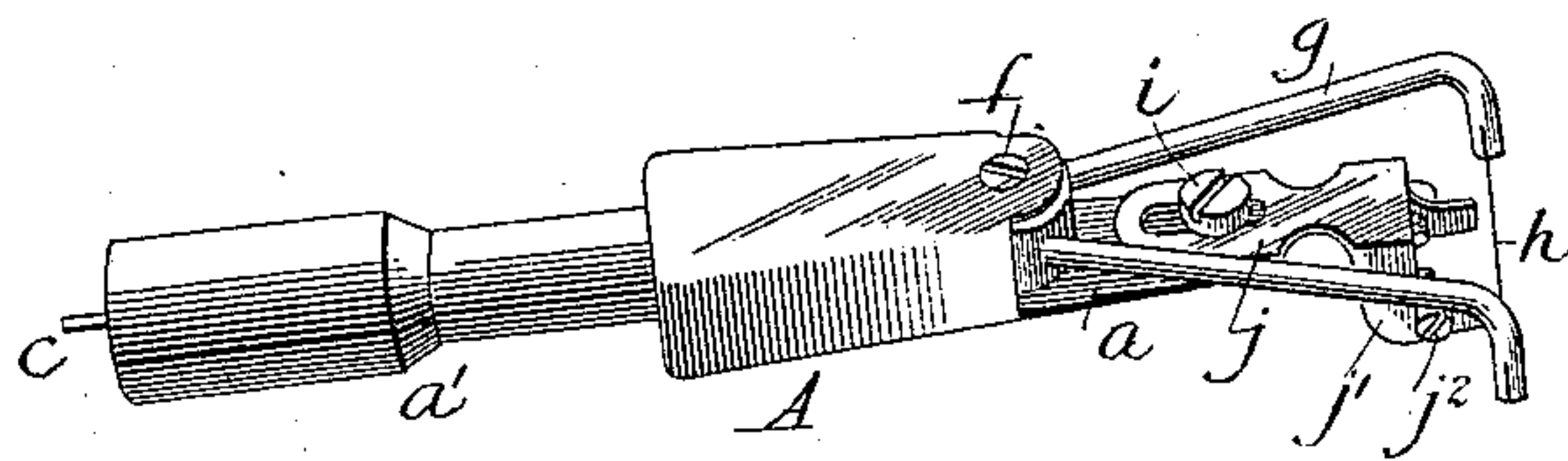


Fig. 3.

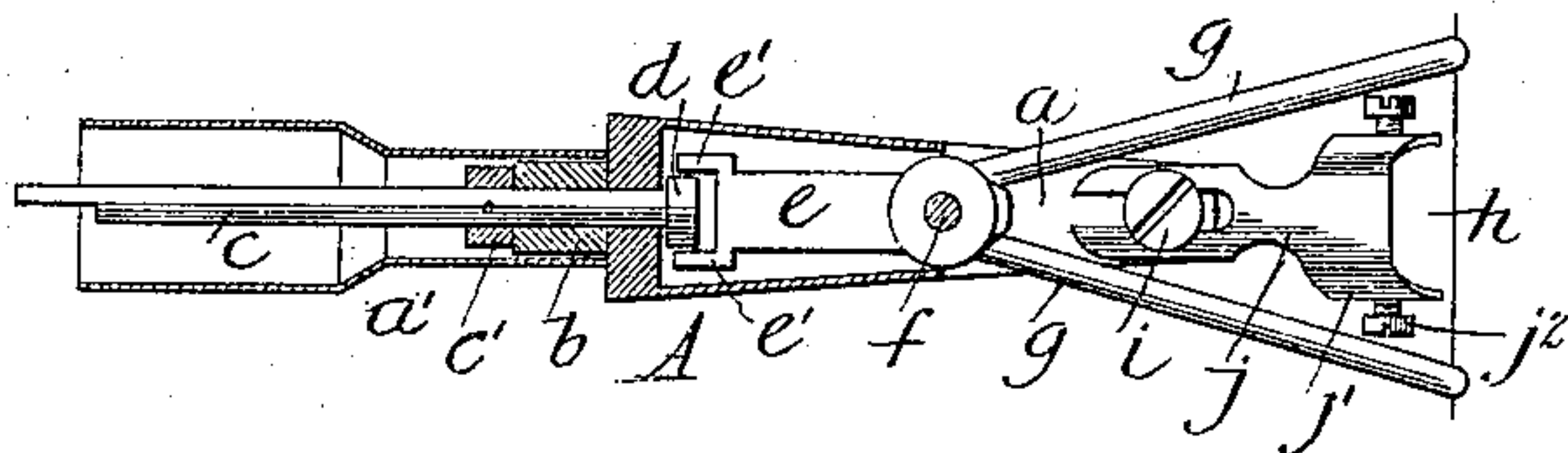
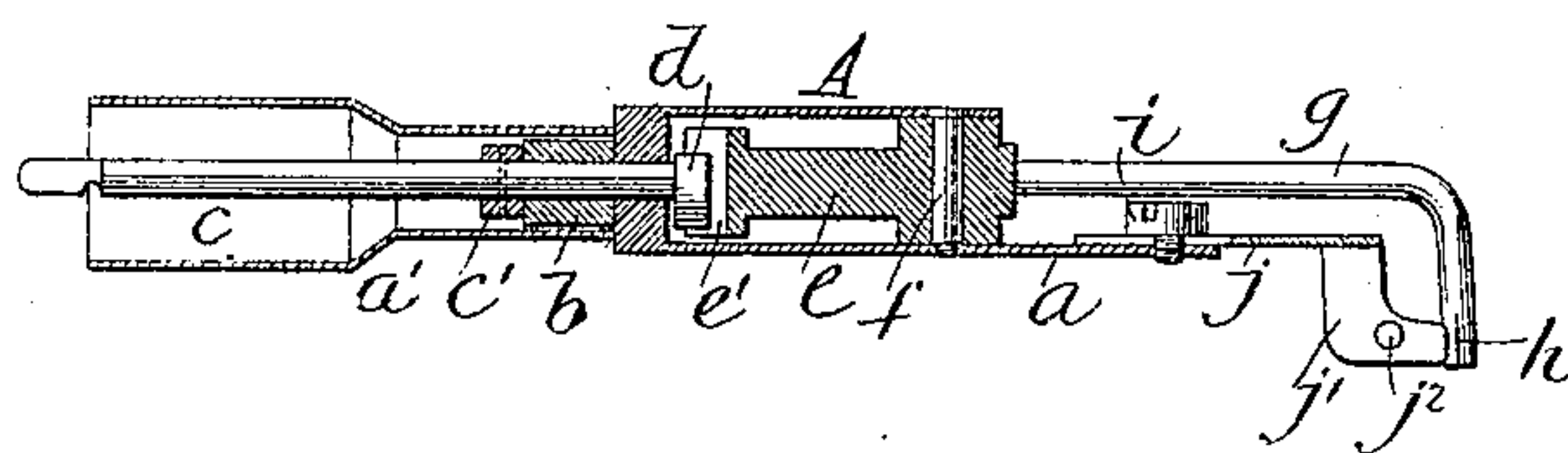


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

ANDREW J. BROWN, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR
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DENTAL TOOL.

SPECIFICATION forming part of Letters Patent No. 557,523, dated March 31, 1896.

Application filed October 5, 1895. Serial No. 564,700. (No model.)

To all whom it may concern:

Be it known that I, ANDREW J. BROWN, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Dental Tools; 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 the letters of reference marked thereon, which form a part of this specification.

This invention relates to a new and novel device adapted for attachment to the shaft of a dental engine or other motor, and which through the operation of the shaft imparts a reciprocating movement of greater or less rapidity and range to an article—as, for instance, a saw—suitably held in or by an actuated part.

The object of the invention is to supplant the laborious and difficult hand operations in dentistry, such as sawing or the abrading of the teeth, by an automatically-actuated tool which will accomplish all of the results desired in a manner much more satisfactory and expeditious and incidentally at a great reduction of labor on the part of the operator and at proportionately less discomfiture to the patient.

The nature of the invention will become clearly apparent by reference to the following detailed description, and in connection therewith attention is called to the accompanying drawings, before referred to, in which—

Figure 1 is a perspective view of a dental tool embodying my invention. Fig. 2 is a vertical longitudinal sectional view. Fig. 3 is a horizontal longitudinal sectional view.

Referring to the said drawings by letter, A denotes a metallic casing having a perforated extension *a* at one end, and at the other end a bearing-sleeve *b*, in which is journaled a spindle *c*, having a thrust-collar *c'* keyed thereon. The exposed end of the spindle is adapted for connection with a dental engine, (not here shown,) and said end is inclosed by a cylindrical extension *a'* of the casing A. At the other end of the shaft and within the casing is a cam *d*, fixedly secured

at right angles thereto. In the other portion of the casing is pivotally secured what I term the “holder,” to which is attached in practice the blade or other operating article. This holder is preferably in the form of an arm *e*, perforated at one end to receive a bearing or pivot-screw *f*, and having at the other end two projecting flanges *e'* *e'*, which are arranged in proximity to the cam *d*, referred to, in a manner and for a purpose presently to be explained. From the arm, beyond the pivotal connection, extend two fingers *g* *g*, which are preferably bent at their ends and there provided with any suitable means for receiving and holding an article—such, for instance, as the saw-blade *h* shown.

In the perforation of the extension *a* is arranged a binding-screw *i*, which adjustably secures to said extension a tooth clamp or holder *j*, slotted to receive said screw and provided with two tooth-engaging jaws *j'* *j'*. In order to adjust the cam or holder to teeth of varying sizes, the jaws are provided with set-screws *j²* *j²*, which, by being turned inward or outward, provide a proper hold on the tooth to be operated upon, regardless of its size or shape.

In practice the device is connected in any suitable manner with a rotative shaft, which, being set in motion, in turn rotates the spindle and the cam carried thereby. The flanges *e'* on the end of the arm *a* are arranged in the path of the cam, and are thereby alternately engaged and moved. A conversion of motion is consequently produced, the cam having a rotary motion and the arm a vibrating motion in approximately right lines, and this latter motion is magnified in range at the blade by employing fingers having a length in excess of the distance between the pivotal point of the arm and the flanged end engaged by the cam. The fingers preferably employed have a spring or resilience sufficient to permit of the attachment and secure connection with the blade, and this feature also permits of the curving of the blade by pressure to or from the tooth to obtain a cut or incision or abrasion on curved lines.

It will be understood that in operating with the device a portion of the tooth is held by the clamp, thus insuring steadiness and pre-

cision, and the slotted end of said clamp or holder enables the operator to hold the tooth at various distances from the line of cut, or even to steady the device by clamping a tooth
5 adjacent to the seat of operation.

The adjustable nature of the clamp-jaws permits of the use of the device in operations on teeth of varying sizes and shapes, and thereby obviates the necessity of employing a
10 different-sized device or even clamp for each tooth.

My device, though very efficient and reliable in operation, is very simple in construction and has few parts. Moreover, the
15 means for permitting adjustment are such as enable the operator to quickly modify the relative positions of the parts to suit the work in hand.

While I have shown and described a construction capable of carrying my invention
20 into effect, I do not wish it understood that I confine myself thereto, as many modifications may be made without departing from the spirit of the invention.

What I claim as my invention is—

1. A dental tool comprising a tooth-clamp, a blade-holder pivotally arranged, an operating-shaft and means connecting said shaft and holder for imparting a vibrating movement to the latter.

2. A dental tool comprising a spindle adapted for connection with a rotative shaft and carrying a cam, a pivoted arm having a flanged end engaging the cam and at the other end two blade-holding fingers, and a tooth clamp
30 or holder, the jaws of which are in proximity to the ends of said fingers.

3. The combination of a mounted blade and means for vibrating same, a tooth clamp
35 or holder adjustable to or from said blade and provided with adjustable jaws.

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

ANDREW J. BROWN.

Witnesses:

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