S. J. BRANDEIS.

CUTTING FORCEPS.

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1,003,170. Patented Sept. 12, 1911.

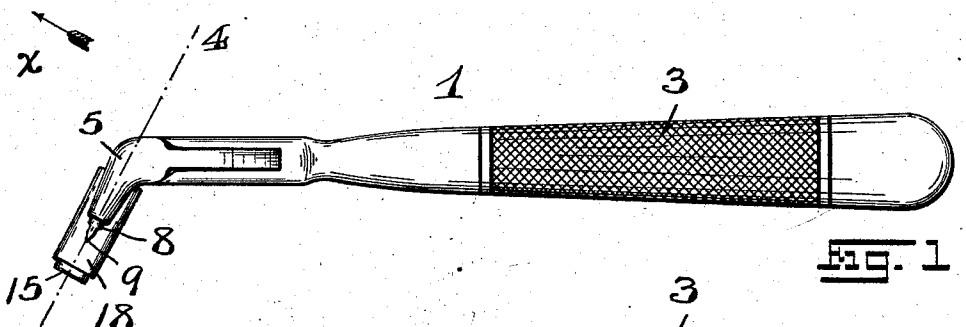

Fig. 1

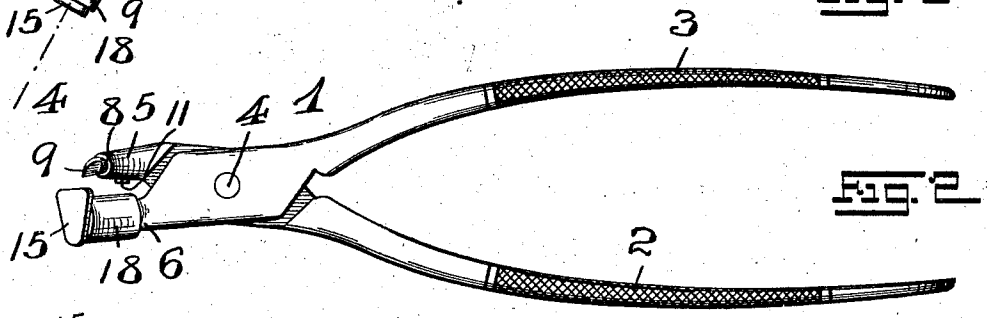

Fig. 2

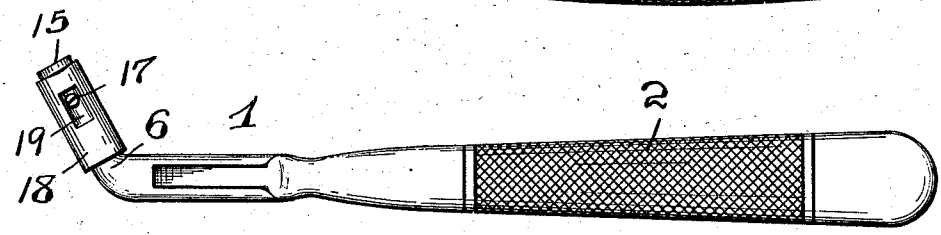

Fig. 3

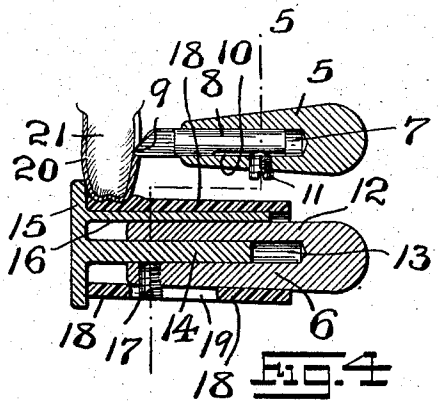

Fig. 4

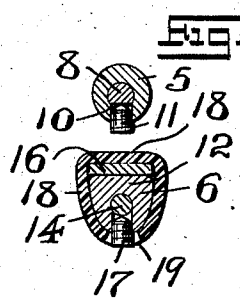

Fig. 5

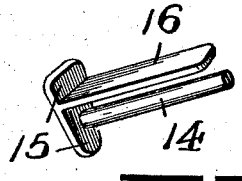

Fig. 6

Fig. 7

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CUTTING-FORCEPS.

1,003,170. Specification of Letters Patent. Patented Sept. 12, 1911.

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To all whom it may concern:

Be it known that I, SOLOMON J. BRANDEIS, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Cutting-Forceps; and I do hereby 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 characters of reference marked thereon, which form a part of this specification.

This invention has reference, generally, to improvements in tools for dentists' uses; and, the present invention relates, more particularly, to a novel construction of forceps adapted to be used for cutting crowns or caps in order to remove the same from the teeth of the patient.

The invention has for its principal object to provide a tool by means of which a cutting tool may be operated against a crown or cap in which the patient's tooth is incased, and which it is desired to remove, in such a manner that a proper cutting pressure is exerted with the least inconvenience and pain to the patient, and with greater dexterity and ease by the dentist.

A further object of the invention is to provide such a tool with a means for engaging the tooth, to maintain said tool in proper relation thereto during the performance of the cutting operation, said means being adjustable, so that the same may be adjusted to correspond with different sizes of teeth.

A further object of this invention is to provide a resilient cushion upon which the patient's tooth may rest during the operation of the tool, thereby easing the effect of the pressure upon the tooth.

Other objects of this invention not at this time more particulary enumerated will be clearly evident from the following detailed description of the same.

With these various objects of the present invention in view, the said invention consists, primarily, in the novel dentist's tool to be hereinafter more fully set forth; and, the said invention consists, furthermore, in the novel arrangements and combinations of the various parts comprising the said tool, all of which will be hereinafter more fully described, and then finally embodied in the clauses of the claim which are appended to the said specification, and which form an essential part of the same.

The invention is clearly illustrated in the accompanying drawings, in which:—

Figure 1 is a top edge view of a pair of cutting forceps for dentists' uses made according to and embodying the principles of the present invention; Fig. 2 is a side elevation of the same; and Fig. 3 is a bottom edge view of the said tool. Fig. 4 is a vertical cross section taken through the jaws of the cutting forceps, the same being taken on line 4—4 in said Fig. 1, looking in the direction of the arrow *x*, and the same being drawn on an enlarged scale; and Fig. 5 is a detail transverse section, taken on line 5—5 in said Fig. 4, looking in the direction of the arrow *y*. Fig. 6 is a perspective view of an adjustable gage-device forming an element of said novel construction of cutting forceps; and Fig. 7 is a slightly modified construction of cutting blade adapted to be used with said cutting forceps.

Similar characters of reference are employed in all of the said above described views, to indicate corresponding parts.

Referring now to the said drawings, the reference-character 1 indicates the complete dental tool, which may be termed a cutting-forceps, embodying the principles of the present invention, the same consisting, essentially, of a pair of handle-portions 2 and 3, which are pivotally connected together by means of a pin or rivet 4, substantially as illustrated. The handle-portion 2 is provided with a jaw-section 5, and the said handle-portion 3 is provided with a jaw-section 6. The said jaw-sections 5 and 6 are turned or bent outwardly, so as to be presented at an angle with reference to the line of said handle-portions 2 and 3, whereby the said jaws may be more conveniently applied to the teeth of the patient with the least awkwardness and inconvenience, and yet with proper effectiveness when operated by said handle-portions 2 and 3. The said jaw-section 5 is also formed with a longitudinally extending opening providing a receiving socket 7, said opening extending inwardly from the free end of said jaw-section. The said receiving-socket 7 thus provided is adapted to receive the shank 8 of a cutting-tool or knife-element 9. The shank 8 of the said cutting-tool or knife-element is preferably provided with a flattened face 10, extending longitudinally thereof, the

same being adapted to receive the binding engagement of a lock-screw 11, which is connected with said jaw-section 5; and, in such a manner, that not only is said knife-element or cutting tool 9 locked against longitudinal movement or removal from said receiving socket 7, but the same is also locked against any twisting or turning, whereby its normal or proper presentation in its cutting relation to the work to be accomplished may not be disturbed or disarranged. The said jaw-section 6 is preferably flattened upon its upper surface 12, said jaw-section 6 being also provided with a longitudinally extending opening forming a receiving socket 13, said socket extending inwardly from the free end of the said jaw-section. The said receiving socket 13 thus provided is adapted to receive the shank-piece 14 of a gage-plate 15. Said gage-plate 15 is provided with a jaw-plate 16 which is adapted to slidably register with or upon the flattened upper surface 12 of the jaw-section 6. The said jaw-section 6 is provided, adjacent to its free end, with a lock-screw 17 which when tightened serves to lock or bind said shank-piece 14 within said receiving socket 13 of said jaw-section 6 in any desired adjusted position, to properly arrange said gage-plate 15 and its jaw-plate 16 in order to receive a tooth according to the size of the same. The said jaw-section 6 with the said gage-plate 15 and its jaw-plate 16, assembled therewith, are adapted to be covered by a tubular sheath 18, of any desirable resilient material, such as soft rubber or the like, the said tubular sheath covering the said jaw-plate 16 and providing a comparatively soft rest when said jaw-section 6 and said jaw-plate 16 are brought into operative contact with a tooth, in the manner more particularly illustrated in Fig. 4 of the accompanying drawings. The said tubular sheath 18 is provided with a suitable elongated opening or slot 19 through which projects the head of said lock-screw 17, whereby access may be had to the same for its manipulation, when it is desired to adjust the position of the said gage-plate 15 and its jaw-plate 16.

The method of using the novel construction of cutting-forceps herein-above described, is illustrated in Fig. 4 of the accompanying drawings. When it is desired to cut a cap or crown 20 of a patient's tooth 21, for the purpose of removing the same from the tooth, the said gage-plate 15 with its jaw-plate 16 is regulated or adjusted with relation to said jaw-section 6, so that the top of said gage-plate will engage the back of the tooth 21, in the manner shown. The bottom of the tooth 21 now rests upon the soft or resilient sheath 18 supported by said jaw-plate 16, so that when pressure is applied in operating the tool, a firm grip is exerted or produced against the tooth, and at the same time causes as little pain to the patient as is possible. The gage-plate 15 prevents the tooth from slipping away from the cutting tool or knife-element 10, or from the supporting jaw of the tool, and at the same time gages the cutting operation of the cutting tool or knife, so as to prevent too deep a cut, or injury to the surface of the tooth. By exerting the pressure of the leverage of the handle-portions 2 and 3, the cutting-tool or knife 10 which is carried by said jaw-section 5, is caused to travel downwardly upon the surface of the cap or crown 20, whereby the latter is cut or split, so as to be rendered removable.

If desired, the cut may be made by degrees, that is a light cut or scratch may be first produced upon the surface of the cap or crown, which is then successively deepened by the continued operation of the cutting forceps, in a manner clearly to be understood by those skilled in the use of dental tools. In this manner, the cutting or splitting of the cap or crown may be easily and quickly performed, the tooth being firmly and comfortably held in proper relation to the cutting tool or knife 10, and firmly held against the slipping away of the tool. The said cutting tools or knives 10 are removable and may be replaced, when dulled, by sharpened tools or knives. It will also be apparent, that a variety of shapes of blades in said cutting tools or knives may be provided, according to the desire of the user of the cutting-forceps. Illustrative of this variety, I have shown in Fig. 7, a modified form of cutting tool or knife which is only one of many styles which may be provided; and, for this reason, I do not confine my invention with reference to this element to the particular illustrative styles herein shown and described.

Referring now to Fig. 7 of the drawings, the cutting-tool or knife therein shown, comprises the shank-portion 22 and a blade-portion 23 which is curved in the manner shown. This cutting tool or knife is reversible in the jaw-section 5, so as to present its curved blade 23 either extending to the right or left. The advantage of such a shape of blade rests in the fact that it may be caused to turn outwardly the cut or split edges of the cap or crown upon which it operates, preventing the necessity of using another tool for such a purpose.

I am fully aware that some changes may be made in the several arrangements and combination of the parts of the cutting forceps, as well as in the details of the construction of the several parts, without departing from the scope of my present invention. Hence, I do not limit my invention to the exact arrangements and combinations of the parts as herein-described, and as illustrated

in the accompanying drawings, nor do I confine myself to the exact details of the construction of the said parts.

I claim:—

1. A cutting forceps comprising a pair of pivoted jaw-sections, a cutting tool or knife connected with one jaw-section, and a gage-device connected with the other jaw-section, said gage-device being adjustable longitudinally with relation to its supporting jaw-section, substantially as and for the purposes set forth.

2. A cutting-forceps comprising a pair of pivoted jaw-sections, a cutting tool or knife removably connected with one jaw-section, an adjustable gage-device connected with the other jaw-section, said gage-device comprising a vertical gage-plate, and a horizontal jaw-plate adapted to register with the upper surface of said jaw-section, the same being longitudinally adjustable with relation to said jaw-section, substantially as and for the purposes set forth.

3. A cutting-forceps comprising a pair of pivoted jaw-sections each provided with a longitudinally extending receiving socket, a cutting tool or knife having a shank adapted to be received in said receiving socket of the upper jaw-section, means for locking said cutting tool or knife in such connection, an adjustable gage-device comprising a shank adapted to be slidably received in said receiving socket of the lower jaw-section, a vertical gage-plate carried upon the free end of said shank, a horizontal jaw-plate connected with said vertical gage-plate, the same being adapted to extend upon and register slidably with the upper surface of said lower jaw-section, and means for locking said gage-device in connection with said lower jaw-section, substantially as and for the purposes set forth.

In testimony, that I claim the invention set forth above I have hereunto set my hand this 15th day of March, 1911.

SOLOMON J. BRANDEIS.

Witnesses:
ADOLPH HANSEN,
GEORGE D. RICHARDS.