

B. FELDMAN.
DENTAL FORCEPS.
APPLICATION FILED SEPT. 21, 1912.

1,060,243.

Patented Apr. 29, 1913.

Fig. 1.

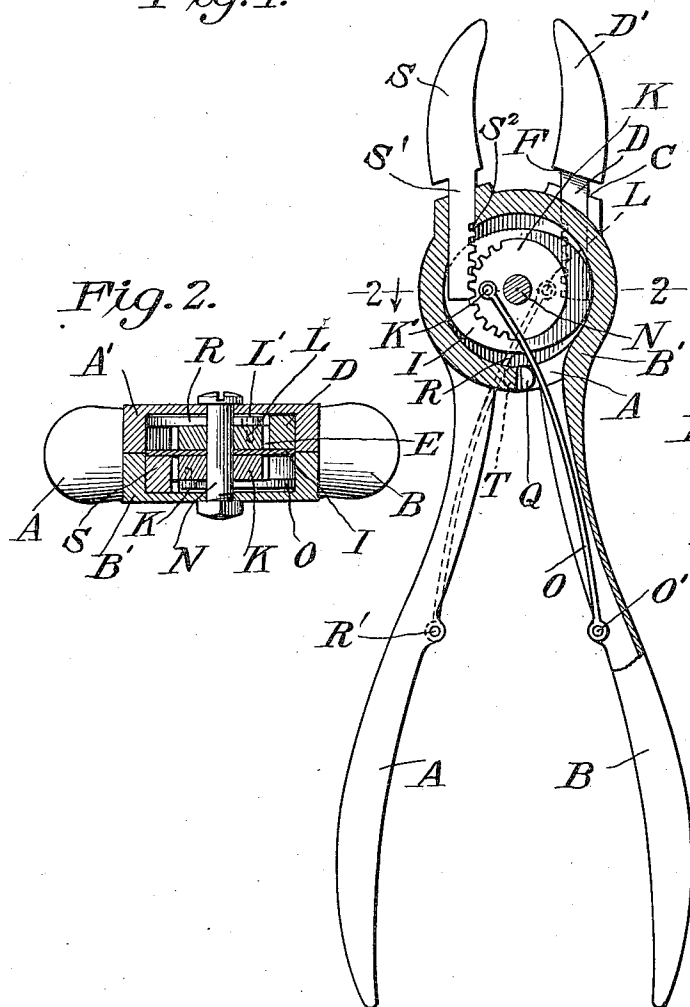


Fig. 2.

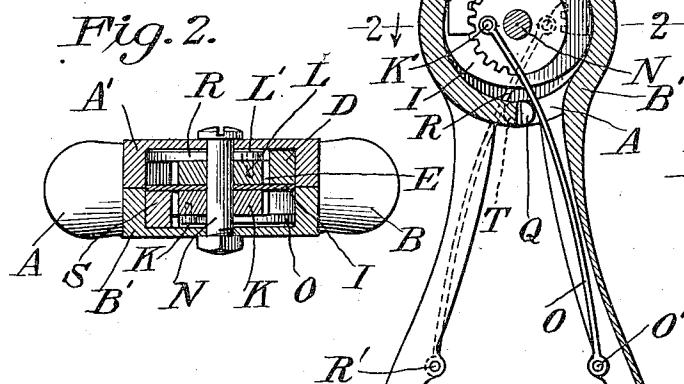


Fig. 3.

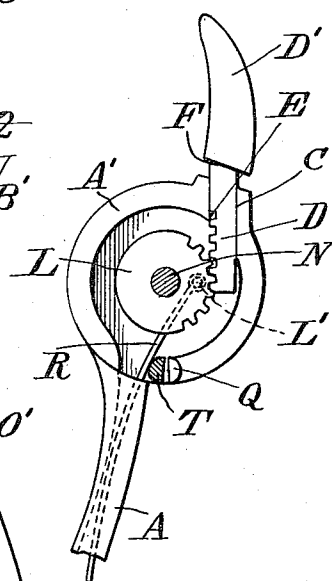
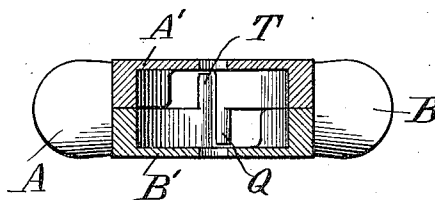


Fig. 4.



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DENTAL FORCEPS.

1,060,243.

Specification of Letters Patent.

Patented Apr. 29, 1913.

Application filed September 21, 1912. Serial No. 721,646.

To all whom it may concern:

Be it known that I, BERNARD FELDMAN, a citizen of the United States, residing at Perth Amboy, in the county of Middlesex and State of New Jersey, have invented certain new and useful Improvements in Dental 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 the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in forceps especially adapted for dental purposes and comprises a simple and efficient apparatus of this nature having movable beaks which are actuated longitudinally by rack and pinion mechanism operated by the movements of two handles pivoted together and the object in view is to generally improve upon the broad idea covered in my copending application 719,195.

The invention comprises various details of construction and combinations and arrangements of parts which will be herein-after fully described, shown in the accompanying drawings and then specifically defined in the appended claims.

I illustrate my invention in the accompanying drawings, in which:—

Figure 1 is a side elevation of forceps made in accordance with my invention, portions being shown in section. Fig. 2 is a sectional view on line 2—2 of Fig. 1, looking in the direction of the arrow. Fig. 3 is a side elevation of one of the jaws showing in section a lug upon the other jaw, and Fig. 4 is a section taken on line 2—2 of Fig. 1 looking in the direction of the arrows with the detachable operative mechanisms within the chambered portion of the handle removed.

Reference now being had to the details of the drawings by letter, A and B designate two handles, each of which is provided with a circular-outlined recessed head, designated respectively by letters A' and B'. The two handles are connected together by means of a pivotal screw N and journaled upon said pivotal screw are two segment gears, designated respectively by letters K and L. A pin K' projects from

the segment gear K and a similar pin L' projects from the segment gear L, the two pins being located diametrically opposite the pivotal screw, as shown clearly in Fig. 1 of the drawings. A resilient wire O is pivotally connected at one end to a pin O' and fulcrums against an integral lug Q which projects from the recessed face of the head A' of the jaw A and is pivotally connected at its other end to the pin K'. A similar resilient wire R is pivotally connected to a pin R' upon the handle A and is fulcrumed over a lug T which is integral with the head B'.

The head A' is provided with a slot C adapted to receive the shank portion E of a beak D', said shank portion terminating in a shoulder F. The inner edge of the beak D' is provided with rack teeth E which are in mesh with the teeth of the segment gear L. A similar beak S is provided with a shank portion S' which has a longitudinal play in a slot formed in the head B' and is provided with rack teeth S² which are in mesh with the teeth of the segment gear K. The inner movement of each beak is limited by the shoulders formed upon the beak coming in contact with the flattened end of the head.

Mounted upon the pivotal screw N is a disk I which separates the two segment gear wheels and also the shank portions of the beaks, one being mounted upon either side, as shown clearly in Fig. 2 of the drawings.

The operation of my forceps will be readily understood and is as follows:—The parts being assembled as shown, the resiliency of the wires which connect the handles with the segment gears and which fulcrum over the pins as shown will tend to keep the beaks separated from each other. By pressing the handles together, the lug Q will be moved against the resilient wire O, causing the segment gear K to make a partial rotary movement which, by reason of its geared connection with the teeth upon the shank S' of the beak S, will cause the latter to be drawn toward the head, while a similar inner longitudinal movement will be imparted to the beak D' through the medium of the wire R which, being fulcrumed over the lug T, will cause a partial rotary movement to be imparted to the segment gear L, the teeth of which mesh with the teeth upon the shank D, thus causing both beaks to be drawn inward as the handles

are pressed together. When the grip is released from the handles, the resilient wires will cause a reverse outer movement to be imparted to each beak, thus returning the same to their normal positions.

What I claim to be new is:—

1. Dental forceps comprising two handles, a pin to which the latter are pivoted, each handle having a chambered portion, a movable beak mounted in a slot in each chambered portion and having a shank portion which is serrated, segment gears mounted upon said pin and one within each of said chambered portions and in mesh one with the teeth upon the shank portions of said beak, connections between each handle and one of said segment gears, and means for causing a partial rotary movement to each segment gear as the handles are moved upon their pivotal connections, as set forth.

2. Dental forceps comprising two handles, a pin to which the latter are pivoted, each handle having a chambered portion, a movable beak mounted in a slot in each chambered portion and having a shank portion which is serrated, segment gears mounted upon said pin and one within each of said chambered portions and in mesh one with the teeth upon the shank portions of said beak, pivotal rod connections between each handle and one of said segment gears, and projections upon the chambered portions of the handles and against which said connections are fulcrumed, as set forth.

3. Dental forceps comprising two handles, a pin to which the latter are pivoted, each handle having a chambered portion, a movable beak mounted in a slot in each chambered portion and having a shank portion which is serrated, segment gears mounted upon said pin and one within each of said chambered portions and in mesh one with the teeth upon the shank portions of said beak, resilient wires, one pivoted to one of said segment gears and its other ends piv-

oted each to one of said handles, and projections upon the chambered portions of the handles and against which said wires fulcrum, as set forth.

4. Dental forceps comprising two handles, each having a headed portion which is chambered and provided with a slot, a pivotal pin connecting said heads, beaks having shank portions movable through said slots and having teeth upon their adjacent edges, segment gears journaled upon said pin and in mesh with the teeth upon the shank portions of said beaks, integral lugs projecting in opposite directions one from the inner face of each chambered portion of the head, resilient wires pivoted one to each segment gear at points diametrically opposite each other, their other ends pivoted one to each handle, said wires intersecting each other and each fulcrumed over one of said lugs, as set forth.

5. Dental forceps comprising two handles, each having a headed portion which is chambered and provided with a slot, a pivotal pin connecting said heads, beaks having shank portions movable through said slots and having teeth upon their adjacent edges, segment gears journaled upon said pin, a disk mounted upon the pivotal pin and interposed between the segment gears and shank portions of the beaks, integral lugs projecting in opposite directions one from the inner face of each chambered portion of the head, resilient wires pivoted one to each segment gear at points diametrically opposite each other, their other ends pivoted one to each handle, said wires intersecting each other and each fulcrumed over one of said lugs, as set forth.

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

BERNARD FELDMAN

Witnesses:

HERMAN FRIEDMAN,
JOHN A. DELANEY.