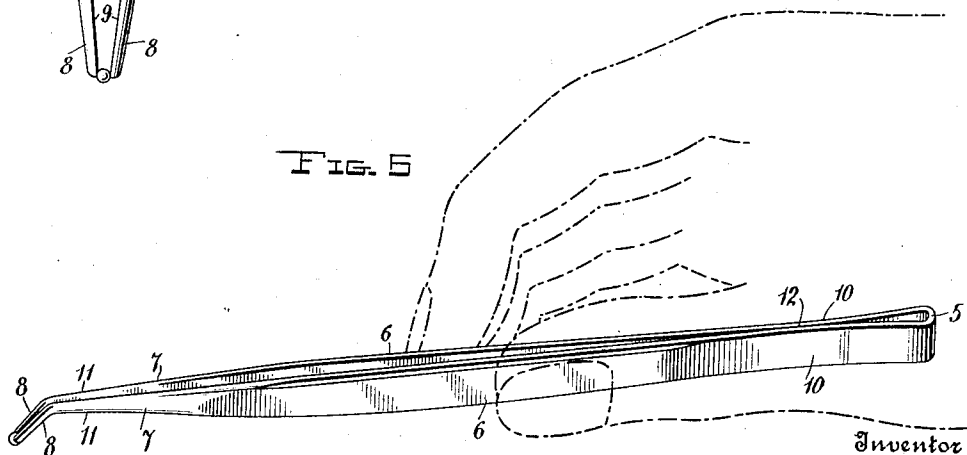
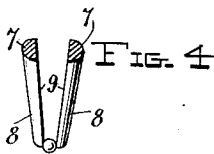
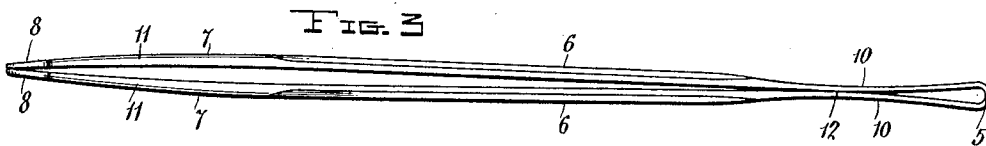
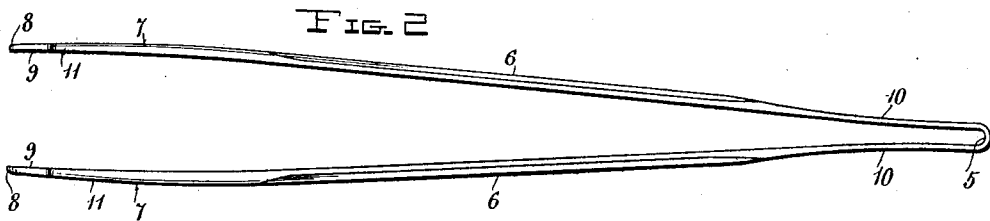
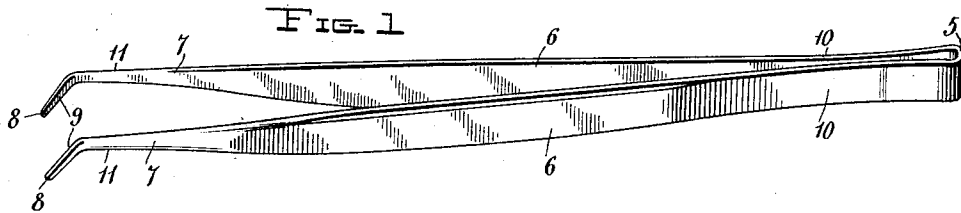


W. C. SMITH.
DENTAL PLIERS.
APPLICATION FILED JULY 29, 1920.

1,386,436.

Patented Aug. 2, 1921.



Witnesses

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UNITED STATES PATENT OFFICE.

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DENTAL PLIERS.

1,386,436.

Specification of Letters Patent.

Patented Aug. 2, 1921.

Application filed July 29, 1920. Serial No. 399,757.

To all whom it may concern:

Be it known that I, WILLIAM C. SMITH, a citizen of the United States, residing at Milford, in the county of Sussex and State of Delaware, have invented new and useful Improvements in Dental Pliers, of which the following is a specification.

This invention relates to pliers particularly adapted for use by physicians and dentists, but has a general application particularly in handling small particles of material or small devices where a positive grip is desirable and accuracy and application necessary. The improved pliers have been devised with the object of simplicity in structure and sensitiveness in resilient action, and to accomplish these advantageous features of devices of this class, the improved pliers are formed from a single piece of metal intermediately bent to provide opposing jaws which are reduced in thickness from a point slightly in advance of the bend to reversely bowed portions of the jaws and terminated at the free ends of the jaws in laterally and obliquely projected beaks which contact only at the pointed ends thereof. The improved pliers are also so constructed that when the jaws thereof are tightly gripped to close the beaks relatively to a piece of material or a device therebetween, the strain of the compression instituted by the grip of the user will be largely removed from the bend of the pliers and transferred to a point of contact of the opposing jaws in advance of the bend a certain distance, to thereby render the resilient action of the jaws relatively to the primal resiliency thereof more durable, or, there will be less deterioration of the resilient or spring action of the jaws in consequence of this bracing action in advance of the bend and the thin jaw parts which give the jaws a desirable resilient action when liberated. The jaws are also reversely bowed so as to provide for bringing the points of the beaks at the free ends of the jaws in contact to increase biting action of the beak points relatively to the material or device that may be held therebetween. All the parts of the improved pliers are also free of grooves, recesses or crevices, and may thereby be readily sterilized fully from the bend to the beaks in view of the fact that the jaws have an opening extending therebetween from the bend to the beaks.

The improved pliers are illustrated in the accompanying drawing, and in the latter:—

Figure 1 is a perspective view of the pliers shown open.

Fig. 2 is a side edge elevation of the pliers.

Fig. 3 is a view similar to Fig. 2 with the jaws and beaks closed.

Fig. 4 is a cross sectional view through the jaws at the rear portions of the beaks.

Fig. 5 is a perspective view of the improved pliers, showing the manner of using the same.

The improved pliers, as hereinbefore indicated, are formed from a single piece of metal which is suitably tempered to give the same an inherent resiliency. The strip of metal is centrally bent as at 5 to produce opposing jaws 6 which are gradually tapered as at 7 and laterally and obliquely bent to provide opposing beaks 8 preferably having inner roughened sides 9. The jaws 6 from the bend 5 a suitable distance forwardly are reduced in thickness by removing the metal at the outer sides to form spring connecting arms 10, the jaws 6 in advance of these arms being materially thicker, the thickened portion of the jaws continuing to the tapered forward extremities, the said extremities being gradually reduced in thickness as at 11 toward the beaks 8. The jaws 6 are also reversely bowed, or each has an outward elongated bend which continues regularly from a point slightly in advance of the reduced spring connecting arms 10, these connecting arms 10, as hereinbefore specified, being the thinnest portions of the jaws and such reduced thickness of the latter is continued through the bend 5. The bowed construction of the jaws 6 together with the reduction of the jaws to form the spring connecting arms 10 provide for a bracing contact of the rear portions of the jaws in advance of the front terminals of the arms 10 or about at the point 12 when these jaws are closed by compression to grip a piece of material or device that may be disposed between the beaks 8. This bracing contact of the jaws prevents the spring connecting arms 10 and the bend 5 from being subjected to the full compressing strain exerted on the jaws, and, as a consequence, the said connecting arms 10 will be rendered more durable and their resilient action will be prolonged and be less liable to deteriorate from

usage of the pliers. When the jaws are released or relieved of gripping compression, the connecting arms 10 will instantly separate the jaws and said resilient arms will
5 also similarly operate the moment that the least relaxation of compression on the jaws ensues.

This sensitive action of the connecting arms and the bracing action relatively to
10 said arms when the jaws are compressed to reduce the strain on the bend 5 is of material advantage in dental operations where a light weight instrument of a sensitively resilient character is necessary in performing
15 dental work and in handling certain materials. It will be seen that when the jaws are closed as shown by Fig. 3, from the point of contact 12 the arms 10 are separated by a gradually diverging space toward the bend
20 5, and by enlarging or decreasing this space between the bend and the bearing or contact portion of the jaws above noted, varying sensitiveness of touch to suit the personal performance of a dentist may be produced.
25

It will also be observed that the improved pliers are smooth or are devoid of crevices or angles for the lodgment of impurities, and, moreover, the jaws are fully open from
30 the bend to the beaks, and as a consequence a thorough sterilization thereof may be

easily effected. All rivets or connecting devices requiring expense in manufacture are avoided in the construction of the present improved pliers, and it is proposed to
35 vary the dimensions of the several parts as may be desired and also to produce the same in different sizes.

What is claimed as new is:

Pliers of the class specified, consisting of
40 a strip of spring metal doubled and having opposing jaws which are continuous from the uniting bend, the jaws being outwardly bowed and having reduced extremities terminating in laterally and obliquely project-
45 ed beaks which contact at their points only, the metal adjacent to and at a certain distance from the bend being reduced in thickness to provide resilient connecting arms between the jaws and bend, the jaws being
50 fully open between the bend and beaks thereof and having contact in advance of the said connecting arms when the jaws are compressed and closed to relieve the bend and arms of deteriorating strain.
55

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

WILLIAM C. SMITH.

Witnesses:

H. C. WITTEN,

W. F. NEIGHET.