No. 787,947. PATENTED APR. 25, 1905.

R. M. SANGER.

DENTAL PLIERS FOR SHAPING CLASPS AND HALF COLLAR CROWNS.

APPLICATION FILED DEC 29, 1904.

Fig. 3.

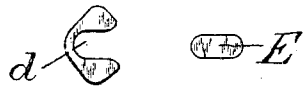


Fig. 4.

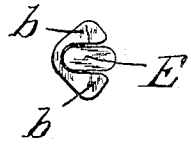


Fig. 2.

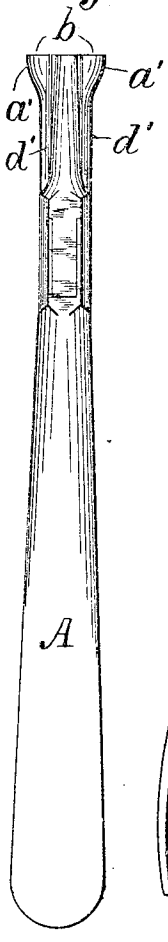


Fig. 1.

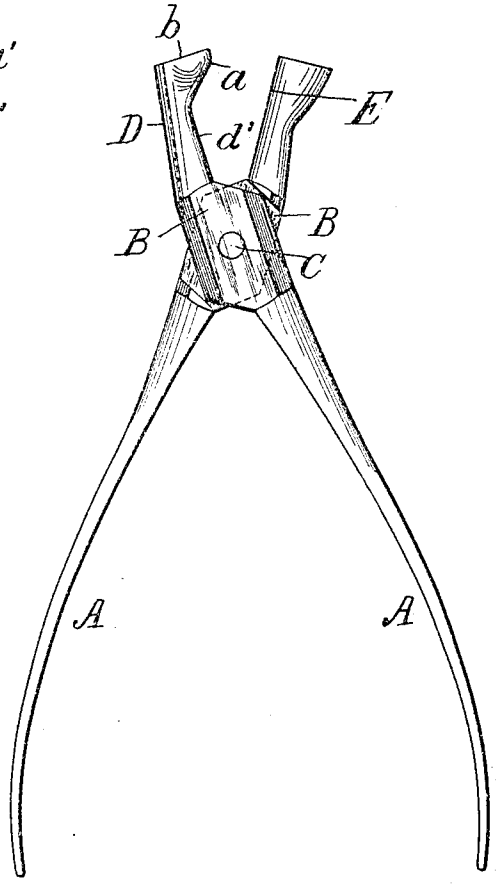


Fig. 7.

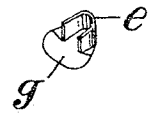


Fig. 8.

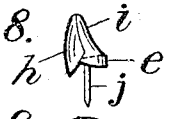


Fig. 9.



Fig. 6.

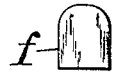
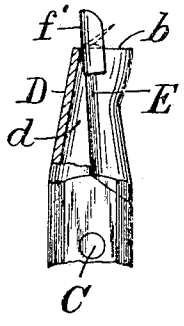


Fig. 5.



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UNITED STATES PATENT OFFICE.

RODERICK M. SANGER, OF EAST ORANGE, NEW JERSEY.

DENTAL PLIERS FOR SHAPING CLASPS AND HALF-COLLAR CROWNS.

SPECIFICATION forming part of Letters Patent No. 787,947, dated April 25, 1905.

Application filed December 29, 1904. Serial No. 238,712.

To all whom it may concern:

Be it known that I, RODERICK M. SANGER, a citizen of the United States, residing at 34 Harrison street, East Orange, Essex county, State of New Jersey, have invented certain new and useful Improvements in Dental Pliers for Shaping Clasps and Half-Collar Crowns, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The object of this invention is more particularly to furnish a dental pliers adapted to shape or bend sheet metal into a half-collar crown, the pliers being also adapted to bend clasps for dental plates.

In forming a half-collar crown a blank of sheet metal of sufficient length is used to form the half-collar and a flange to close one end of the collar, and the pliers are constructed to furnish a flat seat upon which the flange can be flattened when the half-collar is bent. To bend a half-collar of suitable width, the socket in one jaw of the pliers is made of greater depth than width, and the flat seat upon the end of the jaw is provided by extending cheeks outwardly from the sides of the socket and forming flat seats upon the top of the cheeks. The bending-jaw, which is formed to press the sheet metal into the socket, is also made flush upon its outer end with the said seats, so that when one half of the blank is clamped in the jaws their ends furnish a continuous flat surface upon which the remainder of the blank can be bent down to form the flange. The jaw carrying the socket is preferably formed upon its inner side next the hinge-plate with a radial line for a sufficient distance to lay clasps across this jaw to bend them by the pressure of the opposite jaw, and the mouth of the socket is projected over such radial line by forming the mouth of inwardly-projecting lugs.

The invention will be understood by reference to the annexed drawings, in which—

Figure 1 is a side view of the pliers. Fig. 2 is an edge view of the same. Fig. 3 shows the upper ends of the two jaws separated, as in Fig. 1. Fig. 4 shows the same ends of the jaws closed. Fig. 5 shows the jaws partly in section clamped upon a blank to form a half-collar crown, with dotted lines showing the flange bent partly down toward the seat. Fig. 6 shows the blank for such a crown. Fig. 7 is a perspective view of the crown with the flange flattened at one end of the same. Fig. 8 is a side view of an incisor provided with the half-collar crown, and Fig. 9 shows the bottom end of the same.

The pliers is shown with the usual handles A and hinge-plates B, connected by pivot C, the socket-jaw being designated D in Fig. 1 and the bending-jaw E. The socket consists, as usual, of a longitudinal concave groove *d*, the edges *d'* of the groove next the plates B being radial—that is, on a line extended from the pivot C—while the outer end of the jaw has lugs *a* projected inwardly, which greatly increases the depth of the socket at the outer end. The lugs *a* are expanded upon their outer sides, forming cheeks *a'*, which are made flat upon the top to form seats *b*, which lie substantially at right angles to the edges *d'*.

The opposite or bending jaw E is shaped to fit in the groove *d*, as shown in Figs. 3 and 4, and its inner or working face is substantially radial, so as to press flat upon any clasps laid across the socket-jaw and its edges *d'*. The edges *d'* may thus be used to bend dental clasps in the usual manner; but the deeper part of the socket at the outer end of the jaw A is used for bending and flanging half-collar crowns from blanks *f*, one of which is shown in Fig. 6 of nearly square form, but may be made of any required shape.

In forming a half-collar crown one end of the blank is bent in the deep portion of the socket by the bending-jaw forming the half-collar *e*, as shown in Figs. 5 and 7, and while held therein the projecting end *f'* of the blank is bent downward upon the seat *b*, which forms an anvil upon which such portion of the blank can be flattened into the flange *g*. (Shown in Fig. 7.) Dotted lines are shown upon the blank in Fig. 5, illustrating the bending of the projecting portion, the bending-jaw holding the half-collar in shape, while the projecting portion is bent from the curve shown in Fig. 5 into the flattened flange shown in Fig. 7. The flattening of the flange upon the seat *b* doubles or overlaps the sheet

metal at each side of the half-collar, as shown in Fig. 7, and such double portion is in practice clipped off, and the collar can then be expanded and shaped in any degree, while still having an integral connection with the central portion of the flange which forms when finished the cap of the half-collar crown.

The projection of the lugs upon the jaw A is necessary to form a seat *b* of suitable length to support the whole of the flange *g* when bent down upon the outer end of the jaw, and the provision of such seat upon lugs *a*, formed upon the jaw, permits the remaining portion of the jaw to be used for bending clasps in the usual manner. The inner sides of the lugs *a* are rounded, as shown in Fig. 3, so that the blank for the half-collar crown may be readily bent when supported upon such lugs and pressed into the socket by the jaw E. The half-collar itself is formed by pressure against the bottom of the socket which holds the half-collar entirely at one side of the cheeks *c*, so that when the flange is bent inwardly upon the half-collar it may fall over upon such cheeks. All the features of the construction thus perform some useful and necessary function, while the addition of the cheeks and seat *b* to the pliers enables them to form the half-collar crowns without impairing the utility of the pliers for bending clasps.

Having thus set forth the nature of the invention, what is claimed herein is—

1. A dental pliers having a bending-jaw with a substantially straight working face, and the opposite jaw having a concave socket of substantially different depth at different points in its length and the ends of the jaws flat and flush with one another, whereby it may be used for bending clasps and also for turning half-collar crowns.

2. A dental pliers having one jaw provided with the concave socket and cheeks at opposite sides of said socket with flat seats thereon, and the opposite jaw arranged and operated to press into the said socket, and projected flush with the said seats.

3. A dental pliers having one jaw provided with the concave socket and cheeks at opposite sides with flat seats around the top of the socket, and the opposite bending-jaw fitted to the said socket, whereby a half-collar crown can be turned and flanged upon the said seats.

4. A dental pliers having one jaw provided with the concave socket of greater depth than width, and the opposed bending-jaw arranged and operated to press into the said socket, the ends of the jaws being flat and flush with one another for turning half-collar crowns, substantially as herein set forth.

5. A dental pliers having the working-side of the bending-jaw substantially radial from the jaw-pivot C, and the opposite jaw having at its outer end a socket of greater depth than width, the edge of the socket next the hinge-plates extending on a radial line from the pivot C, and the mouth of the socket formed of lugs projected beyond such line, whereby the jaw may be used for bending clasps, and also for turning half-collar crowns.

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

RODERICK M. SANGER.

Witnesses:
M. L. BOHLE,
THOMAS S. CRANE.