United States Patent

Pankratz

[15] 3,686,756

[45] Aug. 29, 1972

[54] **DENTAL HAMMER**

[72] Inventor: **Harry A. Pankratz,** 15494 Mark Twain, Detroit, Mich. 48227

[22] Filed: **April 7, 1971**

[21] Appl. No.: **132,058**

[52] **U.S. Cl.** **32/43**

[51] **Int. Cl.** **A61c 3/16**

[58] **Field of Search** 32/43, 60

[56] **References Cited**

UNITED STATES PATENTS

3,254,412	6/1966	Armao	32/43
2,776,490	1/1957	Carfagni	32/40 R

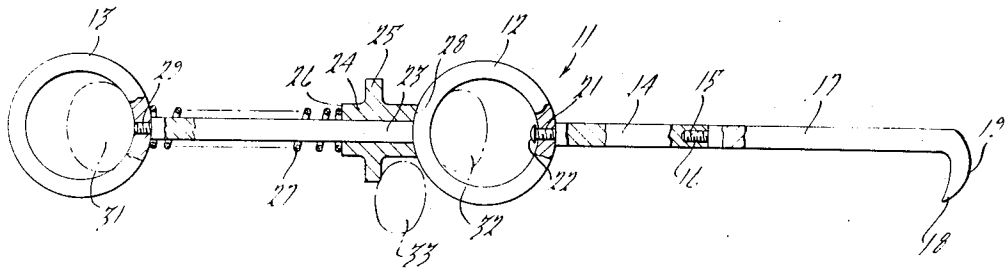
Primary Examiner—Robert Peshock

Attorney—Harness, Dickey & Pierce

[57] **ABSTRACT**

A tool for mounting or removing a crown or other dental insert using only one hand, so that the other is free to grasp the insert. The tool comprises a finger ring with a tool supporting rod extending from one end and a hammer supporting rod from the other. A second ring is mounted on the outer end of the hammer supporting rod. A spring-urged hammer on this rod has a ridge so that, when the tool is grasped between the thumb and middle finger of one hand, the index finger of that hand can operate the hammer.

8 Claims, 3 Drawing Figures



PATENTED AUG 29 1972

3,686,756

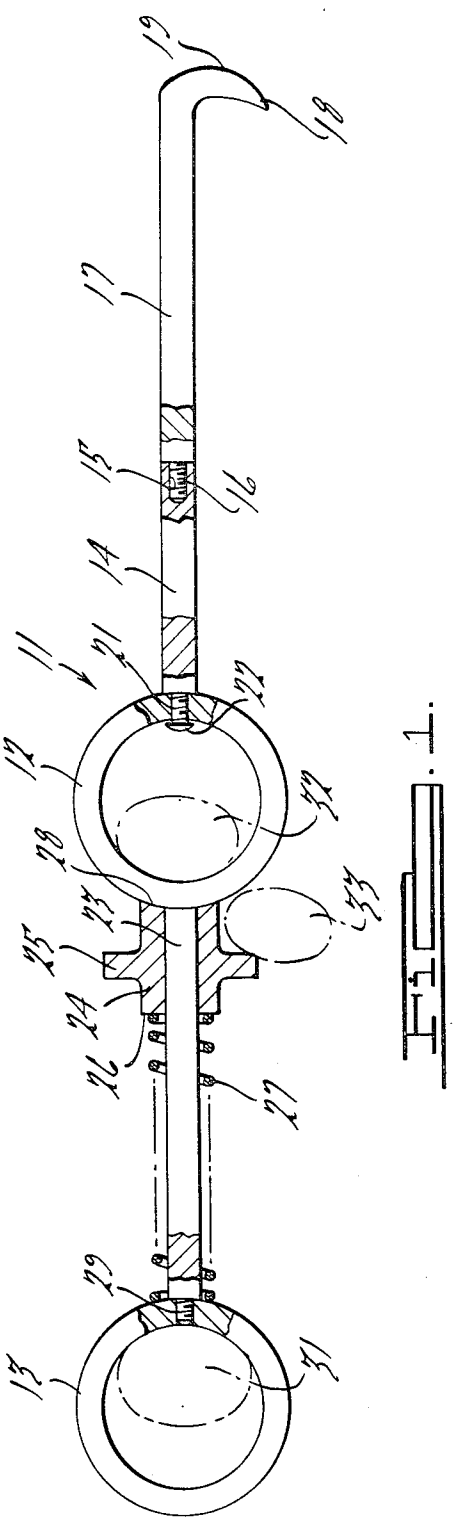


Fig. 1.

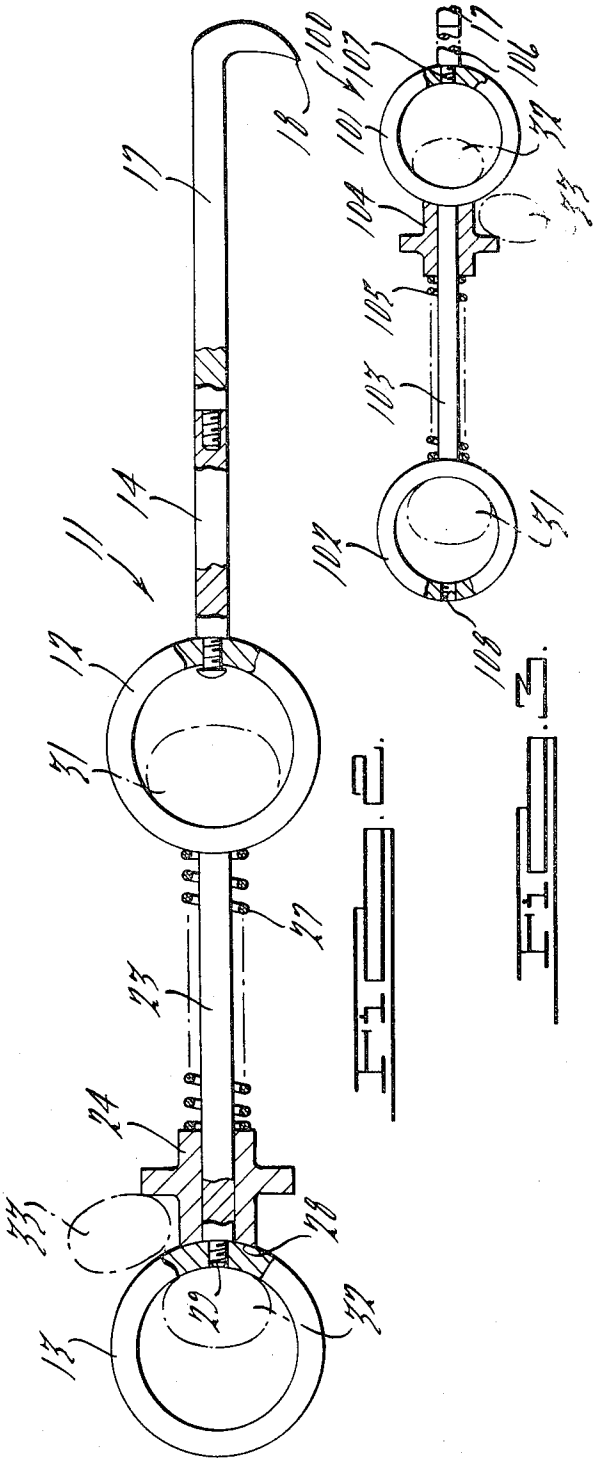


Fig. 2.

INVENTOR.
Harry A. Pankratz.
BY
Harness, Dickey & Pierce
ATTORNEYS.

DENTAL HAMMER

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to dental tools, and more particularly to a hammerlike tool used for insertion or removal of crowns, inlays, bridges or the like. The invention is particularly concerned with the handling of relatively small parts such as crowns which are difficult to control when being mounted or removed.

2. Description of the Prior Art

The prior art is exemplified by U.S. Pat. No. 2,776,490 which shows a reversible hammer-anvil type of dental tool. In using this prior device it is necessary for the dentist to grasp the tool with one hand while manipulating the hammer with the other. When using the tool for example to hammer down a crown, the dentist must first place the crown on the tooth and then release it from his grasp. Control of the crown is therefore precarious during the hammering operation. When the tool is used to remove a crown, there exists the danger that it will fly off and land in the patient's gullet, possibly choking him.

Other known prior art devices of the same general type are shown in U.S. Pat. Nos. 2,337,971 and 3,254,412. However, these devices either require two hands to operate or are quite complex, cumbersome and expensive.

BRIEF SUMMARY OF THE INVENTION

According to the invention, the hammer comprises a first ring-shaped finger grip from one end of which extends a tool supporting rod, the other end carrying a hammer supporting rod. A second ring-shaped finger grip is mounted at the other end of the hammer supporting rod. A spring-urged hammer is mounted on this rod, the hammer having an outwardly extending annular ridge. The tool supporting rod is preferably adjustable about its own axis.

The hammer and spring are reversible so that the tool may be used to either hammer down or remove a crown. In either position, the tool may be grasped by the dentist between the thumb and middle finger of one hand and the hammer retracted and then released by the index finger of that hand. This will permit the dentist to use his other hand to control and guide the object being hammered.

In one embodiment of the invention the second finger grip is removably mounted on the hammer supporting rod so that the hammer and spring may be reversed. The tool supporting rod is mounted for rotatable adjustment on the first grip by means of a snug threaded connection. In another embodiment of the invention, both finger grips are permanently secured to the hammer supporting rod, and the tool supporting rod is removably mountable on either grip to provide the reverse action.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a partly invention, side elevational view of a first embodiment of the invention shown with the hammer in position to hammer down a crown;

FIG. 2 is another view of the unit of FIG. 1 but with the spring and hammer reversed so that the tool may be used to remove a crown; and

FIG. 3 is a side elevational view of another form of the invention in which the tool supporting rod is removably mountable on either finger grip.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The hammer is generally indicated at **11** and comprises a first finger grip **12** and a second grip **13**. These grips are ring-shaped and of sufficient diameter to receive a thumb or other finger therethrough. A tool supporting rod **14** is secured to grip **12** and extends outwardly in the plane thereof. The outer end of rod **14** is internally threaded at **15** to receive a threaded extension **16** of a dental tool **17**. This tool may be a conventional hammer member having a hooked end **18**. Such a member has a surface **19** usable to hammer a crown or similar member into place, the end of hook **18** being used to extract and remove crowns or similar inserts.

In this embodiment of the invention, rod **14** is secured by a snug threaded connection **21** to grip **12**, this connection having a head **22** so that rod **14** is permitted limited rotational adjustment about its own axis but may not be removed from the grip.

A hammer supporting rod **23** is secured to the end of grip **12** opposite rod **14**, and is aligned therewith. A hammer **24** is slidably mounted on rod **23**. Hammer **24** is of generally cylindrical shape but has an outwardly extending ridge **25** at an intermediate portion thereof. One end **26** of hammer **24** is engageable by a helical coil compression spring **27** which surrounds rod **23**. The other end **28** of the hammer is preferably of concave shape so as to engage grip **12**.

Grip **13** is removably mounted on the outer end of rod **23** by a threaded connection **29**. This grip is also of ring-shaped construction so as to receive the thumb or finger.

In operation, when the tool is to be used to hammer down a crown or similar object, the parts will be assembled as shown in FIG. **1**. The dentist's thumb **31** will be passed through grip **13** and his middle finger **32** through grip **12**. This will leave his forefinger **33** free to engage ridge **25** of hammer **24** and retract the hammer, compressing spring **27**. With his other hand the dentist may hold and guide the crown or other object (not shown) to be hammered down, the surface **19** of tool **17**, or any other appropriate tool, being placed against the crown. Sudden release of hammer **24** will cause spring **27** to drive it against grip **12**, the latter serving as an anvil member for the hammer. The force supplied by this impact will be transmitted through ring **12** and rod **14** to tool **17** and thence to crown which is being guided by the dentist's grip. Repeated blows may be struck by hammer **24** in this manner, the tool being manipulated by one hand while the other is free to control the crown.

If it is desired to remove a crown, ring **13** will be unscrewed and spring **27** and hammer **24** removed from rod **23**. These two members will be replaced as shown in FIG. **2** and ring **13** reassembled. It will be noted that the position of hammer member **24** will be reversed so that its concave surface **28** engages ring **13**.

The dentist will now insert his thumb **31** in ring **12** and his middle finger **32** in ring **13**. He will then place the hook **18** of tool **17** under the edge of the crown to be removed, his free hand gently grasping the crown so as to control it as it becomes loose. He will then retract

hammer member **24** with forefinger **33** and release it suddenly. Spring **27** will drive the hammer member against ring **13** and the force will be transmitted through rod **23**, ring **12** and rod **14** to tool **17**. These blows may be repeated until the crown is removed, with the dentist's free hand being available to insure that the crown does not accidentally fly into the patient's throat.

With the operation of hammer **11** as shown in FIG. **1** or FIG. **2**, rod **14** may be rotationally adjusted on its own axis to permit tool **17** to properly engage the crown, regardless of the position of the remainder of the tool.

FIG. **3** illustrates another embodiment of the invention which is basically similar to the first embodiment but in which the reversal of action is accomplished in another way. In this embodiment, generally indicated at **100**, both finger rings **101** and **102** may be permanently attached to a hammer supporting rod **103**, with hammer **104** always engageable with ring **101** as urged by spring **105**. Tool supporting rod **106** is connectable to either ring **101** or **102** by means of connections **107** or **108** respectively. These are snug threaded connections such that rod **106** cannot be accidentally removed, but while connected can be rotationally adjusted about its own axis through a sufficient angle to permit proper orientation of tool **17**.

In operation of the embodiment of FIG. **3**, when used to hammer down a crown, the dentist's thumb **31** will as before be placed in ring **102** and the middle finger **32** in ring **101**. The dentist's other hand will be available to control the crown being hammered down. With surface **19** of the tool being placed against the crown, forefinger **33** of the dentist can be used to retract hammer **104** and then release it against ring **101**.

To use the embodiment of FIG. **3** to remove a crown, rod **106** will be removed from connection **107** and attached to connection **108**, the other parts remaining in their same relative positions. The dentist will then insert his thumb in ring **101** and middle finger in ring **102**, operating the hammer with his forefinger as described above with respect to FIG. **2**.

What is claimed is:

1. A dental hammer comprising first and second ring-shaped finger grips adapted to receive either the thumb or a middle finger of a dentist's hand, a hammer supporting rod extending between and rigidly connected to said rings, whereby they are held a fixed distance apart and are immovable with respect to each other when one ring receives the thumb and the other the middle finger of the dentist's hand, a hammer slidably mounted on said rod, a spring on said rod urging said hammer against one of said rings, the hammer having an outwardly extending ridge permitting its engagement by the forefinger of said hand, and a tool supporting rod secured to one of said rings on the side opposite its connection to said hammer supporting rod.

2. The combination according to claim **1**, the connection between said tool supporting rod and ring permitting limited rotation of said rod on its own axis, whereby the orientation of a tool mounted on said rod may be changed with respect to said rings.

3. The combination according to claim **1**, further provided with means for reversing the direction of impact of said hammer with respect to the mounting position of said tool supporting rod.

4. The combination according to claim **3**, said last-mentioned means comprising means removably connecting one of said rings to said hammer supporting rod, whereby said ring may be removed and the hammer and spring reversed on said hammer supporting rod.

5. The combination according to claim **4**, the connection between said tool supporting rod and ring permitting limited rotation of said rod on its own axis, whereby the orientation of a tool mounted on said rod may be changed with respect to said rings.

6. The combination according to claim **3**, said last-mentioned means comprising releasable connections for said tool supporting rod on both of said rings, whereby the tool supporting rod may be mounted on one ring or the other.

7. The combination according to claim **6**, the connection between said tool supporting rod and ring permitting limited rotation of said rod on its own axis, whereby the orientation of a tool mounted on said rod may be changed with respect to said rings.

8. In a dental hammer, first and second finger gripping rings adapted to receive either the thumb or a middle finger of a dentist's hand, a hammer supporting rod extending between and connected to said rings, one of the rings being removably mounted on said rod, a hammer member of generally cylindrical shape slidably mounted on said rod and having a ridge extending outwardly therefrom, a helical coil compression spring surrounding said rod and urging said hammer against the other ring, and a tool supporting rod secured to the side of said other ring opposite said hammer supporting rod, the connection between said tool supporting rod and other ring permitting limited rotational adjustment of said tool supporting rod on its own axis.

* * * * *