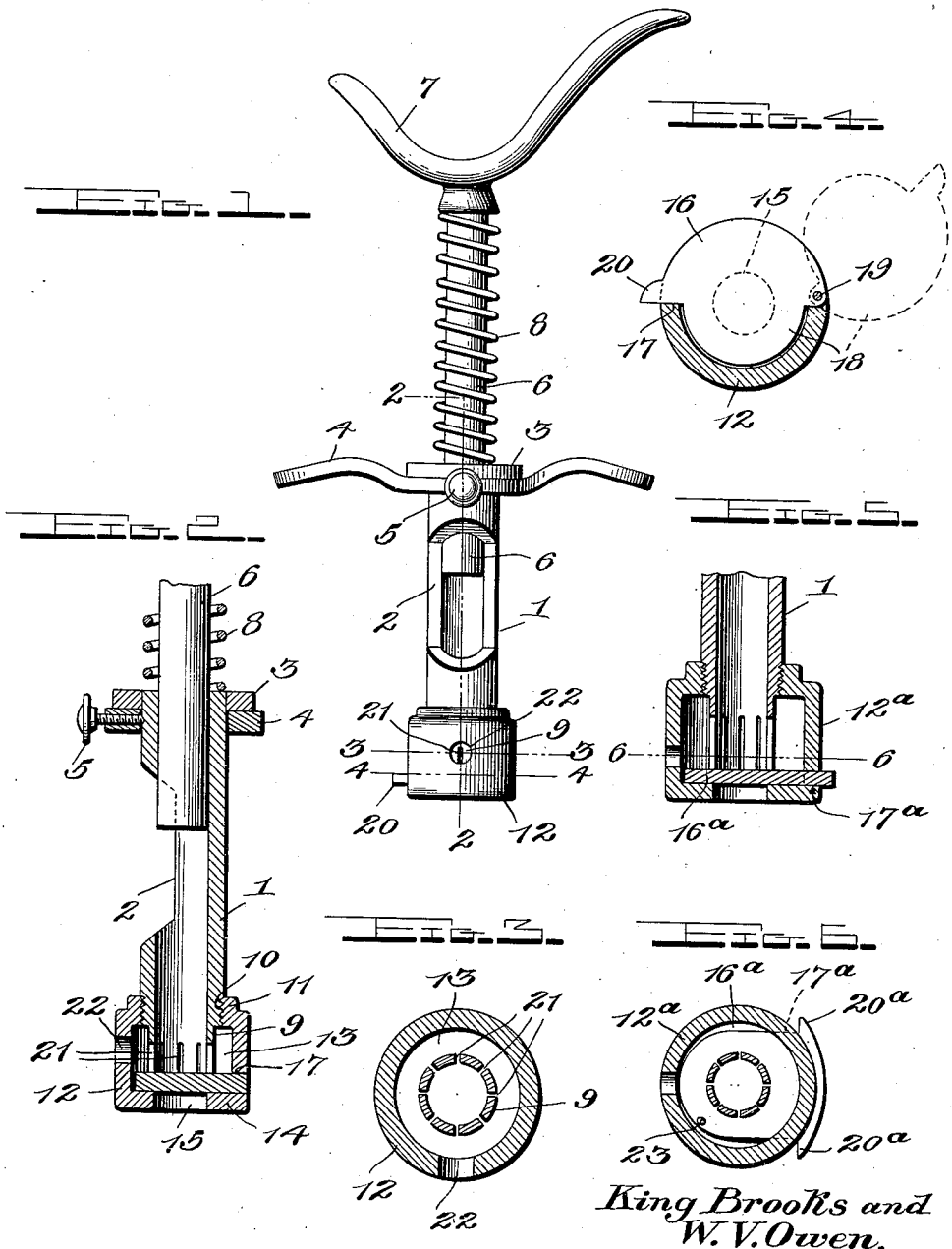
K. BROOKS & W. V. OWEN.

DENTAL TOOL.

APPLICATION FILED MAY 28, 1913.

1,095,449. Patented May 5, 1914.



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DENTAL TOOL.

1,095,449. Specification of Letters Patent. Patented May 5, 1914.

Application filed May 28, 1913. Serial No. 770,500.

To all whom it may concern:

Be it known that we, KING BROOKS and WILLIAM VALENTINE OWEN, citizens of the United States, residing at Paducah, in the county of McCracken and State of Kentucky, have invented a new and useful Dental Tool, of which the following is a specification.

This invention has reference to improvements in dental tools, and is designed to provide an instrument whereby excess mercury may be expressed from fresh amalgam.

In accordance with the present invention there is provided a receptacle for amalgam and a plunger, with means at one end of the receptacle for temporarily closing said end against escape of the amalgam, while the temporarily closed end is so constructed as to permit the escape of liquid mercury and such end is provided with a receptacle for the expressed mercury of a capacity to retain such mercury temporarily, and from which receptacle the free mercury may be poured, after which the temporarily closed end of the container for the amalgam may be opened and the comparatively dry amalgam discharged by a further movement of the plunger, the whole instrument being of a size and character permitting its manipulation by one hand of the operator with the other hand free to catch the amalgam when discharged or to hold a receptacle for the expressed mercury when poured from the container forming part of the tool.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawings forming a part of this specification, with the further understanding that while the drawings show a practical form of the invention the latter is not confined to any strict conformity with the showing of the drawings but may be changed and modified so long as such changes and modifications mark no material departure from the salient features of the invention.

In the drawings:—Figure 1 is an elevation of a tool constructed in accordance with the present invention. Fig. 2 is a section on the line 2—2 of Fig. 1, and drawn on a slightly larger scale. Fig. 3 is a section on the line 3—3 of Fig. 1 and drawn on a larger scale than Fig. 2. Fig. 4 is a section on the line 4—4 of Fig. 1 and drawn on substantially the scale of Fig. 3. Fig. 5 is a section similar to Fig. 2 but drawn on a larger scale and illustrating a modified form of the mercury receptacle and adjacent parts. Fig. 6 is a section on the line 6—6 of Fig. 5.

Referring to the drawing, there is shown a cylinder 1 having one side cut away to provide an opening 2 for ready access to the interior of the cylinder. At one end of the cylinder there is provided a flange 3 forming a shoulder or abutment for a finger piece 4 having a middle portion shaped to encircle the cylinder 1 and abut against the flange 3 and which may be there held by a set screw 5, but all these parts may be variously shaped, and if desired may be otherwise constructed than as shown.

Adapted to the interior of the cylinder 1 and entering the same through the end provided with the flange 3 is a rod shaped plunger 6 having at the end remote from that entering the cylinder 1 a head or engaging member 7 shaped to conveniently fit the hand of the user between the thumb and forefinger, while the fingers of the hand engage the finger piece 4, so that the head 7 may be moved toward the finger piece to cause a progressive movement of the plunger 6 into the cylinder 1. The plunger 6 is surrounded by a spring 8 between the head 7 and the flange 3 and tending to hold the plunger in the retracted position.

That end of the cylinder 1 remote from the flange 3 is formed with an exteriorly reduced extremity 9 adjacent to which there are provided exterior screw threads 10 adapted to receive an internally threaded neck 11 on one end of a cup-like receptacle 12 of greater diameter than the cylinder 1, especially at the reduced end 9 to provide an inner chamber 13, which because the parts are customarily cylindrical may be of annular contour. That end of the receptacle 12 remote from the neck 10 is formed with a head 14 provided with a central passage 15 of about the same diameter as the internal diameter of the cylinder 1 and in line therewith. The receptacle 12 is so related to the cylinder 1 that there is a space between the inner wall of the head 14 and the free end of the reduced portion 9 of the cylinder 1 and this space is utilized for the reception of a gate 16 shaped to enter the receptacle 12 through a side passage 17,

and this gate has one portion 18 of reduced diameter conforming quite closely to the interior contour of the receptacle 12, while the remainder of the gate is of greater diameter and conforms substantially to the exterior contour of the receptacle 12. At one side the gate 16 is secured to the receptacle 12 by a pivot pin 19 and diametrically opposite this pivot pin the gate 16 is provided with a projecting finger piece 20 accessible from the exterior of the receptacle 12. The gate 16 is so related to the receptacle 12 that it may be moved into the receptacle into traversing and practically closing relation to the reduced end 9 of the cylinder 1, or it may be moved about the pivot 9 until outside the receptacle 12 sufficiently to leave the bore of the cylinder 1 in free communication with the passage 15.

The reduced end 9 of the cylinder 1 adjacent to the gate 16 is formed with slits or openings 21, which in the particular construction illustrated are parallel with the longitudinal axis of the cylinder 1 and in a circular series concentric therewith. Through one side of the receptacle 12 there is formed a passageway 22.

The structure shown in Figs. 5 and 6 differs from that of the other figures principally in the form of the gate which in Figs. 5 and 6 comprises a plate 16^a capable of sliding through a side opening 17^a in a receptacle 12^a corresponding to the receptacle 12 in Fig. 1 and associated figures. This sliding plate is provided with oppositely positioned finger pieces 20^a so that the plate is readily grasped between the two fingers of the operator and may be moved into traversing relation to the discharge end of the cylinder 1 or out of such relation, but is prevented from escaping from the receptacle 12^a by a screw or stud 23 carried by the plate and providing a stop or abutment which will engage the inner wall of the receptacle 12^a and thereby prevent a full withdrawal of the plate 16^a but permitting a sufficient movement of the plate to entirely uncover the discharge end of the cylinder 1.

When the alloy is mixed with mercury and worked up into a mass of about the consistency of putty, there is considerably free mercury which must be removed and the ordinary method of doing this is to place the fresh amalgam in a chamois skin and squeeze out the mercury with a pair of pliers or in any other way, and it is not unusual for the mercury to fall upon the floor where any gold or gold crowns which may have been dropped by accident may come in contact therewith and thus be rendered unfit for use for the purpose intended until the mercury is polished from the gold. The ordinary operation is wasteful and is liable to produce an unpleasant impression upon the patient.

By the present invention the fresh amalgam is placed in the cylinder 1 and with the gate 16 or 16^a closed the plunger 6 is brought into engagement with the amalgam with any desired degree of pressure which may be exerted by the hand of the operator quite conveniently by means of the head 7 and finger piece 4. The excess mercury is readily pressed out and escapes through the slits 21 into the chamber 13 and may be allowed to escape through the passage 22 into a suitable receptacle, thus saving the mercury for further use, preventing any liability of injury to gold articles which may be present and producing no unpleasant effect upon the patient, since the prevalent method of squeezing the mercury out on the floor is a source of untidiness. When the excess mercury has been expressed and disposed of the operator has to move the gate 16 to one side out of line with the cylinder 1 and a further movement of the plunger 6 causes the ejection of the amalgam from the device through the passage 15 ready for such use as the dentist may desire.

The invention may be embodied in quite a different mechanical structure from the particular structure illustrated, so long as provision is made for catching and retaining the free mercury expressed from the amalgam for deposition in a suitable receptacle and the amalgam freed from excess mercury may be readily expelled from the device.

What is claimed is:—

1. A dental tool for expressing free mercury from amalgam, comprising a pressure applying device provided with readily removable means for preventing the escape of amalgam during the expressing operation, and with a chambered member inclosing that part of the pressure device where the amalgam is located during the expressing operation, the pressure applying device and chambered member being in constant communication on the pressure side of the means for preventing escape of amalgam during the expressing operation.

2. A dental tool comprising a pressure applying device for expressing free mercury from amalgam, such device being provided with a gate for preventing the escape of the amalgam during the expressing operation and with a chambered member inclosing the gate, said chambered member being in constant communication with the pressure applying device and constituting a receptacle for the expressed mercury.

3. A dental tool for expressing free mercury from amalgam comprising a cylindrical member, a plunger movable therein, a gate for one end of the cylindrical member, and a receptacle for mercury in surrounding relation to the end of the cylindrical member provided with the gate, said cylindrical

member being provided on the pressure side of the gate with orifices through its wall leading into the surrounding receptacle.

4. A dental tool comprising a cylindrical member having one end provided with a gate and with orifices through its wall adjacent to the gate, a plunger movable in the cylindrical member to apply pressure to amalgam engaging the gate to cause an outflow of free mercury through the orifices, and a receptacle for mercury in surrounding relation to the end of the cylindrical member having the orifices to receive and retain free mercury escaping through the orifices, the mercury receptacle constituting a support for the gate in which the latter is movable into and out of traversing relation to the corresponding end of the cylindrical member.

5. A dental tool comprising a cylindrical member, having one end formed with a free opening and having lateral orifices through its wall, a receptacle inclosing the said end of the cylindrical member and provided with a gate movable in traversing relation to said end of the cylindrical member, and a plunger movable in the cylindrical member.

6. A dental tool comprising a receiver for amalgam having one end shaped to permit the expelling of the amalgam therefrom and also provided with lateral orifices, a member movable in the amalgam receptacle to apply pressure thereto and to expel the amalgam, a receptacle for mercury in surrounding relation to the discharge end of the amalgam receptacle and also provided with a passage for the escape of amalgam when expelled from the amalgam receptacle, said mercury receptacle having means for the escape of mercury therefrom at will, and a gate carried by the mercury receptacle and movable into and out of closing relation to the discharge end of the amalgam receptacle.

7. A dental tool comprising a receiver for amalgam having one end shaped to permit the expelling of the amalgam therefrom and also provided with lateral orifices, a member movable in the amalgam receptacle to apply pressure thereto and to expel the amalgam, a receptacle for mercury in surrounding relation to the discharge end of the amalgam receptacle and also provided with a passage for the escape of amalgam when expelled from the amalgam receptacle, said mercury receptacle having means for the escape of mercury therefrom at will, and a gate carried by the mercury receptacle and movable into and out of closing relation to the discharge end of the amalgam receptacle, said gate having an accessible finger member exterior to the mercury receptacle and movable into and out of the mercury receptacle to close and open the discharge end of the amalgam receptacle.

8. A dental tool comprising a tubular member for receiving amalgam and having one end provided with lateral orifices and also constituting the discharge end of the amalgam receptacle, a mercury receptacle applied to the discharge end of the tubular member and provided with a passage in line with the said discharge end, said mercury receptacle defining a chamber between the tubular member and the inner walls of the mercury receptacle and also having a passage for the outflow of mercury, a plunger adapted to the tubular amalgam receptacle, and a gate carried by the mercury receptacle and movable into and out of the same between the discharge end of the tubular member and the end of the mercury receptacle provided with the passage in line with the tubular member.

In testimony, that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

KING BROOKS.
WILLIAM VALENTINE OWEN.

Witnesses:
J. M. RAGSDALE,
H. H. DULEY, Jr.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."