No. 809,365. PATENTED JAN. 9, 1906.

A. W. FELTMANN.

DENTAL TOOL.

APPLICATION FILED APR. 20, 1905.

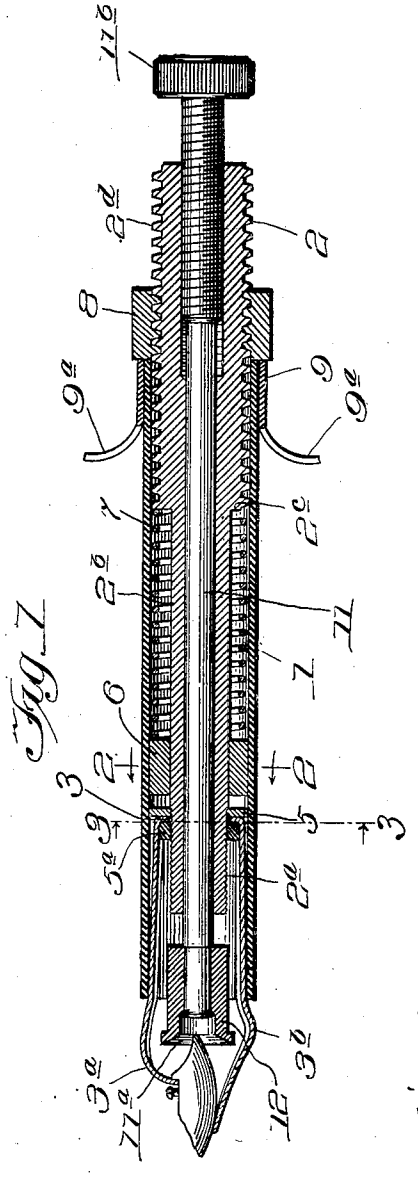

Fig. 1.

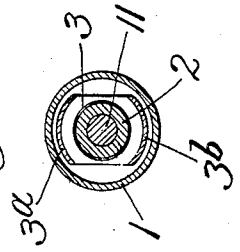

Fig. 3.

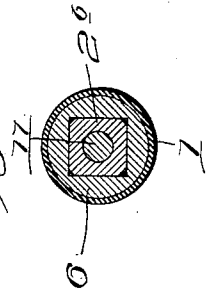

Fig. 2.

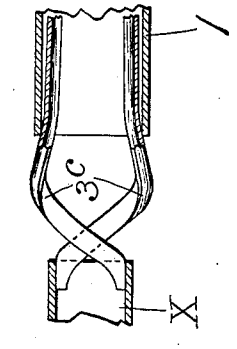

Fig. 4.

Witnesses:
H. S. Gaither
J. S. Abbott

Inventor:
Adam W. Feltmann
by Burton & Burton
His attys

UNITED STATES PATENT OFFICE.

ADAM WM. FELTMANN, OF CHICAGO, ILLINOIS.

DENTAL TOOL.

No. 809,365. Specification of Letters Patent. Patented Jan. 9, 1906.

Application filed April 20, 1905. Serial No. 256,610.

To all whom it may concern:

Be it known that I, ADAM WILLIAM FELTMANN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Dental Tools, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

This invention is designed to constitute an improved device for releasably holding small articles which are to be ground, dressed, or polished or otherwise operated with or operated upon. It is in detail construction intended especially to be adapted to dentists' use, but is not limited to such use.

It consists of the features of construction set out in the claims.

In the drawings, Figure 1 is a longitudinal axial section of my improved tool. Fig. 2 is a section at the line 2 2 on Fig. 1. Fig. 3 is a section at the line 3 3 on Fig. 1. Fig. 4 is a detail axial section of forward end, showing a modified form of jaws.

This tool comprises an outer barrel or sleeve 1, within which is a longitudinally-reciprocating plunger 2, which protrudes at the upper or rear end from the barrel or sleeve and at the other end carries the jaws or holding device, comprising coöperating members 3^a and 3^b, which preferably are made, as shown in the drawings, of one piece of spring metal folded to extend the two members opposite each other in proper relation for their intended action upon the work to be held by them. This holding device may be secured to the plunger by having the aperture 3 at the portion intermediate the two members 3^a and 3^b, the end of the plunger being reduced and threaded, as seen at 2^a, to receive a stop flange or collar 5, the holding device being passed onto the same end of the plunger and followed by a nut 5^a, by which it is clamped firmly against the stop flange or collar 5. The spring-jaws 3^a 3^b have sufficient elasticity to hold them spread against the inner wall of the barrel, and they are deflected outward at the outer part of their extremities, so that when drawn into the barrel the spring members are crowded toward each other, and when they terminate, as shown in Fig. 1, for gripping an article between them the gripping extremities are thus caused to approach for grasping the article. The spring-jaws may be formed also, as shown in Fig. 4, for interior grasp of a hollow article, the two members 3^c 3^c being then similar and being crossed beyond the outwardly-deflected portion, which operates against the end of the barrel when the plunger is retracted, the extremities of the two members being thus forced apart by such retraction to grasp the interior of a hollow device, as X in Fig. 4. The plunger 2 is reduced to a square cross-section at a portion 2^b intermediate its ends and extending back from the threaded portion 2^a for a sufficient distance to accommodate a spring 7 of proper length for the function hereinafter described, and this square portion passes through a guide-collar 6, which is driven tight or made fast by soldering in the sleeve 1 at a position far enough back from the forward or lower end of the barrel to permit the holding device or spring-jaws 3^a 3^b to be retracted into the barrel as far as necessary for the proper action of the jaws, as described. This spring 7, coiled around the squared portion of the barrel between the stop-collar 6 and the shoulder 2^c at the limit of the squared portion, operates to resist the inthrust of the plunger from the rear end and to retract it, with the effect in such retraction of crowding the jaws together, as described, and permitting them to spread by their elastic reaction when the plunger is forcibly thrust in against the spring. For the purpose of giving the jaws a gripping action upon the article engaged by them more forcible than the spring 7 would afford and to give them as fully as consistent with their own elasticity a positive grip the upper or rear portion of the plunger back of the shoulder 2^c has the exterior thread 2^d and is provided with the nut or follower 8, engaging this thread and adapted to be screwed up against the upper or rear end of the barrel, with the effect of withdrawing the plunger in a positive manner in addition to the action of the spring 7, and so crowding the jaws positively to their work.

9 is a band or ferrule encompassing the barrel at the rear part and soldered thereto, having finger-lugs 9^a 9^a to facilitate holding the tool, while the user with the thumb thrusts the plunger forward by releasing the article held from the jaws, which may be done when the nut 8 has been screwed back on the plunger, and it will be understood that for many uses the grasp which the spring 7 gives to the jaws is sufficient for the work and

the nut is not brought into operation, so that the user may cause the work to be grasped and released by manipulating the plunger with the thumb, as described.

I have shown in this tool in addition to the parts already described a spindle 11, extending through the plunger, having an enlarged and threaded portion at the rear or upper end for engagement with the correspondingly-threaded portion of the bar in the plunger through which it is inserted, said spindle having swiveled at its forward end a head-block 12, which is designed to afford a positive stop or backing for the work held between the jaws and which is countersunk or otherwise axially recessed, as seen at 11^a, to afford lodgment or engagement for the rear end of the work. This spindle has at the upper or rear end a handle 11^b for rotating it to screw it forward to hold the work and draw it back to release it. No claim is made in this application to the spindle and its essential features.

I claim—

1. In a dental tool, in combination with the exterior element or barrel, a plunger reciprocating in the barrel and having jaws which are operated by such reciprocation, the plunger being exteriorly threaded at a portion of its length, and a nut engaging such threaded portion of the plunger and stopped on the barrel against movement longitudinally therein in one direction.

2. In a dental tool, in combination with the exterior element or barrel, a plunger reciprocating in the barrel, and having jaws protruding therefrom which are operated by such reciprocation; a spring reacting between the plunger and the barrel for yieldingly resisting the longitudinal movement of the plunger in one direction and retracting it in the opposite direction; an element which is stopped on the barrel against movement longitudinally thereon in the opposite direction from that in which the spring reacts against the plunger, said stopped element having threaded engagement with the plunger.

3. In a dental tool, in combination with the exterior element or barrel, a plunger reciprocating in the barrel having jaws which are operated by such reciprocation; a spring reacting between the plunger and the barrel for yieldingly resisting the forward longitudinal movement of the plunger and retracting it rearward, the plunger being protruded from the barrel at the upper or rear end, and exteriorly threaded at such protruded portion, and a nut adjustable thereon for stopping against the upper end of the barrel.

In testimony whereof I have hereunto set my hand, in the presence of two witnesses, at Chicago, Illinois, this 15th day of April, 1905.

A. WM. FELTMANN.

In presence of—

BERTHA WEBER,

JOHN CLARK.