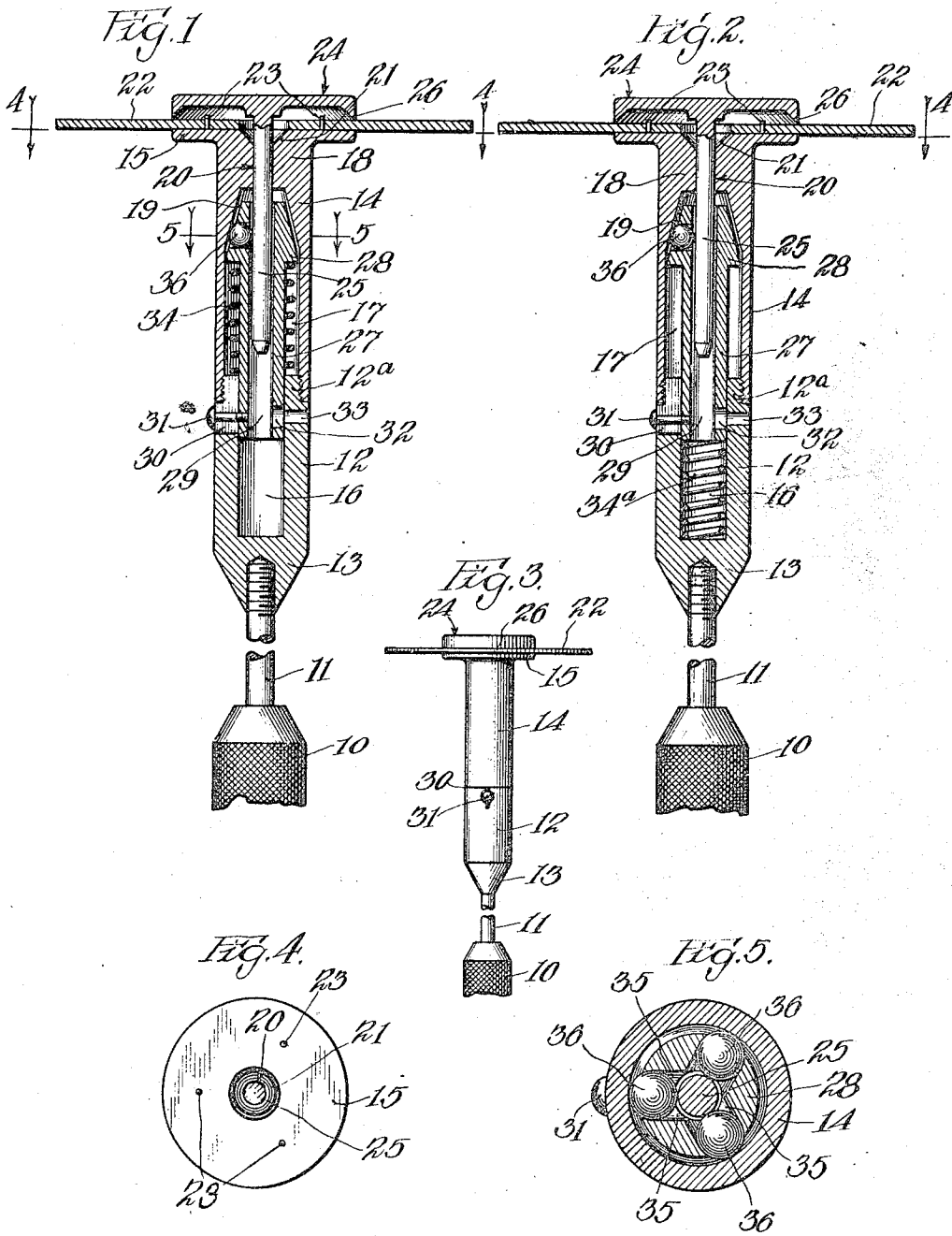


H. G. DRESSEL.
 DENTAL TOOL.
 APPLICATION FILED NOV. 12, 1914.

1,130,716.

Patented Mar. 9, 1915.



Witnesses:
 Leo J. DuMaur.
 Arthur B. Frank.

Inventor:
 Henry G. Dressel
 By Robt. H. [Signature] Atty.

UNITED STATES PATENT OFFICE.

HENRY G. DRESSEL, OF CHICAGO, ILLINOIS.

DENTAL TOOL.

1,130,716.

Specification of Letters Patent.

Patented Mar. 9, 1915.

Application filed November 12, 1914. Serial No. 871,672.

To all whom it may concern:

Be it known that I, HENRY G. DRESSEL, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Dental Tools, of which the following is a specification.

Primarily, this invention relates to dental tools and has for its object, the provision of a readily adjustable means for the attachment of sand paper or emery disks or similar abrasive, grinding or buffing elements to the chuck of a standard dental engine.

With the above and other objects in view, this invention consists in the construction, combination and arrangement of parts, all as hereinafter more fully described, claimed and illustrated in the accompanying drawing wherein:—

Figure 1 is a central longitudinal section of the present invention illustrating the same in its operative position and performing its designed functions. Fig. 2 is a similar view of a modified form thereof. Fig. 3 is an elevation of the tool illustrated in either Figs. 1 or 2. Fig. 4 is a transverse section taken along line 4—4 of either Figs. 1 or 2, being an elevation of the outer end of the tool illustrating the means whereby the abrasive or grinding disks are secured thereto. Fig. 5 is a horizontal section taken along 5—5 of Fig. 1 and illustrates a locking mechanism, said mechanism also being present in the form shown in Fig. 2.

Reference being had more particularly to the drawing, 10 indicates the chuck of a standard dental engine having the usual exteriorly threaded spindle 11, whereby tools and the like may be attached thereto.

The present invention resides in a tool designed for attachment to the threaded portion of the spindle 11, through the medium of which the abrasive or buffing disks may readily be attached to and detached from said chuck. This tool consists of a two part casing comprising the base 12 and the barrel 14, which, as will be hereinafter described, are detachably connected, the said base 12 having its outer end tapered as at 13 and provided with a concentric interiorly threaded socket for the reception of the threaded portion of the spindle 11. At its outer end 13 no access may be had to the interior of the base 12, while the opposite or inner end is open forming a connection with the passage 16, concentrically arranged in

the base. The inner end of the base 12 is surrounded by an exteriorly threaded tubular projection 12^a of less diameter than the casing, whereby barrel 14 may be attached to said base 12 as will be hereinafter more particularly pointed out.

The barrel 14 is of equal exterior diameter to the base 12 and has its inner end interiorly threaded for locking engagement with the tubular projection 12^a of said base. A passage 17 extends partially through the barrel 14, said passage having a contraction 18 adjacent to its outer end to which the wall of the passage 17 tapers as at 19. The contraction 18 is apertured, as at 20, to form a continuation of the passage 17, which aperture 20 terminates in a counter-sink 21 for the purpose of aiding in the insertion of tool shanks in said aperture.

To form a support for the abrasive disks 22, the outer terminal of the barrel 14 surrounding the counter sink 21 is provided with an outstanding concentric flange 15, from which projects a plurality of pins 23. The abrasive disks 22 rest flush upon the flange 15 and are provided with openings to receive the pins 23, thereby attaching said disks securely to the tool for rotation therewith.

For the purpose of preventing the abrasive disks 22 from falling away from the tool, a clamping plate 24 is provided, having a central shank 25 on its inner face. This clamping plate 24 is provided with a peripheral lip 26 projecting transversely therefrom and upon the same side thereof as the shank 25. The diameter of this lip 26 is equal to the diameter of the flange 15. The shank is inserted in the counter-sink 21 and the passage 20 and projects into the passage 17 of the barrel 14 where it is locked by a mechanism to be hereinafter more fully described. When the shank is so located the lip 26 rests upon the abrasive disk 22, carried by the tool and forms a housing for the pins 23 of the flange 15 and when said shank is locked in this position, the abrasive disk 22 is securely held by the clamping plate.

In order to lock shank 25 in the barrel 14, a locking cylinder 27 is mounted for reciprocation in said barrel terminating at its upper end in the tapered head 28, the taper of said head conforming to the taper 19 of the passage 17 in said barrel. This locking cylinder is provided with a bore 29 extend-

ing completely through, in which the shank 25 is received while in its operative position. The casing is slotted as at 30 at the joint between the base 12 and the barrel 14 for the reception of an operating pin 31 which is secured to the lower end of the cylinder 27 for the reciprocation of said cylinder from the exterior of the casing. This pin is threaded into the lower end of the cylinder 27 and is also upset to doubly secure it to the cylinder. To accomplish the upsetting of the pin 31, the cylinder 27 is apertured at 32, diametrically opposite to the pin 31, and the base 12 is likewise apertured as at 33 for registration with the aperture 32, so that when the parts are positioned as in Figs. 1 and 2, the inner end of the pin may be reached.

To normally force the tapered head 28 against the tapered surface 19 of the passage 17 in the barrel 14, a spring 34 is provided in the form shown in Fig. 1 between the head 28 and the upper terminal of the base 12 and encircles the body of the cylinder 27. In Fig. 2, the spring 34^a is located between the bottom of the passage 16 in the base 12 and the lower terminal of the cylinder 27 and performs the function of forcing the tapered head 28 of the said cylinder against the tapered portion 19 of the passage 17 in the barrel.

The tapered head 28 of the locking cylinder is provided with a plurality of horizontal radial ball races 35 which extend from the exterior tapered surface of the said head to the passage or bore 29, extending through the cylinder 27 and the head 28 thereof. Each ball race is provided with a locking ball 36 as illustrated in Fig. 5.

When the shank 25 is inserted in the aperture 20 and into the passage or bore 29 of the cylinder 27, it contacts with the balls 36 and forces the cylinder 27 against the action of the spring 34, 34^a and the head 28 away from the tapered wall 19 of the passage 17, thereby permitting the balls 36 to move outwardly in the ball races 35. When the pressure is removed from the shank 25, the spring 34, 34^a forces the cylinder 27 toward the shank so that said shank is locked rigidly by the cylinder 27 and the balls in the aperture or passage 20.

When it is desired to release the clamping plate and shank 24 and 25 respectively, the head of the pin 31 is forced downwardly into slot 30, thus moving the head 28 away from the tapered wall 19 of the passage 17 allowing the balls to move outwardly in the ball races 35, and away from the shank.

While the preferred form of the present invention has been illustrated and described, it is to be expressly understood that many changes in the details of construction may be made without departing from the spirit and scope of the invention as recited in the claims.

Claims:

1. A dental tool comprising a tubular two part casing having a detachable connection between the parts thereof, means for attaching abrasive elements to said casing, a clamping plate cooperating with said means and provided with a shank arranged to be received within said casing, a spring actuated locking cylinder mounted for reciprocation in said casing for locking the shank against movement, and means for moving said cylinder free from the exterior of the casing and against the action of the spring aforesaid.

2. The combination with a casing having a passage therein provided at one end with an apertured contraction to which the wall of said passage tapers, of a locking cylinder mounted for reciprocation in the casing aforesaid and provided with a passage extending therethrough, a tapered head formed on said cylinder and having radiating ball races therein, ball in said races, and means for forcing the cylinder and its tapered head toward the taper in the wall of the passage of the cylinder.

3. The combination with a casing having a passage therein provided at one end with an apertured contraction to which the wall of said passage tapers, of a locking cylinder mounted for reciprocation in the casing aforesaid and provided with a passage extending therethrough, a tapered head formed on said cylinder and having radiating ball races therein, ball in said races, a spring interposed between the cylinder and the casing for forcing the former and its tapered head toward the contraction aforesaid, means for moving the cylinder against the action of said spring, a shank carrying a clamping plate arranged to enter the aperture of said contraction and extend into the passage of the cylinder where it is clamped by the balls aforesaid when the said cylinder is acted upon by said spring.

In testimony whereof, I have hereunto set my hand and affixed my seal this 10th day of November, A. D. 1914.

HENRY G. DRESSEL. [L. s.]

Witnesses:

MAY D. FLYNN,
ROBT. KLOTZ.