

C. M. RICHMOND.
DENTAL TOOL HOLDER.

No. 495,267.

Patented Apr. 11, 1893.

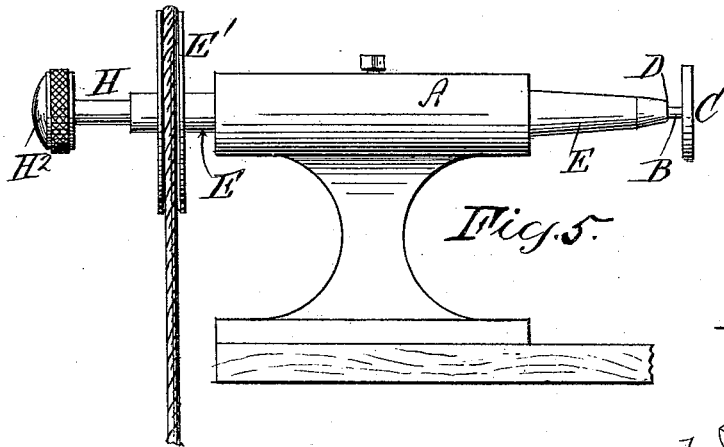


Fig. 5.

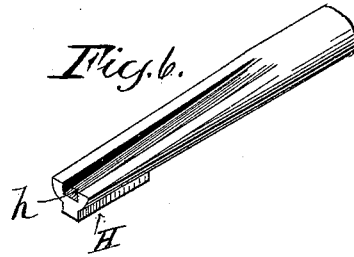


Fig. 6.

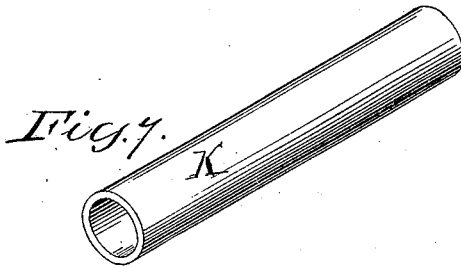


Fig. 7.

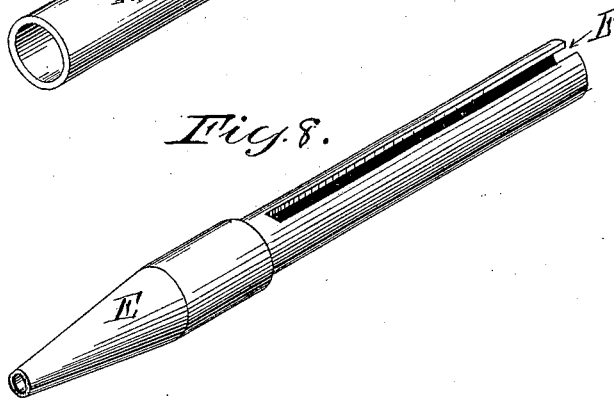


Fig. 8.



Fig. 9.



Fig. 10.

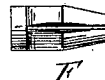


Fig. 11.

Witnesses:
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CASSIUS M. RICHMOND, OF NEW YORK, N. Y.

DENTAL-TOOL HOLDER.

SPECIFICATION forming part of Letters Patent No. 495,267, dated April 11, 1893.

Application filed May 24, 1892. Serial No. 434,198. (No model.)

To all whom it may concern:

Be it known that I, CASSIUS M. RICHMOND, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Dental-Tool Holders, of which the following is a specification.

Heretofore many devices have been employed for holding the mandrels of drills, wheels, &c., in the handles of tools to be operated by cords and bands from a motor of some kind, but it has been found almost if not always impossible so to hold the mandrel or axis of the tool in any of the ordinary chucks or holding devices so accurately that the axis of rotation will be perfectly concentric. This fault I find is often caused by the mandrel itself not being perfectly round, and hence however perfect the chuck or holding clamp may be, it will not obviate the difficulty.

Now, my invention has for its object the sure remedy for any such defect, and does completely overcome all such defects, and the chief feature of my invention consists in providing two or more chucks of two or more jaws in each, to clamp the mandrel, at several different points of its circumference, and out of line with each other. As, for example, if two chucks, with three jaws are used, then the mandrel will be held at six different points, or if three chucks are used, as shown in the drawings herewith, nine points of contact with the surface of the mandrel will be effected, and thus the finest degree of concentric action will be secured.

Figure 1 is an exterior view of the handle or holder, but with a portion broken away, to show the top of the binding bar in working position on the spring stud. Fig. 2 is a longitudinal section of the tool holder, and shows the chucks in working position with the mandrel and compressing spring stud also in position for holding the clamps or chucks. Fig. 3 is a perspective view of the spring and end of the binding bar. Fig. 4 is a transverse section of Fig. 1 at $x-y$. Fig. 5 shows an elevation of a small lathe for jewelers' use, with my invention in working position thereon. Fig. 6 represents in perspective a portion of the binding bar for compressing the spring stud, shown at Fig. 3. Fig. 7 is a perspective

view of a tube or sleeve for holding the binding bar in position while said binding bar is compressing the spring stud G. Fig. 8 is a perspective view of the slotted spindle for holding the tube, and chucks and binding devices. Figs. 9, 10 and 11 are views of one of the chucks.

All the exterior parts of the tool holder are similar to many of the well known forms now in use; having the same head for giving motion to the mandrel, and a similar milled shell or sleeve A, for the grasp of the operator.

B is the mandrel for carrying the wheel C, or the drill as desired, the shank of which is inserted at D into the rotating slotted tube E, the other end of which is connected with the driving axis which is driven by a cord or band in the usual manner of operating dental tools.

F, F' and F² are the chucks for grasping the mandrel, and they are preferably formed with three jaws, though only two may be used, and the shanks of the jaws are elastic, so that they stand apart when not compressed; but their exterior tips are conical (see Fig. 11 at F) so that the first one at F, when forced into the conical cavity in the tube E, compresses the faces of the jaws upon the mandrel and clasps it at three points. The rear end of this chuck F is made concave, to receive and compress the jaws F', and the rear end of the latter is also concave, to receive and compress the jaws of F², the rear end of which is slightly rounded for the end of the spring stud G to rest or work against. This spring stud is formed with a semi-circular head, G', which is slotted to permit the extension of the tool mandrel under the bar of the spring and the rear end of said spring stud at G rests against a shoulder on the inside of the tube E, so that when the binding bar H is shoved forward upon the bow of the spring, and thereby compresses it, it will by its elongation, force the chucks forward, and thereby compel their several jaws to clasp the mandrel at as many different points with a firm grasp, and thereby hold it concentrically, circumferentially and longitudinally.

As the slot in the binding bar is slightly inclined, (see Fig. 7 at h) and the spring stud is

only slightly curved, an enormous end thrust is produced upon the chucks, but upon the withdrawal of the bar, which is connected with a milled thimble for operating it at its outer end, the several chucks are at once relieved, as their several spring jaws all re-act to remove them from their cavities and hold them open for the withdrawal of the mandrel and the insertion of another if required. These several parts are held in line with each other by means of a rib or spline L on the binding bar movably seated in the slot of the tube E, as shown in section at Fig. 5, so that when the parts are properly made and properly adjusted the several jaws will all have different bearings on the mandrel.

The tube shown at Fig. 8 is merely a plain tube to cover the slots in the tube E, and hold the spring stud and binding bar in working positions, and also serve as a working bearing for these several parts, and they all revolve with it inside of the handle A. It is evident that such a combination of devices will be

very useful to jewelers and others requiring small lathes and drills to work accurately, and therefore I have shown how it can be applied in a lathe-head at Fig. 6, by dispensing with the outer shell A and inserting the remaining parts in the head of the lathe and placing a pulley on the spindle E', and have the thimble for operating the binding bar H, extended thereon to the left, as shown at H².

Having thus fully described my invention, I desire to secure the same by Letters Patent, and therefore claim—

The combination in a dental tool holder of a mandrel or axle support A, one or more clamps or chucks, F, spring stud G and binding bar H, slotted spindle E and parallel casing tube K, as and for the purposes herein before set forth.

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Witnesses:

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