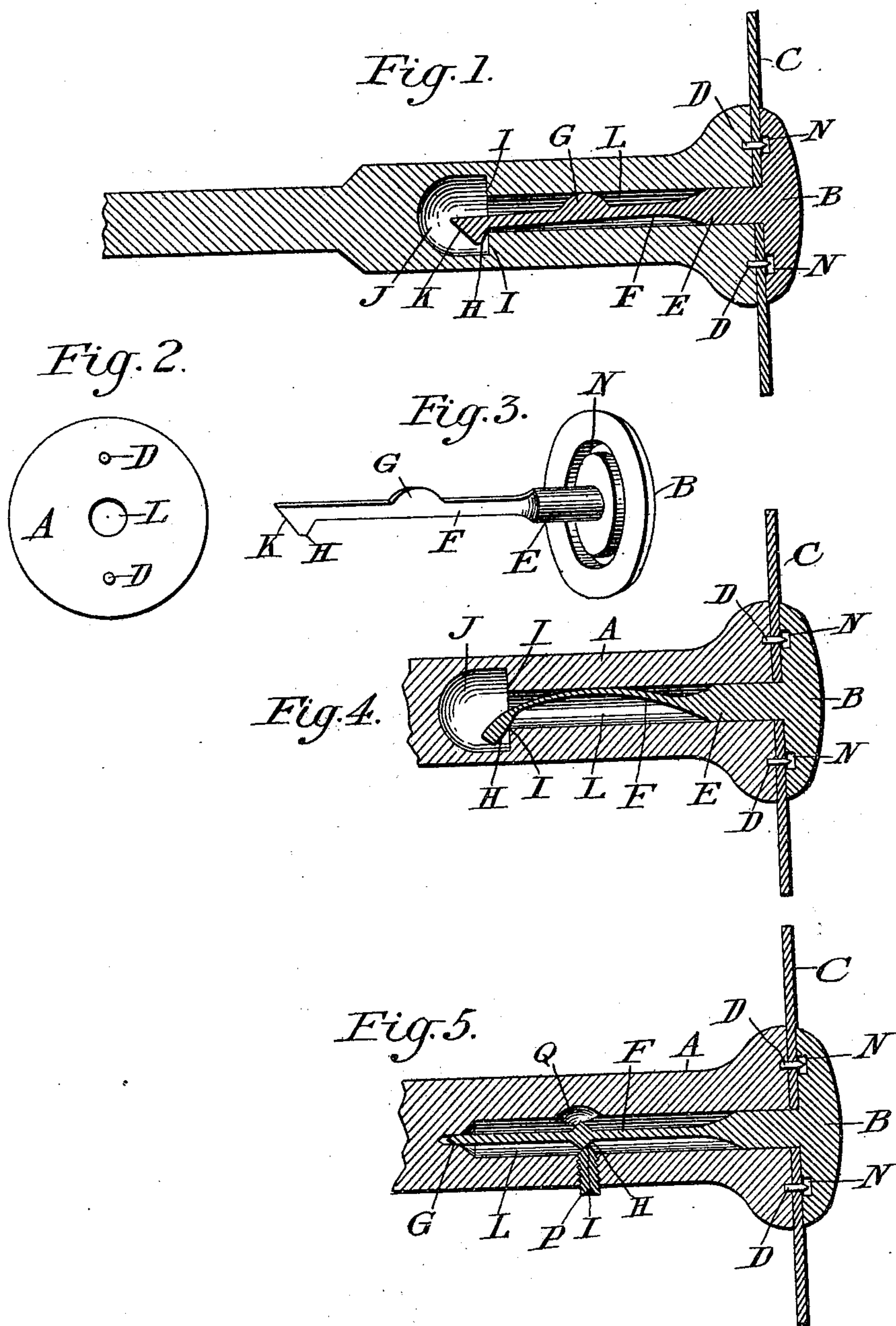


No. 624,015.

Patented May 2, 1899.

G. B. HAKINS.  
DENTAL DISK HOLDER.  
(Application filed Feb. 28, 1897.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

GEORGE B. HAKINS, OF NORWOOD, NEW YORK.

## DENTAL DISK-HOLDER.

SPECIFICATION forming part of Letters Patent No. 624,015, dated May 2, 1899.

Application filed February 26, 1897. Serial No. 625,144. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE B. HAKINS, a citizen of the United States of America, residing at Norwood, in the county of St. Lawrence and State of New York, have invented certain new and useful Improvements in Dental Disk-Holders, of which the following is a specification.

The object of my invention is to provide a novel, cheap, and simple means for fastening the ordinary grinding or abrading disk used by dentists upon a mandrel similar to that ordinarily employed by them on a dental engine, and which fastening may be quickly and easily put in place in the mandrel or removed therefrom by means of the finger-nails without the employment of any special tool therefor, and that whether the mandrel be running or still, and also to provide such a fastening as will have a constant tendency to draw and hold such disk firmly in place while the latter is employed in its usual functions without its being liable to gradually withdraw from the mandrel because of the jarring of the tool caused by such employment or become inoperative through the lodgment of foreign bodies within the cavity of its fastening mechanism.

In the accompanying drawings, which form a part of this specification and in which similar letters indicate corresponding parts, Figure 1 is an enlarged sectional view of the preferred form of my said invention with the several parts thereof properly assembled. Fig. 2 is an end view of the mandrel looking from the right in Fig. 1. Fig. 3 is a perspective view of the catch-pin employed in said preferred form with the button thereto attached, and Figs. 4 and 5 are enlarged sectional views of modified forms of my said invention with the several parts thereof properly assembled.

Referring now to said drawings, A represents the mandrel, provided with the usual pins D D for holding the customary dental disk C in place and with a shank provided with any suitable means of attachment to the dental engine. The exterior of this mandrel is of the usual form and has a cavity L, preferably axial and of substantially uniform diameter for about three-quarters of an inch or such distance as is appropriate to the purposes hereinafter explained. In said preferred form and the forms shown at Fig. 4

this cavity is enlarged to form a pocket J, having a substantially square annular abutment I at its outer end and of sufficient capacity to allow the head K of the catch-pin F to enter and turn freely therein. This catch-pin F has the customary circular base or button B, provided with the usual annular groove N to receive the point of the pins D D. From the base of this button is axially projected the cylindrical hub E for about one-eighth of an inch and adapted to snugly fit the bore of the cavity in the mandrel above described, so as to prevent the button B from wobbling on the mandrel when in place thereon. In said preferred form this hub is then gradually reduced in diameter to form the shaft of the said catch-pin, and is thus continued, except as hereinafter explained, until of sufficient length to nearly reach the abutment I of the pocket J above described, where a head K, preferably pointed, is formed thereon, and a blunt barb or catch H projected from one side thereof. The shoulder of this barb from heel to point forms an obtuse angle with the shaft of said catch-pin for the purpose of permitting its withdrawal from engagement with the abutment I, as hereinafter explained, and its point projects into said pocket, so that the shoulder of said barb comes into frictional contact with the interior transverse face of the abutment I when the said barb is forced radially over said abutment, as hereinafter explained. The block G is formed on the shaft of said catch-pin about midway between the head K and the hub E and for ease of operation is made with inclined or rounded ends. It is projected from said shaft on the side thereof opposite to the projection of said barb H and to such height that by bearing against the walls of the cavity in said mandrel it forces the said barb H firmly down against the corner of the annular abutment I when the catch-pin reaches the extent of its travel in said mandrel. To enable said block to thus act, it is apparent that either the said block or the barb H or the shaft of said catch-pin must be of resilient material, and for this purpose I prefer to make the said shaft, block, and barb integral and of hardened steel, as that will best bear the strain and wear incident to its use, and my mandrel and catch-pin of the form shown in Figs. 1, 2, and 3, as they are then readily and cheaply constructed and not liable to get easily out of repair.



In operation with my preferred form above described, the customary dental disk having been placed upon the hub of said catch-pin in the usual manner, the point of the catch-pin is then placed within the cavity of the mandrel and forced down therein by the hand of the operator and slowly revolved, if there be holes formed in the disk, until such holes register with the pins D D, when the button B is pressed firmly down thereon. These motions have the effect of projecting the catch-pin into the cavity of the mandrel until the hub coincides with the bore thereof, when the block G, pressing against the interior surface of said cavity L, forces the barb H against the opposite interior surface of said cavity until it reaches the corner of the abutment I, when said barb slips radially into the pocket J and the shoulder of the barb presses firmly against the inner face of the annular abutment I, and thereby continually resists the withdrawal of the catch-pin from said cavity, while permitting its revolution therein.

The catch-pin may be withdrawn from the mandrel by the operator slipping his thumbnail between the button B and said mandrel, and thereby forcing the catch H off from its seat on the abutment I, when such withdrawal may be readily effected.

In the modified form shown at Fig. 4 the shaft of the catch-pin is bent, so as to itself bear against the side of the cavity in the mandrel instead of the block G above described, and the catch-pin is provided with an enlarged head forming the catch H, adapted to spring over the abutment I, with the constant tendency to draw the catch-pin into the cavity of the mandrel.

In the modified form shown at Fig. 5 the annular abutment I of the hereinbefore-described forms is replaced by a conical abutment I, formed on the end of the screw-pin P, inserted laterally into the cavity of the mandrel about midway of its length, and the catch H is replaced by an annular collar with inclined sides formed on the shaft of the catch-pin in such position as to bear on the inner side of said abutment I on the pin P when the catch-pin is forced into the cavity L of the mandrel to the extent of its travel, and said cavity is enlarged opposite said abutment I, as shown at Q, in order to permit said collar H to pass over said abutment I. In this form the office of the bearing-block G is performed by the annular bearing G, forming a contraction of the cavity L and adapted to guide and hold the extended end of the shaft F within the contracted end of the cavity L, as shown, so as to force the catch H of the catch-pin down upon the retaining-abutment I, fixed in the cavity of the mandrel. It is apparent, however, that if the shaft F be given sufficient stiffness any bearing of the shaft against the side of the cavity L remote from the contact of the catch with the retaining-abutment may be dispensed with in each of the said forms wherein it is shown. Its presence, how-

ever, allows of greater flexibility in the shaft, and consequently greater ease of operation, and I therefore prefer to employ it.

The manner of placing the dental disk on the catch-pin and fastening both on the mandrel and withdrawing them therefrom is substantially the same in all the forms herein shown and described.

It is apparent that by the construction of the several forms herein shown and described I place the working parts on the catch-pin, where they are easily inspected, cleaned, or repaired, as may be required, or duplicate catch-pins may be kept on hand and one of these readily substituted for a broken one without removing the mandrel from the lathe, and that the retaining device therein is not subject to the deleterious chattering of its spring, as would be the case were such spring attached to the mandrel instead of to the catch-pin, and consequently my said improved device holds the disk more firmly on the mandrel.

What I consider the essential feature of my invention as shown by all the forms above described is that the catch of the catch-pin shall have a positive longitudinal strain against an immovable projection in the cavity of the mandrel, constantly tending when properly caught in position to draw said catch-pin within said mandrel.

Having now described my improved dental disk-holder and the manner of operating the same, what I claim as my invention, and desire to secure by Letters Patent, is—

1. In a dental-disk-holding device, a non-resilient stationary abutment on the interior of an axial cavity in the face of a mandrel; and a catch-pin, separable from said mandrel, attached to an outer base for retaining a dental disk in place on the face of said mandrel, and which catch-pin is provided with a catch adapted to engage with, and spring over, said abutment and press against the innermost transverse face thereof.

2. A dental disk-holder comprising a mandrel having an axial cavity provided with a non-resilient stationary abutment on the interior thereof; and a catch-pin provided with a base of greater diameter than the mouth of said cavity, for retaining a dental disk on said mandrel, an axial hub adapted to fit the outer end of said cavity, a shaft of resilient material provided on one side with a bearing-block, and on the opposite side with a catch adapted to engage with, and spring over, said abutment and press against the innermost transverse face thereof; and means for holding the disk against rotation on said mandrel.

In testimony that I claim the foregoing as my invention I have hereunto set my hand, at Norwood, New York, this 6th day of February, 1897.

GEORGE B. HAKINS.

Witnesses:

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