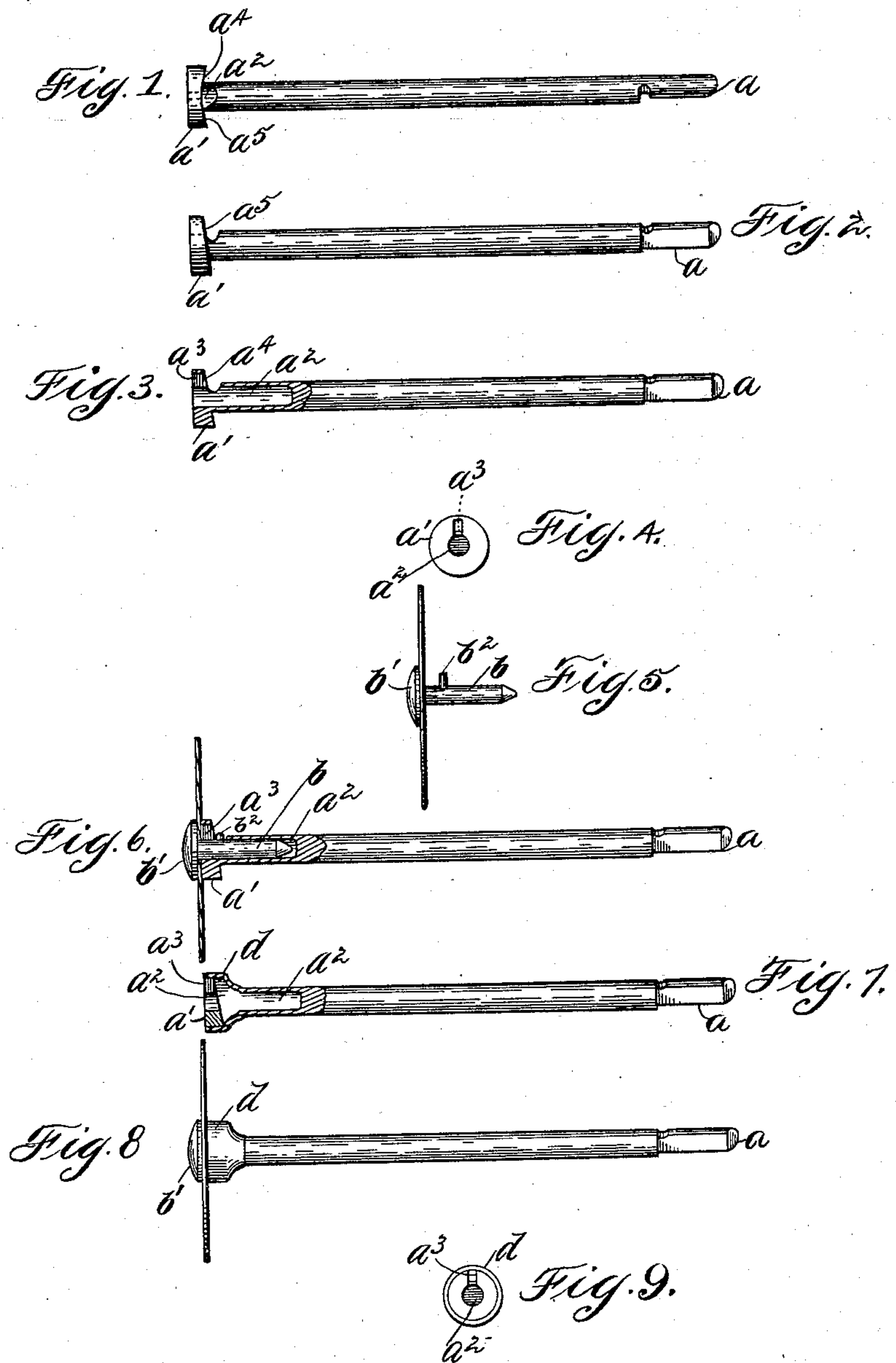


(No Model.)

J. E. KEEFE.
DENTAL DISK MANDREL.

No. 604,355.

Patented May 17, 1898.



Witnesses:
George L. Crapp.
W. Clyde Jones.

Inventor:
James E. Keefe.
By Bartra & Brown
Attorneys.

UNITED STATES PATENT OFFICE.

JAMES E. KEEFE, OF CHICAGO, ILLINOIS.

DENTAL DISK-MANDREL.

SPECIFICATION forming part of Letters Patent No. 604,355, dated May 17, 1898.

Application filed April 24, 1895. Renewed October 11, 1897. Serial No. 654,878. (No model.)

To all whom it may concern:

Be it known that I, JAMES E. KEEFE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Disk-Mandrels for Dentists, (Case No. 1,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to a dentist's disk-mandrel; and its object is to provide simple and effective means for securing the disk to the end of the mandrel and in such a manner that the mandrel may be readily rotated in either direction.

It has been proposed heretofore to secure the disk to the mandrel by clamping the disk between the end of the mandrel and the head of a screw adapted to be screwed into the end of the mandrel. This means for fastening the disk to the mandrel permits of the rotation of the disk in but one direction, and if the direction of rotation be reversed the screw will be turned to unclamp the disk.

It is the object of my invention to provide a mandrel consisting of two parts, between which the disk is adapted to be clamped, means within the periphery of the mandrel-head being provided for holding the disk tightly clamped whether rotated in one direction or the other.

In carrying out my invention I preferably provide upon the end of the mandrel a mandrel-head having a central opening or aperture through which a pin is adapted to be passed, the pin carrying a clamping-head, between which and the mandrel-head the disk is adapted to be clamped. Upon the pin is provided a laterally-extending lug adapted to pass through a lateral opening provided to one side of the central opening in the mandrel-head and to engage oblique walls provided upon the rear face of the mandrel-head upon either side of the lateral opening, the lug engaging one or the other of the oblique walls, according as the mandrel is rotated in one direction or the other. The clamping-head is thus clamped against the mandrel-head to securely maintain the disk in position, regardless of the direction of rotation of the mandrel.

I will describe my invention by reference to the accompanying drawings, in which the figures are twice the actual size.

Figure 1 is a view in elevation of a mandrel embodying my invention. Fig. 2 is a similar view at right angles to that shown in Fig. 1. Fig. 3 is a longitudinal sectional view of the mandrel. Fig. 4 is an end view of the mandrel-head. Fig. 5 is a view of the pin carrying the laterally-extending lug, the disk being shown in position thereon. Fig. 6 is a view illustrating the mandrel with the disk clamped in position. Fig. 7 is a sectional view of the preferred form of my invention. Fig. 8 is a view in elevation thereof, the disk being shown in position. Fig. 9 is an end view of the mandrel-head thereof.

Like letters refer to like parts in the several figures.

Upon the end of the mandrel a is provided an enlarged portion or head a' , a central opening a^2 being provided in the head and extending for a distance into the shank of the mandrel. To one side of the central opening is provided a lateral opening or aperture a^3 . The shank of the pin b is adapted to be inserted through the opening a^2 , the pin being provided upon the end with an enlarged portion or head b' , between which and the mandrel-head a' the disk c is adapted to be clamped. Upon the pin b is mounted a laterally-extending lug b^2 , which when the shank of the pin is inserted in the central opening a^2 is adapted to pass through the lateral opening a^3 to the rear of the mandrel-head a' . The rear face of the mandrel-head a' is provided with oblique walls $a^4 a^5$ upon the opposite sides of the lateral opening a^3 , the thickness of the head being thus gradually increased as the distance from the lateral opening a^3 increases. The pin b having been inserted in the opening a^2 and the lug b^2 resting at the rear of the mandrel-head a' , any rotation of the mandrel or of the pin b causes the lug b^2 to engage with one or the other of the oblique surfaces $a^4 a^5$, thus drawing the head b' of the pin toward the face of the mandrel-head and securely clamping the disk in position. If the mandrel and pin be relatively rotated in one direction, the lug b^2 will engage the oblique wall a^4 , while if the direction of rotation be reversed the lug b^2 will pass across to the op-

posite wall a^5 and engage therewith. Thus in whichever direction the mandrel be rotated the head b' of the pin is clamped against the mandrel-head to securely fasten the disk in position. It is essential that the laterally-extending lug b^2 do not project beyond the periphery of the mandrel-head, as in that case the lateral projection would strike against the tooth being operated upon, and therefore it is necessary to so proportion the parts that the laterally-extending lug may always lie within the periphery of the mandrel-head. The periphery of the mandrel-head, as well as of the head b' of the pin, should be round and provided with an even surface, so that should they come in contact with the tooth they will slide over the surface without producing a blow.

I preferably employ in practice the structural features illustrated in Figs. 7, 8, and 9, in which the mandrel-head a' is secured in the end of a cap d , provided upon the end of the mandrel, the space to the rear of the oblique walls on the mandrel-head being thus completely inclosed.

I have illustrated the laterally-extending lug b^2 as carried upon the shank of the pin b and the lateral opening a^3 as communicating with the central opening a^2 ; but I do not limit myself to this precise arrangement, as other disposition of the parts may be made without departing from the spirit of my invention.

Having described my invention, what I

claim as new, and desire to secure by Letters Patent, is—

1. In a disk-mandrel, the combination of two members between which the disk is adapted to be clamped, one of said members carrying a lug and the other member being provided with oblique walls with one or the other of which said lug engages in locking the disk according as the disk is rotated in one direction or the other, whereby the disk is adapted to be clamped between said members regardless of the direction of rotation of the disk; substantially as described.

2. The combination with a mandrel carrying a mandrel-head, of a clamping-head between which and the mandrel-head the disk is clamped, an opening in said mandrel-head at a distance from the periphery thereof, oblique walls upon the rear of the mandrel-head upon opposite sides of said opening, and a lug or part upon the clamping-head adapted to pass through said opening and to engage one or the other of said oblique walls according as the mandrel is rotated in one direction or the other, the space to the rear of said mandrel-head being completely inclosed; substantially as described.

In witness whereof I hereunto subscribe my name this 20th day of April, A. D. 1895.

JAMES E. KEEFE.

Witnesses:

JOHN MILTON DODSON,
W. CLYDE JONES.