

W. A. JOHNSTON.
Hand-Pieces for Dental-Drills.

No. 156,796.

Patented Nov. 10, 1874.

Fig. 1.



Fig. 2.

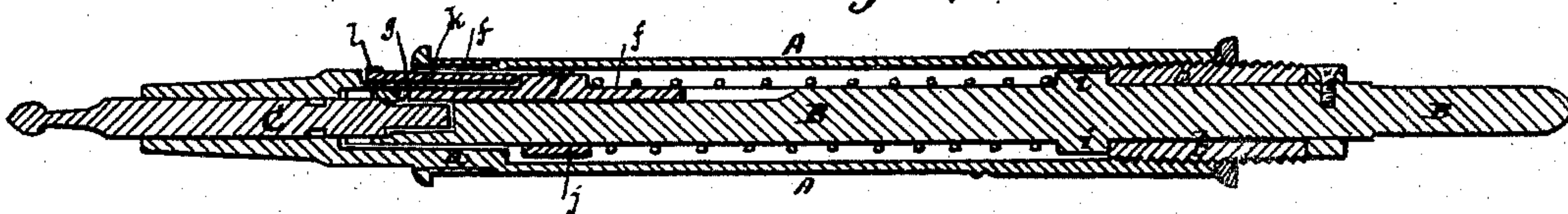


Fig. 3.

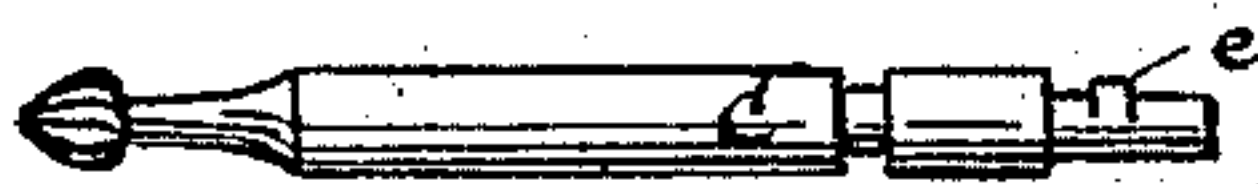


Fig. 4.



Fig. 5.

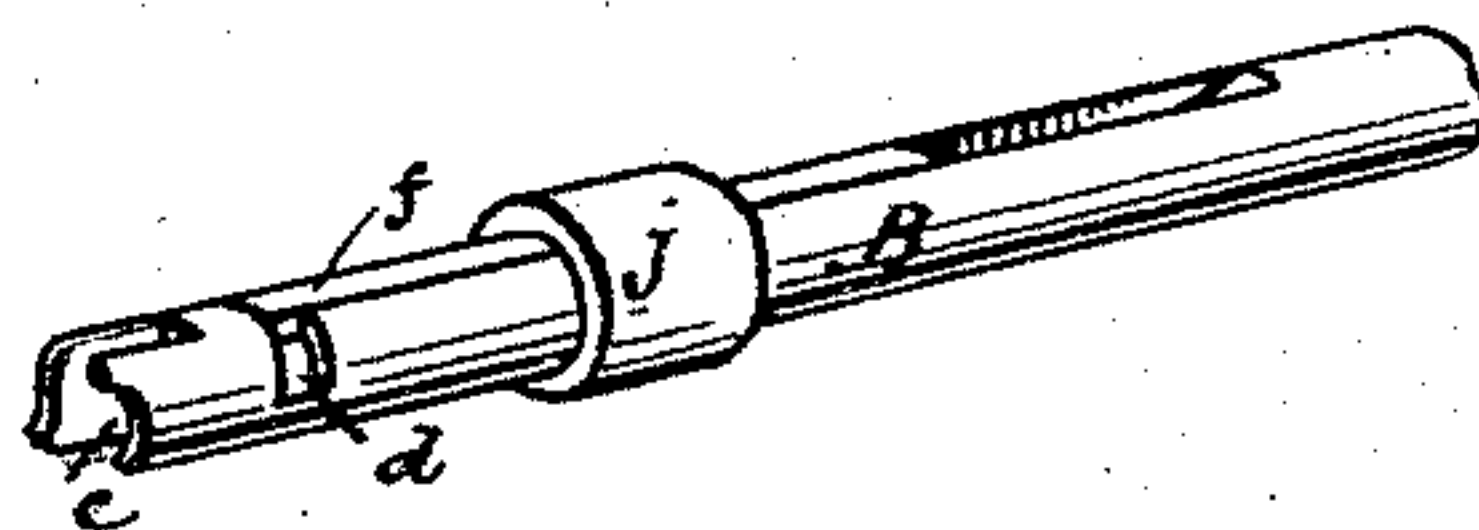


Fig. 6.

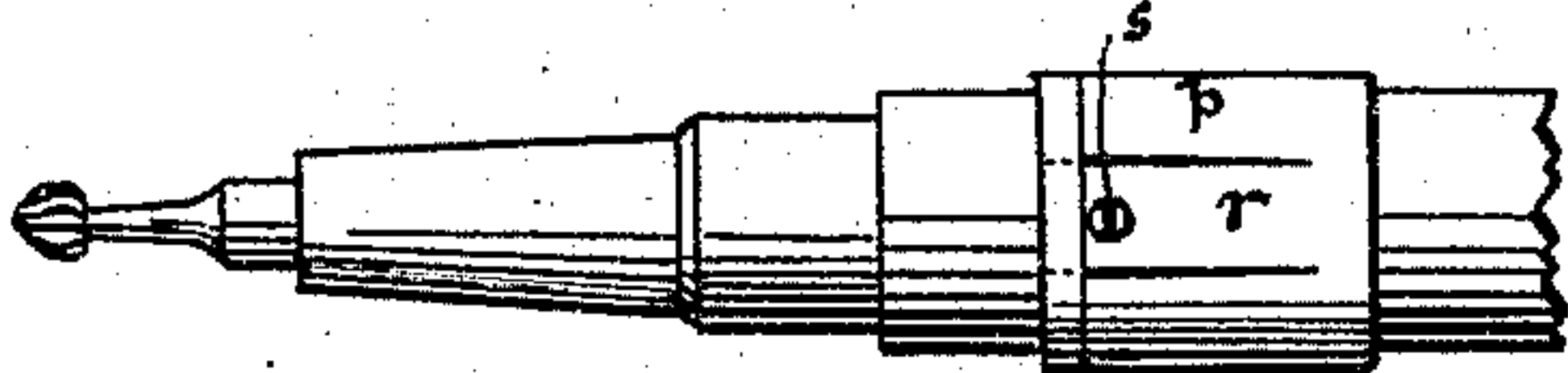


Fig. 7.

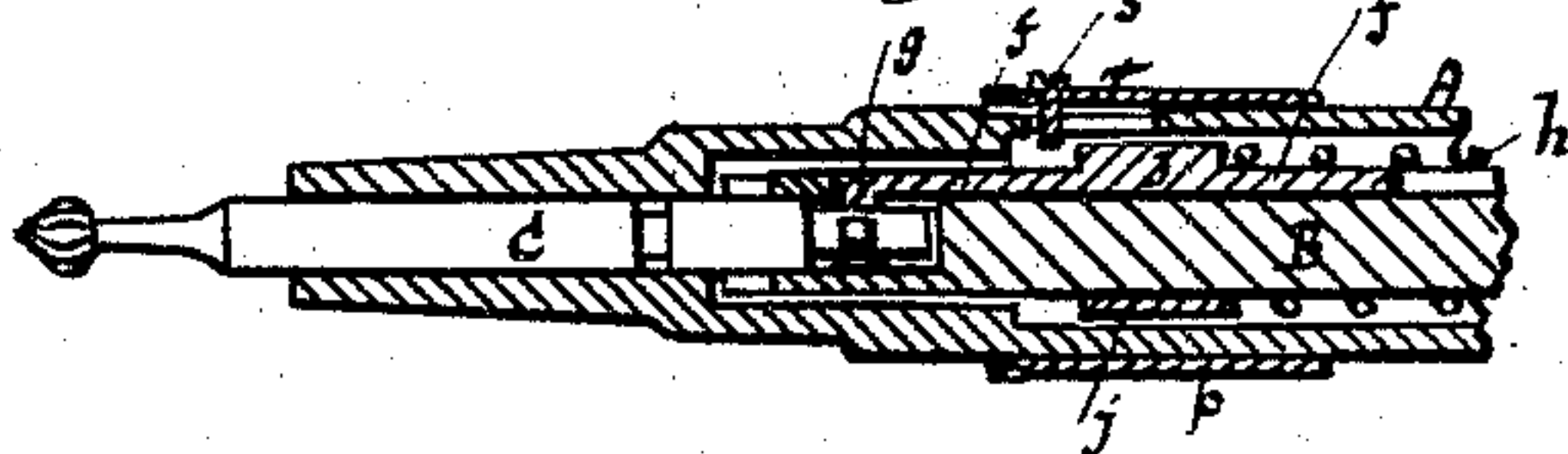


Fig. 8.

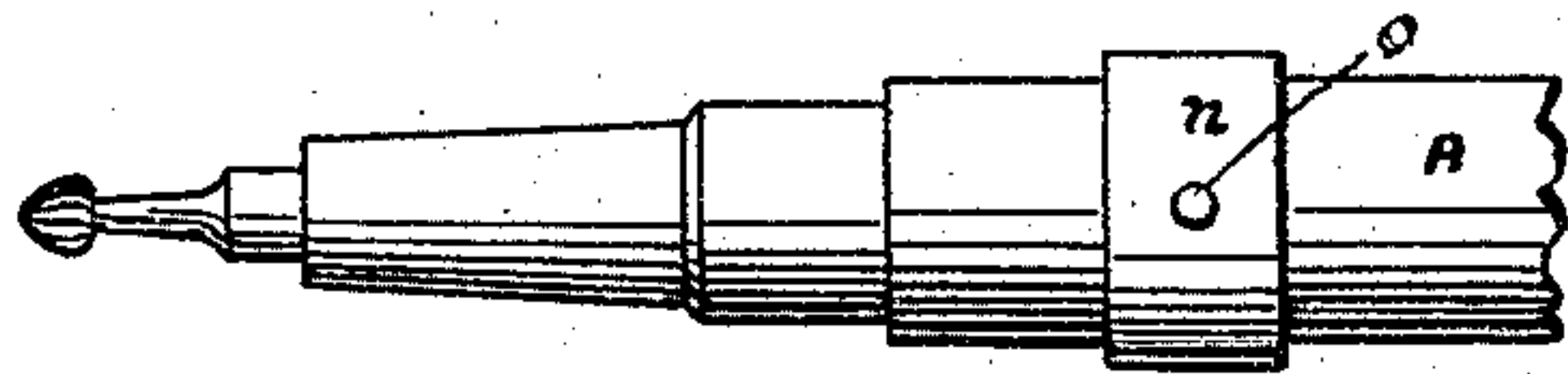


Fig. 9.

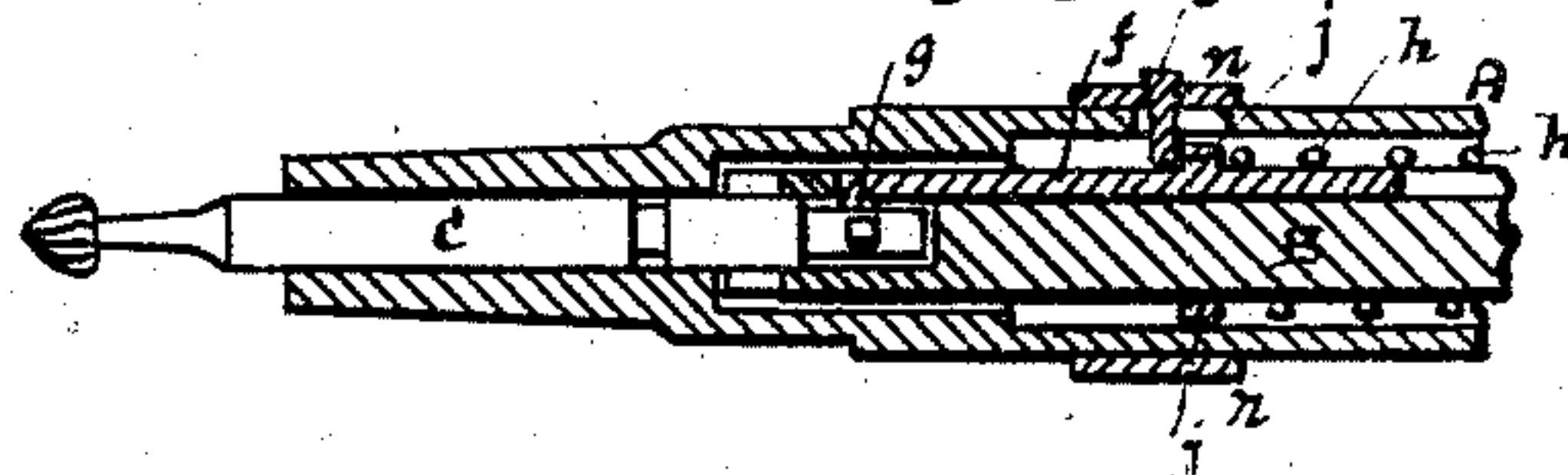


Fig. 10.

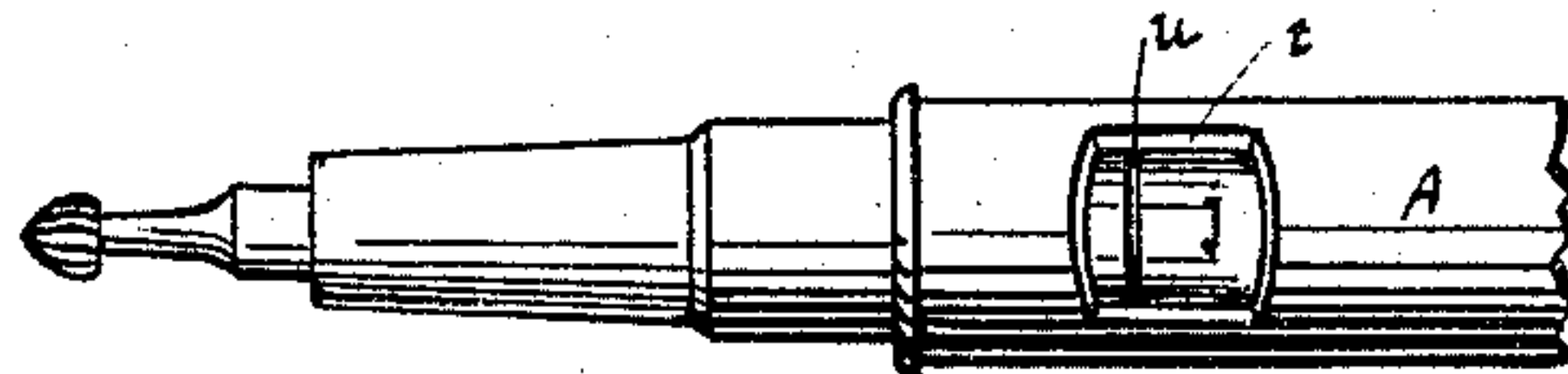
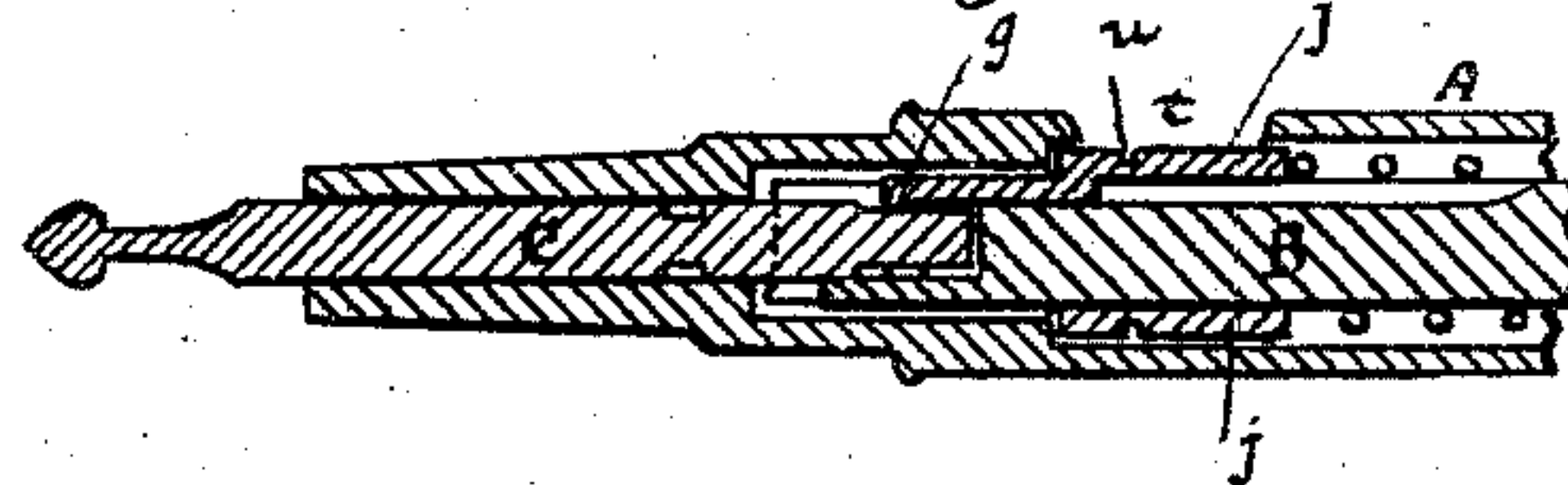


Fig. 11.



Witnesses.

Edw. A. Sick.
H. F. Fickel

Inventor.

William A. Johnston
att. M. Bailey

UNITED STATES PATENT OFFICE.

WILLIAM A. JOHNSTON, OF BROOKLYN, ASSIGNOR TO JOHNSTON BROTHERS, OF NEW YORK, N. Y.

IMPROVEMENT IN HAND-PIECES FOR DENTAL DRILLS.

Specification forming part of Letters Patent No. 156,796, dated November 10, 1874; application filed October 30, 1874.

To all whom it may concern:

Be it known that I, WILLIAM A. JOHNSTON, of Brooklyn, in the State of New York, have invented certain new and useful Improvements in Hand-Pieces or Holders for Dental Drills, Burrs, or other Dental Tools, of which the following is a specification:

This invention may be considered as an improvement on that for which Letters Patent No. 147,959 were issued to Johnston Brothers, assignees of James B. Morrison, on the 24th of February, 1874.

In the said Letters Patent the rotating shaft terminates in a socket to receive the tool-shank. This socket is intersected by a transverse slot, which forms a shouldered recess, to receive a lug or projection on the shank of the tool, which lug or projection, when the tool-shank is inserted in the socket, is brought into the recess by partly rotating the tool. When the lug is thus brought into the recess it bears against the sides and one end of the same, and the tool cannot be withdrawn so long as the lug is in that position. It has, however, been found in practice that the tool is liable at times and under certain circumstances to shift its position in such manner as to disengage the lug from the recess, and so permit the tool to work out of the socket. It is to guard against this contingency that my present improvement has been devised. I therefore combine with the socket a sliding safety-bolt, which is so arranged that after the lug has entered the shouldered recess it will close the path by which the lug has entered, and so prevent the lug from being disengaged therefrom until it (the bolt) is withdrawn.

I prefer to so arrange the bolt that it will be pushed back by the tool-shank as the latter enters the socket, and then move forward again by the action of a spring so soon as the tool has been turned to bring its lug into the recess.

The manner in which my invention is or may be carried into effect will be understood by reference to the accompanying drawing, in which—

Figure 1 is a perspective view, and Fig. 2 is a longitudinal central section, of a hand-piece or holder embodying my invention. Fig. 3 is

a representation of the tool. Fig. 4 is a side elevation, and Fig. 5 is perspective view, of that portion of the rotating shaft containing the tool-socket. Figs. 6 to 11 inclusive represent modifications, hereinafter referred to.

A is an enveloping sleeve formed with bearings *a b* for the tool and rotating shaft B. In the end of the shaft is a socket, *e*, for the shank of tool C, and a transverse slot, *d*, forming the shouldered recess, into one end or the other of which is turned the lug *e* on the tool-shank when the latter has been inserted to the proper extent into the socket.

These parts in their construction and arrangement and operation are substantially the same as the similar parts described and shown in the Letters Patent hereinbefore recited, and therefore require no further explanation or description here.

In rear of and at about right angles to the slot *d* is a longitudinal guide slot or groove in the shaft B, in which fits a sliding bolt, *f*, the front end of which normally projects into and across the slot *d*, as seen in Fig. 4. This portion of the bolt lies in the path of the lug on the tool when the latter is pushed into the socket. It projects a little beyond the interior face of the socket at this point, as indicated at *g*, Fig. 2, so that it will lie in the path of the lug, and so be pushed back by the latter as the tool enters. The bolt is pushed back until the lug has reached and entered the transverse slot *d*. The tool is then slightly rotated to turn the lug to one end or the other of the slot, and this lateral movement of the lug disengages it from the bolt, which, being free to resume its normal position, moves forward under the pressure of its impelling spring *h*, and closes the path by which the lug entered the recess. The tool is thus locked securely in position, and cannot be retracted until the bolt has been withdrawn. Any suitable spring mechanism for the purpose may be used. It consists, in this instance, of a spiral spring, *h*, encircling shaft B, and confined between an annular shoulder, *i*, on the shaft, and a sliding sleeve, *j*, surrounding the shaft and united with the bolt.

To facilitate retraction of the bolt for the purpose of allowing the tool to be released and

removed, various devices may be used. I prefer the one shown in Figs. 1 and 2, which consists of a short slide, *k*, seated in a groove in the handle below the point where the hand of the operator comes, with its rear end in contact with the front end of the sleeve *j*. A slight projection, *i*, on the slide, is provided, by which it may be pushed back. When released, the pressure of spring *h* will return it to its normal position.

In Figs. 6 to 11 are shown other devices for pushing back the bolt.

In Figs. 8 and 9 the device consists of an external sliding sleeve, *n*, on the hand-piece A, provided with a pin, *o*, projecting through a slot in piece A, so as to extend in front of the sleeve or shoulder *j* of the bolt. By drawing back sleeve *n* the bolt will be retracted.

Inasmuch as in this last device there is liability that in manipulating the hand-piece the sleeve may accidentally be moved, the device can be modified, as represented in Figs. 6 and 7, where there is employed only an external sleeve, *p*, which has a spring-strip, *r*, with an attached stud, *s*, projecting through a slot in the hand-piece A. This stud will engage the sleeve or shoulder *j* on the bolt only when the

spring-strip *r* is depressed, so that, normally, the sleeve *p* can move freely without operating the bolt.

Another way of operating the bolt is by cutting an opening, *t*, in the enveloping sleeve A, to expose the sleeve *j* of the bolt. An annular groove, *u*, is formed in the sleeve, in which the finger-nail can be inserted when it is desired to draw back the bolt.

Other devices for moving the bolt will suggest themselves. Those described are sufficient to indicate the variety of ways in which the result can be effected.

What I claim as my invention, and desire to secure by Letters Patent, is—

In combination with the dental tool socket formed as described, the sliding bolt, operating to close the path by which the projection or lug on the tool enters the shouldered recess of said socket, substantially as shown and set forth.

In testimony whereof I have hereunto signed my name this 27th day of October, A. D. 1874.

WILLIAM A. JOHNSTON.

Witnesses:

SPENCER C. DOTY,
M. M. JOHNSTON.