

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

No. 169,003.

Patented Oct. 19, 1875.

Fig. 1.

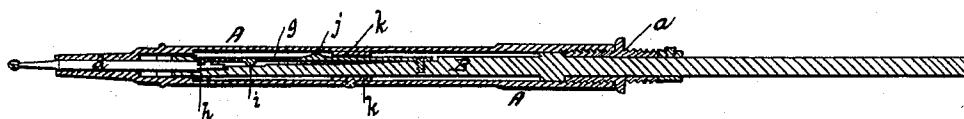


Fig. 2.

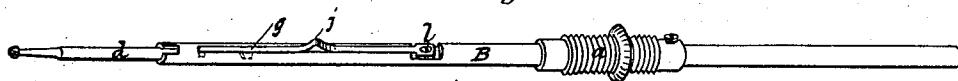
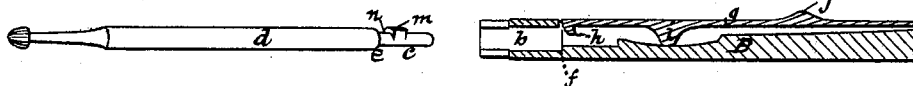


Fig. 3.



Witnesses:

Edw. A. Sick,
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Inventor:

Wm. A. Johnston by
Atty. P. H. Bailey

UNITED STATES PATENT OFFICE.

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

IMPROVEMENT IN HAND-PIECES FOR DENTAL ENGINES.

Specification forming part of Letters Patent No. **169,003**, dated October 19, 1875; application filed April 9, 1875.

To all whom it may concern:

Be it known that I, WILLIAM A. JOHNSTON, of the city, county, and State of New York, have invented certain new and useful Improvements in the Hand-Pieces of Dental Engines, of which the following is a specification:

My invention is directed to that part of the mechanism in the hand-piece of a dental engine by which the burr, drill, or other tool is locked in and released from its rotary holder. To this end I attach to the rotating holder a spring-catch adapted to engage and hold the shank of the tool inserted in the holder; and with the said catch I combine a rib or projection fixed to or formed on the interior face of the sleeve of the hand-piece, which rib or projection, by a longitudinal movement of the holder with respect to the sleeve, can be brought in contact with and caused to operate the spring-catch, to effect its disengagement from the tool-shank.

This mechanism, at once simple in construction and conveniently arranged, can be entirely inclosed within the hand-piece, so that no portion of it will be exposed to touch or view.

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

Figure 1 is a longitudinal central section of the hand-piece of a dental engine, the plane of section passing through the locking mechanism. Fig. 2 is a perspective view of the holder with the sleeve removed. Fig. 3 is a longitudinal central section, on an enlarged scale, of the front portion of the holder with hand-piece and tool removed, the latter being represented in perspective in front of the holder.

A is the non-rotating sleeve, of any ordinary or suitable construction. B is the rotating tool-holder, inclosed by and having its bearing in the sleeve, and adapted to be connected, as usual, with the driving mechanism of a dental engine. It is secured to the sleeve, in this instance, through the intermediary of an externally screw-threaded coupling-bearing, *a*, held between two shoulders on the holder, and screwing into the rear end of the sleeve. The front end of the holder is formed with a socket, *b*, to receive the shank *c* of tool *d*. The depth

to which the tool may enter the socket is determined by a shoulder, *e*, on the shank, which abuts against a corresponding shoulder, *f*, in the socket. In a slot formed lengthwise in the holder is located the spring-catch or locking device *g*. The front end of the piece has a projecting hook or beak, *h*, which enters the tool-socket *b*. The socket back of shoulder *f* is quite open at the point where the spring-catch *g* is located. On the under side of the spring-catch, some distance back of the hook or beak, is a projection, *i*, which serves as a bearing or fulcrum in elevating the portion of the spring-catch in front. The projection rests on the bottom of the slot. In rear of the projection *i* there is formed on the upper face of the spring-catch or locking device a projection, *j*, which is designed to act in conjunction with a rib, shoulder, or projection, *k*, on the inner face of the sleeve A, to raise the front end of the catch or locking device. The spring-strip *g* is made fast at its rear end to the holder, as seen at *l*. There is sufficient space between the under face of the spring-strip and the bottom of the slot to allow the portion of the spring in rear of the fulcrum *i* to be depressed far enough to raise the hook end of the device to the proper extent to secure its disengagement from the shank of the tool. Thus the locking device is, in effect, a vibrating lever, having its fulcrum or pivot at *i*, with its arm *j* arranged to operate in conjunction with the projecting rib or shoulder *k*, to effect the lifting of the hooked front arm.

The arrangement of these parts in a single spring-strip is for the purpose of simplicity, and to secure a spring action without necessitating the employment of a spring distinct and separate from the locking-lever.

The front end of the beak or hook *h* is beveled, so that when the tool-shank is pushed into the socket, the hook will ride over the stud or projection *m* on the shank, and snap down into the recess or notch *n* in front of the projection.

Any suitable tool and tool-shank may be used. The tool-shank here shown is one that has been hitherto in general use, and the arrangement of parts here shown in illustration of my invention is adapted to that form of shank,

The projection *m* partly enters the slot in which the spring-catch is located, so as to prevent the tool from turning in its socket.

To unlock the tool, all that is required is to unscrew the coupling-bearing *a*, which will have the effect of giving the tool-holder a longitudinal movement with respect to the sleeve. The projection *j* on the locking device will thus be carried under and depressed by the rib or projecting shoulder *k*, and thus the hooked front end of the locking-lever will be lifted and disengaged from the tool. A few turns of the screw coupling or of the sleeve will suffice for the purpose.

Having now described my invention, and the manner in which the same is or may be carried

into effect, what I claim, and desire to secure by Letters Patent, is—

In the hand-piece of a dental engine, the combination, with a rotating tool-holder and an inclosing sheath or sleeve capable of longitudinal movement with respect to one another, as described, of a vibratory spring lock or catch on the holder, and a rib or projection on the interior of the sleeve, for joint operation, substantially as shown and set forth.

In testimony whereof I have hereunto signed my name this 7th day of April, A. D. 1875.

WM. A. JOHNSTON.

Witnesses:

MELVILLE M. JOHNSTON,
JOHN W. SELBY.