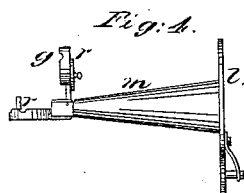
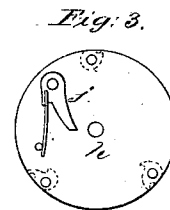
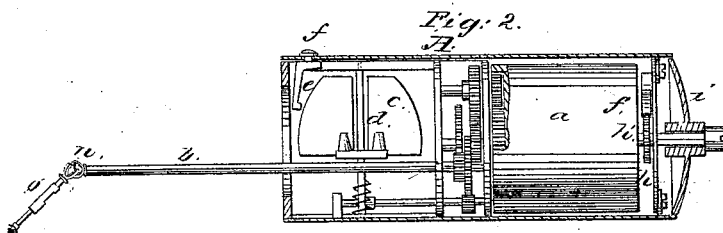
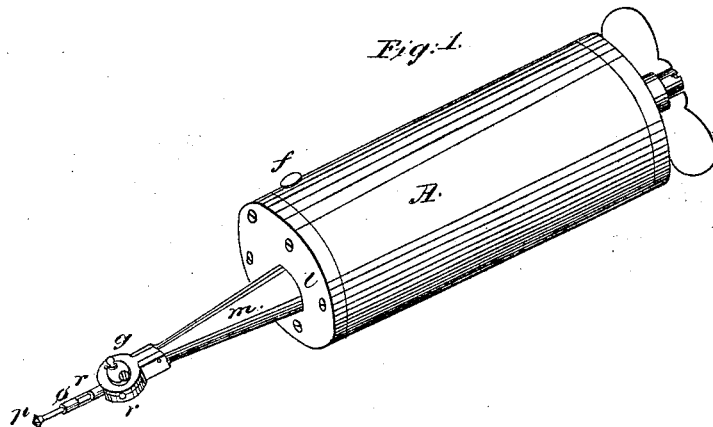


P. Soper,
Dental Drill.

N^o 53,245.

Patented Mar. 13, 1866



Witnesses:

Wm. Hovington
Wm. Hewitt

Inventor:
Phil Soper
Per Munn & Co
Attorneys

UNITED STATES PATENT OFFICE.

PHILO SOPER, OF LONDON, CANADA.

IMPROVEMENT IN DENTAL DRILLS.

Specification forming part of Letters Patent No. 53,245, dated March 13, 1866.

To all whom it may concern:

Be it known that I, PHILO SOPER, of London, in the Province of Canada West, have invented a new and Improved Grinder and Driller for Dentists; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a perspective view of this invention. Fig. 2 is a longitudinal central section of the same. Fig. 3 is an inside view of the winding attachment. Fig. 4 is a side elevation of the conical box or case which protects the spindle.

Similar letters of reference indicate like parts.

This invention relates to a tool for grinding and drilling, to be used particularly by dentists; and it consists in combining with the tool a spring-power in such a manner that by the action of said power a rapid revolving motion can be imparted to the tool at any moment, and the operation of grinding or drilling can be effected with ease and rapidity.

It consists, also, in combining with the tool-holder and spring-power a universal joint, so that the tool can be used in any desired direction.

A represents a case, of sheet metal or any other suitable material, which incloses the spring-power. This power is composed of a spring, *a*, which, when wound up, acts through a train of wheels on a spindle, *b*, imparting to the same a rapid revolving motion. The motion of the spindle is regulated by a fan, *c*, which is secured to an arbor, *d*, and to which a rapid motion is imparted by a suitable gear. A sliding spring-stop, *e*, serves to arrest or release the power at the option of the operator. This stop acts on one of the wings of the fan, and it is operated by a button, *f*; but it is obvious that the same might be made to act on any suitable part of the spring-power.

The spring is mounted on an arbor, *g*, the square end of which extends through one of the heads, *h*, of the case A, and a cap, *i*, secured to said square end, affords a chance to turn the arbor and to wind up the spring, a

pawl, *j*, and ratchet-wheel *k* being provided to prevent the spring moving back.

The spindle *b*, to which a revolving motion is imparted by the spring-power, extends through the head *l* of the case and through a conical box, *m*, which is secured to said head, as clearly shown in Fig. 1 of the drawings. The outer end of said spindle connects by a universal joint, *n*, with the tool-holder *o*, into which the tool *p* is inserted.

The outer end of the box *m* is enlarged to allow the universal joint to revolve within it, and it is provided with a door, *q*, and with two or more round holes, *r r'*, which form the bearings for the tool-holder *o*. One of the holes, *r*, is in line with the spindle *b*, but the other is on one side, so that the tool can be used in any desired direction. By throwing open the door of the conical box the tool-holder can be inserted into either of the bearings *r* and *r'*, and it is obvious that the number of their bearings might be still further increased if it should be desirable.

By this arrangement the operator is enabled to bring the tool on the defective tooth and to impart to it a rapid revolving motion simply by pressing on the spring-stop *e*, and the operation of grinding or drilling can be effected with the greatest facility and in much less time than with a tool of the ordinary construction.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of a spring-power substantially such as herein described with the spindle *b* and tool-holder *o*, constructed and operating as and for the purposes set forth.

2. The universal joint *m*, in combination with the spindle *b*, tool-holder *o*, and with a suitable spring-power, constructed and operating substantially as and for the purpose described.

3. The arrangement of two or more bearings, *r r'*, in the end of the conical box, to operate in combination with the spindle *b* and tool-holder *o*, substantially as and for the purpose set forth.

PHILO SOPER.

Witnesses:

JAMES TUOHY,
GEORGE ROBINSON.