

(No Model.)

F. B. NORRIS.
DENTAL HOT AIR SYRINGE.

No. 497,964.

Patented May 23, 1893.

Fig. 1.

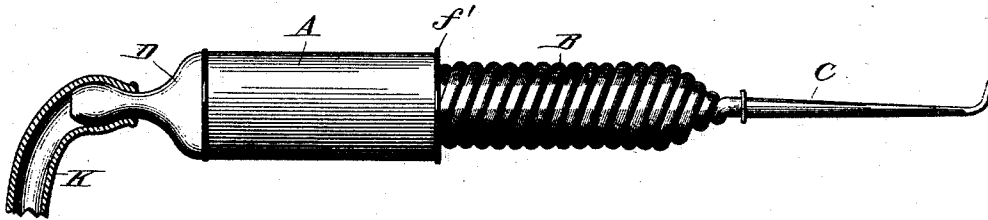


Fig. 2.

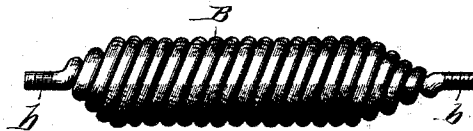
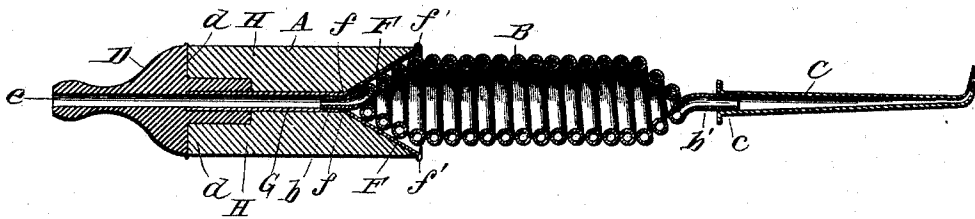


Fig. 3.



Witnesses:
John W. Thompson
Roland Kilman

Frank B. Norris, Inventor:
per Edward C. Russell
attorney

UNITED STATES PATENT OFFICE.

FRANK BROWN NORRIS, OF HELENA, MONTANA.

DENTAL HOT-AIR SYRINGE.

SPECIFICATION forming part of Letters Patent No. 497,964, dated May 23, 1893.

Application filed November 8, 1892. Serial No. 451,406. (No model.)

To all whom it may concern:

Be it known that I, FRANK BROWN NORRIS, a citizen of the United States, and a resident of the city of Helena, county of Lewis and Clarke, State of Montana, have invented a new and useful Improvement in Hot-Air Syringes, of which the following is a specification.

The use of hot air in dentistry, for evaporating all moisture from a cavity, thus properly disinfecting it and preparing it for the filling and at the same time, by thus making the tooth as far as possible a non-conductor, and by the application of heat, lessening the sensitiveness, is becoming more and better known, and more widely used by the profession.

The object of my invention is to supply an instrument for this purpose that shall be convenient, durable and effective.

It consists of a coil of metal tubing, of copper or other suitable material, having at one end a handle of non-conducting material, with a nipple in the end for the attachment of the rubber tube of a syringe, and a nozzle at the other extremity of the coil.

Figure 1 shows side elevation of instrument. Fig. 2 shows side elevation of metal coil only. Fig. 3 shows sectional view of instrument.

Similar figures refer to like parts in all the drawings.

The instrument is composed of three pieces; the handle A, the coil B, and the nozzle C.

The coil B, made of metal tubing, preferably of copper, is tapered at each end, till it terminates in the short straight sections *b* and *b'*, of the tube, lying in the axis of the cylinder. These straight ends *b* and *b'* have threads cut upon their outer surfaces.

The handle A, has at its outer end a nipple D, made preferably of vulcanized rubber, having a shoulder *d*, and the air passage *e*. At the inner end of the handle is the metal cup F, preferably made of brass or German silver, conforming in shape to the tapering end of the coil B, having a thread corresponding to the thread upon the end *b*, cut upon its inner surface *f*, where it fits over the end *b*, and ending in the thin tube G, which fits into the passage *e*, in the nipple D. The cup

F has a small shoulder *f'*, at its inner end. Between the shoulders, *d* of the nipple D and *f'* of the cup F, is the main part H of the handle A, composed of some non-conducting material, preferably a mixture of asbestos and plaster, cast closely about the other parts. The metal nozzle C, preferably made of German silver has a thread cut upon its inner surface at its larger end *c*, corresponding to the thread cut upon the end *b'* of the coil B.

In use the nozzle C is screwed securely upon the end *b'* of the coil B, and the end *b* of the coil B, is screwed into the handle A, by the threads at the point *f*. The operator holding the instrument by the handle A, places the coil in an alcohol or other flame, till it is heated to a high temperature; the end of a rubber tube, K connected with a bulb syringe or other air forcing device, is placed over the nipple D and the air forced through the coil B, is delivered at the end of the nozzle C, heated to a high temperature.

In actual use, a double bulb rubber syringe, with a tube long enough to enable the operator to work the feeding bulb with his foot, upon the floor, will be found a great convenience, though any method may be employed for forcing the air through the coil. The coil retains its heat for several minutes, thereby increasing its effectiveness, with a great saving of time and comfort to both operator and patient.

The whole instrument need not exceed seven inches in length, and is as convenient as effective.

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

1. In an air syringe, the combination, with any air-forcing device, and a nozzle, of a metal tube coil having its ends fitted, to be firmly secured to a handle of non conducting material, and to the nozzle, substantially as shown and described.

2. In an air syringe, a metal tube coil in combination with a handle of asbestos and plaster, substantially as shown and described.

3. In an air syringe, the combination with

any air-forcing device, of a metal tube coil,
having screw threads cut upon each end, a
handle of non conducting material hollowed
out to receive one end of the coil, and a nozzle
5 fitted to the other end, substantially as
shown and described.

In testimony that I claim the foregoing as

my invention I have signed my name, in presence of two witnesses, this 1st day of November, 1892.

FRANK BROWN NORRIS.

Witnesses:

JNO. W. THOMPSON,
CHAS. BEARY.