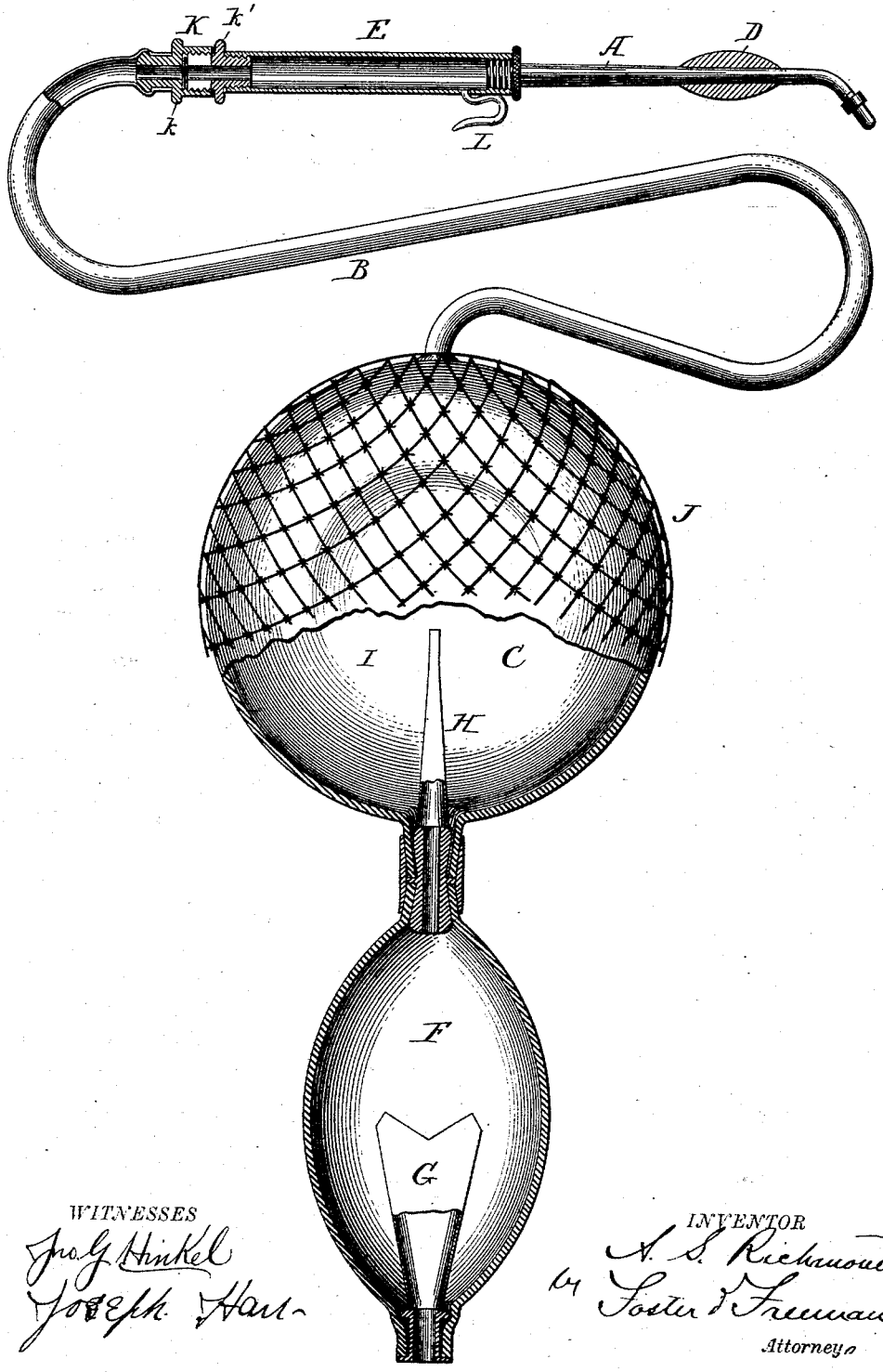
(No Model.)

A. S. RICHMOND.

DENTAL APPARATUS.

No. 489,235. Patented Jan. 3, 1893.



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UNITED STATES PATENT OFFICE.

ALVAN STEWART RICHMOND, OF NEW YORK, N. Y., ASSIGNOR TO JOHN S. HUYLER, OF SAME PLACE.

DENTAL APPARATUS.

SPECIFICATION forming part of Letters Patent No. 489,235, dated January 3, 1893.

Application filed June 12, 1891. Serial No. 396,028. (No model.)

To all whom it may concern:

Be it known that I, ALVAN STEWART RICHMOND, a citizen of the United States, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Dental Apparatus, of which the following is a specification.

My invention relates to an improved dental apparatus designed more especially for use in the application or introduction of heated air or gas either medicated or not to the tooth that is under treatment for obtunding sensitive cavities in teeth in their preparation for filling.

It has for its object to provide a simple, cheap, portable, and convenient device, whereby this object may be accomplished, and it consists in the construction and arrangement of parts, substantially as hereinafter more particularly pointed out.

In the accompanying drawings, I have illustrated the preferred embodiment of my invention, some of the parts being shown in section.

I provide a simple, portable, and inexpensive apparatus, consisting essentially of a tube A, preferably having its free end bent for the purpose of directing the blast more conveniently to the desired point, and connecting this tube by a suitable hose or pipe B, to a source C of supply for the air or gas. In order that the air or gas may be heated sufficiently, and maintained at the desired temperature at a longer time than by simply heating the tube, I apply to the free end of the tube, a bulb, bushing, or swell D, which may be of any suitable material that can retain the heat for a comparatively long time. A copper bulb will hold the heat for a considerable length of time, enough to cause the air or gas flowing through the pipe to be heated to the desired degree, and the temperature is maintained for a considerable length of time sufficient to produce the obtunding effect. This bulb may be fixed on the tube, or may be loose, and while I prefer to make it of copper, any other suitable material may be used, and the bulb or bushing may be of any desired shape, the essential feature being that there shall be a mass of heat retaining material surrounding the tube tending to maintain the heat applied thereto a greater or less degree.

In some instances, I find it desirable to use in connection with the heated air or gas some obtundent escharotic or essential oil or the like, and for this purpose, I connect with the tube a barrel or chamber E, in which the medicament may be placed, and through or over which the air is caused to pass. If the medicament is in the form of a liquid, it may be conveniently inserted in the chamber by saturating an absorbent material as cotton or the like, or any other ordinary means may be employed to hold the medicament in the chamber, and to cause it to give off its vapors or fumes as the air is forced through or over it. I have shown this barrel or chamber interposed between the hose or pipe B, and the tube A, the latter being fitted to screw into one end of the barrel, and the hose being connected to the other end of the barrel.

In order to obtain and maintain the desired pressure of air or gas, and to force it through the heated tube, I use an ordinary fountain bulb F made of rubber, and having suitable valves G, H, connected with a receiving chamber I into which the air is forced by the bulb F faster than it can flow out of the chamber, and this chamber being of elastic material, will cause a practically continuous and steady flow of air or gas through the tube. In order to prevent this chamber expanding beyond a safety limit by an undue pressure or forcing of the air into it, it is covered with a net work J of suitable material which will limit its expansion.

Located in the hose at any suitable point, is a valve K of any suitable construction, that shown consisting of a simple disk *k* of rubber inclosed between the parts of the valve, one portion being slitted as at K′ to allow the flow of the air or gas through it when the valve is lifted from its seat. Any other suitable form of valve may be used in the pipe or in the bulb and receiving chamber, the form shown however, has proved satisfactory in this class of apparatus.

Connected to the tube or chamber is a suitable attaching device L shown in the form of a hook by means of which the tube and its attached bulb or bushing may be readily sus-

pended in connection with any desired heating appliance.

The operation of the instrument will be readily understood by those skilled in the art, it being understood that the tube and its attached bushing or bulb are heated in any convenient way, and then the point of the tube is directed to the tooth, or other part to be operated upon. Pressure upon the force or pump bulb F charges the chamber H with air or gas which is forced through the barrel E taking up any medicament that may be therein, and thence through the heated tube where its temperature is raised to the desired degree, and conveyed to the point or cavity to be operated upon. This results in dehydrating or obtunding it to a point of non sensitiveness by the action of the heated air or gas, and the therapeutic influence of the medicament, when the tooth can be operated upon freely until the effect passes away, when the operation is repeated.

What I claim is:

A portable dental instrument of the class described comprising a bent tube, a heat retaining bulb mounted on the tube, a chamber to one end of which the tube is secured, an attaching device connected to the chamber, a tube connected to the other end of the chamber, a valve formed in the chamber, a force bulb and a receiving chamber connected to the force bulb and to the tube, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALVAN STEWART RICHMOND.

Witnesses:

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