

(No Model.)

2 Sheets—Sheet 1.

J. M. DRENNAN.  
DENTAL SYRINGE.

No. 479,407.

Patented July 26, 1892.

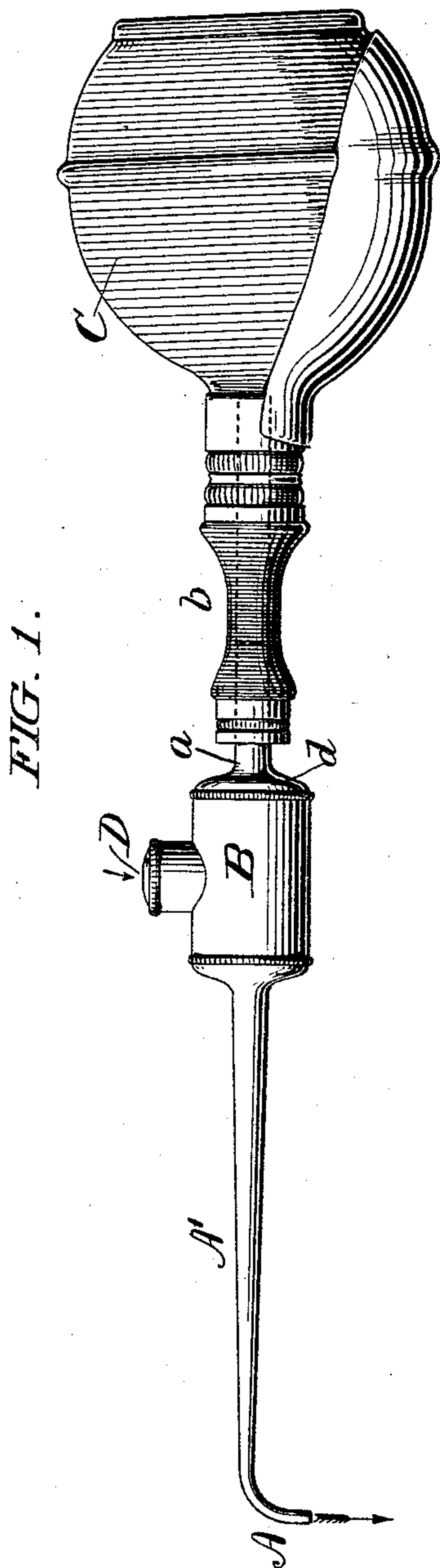
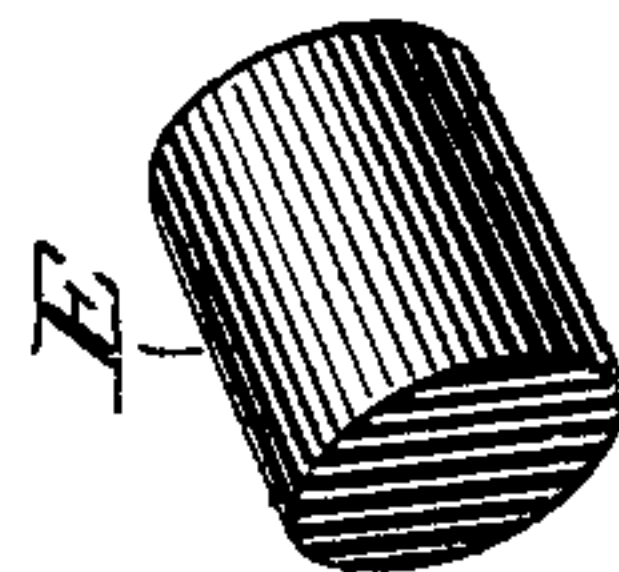
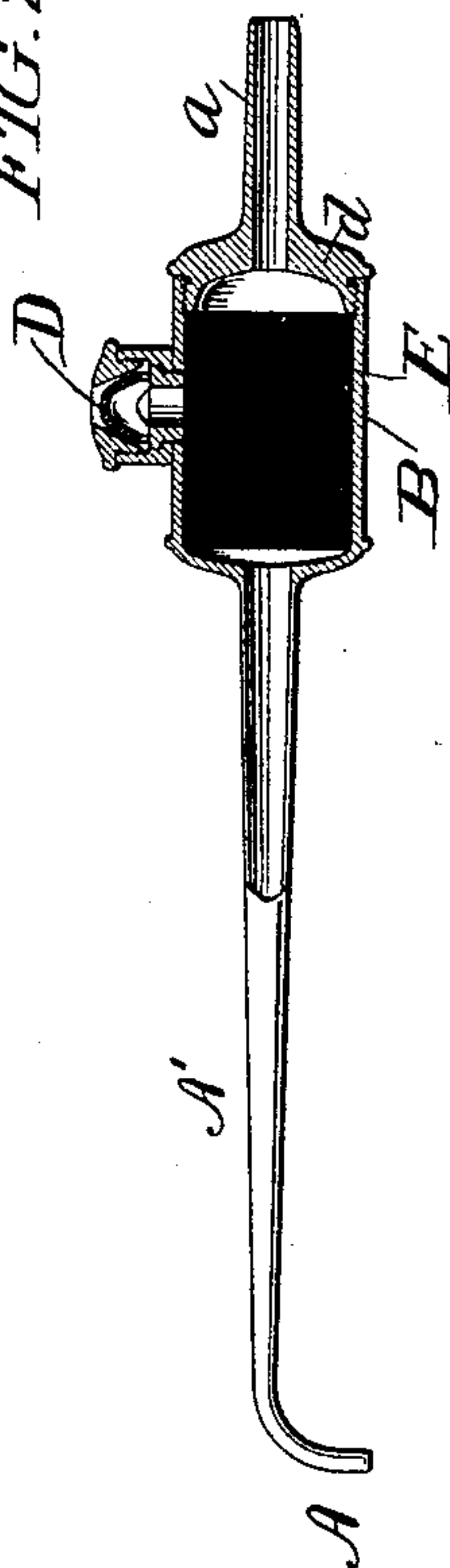


FIG. 2.



WITNESSES:

Edw. F. Simpson, Jr.  
C. S. Taylor, Jr.

INVENTOR:

J. M. Drennan,  
By Atty. J. S. Peyton.

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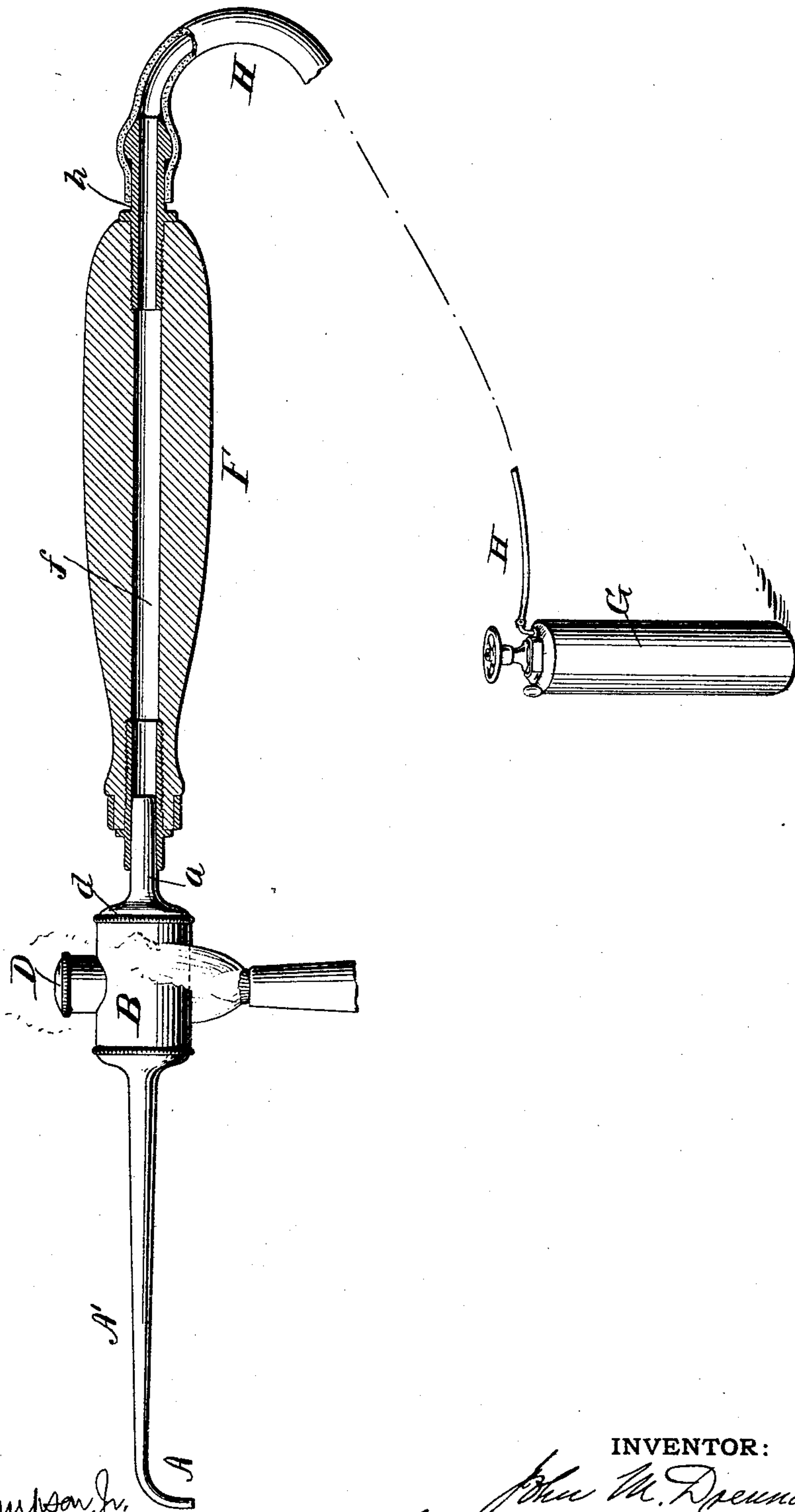
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FIG. 4.



WITNESSES:

Edw. F. Simpson, Jr.  
C. S. Lupton

INVENTOR:

John M. Drennan,  
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# UNITED STATES PATENT OFFICE.

JOHN M. DRENNAN, OF NEW YORK, N. Y., ASSIGNOR TO THE S. S. WHITE DENTAL MANUFACTURING COMPANY, OF PHILADELPHIA, PENNSYLVANIA.

## DENTAL SYRINGE.

SPECIFICATION forming part of Letters Patent No. 479,407, dated July 26, 1892.

Application filed June 2, 1892. Serial No. 435,284. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN M. DRENNAN, of the city of New York, in the county and State of New York, have invented a certain new and useful Improvement in Dentists' Syringes, of which the following is a specification.

My invention relates to an improvement, as hereinafter claimed, in that class of syringes employed by dentists for deadening pain and drying cavities in teeth in the mouths of patients preparatory to filling; and my object is to provide in simple, efficacious, and economical way for heating the fluid (atmospheric air or nitrous-oxide gas) which serves to dry the cavities, or both dry the cavities and deaden pain in the teeth.

In the accompanying drawings, which show my improvement as I prefer to embody it, Figure 1 is a longitudinal view of a compressible-bulb syringe with my improvement. Fig. 2 is a longitudinal view, partly in section, with the bulb detached. Fig. 3 is a view in perspective of the heat-retaining plug of the syringe. Fig. 4 is a view, partly in perspective, partly in elevation, and partly in section, showing the syringe as adapted for use with nitrous-oxide gas, the gas-containing cylinder being on a considerably-reduced scale.

The devices employed, with the exception of the removable heat-retaining plug hereinafter described, are of suitable well-known construction, such as follows:

The tube A' is provided with the nozzle A and terminates in one end of the chamber or enlargement B, the opposite end of which is fitted with the removable screw-threaded cap b, from which the short tube a projects. The compressible air-bulb C is detachably connected by its tube b with the tube a, and the outwardly-closing air-inlet valve D is housed at the side of the syringe-chamber. When nitrous-oxide gas (both an obtundent and drier) is to be employed instead of air, the bulb C is detached and the handle F, with the longitudinal opening f through it, is fitted upon the tube a. The compressed nitrous-oxide gas in the cylinder G is supplied by way of the valved outlet of the cylinder and the flexible tube H to the tubular handle F,

with the short end tube h of which the flexible tube connects.

For heating the air or other fluid passing through the syringe I provide the chamber B with a plug E of material particularly adapted to retain for a long time heat imparted to it by holding the syringe-chamber in a gas or lamp flame. I prefer to employ carbon, the well-known material used in electric-arclights, as I have found that this material once properly heated will retain the heat for a considerable time, it being a better heat-retainer than any other substance of which I am aware. The heat-retaining plug is fitted snugly, but not tightly, in the chamber, space barely sufficient for the passage of fluid being allowed between the removable plug and the walls of the chamber.

After the syringe-chamber and the plug of heat-retaining substance have been properly heated the operation of the device, as will readily be understood, is as follows: When air is used, the valve closes as the bulb is compressed, and the air forced from the bulb becomes heated in its passage by and in contact with the plug of heat-retaining substance and issues from the properly-directed nozzle to the tooth-cavity. The bulb being released from pressure, the valve opens to fill the bulb with air to be heated as ejected. When the nitrous-oxide gas is used, the pressure from within upon the valve closes it during the passage of the gas through the syringe to be heated and directed to the tooth being treated.

The heat-retaining plug may be removed for inspection and cleansing of the device or for replacement by a new plug, as occasion may require.

I claim as my invention—

The combination, with the syringe, the tube of which has the chamber or enlargement, of the removable heat-retaining plug inclosed in said chamber, substantially as and for the purpose set forth.

In testimony whereof I have hereunto subscribed my name.

JOHN M. DRENNAN.

Witnesses:

F. C. HAUNSTAD,  
R. M. VAN DYKE.