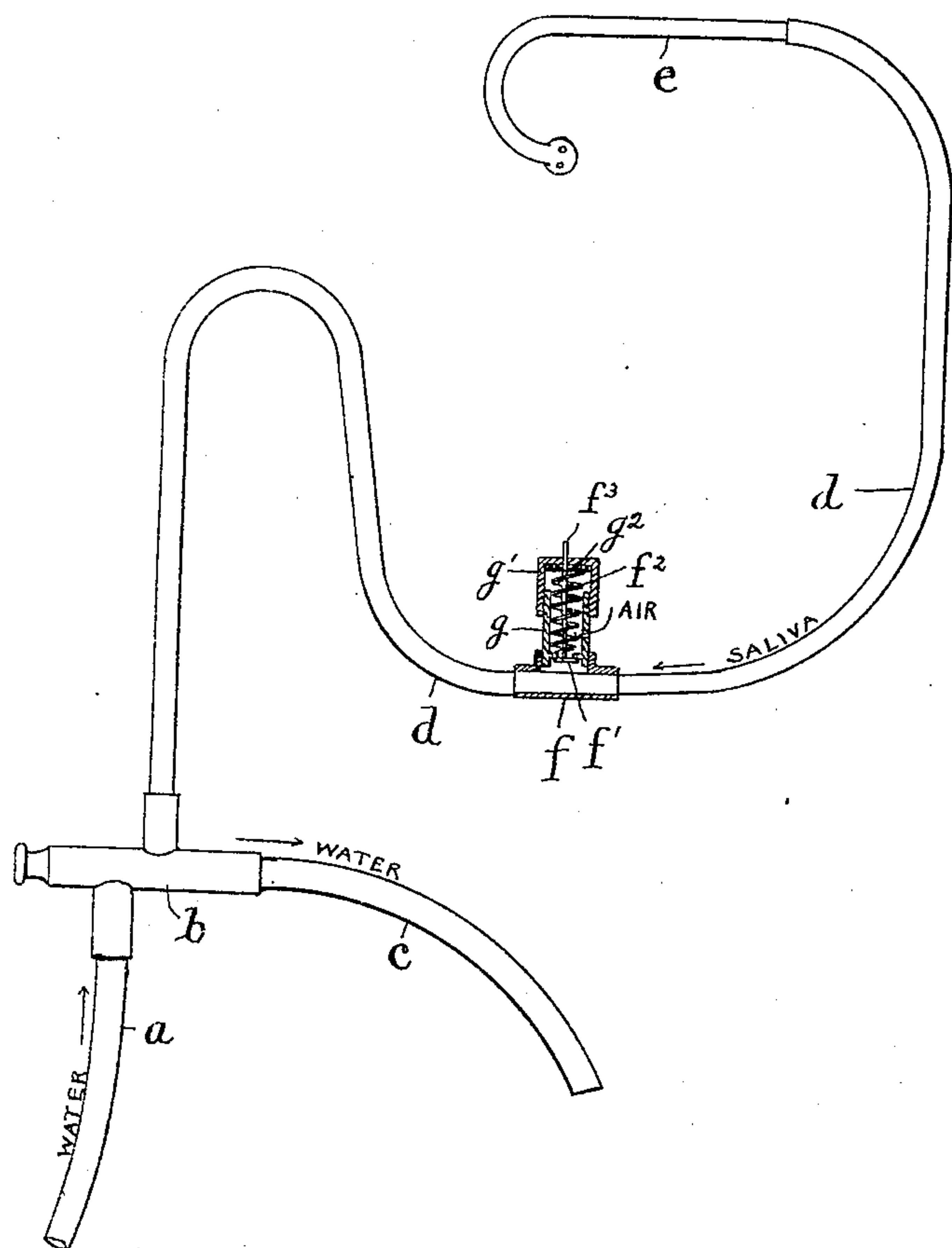


H. F. HAMILTON.
SALIVA TUBE FOR DENTISTS' USE.
APPLICATION FILED MAR. 17, 1910.

979,290.

Patented Dec. 20, 1910.



Witnesses:
F. L. Poor,
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UNITED STATES PATENT OFFICE.

HARRY F. HAMILTON, OF BOSTON, MASSACHUSETTS.

SALIVA-TUBE FOR DENTISTS' USE.

979,290.

Specification of Letters Patent. Patented Dec. 20, 1910.

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To all whom it may concern:

Be it known that I, HARRY F. HAMILTON, a citizen of the United States of America, and a resident of Boston, in the county of Suffolk, Commonwealth of Massachusetts, have invented certain new and useful Improvements in Saliva-Tubes for Dentists' Use, of which the following is a specification.

10 My invention relates to dental devices known as saliva tubes for automatically removing saliva from the mouths of patients while their teeth are being operated upon. These devices consist of a bent tube usually
15 of glass having an inlet tip usually enlarged to form a small ball which is variously perforated with small openings through which the saliva is drawn in. The tip is commonly placed in the mouth of the patient
20 and under the tongue when teeth are to be filled or other work done requiring the absence of saliva.

The saliva tube is usually connected with a hydraulic siphon which is kept running
25 while the tube is in use and which has the effect of creating a vacuum within the saliva tube and so drawing the saliva through the tip and discharging it into the stream of water flowing through the siphon.

30 In many cases it is found that the suction at the inlet tip draws into the small openings portions of the mucous membrane of the mouth so that the inlet becomes closed. This not only stops the flow of saliva but it
35 also causes more or less discomfort to the patient caused by pinching the membrane as it is drawn by the vacuum into the small holes.

Various attempts have been made to construct the inlet tips so that the membrane
40 will not be drawn in but as long as there is an opening to pass off the saliva and a continuous suction some portion of the mucous membrane is liable to be drawn in.

45 According to my invention I avoid this difficulty by inserting in the saliva tube a suitable relief valve so adjusted that when the inlet tip is stopped up by drawing in the membrane the valve will admit air and
50 relieve the vacuum thus allowing the mucous membrane to withdraw from the holes of the tip.

I have illustrated my invention by means of the accompanying drawing in which is

shown one of the saliva tubes with my improvement applied thereto.

In the drawing, *a* represents the water supply pipe, *b* is the hydraulic siphon for causing a vacuum in the saliva tube *d*, *c* is the waste water pipe and *e* the inlet tip. 60 The parts thus referred to are old and well known and need no further description.

According to my invention, I place a suitable relief valve in the line of the saliva tube. 65

As here shown for the purpose of illustration, I show a valve composed of a T connection *f* having a tube *g* extending off at right angles with a screw cap *g'* adapted to screw on the end of the tube *g*. At the bottom of the tube *g* is formed a valve seat
70 against which is seated a valve *f'* having a stem *f³* extending through the cap *g'*. A disk *g²* is secured to the spindle near its upper end and a spring *f²* tends to force the
75 disk *g²* upward and hold the valve to its seat.

An air opening in the side of the tube *g* admits air to the valve.

When the plugging of the inlet tip takes place the vacuum in the tube *d* is increased
80 and the inward pressure on the valve *f'* overcomes the tension of the spring *f²* and air is admitted through the valve and the vacuum relieved. 85

When the vacuum is relieved the mucous membrane which has been drawn into the holes of the inlet tip will withdraw from the holes.

It is evident that various forms of relief valve may be used and these may be adjustable so as to provide for various tensions of the spring as is common and well known.

I claim:—

In a dental device for removing saliva, the combination of a saliva tube, an inlet tip therefor, means for producing a vacuum in said tube to draw the saliva through said tip and an inward opening relief valve in the line of said tube and located between the tip and the means for producing the vacuum. 95 100

In witness whereof I have hereunto set my hand this 11th day of February, 1910.

HARRY F. HAMILTON.

Witnesses:

F. C. POOR,
H. E. HURD.