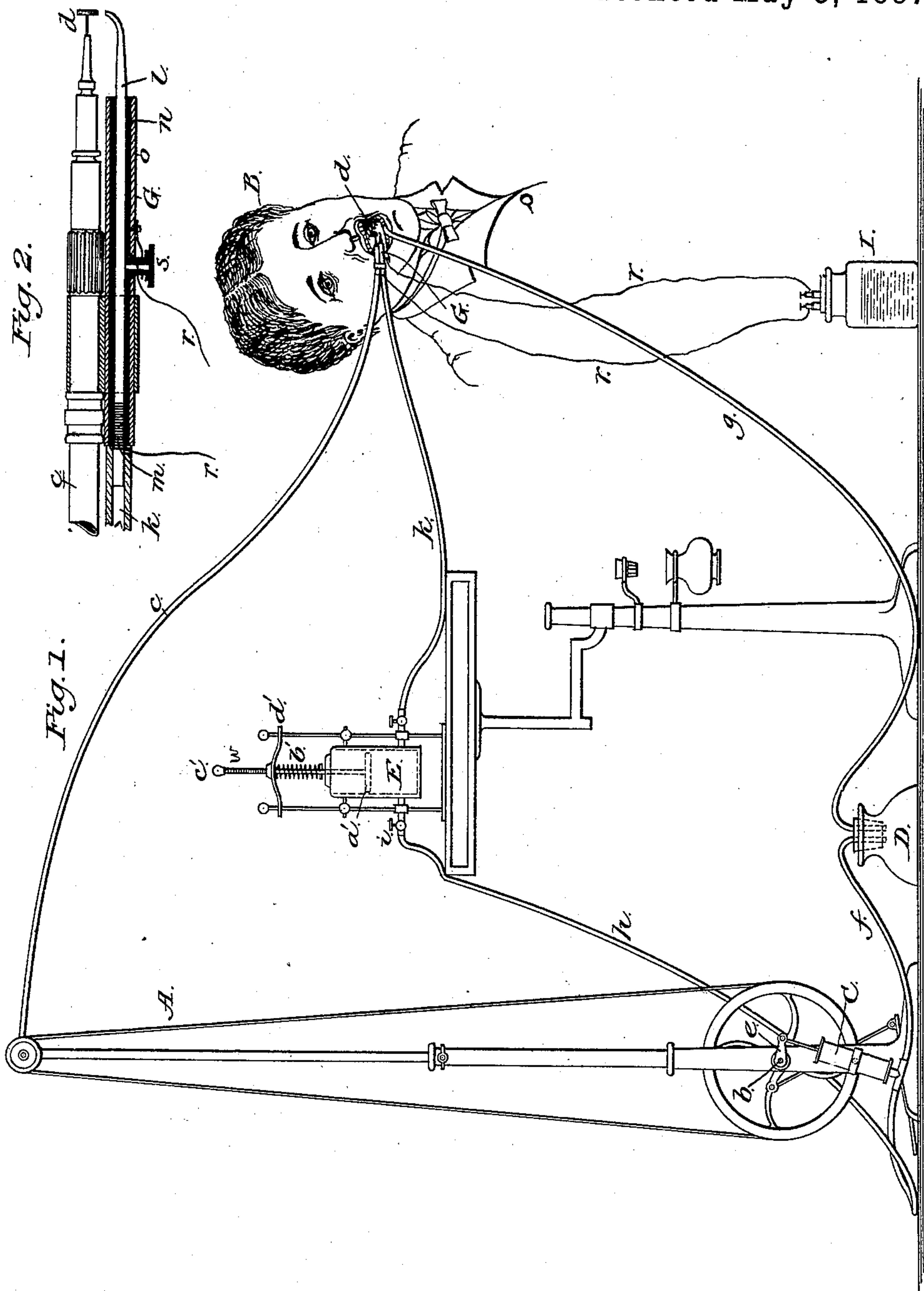


(No Model.)

H. W. PARSONS.
DENTAL APPARATUS.

No. 362,310.

Patented May 3, 1887.



WITNESSES:

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HORACE W. PARSONS, OF WAMEGO, KANSAS.

DENTAL APPARATUS.

SPECIFICATION forming part of Letters Patent No. 362,310, dated May 3, 1887.

Application filed January 7, 1887. Serial No. 223,668. (No model.)

To all whom it may concern:

Be it known that I, HORACE W. PARSONS, of Wamego, in the county of Pottawatomie and State of Kansas, have invented new and
5 useful Improvements in Dental Apparatus, of which the following is a full, clear, and exact description.

This invention consists in a novel method and apparatus mainly for removing saliva from
10 the mouths of patients during dental operations with a dental engine, and comprising special constructions and combinations of parts, substantially as hereinafter described, and pointed out in the claims.

15 Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 represents a view in elevation of
20 my newly-invented apparatus as applied to or combined with a dental engine, and showing the whole as in operation upon a patient. Fig. 2 is a sectional longitudinal view, upon a larger scale, of a certain mouth-piece for supplying
25 heated air to the mouth of the patient, and forming part of the invention.

A is a dental engine of the ordinary or any suitable construction, *b* being its main shaft, and *c* its working-arm, consisting of a tube
30 and contained flexible rotating shaft that carries the burr or other tool, *d*, used by the dentist in operating upon the teeth in the mouth of a patient, (represented at B.)

35 C is an exhaust-pump, which may be an ordinary cylinder-and-piston one operated by a crank, *e*, on the main shaft of the dental engine, or which may be operated by any suitable motor.

40 D is a glass or other bottle, forming a saliva-receptacle, closed by a rubber or other tight stopper, and which is connected with the pump C by a rubber tube, *f*, for the purpose of exhausting the air from the saliva-receptacle D, in order that the vacuum created in
45 said receptacle will have the effect of causing the saliva to pass from the mouth of the patient through another tube, *g*, applied at its one end to the patient's mouth and entering at its other end the receptacle or stopper
50 thereof, said stopper being suitably perforated to receive the ends of the tubes *f* *g*, that connect with said receptacle. In this receptacle

D the saliva, as it is run or drawn from the mouth of the patient, remains, said receptacle being emptied and cleaned from time to time, 55 as required.

The exhaust-pump C is fitted with the usual or any suitable suction and discharge valves, and the tube *f* of course connects with the suction portion of the pump, while another
60 tube, *h*, which may also be a rubber one, connects at its one end with the air-discharge outlet of the pump, so that the air ejected by the pump will be forced out through the tube
65 *h*. This tube *h* connects at its other or outlet end, subject to control by a cock, *i*, with a close air-receptacle, E, into which the exhausted air, as it is discharged by the pump, is delivered, and in which it is held under
70 compression and allowed to pass at the will of the operator to and through a flexible tube, *k*, which is connected with the arm *c* of the dental engine, and which serves to convey the air to the tooth being operated on, and may be manipulated by the dentist as required. 75

The air is heated in its passage through or before leaving said tube as follows: The tube
80 *k* is constructed or provided at its outer end with a mouth-piece, G, composed in part of a small metal tube, *l*—as, for instance, of iron, brass, silver, or platinum, or there might be a coil of iron or platinum wire, *m*, around the said tube, so that by passing a current of electricity over this tube *l* it becomes warm or
85 hot, as desired, whereby the air being forced through the tube by the air-pump, or it might be by a syringe-bulb instead, becomes hot or heated before passing into the mouth of the patient. Around the tube *l*, or its wire covering, is a suitable non-conducting and inde-
90 structible material, *n*, such as asbestos cloth, and over or round this again a finishing-shield, *o*, to the insulated mouth-piece, that thus may be readily handled. This electric air-heating mouth-piece at or upon the discharge end of
95 the flexible tube *k* need be but short and of very small diameter—say of the thickness of a pencil and about two inches long. The current of electricity may be passed over it by or from a battery, I, and through wires or connections
100 *r* from opposite poles of the battery, and the current be made or broken, as required, by a push-pin, *s*, in or on the mouth-piece. The temperature produced may be regulated by

varying the number of battery cells in use or by changing the tube of the mouth-piece from or to silver, brass, iron, or platinum. The heated air thus discharged from the tube *k* may not only be used on the tooth to ease pain and facilitate the dental operation, but it may also be used for other purposes—as, for instance, to blow away chips or dust from or before the burr *d*, or to dry the root, canal, or cavities by inserting a fine gold “point;” or the tube *k* might be used for atomizing purposes on the patient.

While I prefer to heat the air issuing from the tube *k* in the manner described, it might be otherwise heated, if desired—as, for instance, by passing it through a suitably arranged coil heated by a flame.

Again, while the air might be forced through the tube *k* direct, and in such case the close air-receiver *E* be dispensed with, it is preferred to use the interposed air-receiver *E* to hold the air under pressure discharged by the pump, and whereby increased force may be given to the issuing current of air.

The close air-receiver *E* is in the form of a cylinder fitted with a plunger or piston, *a'*, which is forced in or down by a spring, *b'*—as, for instance, between a collar or pin on the piston-rod *c'* and a fixed yoke, *d'*, through which said rod is free to slide. Air discharged by the pump and entering the vessel *E* forces the piston up or out against the tension of the spring, thus retaining within said vessel or receiver a supply of compressed air for future use, and by graduating the piston-rod where it passes through the yoke, as shown at *w*, the extent of pressure at which the air is held in the receiver may readily be determined.

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

1. The combination, with an air-pump, of a saliva-receptacle and an air-receiver, connected, respectively, with the suction portion of the pump and the air-discharge outlet thereof, the said receptacle and receiver being provided with tubes adapted to lead to the mouth of the patient, substantially as herein shown and described.

2. The combination, with a dental engine and an air-pump operated therefrom, of a saliva-receptacle connected with the pump and provided with a tube adapted to lead to the mouth of the patient, and an air-receiver, also connected to the pump and provided with a pipe adapted to lead to the mouth of the patient, substantially as herein shown and described.

3. The combination, with the dental engine, of an air-pump, an air-receiver holding the air discharged by the pump under pressure, a valve for controlling the discharge of air from said receiver, a tube or duct adapted to convey such discharged air from the receiver to the outer or tool-carrying end of the working-arm of the engine and to the mouth of the patient, and means, substantially as described, for heating the air prior to its discharge from said tube, essentially as specified.

4. The combination, with the working-arm of a dental engine, and an air-pump, of an air-tube having an insulated mouth-piece, *G*, and a push-pin, *s*, and attached to the said working-arm *c*, and an electric battery and its connections with the mouth-piece, substantially as herein shown and described.

5. The mouth-piece *G*, composed of the metal tube *l*, the non-conducting and indestructible material *m*, and the shield *o*, and provided with the push-pin *s*, substantially as herein shown and described.

6. In apparatus for treating patients during dental operations, the air compressing vessel *E*, adapted to receive a forced current of air and to discharge the same as required, in combination with the piston or plunger *a'* within said vessel, the spring *b'*, operating to actuate said plunger against the incoming current of air, and means, substantially as described, for determining the pressure of the air within the vessel *E*, essentially as and for the purposes herein set forth.

HORACE W. PARSONS.

Witnesses:

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GEORGE TROUT.