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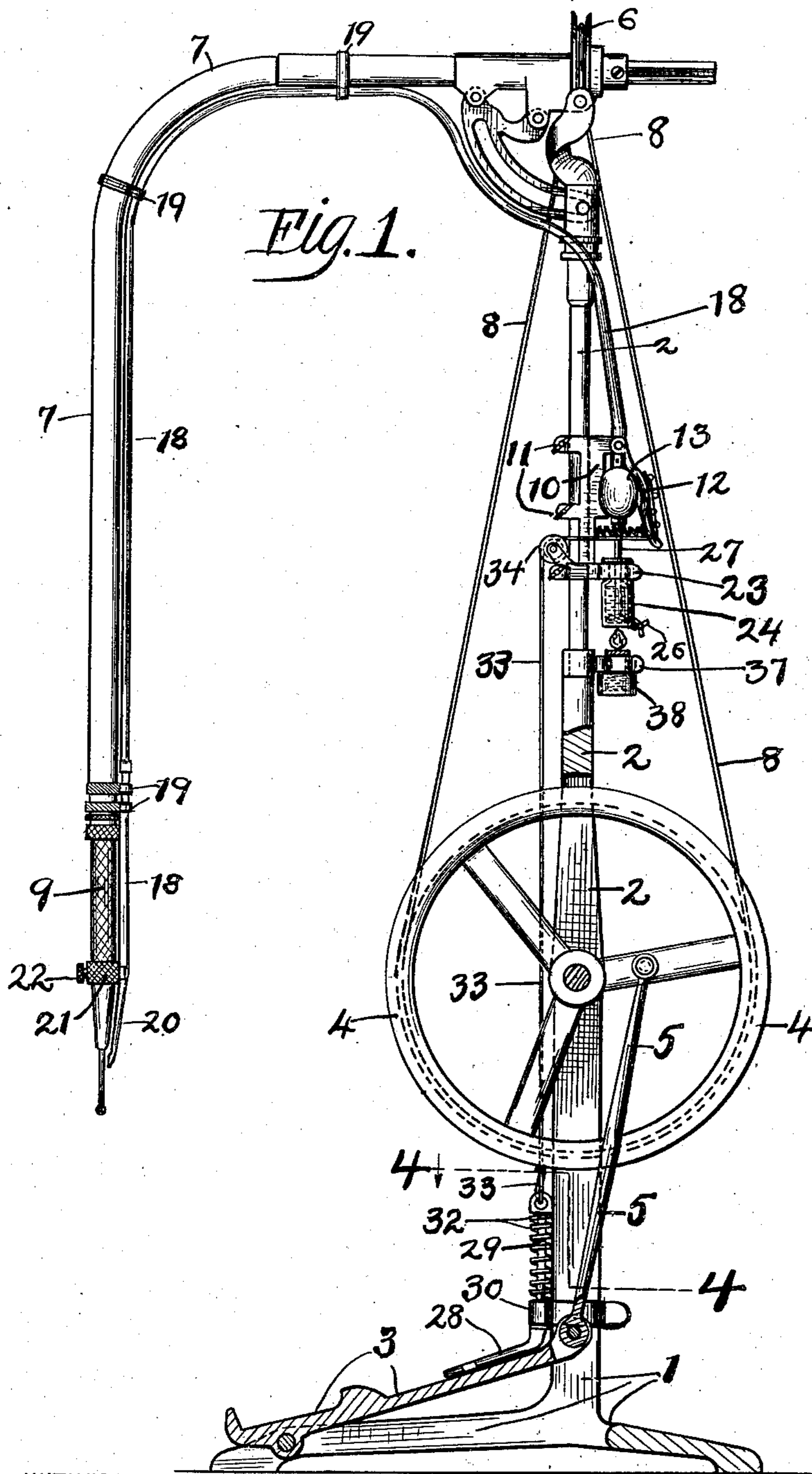
I. LYMAN.

CHIP BLOWER AND SYRINGE ATTACHMENT FOR DENTAL ENGINES.

APPLICATION FILED FEB. 24, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

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Victor C. Lynch

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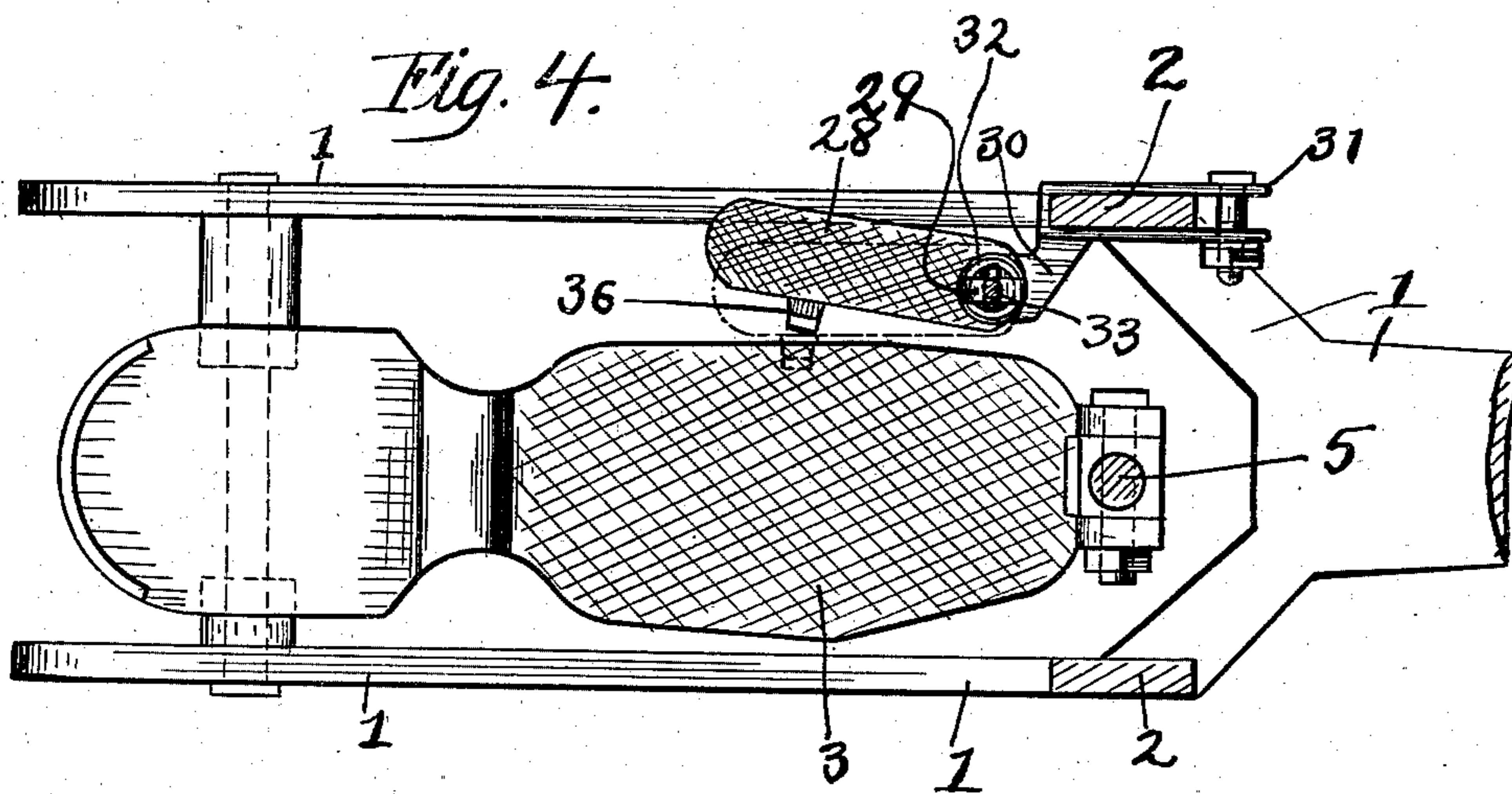
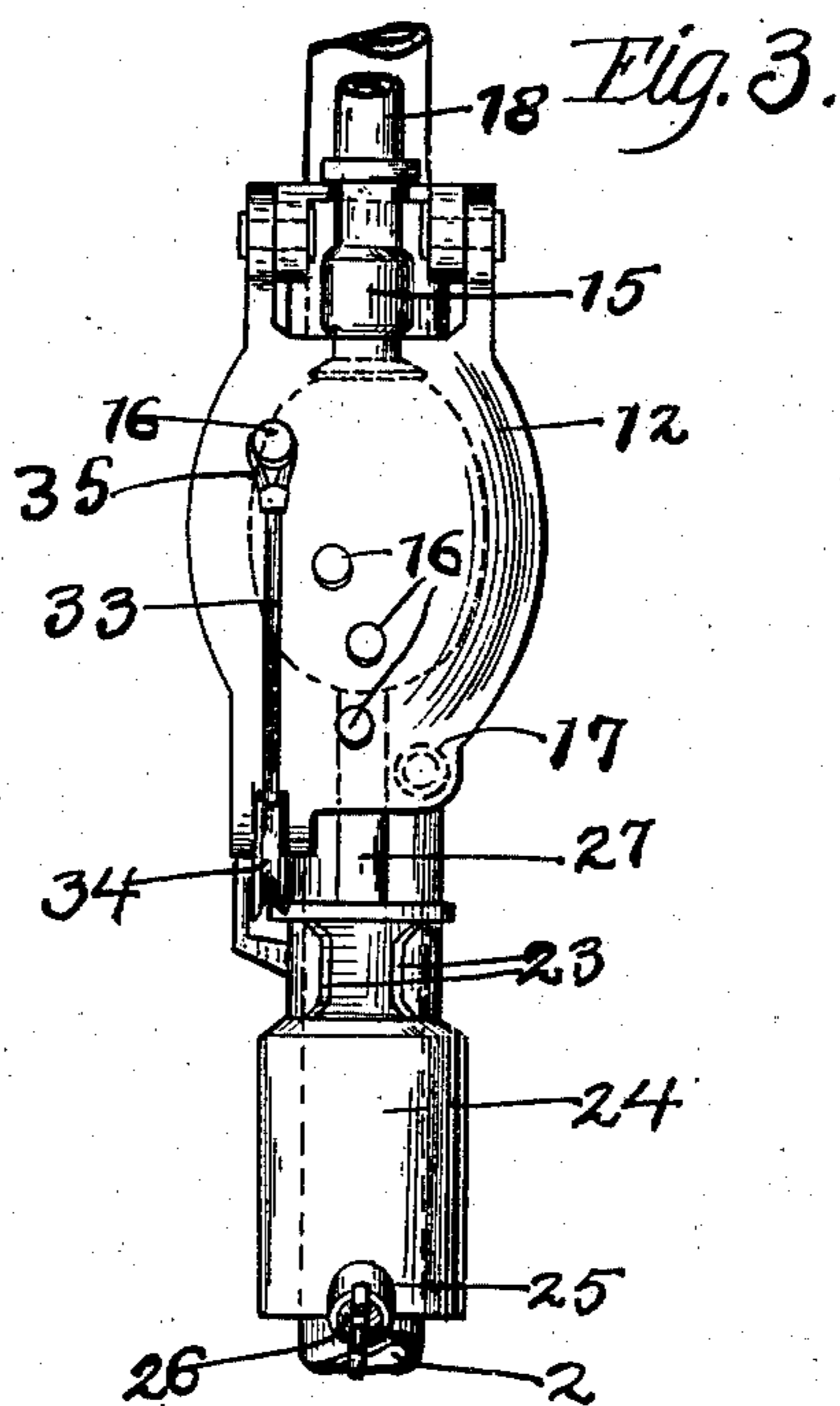
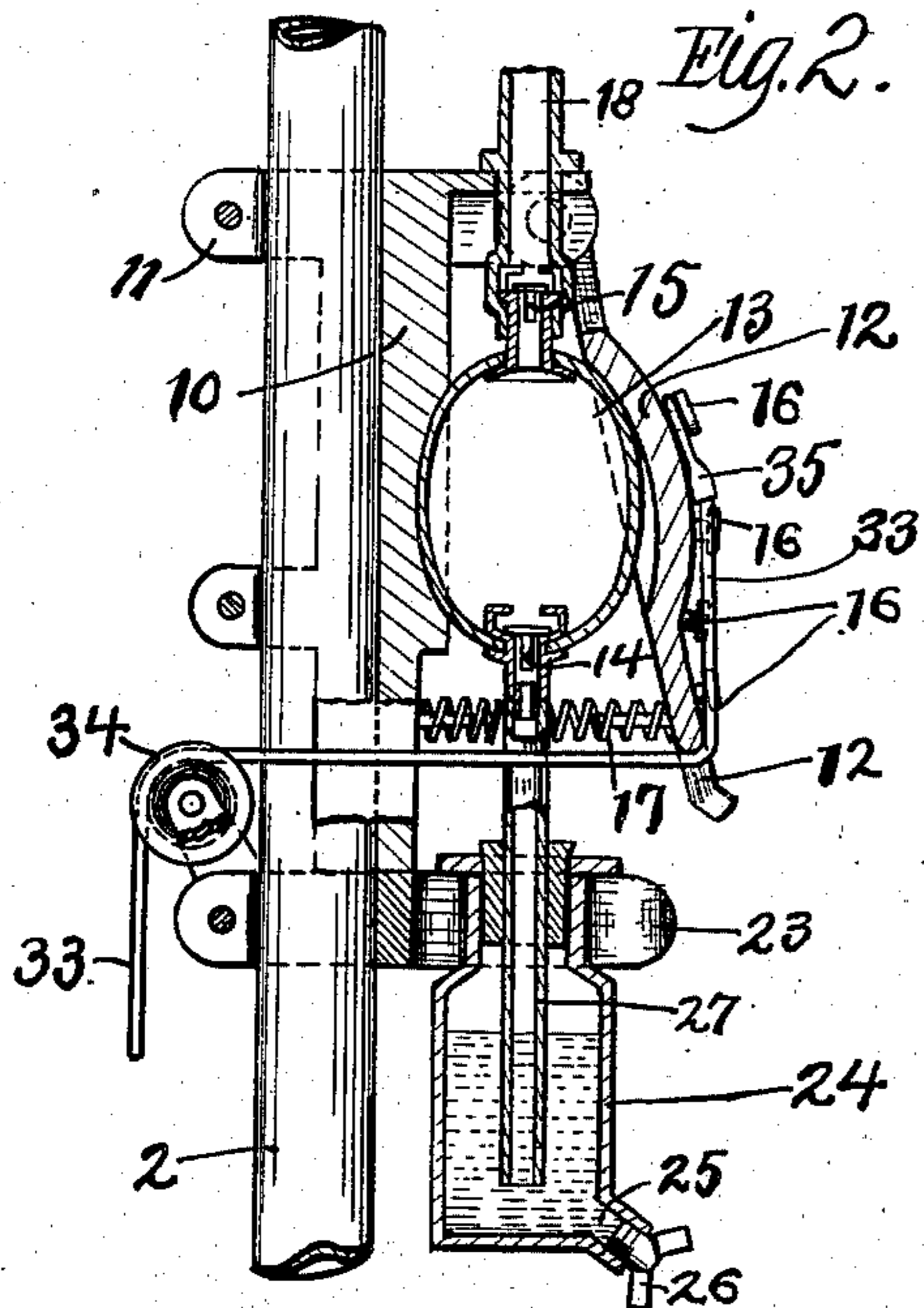
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UNITED STATES PATENT OFFICE.

ISIDOR LYMAN, OF CLEVELAND, OHIO.

CHIP-BLOWER AND SYRINGE ATTACHMENT FOR DENTAL ENGINES.

SPECIFICATION forming part of Letters Patent No. 743,529, dated November 10, 1903.

Application filed February 24, 1903. Serial No. 144,623. (No model.)

To all whom it may concern:

Be it known that I, ISIDOR LYMAN, a citizen of the United States of America, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Chip-Blowers and Syringe Attachments for Dental Engines; and I hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

This invention relates to improvements in dental engines.

The object of this invention is to provide a new and useful attachment for a dental engine by means of which either a constant or intermittent stream of water or blast of air can be caused to play upon the tooth at the point where it is being operated upon by the dental instrument.

With this object in view my invention consists in the features of construction and combination of parts illustrated in the drawings, hereinafter described in the specification, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a dental engine provided with my attachment. Fig. 2 is an enlarged detail view of the central portion of a dental engine, showing a part of my device in section. Fig. 3 is a view of the same portion of the machine, showing the same part of my device in rear elevation. Fig. 4 is a section on line 4 4, Fig. 1, looking in the direction indicated by the arrow.

Again referring to the drawings, 1 represents the base, and 2 the upright, of the stand which supports a dental engine of the usual construction, comprising a pedal 3, a crank-wheel 4, which is operatively connected to the pedal 3 by a pitman 5 and to the driving-wheel 6, which operates the flexible shaft 7, by a belt 8. On the end of the flexible shaft 7 is secured a handpiece 9 of the usual construction.

On the upright 2 I secure a small frame 10, which is removably secured thereto by means of clamps 11, so that it can be readily attached or detached therefrom. At the top of the frame 10 I hinge a plate 12. Between the frame 10 and the plate 12 I arrange a bulb 13, which is provided with an intake-valve

14 and an outlet-valve 15. On the outer surface of the plate 12 is arranged a series of pegs 16. Between the frame 10 and the plate 12 is arranged a coil-spring 17. It will be understood that pressing the plate 12 toward the frame 10 will cause a compression of the bulb 13 sufficient to expel the contents of the bulb, whether air or liquid, and the spring 17 will return the plate 12 to its original position. To the mouth of the outlet-valve 15 is secured a flexible tube 18, which is supported by means of clamping-rings 19. In the end of the tube 18 is secured a nozzle 20, which is provided with a ring 21, which slips over the handpiece 9 and is arranged to move up and down thereon, so that the mouth of the nozzle can be adjusted at a greater or less distance from the cutting end of the tool carried by the said handpiece. A screw 22 is provided for locking the ring 21 on the handpiece.

On the upright 2 below the frame 10 is clamped a bracket 23, which supports a receptacle 24 suitable for holding a liquid. Near the bottom of the receptacle is formed an opening 25, which is closed by a screw-plug 26. A small section of tubing 27 extends down from the intake-valve 14 into the receptacle 24.

Near the lower end of the upright 2 is secured a small auxiliary pedal 28, provided with a shank portion 29, which is mounted so as to move vertically in a support 30. This support 30 is removably secured to the upright 2 by a clamp 31, formed integral therewith. A coil-spring 32 is arranged on the shank 29 for returning the pedal to its upper position after it has been depressed. To the shank 29 of the pedal 28 is secured a cord 33, on the upper end of which is formed a loop 35, which is arranged to form an engagement with any of the pegs 16. A small pulley 34 is provided for guiding the cord. When the cord is secured to the highest peg, the full quantity of air or liquid will be ejected from the bulb each time the pedal is depressed, and a proportionately less quantity will be ejected when the cord is secured to each of the lower pegs.

On the side of the auxiliary pedal 28 is formed a lug 36, which can be caused to pass in under the regular pedal 3 and lock the two

pedals together, so that when the regular pedal is depressed the auxiliary pedal will be carried down therewith.

On the upright 2 below the bracket 23 is arranged a similar bracket 37, adapted to hold an alcohol-lamp or other device 38 for heating the receptacle 24.

The operation of my device is as follows: If it is desired to have a continuous stream of water or blast of air playing upon the tooth while it is being operated upon, then the two pedals are locked together by means of the lug 30; otherwise the two pedals are left independent, and when during an operation it is desired to have a stream of water or blast of air the auxiliary pedal is brought into action by shifting the foot, so that it will project over the side of the regular pedal and engage with the auxiliary pedal. Each time the auxiliary pedal is depressed it will cause a compression of the bulb, thereby forcing the contents of the bulb through the tube and out through the nozzle, where it will come into contact with the tooth exactly at the point where it is being operated upon. If it is desired to use my attachment as a syringe, the receptacle 24 is filled with water or other suitable liquid, which as the auxiliary pedal is depressed and raised will be pumped through the bulb and forced out through the nozzle. If it is desired to use air for blowing chips or dust from the cavity in the tooth or for any other purpose, then the cap 26 is removed from the opening 25 in the receptacle 24 and the water is drained from the receptacle, converting the said receptacle into an air-chamber. If it is desired to use hot air, the bracket 23 is moved down on the upright 2, so that the end of the tube 27 will be near the top of the receptacle 24. The lamp is then lighted, and the cold air will enter through the opening in the bottom of the receptacle, and the hot air as it rises to the top of the receptacle will be drawn off by the suction of the bulb and forced out through the mouth of the nozzle 20.

What I claim is—

1. A combined chip-blower and syringe attachment for a dental engine comprising a pump, means for operatively connecting said pump with the pedal of the engine, means for adjusting the said connecting means so as to regulate the quantity of liquid or air which will be expelled from the pump by the movement of the pedal and a tube connected with the said pump and having its outlet arranged in proximity to the end of the operating instrument carried by the handpiece of the said dental engine.

2. A combined chip-blower and syringe attachment for an engine, comprising a pump, means for operatively connecting said pump with the pedal of the engine, means for adjusting the said connecting means so as to regulate the quantity of liquid or air which will be expelled from the said pump by the movement of the pedal, a tube connected with

the said pump, a nozzle secured to the end of said tube and means for adjustably securing the said nozzle to the handpiece of the engine so that the mouth of the nozzle can be adjusted relative to the cutting end of the tool carried by the handpiece.

3. An attachment for a dental engine, comprising a pump, an auxiliary pedal operatively mounted on the frame of said engine, means for connecting said pump and said auxiliary pedal and means for locking said auxiliary pedal with the pedal of the dental engine so that the said auxiliary pedal will be operated when the said regular pedal is operated.

4. An attachment for a dental engine comprising a pump, an auxiliary pedal mounted on the frame of said engine, means for operatively connecting said pump and said auxiliary pedal, and a lug formed on the side of said auxiliary pedal and arranged to engage with the regular pedal of the dental engine, substantially as described.

5. A combined chip-blower and syringe attachment for a dental engine, comprising a frame, a plate hinged to said frame, a bulb arranged between the said frame and the said plate, a cord operatively connecting said plate and the pedal of the engine, means for adjusting the length of said cord, a tube connected to said bulb, a nozzle secured to the end of said tube, means for removably connecting said nozzle to the handpiece of the dental engine, a receptacle supported below said bulb and a tube extending from said bulb into said receptacle, substantially as described.

6. An attachment for a dental engine comprising a pump, means for operatively connecting said pump with the pedal of the engine, a chamber arranged below said pump and having an opening formed in the bottom thereof, means for closing said opening, a pipe connecting the intake of said pump with the upper end of said chamber, and a tube connected with the outlet of said pump and having its mouth arranged in proximity to the cutting end of the tool carried by the handpiece of the said dental engine.

7. An attachment for a dental engine comprising a pump, means for operatively connecting said pump with the pedal of the engine, means for adjusting the said connecting means so as to regulate the quantity of liquid or air which will be expelled from the pump by the movement of the pedal, a chamber arranged below said pump and having an opening formed in the bottom thereof, means for closing said opening, a pipe connecting the intake of said pump with the upper end of said chamber, and a tube connected with the outlet of said pump and having its mouth arranged in proximity to the cutting end of the tool carried by the handpiece of the said dental engine.

8. An attachment for a dental engine comprising a pump, means for operatively con-

necting said pump with the pedal of the engine, an air-chamber arranged below said pump, and having an opening formed in the bottom thereof, a tube connecting the upper
5 part of the said chamber with the intake-valve of the said pump, means for heating said chamber, and a tube connected with the outlet-valve of the said pump and having its mouth arranged in proximity to the cutting
10 end of the tool carried by the handpiece of the said engine.

9. A combined chip-blower and syringe attachment for a dental engine, comprising a frame, a plate hinged to said frame, a bulb
15 arranged between said frame and said plate, an auxiliary pedal mounted on the frame of said dental engine, a lug secured on the side

of said auxiliary pedal and arranged to engage with the regular pedal of the dental engine, a cord connecting said plate and said
20 auxiliary pedal, a tube connected to the outlet of said bulb, a nozzle secured to the end of said tube and means for connecting said nozzle to the handpiece of the dental engine
all arranged substantially as described and
25 for the purpose set forth.

In testimony whereof I sign the foregoing specification, in the presence of two witnesses, this 17th day of February, 1903, at Cleveland, Ohio.

ISIDOR LYMAN.

Witnesses:

VICTOR C. LYNCH,
DANIEL E. DALY.