

L. SOBOL AND G. M. MARR.
CHIP BLOWER FOR DENTISTS.
APPLICATION FILED MAY 6, 1919.

1,416,241.

Patented May 16, 1922.

Fig. 1.

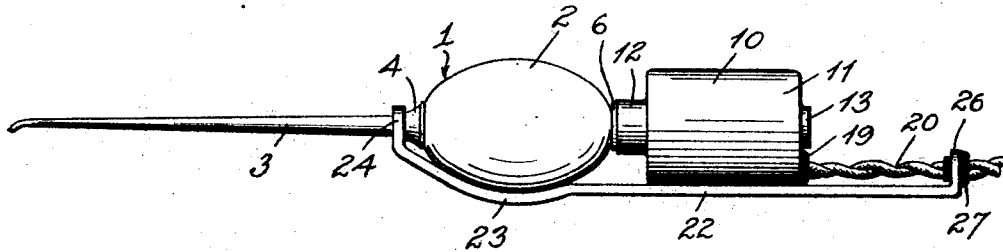


Fig. 2.

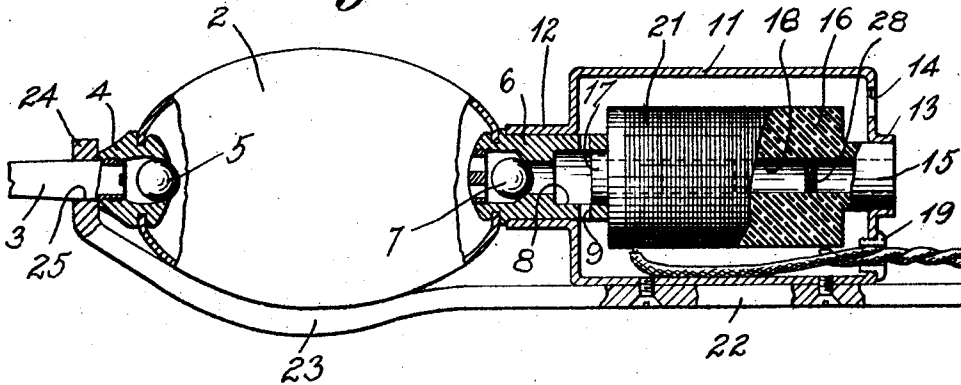


Fig. 3.

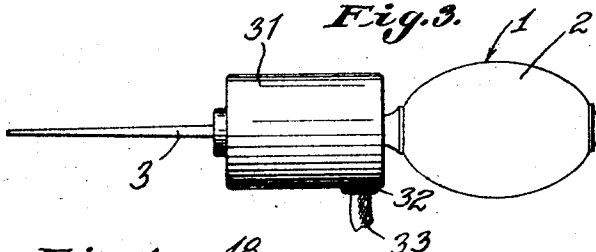
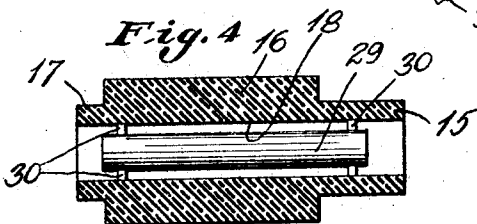


Fig. 4.



INVENTORS
Leo Sobol &
George M. Marr

BY *Clifton R. Marr*
ATTORNEY

UNITED STATES PATENT OFFICE.

LEO SOBOL AND GEORGE M. MARR, OF BROOKLYN, NEW YORK.

CHIP BLOWER FOR DENTISTS.

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Specification of Letters Patent.

Patented May 16, 1922.

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To all whom it may concern:

Be it known that we, Dr. LEO SOBOL, a citizen of the United States, and resident of the borough of Brooklyn, county of Kings, city and State of New York, and GEORGE M. MARR, a citizen of the United States, and resident of the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Chip Blowers for Dentists, of which the following is a specification.

This invention relates to improvements in chip blowers for dentists and the principal object of the invention resides in a provision of a means attached to the blower for heating the air passing therethrough.

Another object of the invention is to provide a supporting means for the heater and for the bulb of the blower so that the same may be held against accidental displacement.

Still another object of the invention is to provide a device which may be readily attached to the ordinary type of blower with but a slight alteration in the construction thereof.

As a further object the invention contemplates the provision of a heating element comprising a lava core wound on its exterior with suitable wire such as nikrome which will be readily heated upon the passage of electrical current therethrough and a provision of a means within the core for breaking up the air current passing therethrough in order that it may be more readily heated.

The following is what we consider a good means of carrying out this invention and the accompanying drawings should be referred to for a complete understanding of the specification which follows:—

In the drawings:—

Fig. 1, is a side view in elevation of a chip blower showing this device attached thereto.

Fig. 2, is an enlarged detail view of the chip blower showing the heater and portions of the blower in section to more clearly illustrate the details of construction.

Fig. 3, illustrates a modified form of invention in which the heater is mounted on the discharge nozzle of the blower and

Fig. 4, is a longitudinal sectional view through the heating core illustrating a modified form of device for causing the air passing through the core to closely contact with the exterior thereof in order that it may be readily heated.

Similar reference numerals indicate like parts in all of the figures where they appear.

Referring to the drawings by the characters of reference, the numeral 1 designates as an entirety, a chip blower which consists of a bulb 2 which is preferably of rubber or a similar flexible material and the nozzle 3. The bulb 2 is provided at its forward end with a fitting 4 into which the nozzle is threaded or otherwise secured.

At the inner end of the fitting 4 is a valve seat with which the ball valve 5 co-operates in closing the outlet passage of the device when the bulb is returning to extended position.

The opposite end of the bulb is provided with a fitting 6 in which the ball valve 7 is operable and this valve closes the passage through the fitting 6 when the bulb is compressed. It will thus be seen that air passing through the bulb will travel in one direction. It will be noted that the fitting 6 is preferably elongated and provided adjacent its outer end with an enlarged bore 8 having radiating passages 9 communicating therewith and extending through the side walls of the fitting.

In the preferred form of the invention the heater is designated generally by the numeral 10 and consists of an outer shell 11 formed at its forward end with a reduced collar 12 which is adapted to slip over and frictionally engage the fitting 6. The opposite end of the shell is provided with a central aperture which is surrounded by an outwardly extending flange 13. An annularly disposed row of intake apertures 14 are arranged in the rear end wall of the casing and fitting into the flange 13 is a cylindrical extension 15 formed integrally with the core 16. The opposite terminal of the core is provided with a relatively short cylindrical extension 17 which is adapted to enter the enlarged bore 8 in the fitting 6 previously described.

Extending longitudinally through the core and the extensions thereof is an air intake passage 18 as will be clearly seen upon reference to Figure 2. Arranged near the under side of the casing 11 and in the rear end wall thereof is an insulating bushing 19 through which the feed wires 20 of the heating coil enter the casing. These feed wires are connected to opposite terminals of the coil 21 which is wound upon the core and is

formed of a suitable conductor which is readily heated by the passage of current therethrough.

In order to support the heater 10 and the blower 1 in proper relation a metallic strip or base 22 is provided to which the shell 11 may be attached in any desired manner. The forward end of the base 22 is provided with an arcuate extension or seat 23 for the accommodation of the bulb 2. The extreme forward end of this seat projects upwardly and is bent to form an ear 24 having an aperture 25 therethrough for the reception of the nozzle 3. It will thus be seen that the heater and chip blower will be held in proper alignment and against accidental displacement.

Formed at the extreme rear end of the base 22 is an upturned ear 26 in which a suitable bushing 27 is secured through which the feed wires 20 pass. In order to break up the air entering the passage 18, a plurality of screens 28 are arranged transversely of the passage and are preferably formed of copper wire or a similar material which will readily conduct heat. It will be understood however, that if so desired a core 29 may be inserted in said passage and supported centrally thereof by suitable radial arms 30 and in this form of the device it will be seen that the air will be caused to create a thin film adjacent the wall of the passage 18 so as to readily absorb the heat from the core 16.

In the modified form of the invention illustrated in Figure 3, the base is eliminated and the heater designated by the numeral 31, is fitted on the nozzle 3. In this form of heater a bushing 32 for the inlet of the wires 33 is provided in the side wall of the heater and the apertures in the end wall of said heater are dispensed with.

In operation it will be seen that current flowing through the wires 20 will heat the coil 21 thereby heating the core 16 and upon compressing the bulb 2 it will be evident that air will be drawn in through the passage 18 and the openings 14 so that circulation will be created around the exterior and through the interior of the core. The air passing around the exterior of the core will enter the passage through the fitting 6 by means of the radiating openings 9 and when the bulb returns to extended position the valve 7 will be unseated so that the vacuum within the bulb created by its return, will be displaced by warm air entering from the heater. Upon compressing the bulb it will be evident that the valve 7 will be seated and the valve 5 unseated so that the warm air contained within the bulb will be forced out through the nozzle 3.

In this way it will be seen that the usual practice of heating the nozzle by holding the same over an ordinary Bunsen burner or alcohol heater will be eliminated and a much

more efficient and convenient device provided.

It will be understood that in the modified form of the device illustrated in Figure 3, the valves may be dispensed with and the air forced through the nozzle 3 will become heated after leaving the bulb by its passage through the heater 31.

Other modifications may be made within the scope of the appended claims without departing from the principle or sacrificing the advantages of the invention.

What we claim is:—

1. A dental chip blower including a bulb, a nozzle attached to the bulb, an electrical heating core connected to the intake side of the bulb, the core having a passage therethrough communicating with the bulb and a shell surrounding the core and communicating with the bulb whereby air passing through the core and through the shell will be heated prior to its entrance into the bulb.

2. A dental chip blower comprising a bulb, a nozzle connected to the bulb, a core connected to the bulb, said core having a passage thereto communicating with the bulb, an electrical heating element wound upon the core and means in the passage through the core for causing the air passing therethrough to be readily heated.

3. A dental chip blower comprising a bulb, a nozzle, a base connected with the nozzle and supporting the bulb, an electrical heater supported on the base, a heating coil within the heater whereby air entering the heater will be warmed prior to its entrance into the bulb.

4. A dental chip blower comprising a bulb, a nozzle at the outlet end of the bulb, a fitting at the intake end of the bulb, a shell surrounding the fitting, the said fitting being provided with a longitudinal bore communicating with the bulb, a core fitted into the bore in the fitting and into the rear end of the shell, said core having a passage extending longitudinally therethrough and communicating with the bore in the fitting, the shell having an annular series of apertures in its rear end, the fitting having a plurality of radial apertures arranged near its rear end, a heating coil wound upon the core whereby air passing through and around the core will be heated prior to its entrance into the bulb.

5. A dental chip blower comprising a bulb, a nozzle connected to the bulb and arranged in longitudinal alignment therewith, an air heating chamber associated with the nozzle and bulb, an electrical heating means within said chamber, said means being tubular to increase its radiating surface.

Signed at New York city, New York, this 19th day of April, 1919.

LEO SOBOL.

GEORGE M. MARR.