

March 9, 1926.

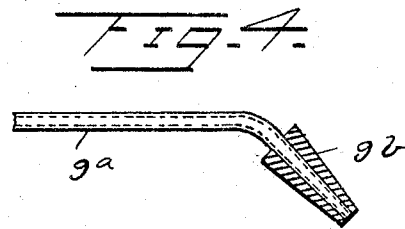
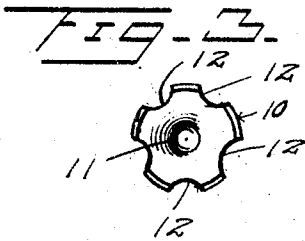
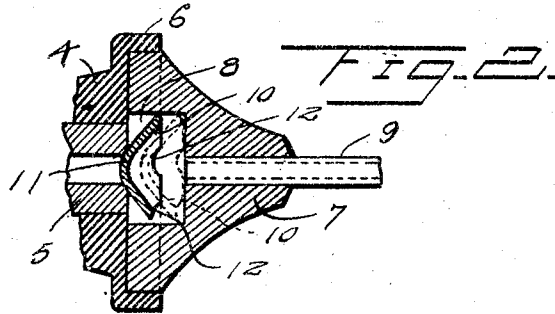
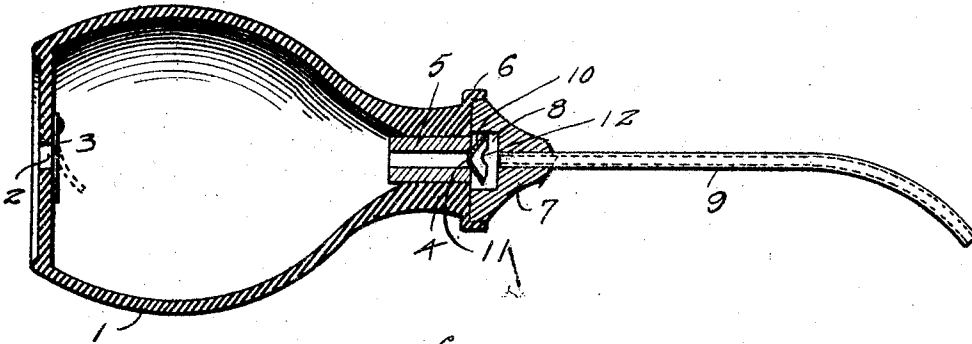
1,576,128

C. S. BALLARD

DENTIST'S CHIP BLOWER AND AIR SYRINGE

Filed August 27, 1923

Fig. 1.



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UNITED STATES PATENT OFFICE.

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DENTIST'S CHIP BLOWER AND AIR SYRINGE.

Application filed August 27, 1923. Serial No. 659,514.

To all whom it may concern:

Be it known that CHARLES S. BALLARD, a citizen of the United States, residing at Buckley, in the county of Pierce and State of Washington, has invented certain new and useful Improvements in Dentists' Chip Blowers and Air Syringes, of which the following is a specification.

This invention relates to a dentist's chip blower and air syringe and has for its principal object to provide a suitable means in the said syringe for preventing air and saliva from entering the bulb of the syringe when in use.

Another important object of the invention is to provide an elastic bulb syringe of the above mentioned character, which is provided with automatic means for allowing air to be released from the bulb of the syringe and preventing the return of air through the outlet back into the bulb.

A still further object of the invention is to provide an elastic bulb syringe of the above mentioned character, which is of such a construction as to render the same at all times positive in its operation and furthermore assure cleanliness and which does not necessitate the adjusting of any parts thereof in order to accomplish the necessary results.

A still further object of the invention is to provide an elastic bulb syringe of the above mentioned character, which is simple in construction, inexpensive, strong, durable and further well adapted for the purpose for which it is designated.

Other objects and advantages of this invention will become apparent during the course of the following description.

In the accompanying drawings forming a part of this specification and in which like numerals designate like parts throughout the same:—

Figure 1 is a central longitudinal section of the invention.

Figure 2 is a central vertical section of the check valve and adjacent parts.

Figure 3 is a top plan view of the check valve.

Figure 4 is a detail view of a type of nozzle especially adapted to be used as an air blower.

In the drawings wherein for the purpose of illustration is shown the preferred embodiment of my invention, the numeral 1 designates the bulb, made of vulcanized india

rubber and is preferably of the same construction as the bulbs as now in use upon various types of syringes. The bottom of the bulb 1 is provided with an opening 2 and adjacent the opening 2 and carried upon the innerside of the bottom of the bulb is a flap valve 3. This flap valve 3 is adapted to cover over the aperture 2 formed in the bottom of the bulb 1 and this aperture 2 is for the purpose of providing an inlet for the bulb.

The bulb 1 is furthermore provided at its opposite end and in the neck portion thereof with the outlet 4 and adapted to be received and held therein is a sleeve 5. The outer end of the sleeve 5 is adapted to lie flush with the outer face of the outlet 4 of the bulb 1 and the outlet end of the bulb is furthermore provided with a flange 6 for the purpose of permitting a nipple 7 to be detachably held thereon. The nipple 7 is provided with a suitable valve chamber 8 and this valve chamber 8 is of such a construction as to be in communication with the sleeve 5 carried by the outlet end 4 of the bulb 1.

The free end of the nipple 7 may support a section of tubing 9 and various forms of tubing 9 may be inserted in the nipple 7 as desired.

Adapted to move in the valve chamber 8 formed in the nipple 7 is a check valve 10 and this check valve 10 is preferably formed of sheet metal and so constructed as to be provided with a conical portion 11 and having its opposite bottom edges provided with notches or cut out portions 12. This construction is more clearly shown in Figs. 2 and 3 of the drawings. The check valve 10 normally has its conical portion 11 seating against the outer end of the sleeve 5 and prevents any air from coming or entering from the tube 9 into the bulb 1.

In use after the bulb 1 is depressed the suction created thereby will cause the flap valve 3 in the bottom of the bulb to move away from the inlet opening 2 and allow air to enter through the inlet opening 2 into the bulb 1. At the same time the air in the bulb 1 will be forced out through the sleeve 5 and as the air is forced out of the sleeve 5 the check valve 10, will be caused to move in the valve chamber 8 so that the conical portion 11 is free of the sleeve 5 and the notched bottom 12 will rest against the nipple 7 in such a manner as to allow air to pass around

the conical faces of the check valve 10 in the valve chamber 8 and through the notches 12 formed therein and then out through the tube 9.

5 When the bulb 1 is released the check valve 10 will at once be caused to have its conical portion 11 seat against the sleeve 5 and thereby prevent any air or saliva from entering the bulb 1 through the sleeve 5.
10 At the same time the flap valve 3 carried by the bottom of the bulb will permit any air to enter in the bulb 1 through the aperture 2 formed in the bottom of the bulb.

It will thus be seen from the foregoing
15 description that an elastic bulb syringe has been provided wherein automatic means have been provided for the purpose of allowing a fresh supply of air to be passed through the bulb for use and also preventing
20 the bulb from receiving and holding any foul air or saliva while the same is being used.

The simplicity of my air elastic bulb syringe renders the same very efficient in
25 its operation and furthermore is so constructed so that the same can be obtained at a minimum cost.

From the foregoing description of the construction of my improved apparatus, it
30 will be seen that I have provided a simple, inexpensive and efficient means for carrying out the objects of the invention and while I have particularly described the elements best adapted to perform the functions set
35 forth, it is obvious that various changes in

form, proportion and in the minor details of construction may be resorted to, without departing from the spirit or sacrificing any of the principles of the invention.

What I claim as new and desire to secure by Letters Patent is:— 40

A device of the class described comprising a bulb having an inlet valve in the bottom thereof, the opposite end being formed into a neck portion, increased in thickness 45 and provided at its outer edge with a peripheral outstanding flange, a rigid sleeve mounted in the neck of said bulb having its outer end terminating flush with the outer end of said neck, a rigid nipple of substantially conical design applied to the end of said neck and held frictionally in engagement therewith by the annular flange of said neck engaging the peripheral edge of said nipple, said nipple 50 having a restricted bore terminating at its inner end in an enlarged cavity adapted to communicate with the bore of the aforesaid sleeve, a hollow conical valve member loosely disposed in said cavity and adapted to be seated on the outer end of said sleeve, the 60 outer peripheral edge of said valve member being formed with notches to afford passages when the valve is disposed against the one wall of said cavity, and a tube mounted in the bore of said nipple and extending 65 therethrough, as and for the purposes described.

In testimony whereof I affix my signature.

CHARLES S. BALLARD