

No. 628,222.

Patented July 4, 1899.

W. E. HEWIT.
VAPOR BLOWPIPE.

(Application filed Mar. 30, 1898.)

(No Model.)

2 Sheets—Sheet 1.

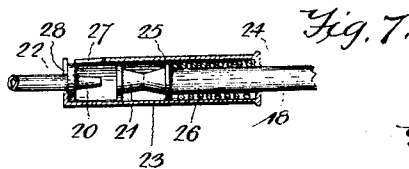
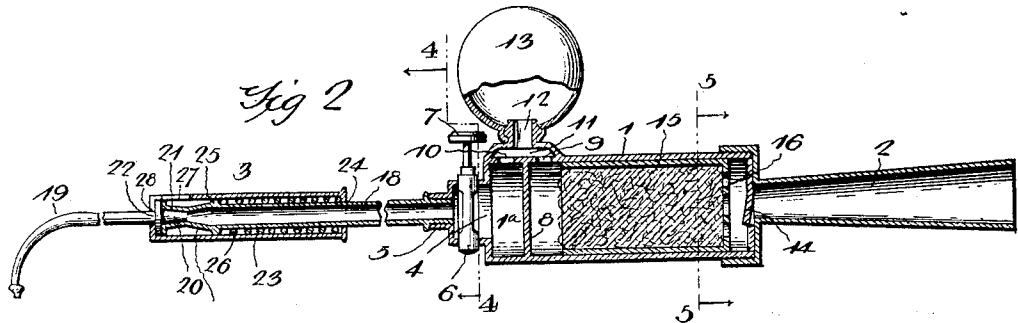
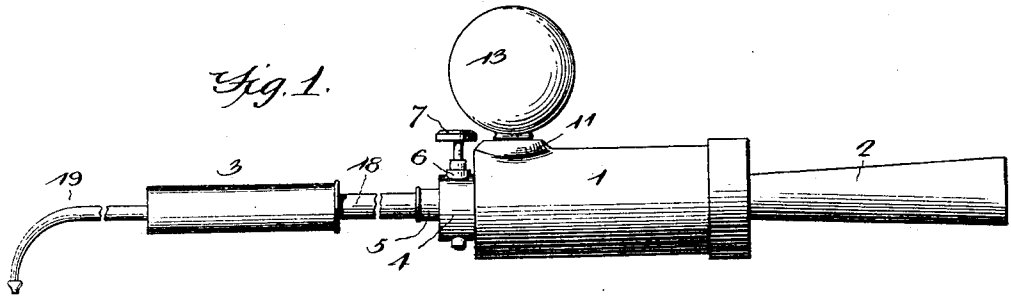


Fig. 8.

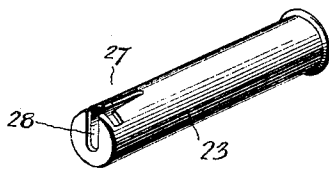
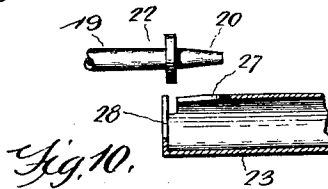
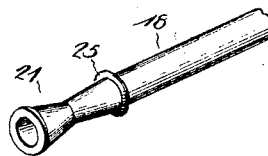


Fig. 9.



Witnesses

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No. 628,222.

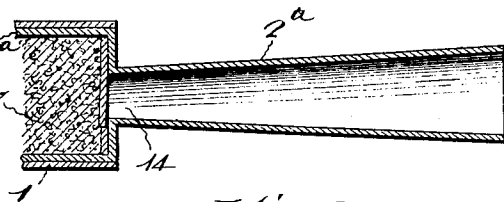
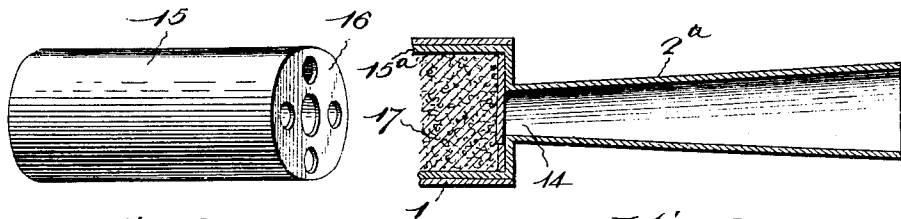
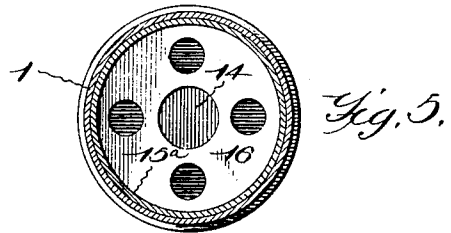
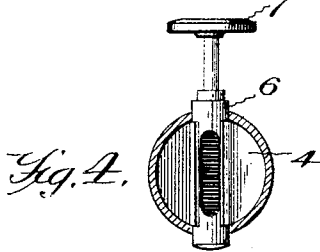
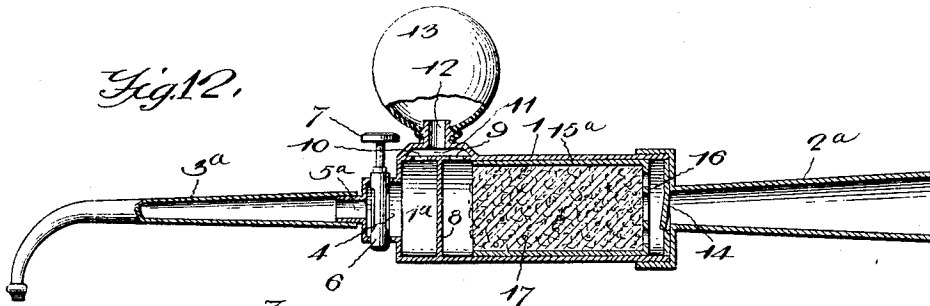
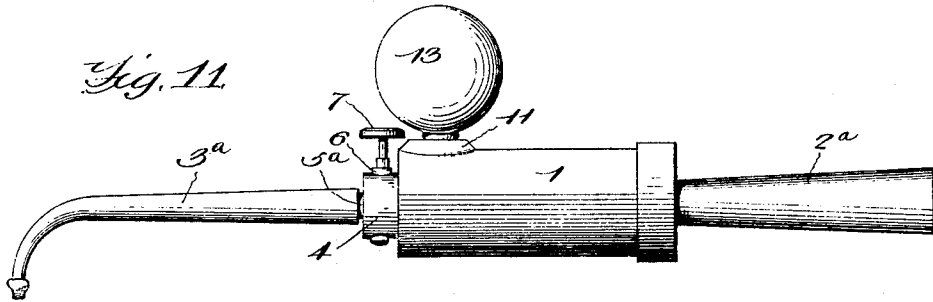
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Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM E. HEWIT, OF DAVID CITY, NEBRASKA.

VAPOR-BLOWPIPE.

SPECIFICATION forming part of Letters Patent No. 628,222, dated July 4, 1899.

Application filed March 30, 1898. Serial No. 675,724. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. HEWIT, a citizen of the United States, residing at David City, in the county of Butler and State of Nebraska, have invented a new and useful Vapor-Blowpipe, of which the following is a specification.

My invention relates to blowpipes, and particularly to a vapor-blowpipe adapted for use in connection with metallurgical experiments and operations, and more especially in connection with dentistry; and the object in view is to provide a blowpipe of simple construction whereby the current of air passing therethrough may be charged with an inflammable vapor for intensifying the heat of the flame through which the current of vapor-charged air passes, and, furthermore, to provide, in connection with the blowpipe, improved means for maintaining a uniform flow of air and for controlling the same with facility to produce the desired results.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a side view of a blowpipe constructed in accordance with my invention. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a detail view of the shell detached. Fig. 4 is a transverse section on the plane indicated by the line 4 4 of Fig. 2. Fig. 5 is a transverse section on the line 5 5 of Fig. 2. Fig. 6 is a partial longitudinal section showing a slightly-modified construction. Fig. 7 is a detail longitudinal section of the socket and means of attachment for the tip of the blowpipe-nozzle, the slide being shown extended. Fig. 8 is a detail view of the slide detached. Fig. 9 is a detail view of the socket and contiguous portion of the fixed nozzle member. Fig. 10 is a detail sectional view of a portion of the slide and the contiguous end of the tip to show the arrangement of the parts prior to inserting the tip into the seat of the slide. Fig. 11 is a side view of another modified construction, showing a different form of nozzle. Fig. 12 is a longitudinal section of the modified construction illustrated in Fig. 11.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates the barrel or cylinder of the blowpipe embodying my invention, and in communication therewith is a mouthpiece 2, which may be of the ordinary or any preferred construction, preferably tapered or reduced in diameter slightly toward its point of connection with the cylinder, and 3 represents the blowpipe-nozzle interchangeably fitted to the body portion or cylinder of the device to provide for the substitution thereof of others adapted for the particular operation to be performed.

In the construction illustrated the body portion or cylinder of the blowpipe is provided with a reduced valve-chamber 4, which in turn is extended to form a nipple 5, in which is fitted the end of the nozzle 3, and in the valve-chamber is mounted a controlling or throttle valve 6, having an exposed finger-hold or knob 7 to facilitate the manipulation of the valve. Arranged transversely in the cylinder contiguous to the valve-casing, but spaced a distance from the end of the cylinder to form an outlet-chamber 1^a, is a partition 8, upon opposite sides of which and formed in the wall of the cylinder are inlet and exhaust ports 9 and 10, communicating with a chamber 11, having an extension forming a nipple 12, upon which is fitted an expandible accumulator 13, which in the construction illustrated consists of a rubber bag. It is obvious that air forced into the cylinder of the blowpipe through the mouthpiece 2 may pass through the offset chamber 11, which forms a conductor connecting the main and auxiliary compartments or chambers of the cylinder, and thence through the valve-casing to the nozzle; but in order that a quantity of air under pressure may be accumulated to supply the nozzle during the time that air is not being forced through the mouthpiece (as while the operator is taking breath) I attach the above-described accumulator 13 to the extension or nipple of the conductor 11 and provide the mouthpiece at its inner end with a check-valve 14 to prevent back pressure. Hence when a blast of air is forced through the mouthpiece it passes from the

main compartment or chamber of the cylinder into the conductor 11, from which a portion of the blast finds its way to the accumulator, whereby when the inflow of air through the mouthpiece ceases the contraction of the accumulator will maintain a continuous blast through the nozzle unless prevented by the closing of the throttle-valve 4.

Removably fitted in the main chamber of the cylinder is a shell 15, preferably of cylindrical construction, with its front end open and its rear end fitted with a perforated head 16, located contiguous to the end of the mouthpiece, said shell fitting snugly in the cylinder and being adapted to contain an absorbent filling 17, of wool or cotton or the equivalent thereof, charged with gasolene, alcohol, or other inflammable fluid for evaporation in order to charge the blast of air as it passes through the blowpipe. Hence in practice it will be seen that all of the air which enters the cylinder from the mouthpiece passes through the shell with its absorbent filling and thence through an offset conveyer communicating with the cylinder by lateral ports located, respectively, upon opposite sides of a transverse partition, by which the forcing of the absorbent filling from the open end of the shell is prevented, and that in communication with said offset conveyer is an expandible or inflatable accumulator adapted, under the control of a suitable valve, to supply a continuous current of fluid to the discharge-tip, whether the blast which is introduced through the mouthpiece is continuous or not.

In the construction illustrated in Figs. 1 to 5, inclusive, the mouthpiece is attached to a cylinder-head which is removably threaded upon the end of the cylinder, whereas in the modified construction illustrated in Fig. 6 the mouthpiece 2^a is attached directly to the end of the movable shell 15^a, the latter construction being desirable as involving a simplification of the construction shown in the other figures of the drawings in that one of the detachable parts of the construction set forth in connection with Figs. 1 to 5 is avoided.

The construction of nozzle illustrated in Figs. 1, 2, and 7 to 10, inclusive, includes a main or fixed member 18, attached, as above indicated, to the nipple 5, and a tip 19, having any desired construction and size of terminal discharge-opening, said tip being provided with a tapered or conical inner end 20, which is adapted to be fitted in a conical seat 21 in the outer extremity of the main or fixed member 18, a collar 22 being carried by the tip to bear against the enlarged extremity of said main member. Mounted for axial movement upon the nozzle member 18 is a tubular slide 23, having a contracted inner end forming a shoulder 24, between which and an exterior shoulder 25 on the nozzle member 18 is interposed an actuating-spring 26, the same being coiled around the nozzle member 18 to maintain the slide normally in the position illustrated in Fig. 2 or retracted. At its outer

end this slide is provided with a T-shaped lateral opening 27, communicating with a radial slot 28 in the closed end of the slide, and when it is desired to attach a tip to the fixed nozzle member the slide is advanced against the tension of the spring 26 to the position illustrated in Fig. 7. The inner end of the tip is dropped through the opening 27 in the side of the slide to arrange its straight portion in axial alinement with the nozzle member 18, after which the slide is released to allow its actuating-spring to draw the tip back and securely fit the reduced tapered or conical portion 20 of the tip in the seat 21. This forms an air-tight joint between the tip and the fixed nozzle member and also provides for displacing the tip and substituting another without necessitating the grasping of the tip in the hand of the operator. Obviously this tip becomes heated in operation, particularly when the device is used in connection with a Bunsen or other burner, and it is desirable to provide for displacing the tip without grasping the same.

In Figs. 11 and 12 I have shown a construction which differs from that illustrated in Figs. 1 and 2 only in the matter of the nozzle 3^a, which is of simple construction and without the removable tip shown in Figs. 1 and 2. The nozzle 3^a is shown applied exteriorly to a nipple 5^a, which corresponds in position and function with the nipple 5. (Illustrated in Figs. 1 and 2.)

It will be understood that within the scope of the claims various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. A blowpipe having a hollow body portion provided with an intermediate partition, a passage connecting the interior of the body portion at opposite sides of the plane of the partition, a mouthpiece and a tip communicating with the opposite ends of the body portion, and an open-ended shell, containing an absorbent filling, removably fitted in said body portion with its open end adjacent to said partition, substantially as specified.

2. A blowpipe having a body portion provided at an intermediate point with a transverse partition, and an offset conveyer in communication by lateral ports with the interior of the body portion respectively upon opposite sides of the plane of the transverse partition therein, a shell for absorbent filling removably fitted in the body portion with an open end arranged adjacent to the transverse partition thereof, and a mouthpiece and tip in communication with the body portion, substantially as specified.

3. A blowpipe having a cylinder divided by a transverse partition to form main and auxiliary compartments connected by an offset conveyer which is in communication with

an expansible accumulator, a valve for controlling the cylinder-outlet which is in communication with the auxiliary compartment thereof, a cylindrical shell removably fitted
5 in the cylinder and containing an absorbent filling, the end of the shell contiguous to said partition being open, and the other end being perforated, and a mouthpiece detachably connected with the cylinder and having a check-
10 valve to prevent back pressure, substantially as specified.

4. A blowpipe having a nozzle of which one member is provided at its outer end with a conical or tapered seat, a tip having a tapered
15 inner extremity removably fitted in said seat, and a slide mounted upon the first-named member for movement parallel with the longitudinal axis of the seat and provided with means to engage and secure the tip in the
20 seat, substantially as specified.

5. A blowpipe having a nozzle of which one member is provided at its outer end with a terminally-open seat, a tip removably fitted at its inner end in said seat and provided with
25 a collar covering the mouth of the seat at the outer end of said member, and a slide fitted upon the nozzle member for movement parallel therewith and with the longitudinal axis of the seat and engaged with the collar of the

tip to maintain the end of the tip in said seat, substantially as specified. 30

6. A blowpipe having a nozzle of which one member is provided at its outer extremity with a seat, a tip removably fitted at its inner end in said seat, and a spring-actuated slide
35 fitted upon the nozzle member and engaged with the tip to maintain the latter in the seat, substantially as specified.

7. A blowpipe having a nozzle of which one member is provided at its outer extremity
40 with a seat, a tip removably fitted at its inner end in said seat and provided with a collar, a slide mounted upon the nozzle member and provided at its outer end with a lateral opening, through which the inner end of the tip
45 may be inserted laterally for alinement with the seat in the nozzle member, and means for yieldingly maintaining the slide in its retracted position with the extremity of the tip in the seat of the nozzle member, substantially
50 as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM E. HEWIT.

Witnesses:

W. P. FLYNN,

W. S. MCCOY.