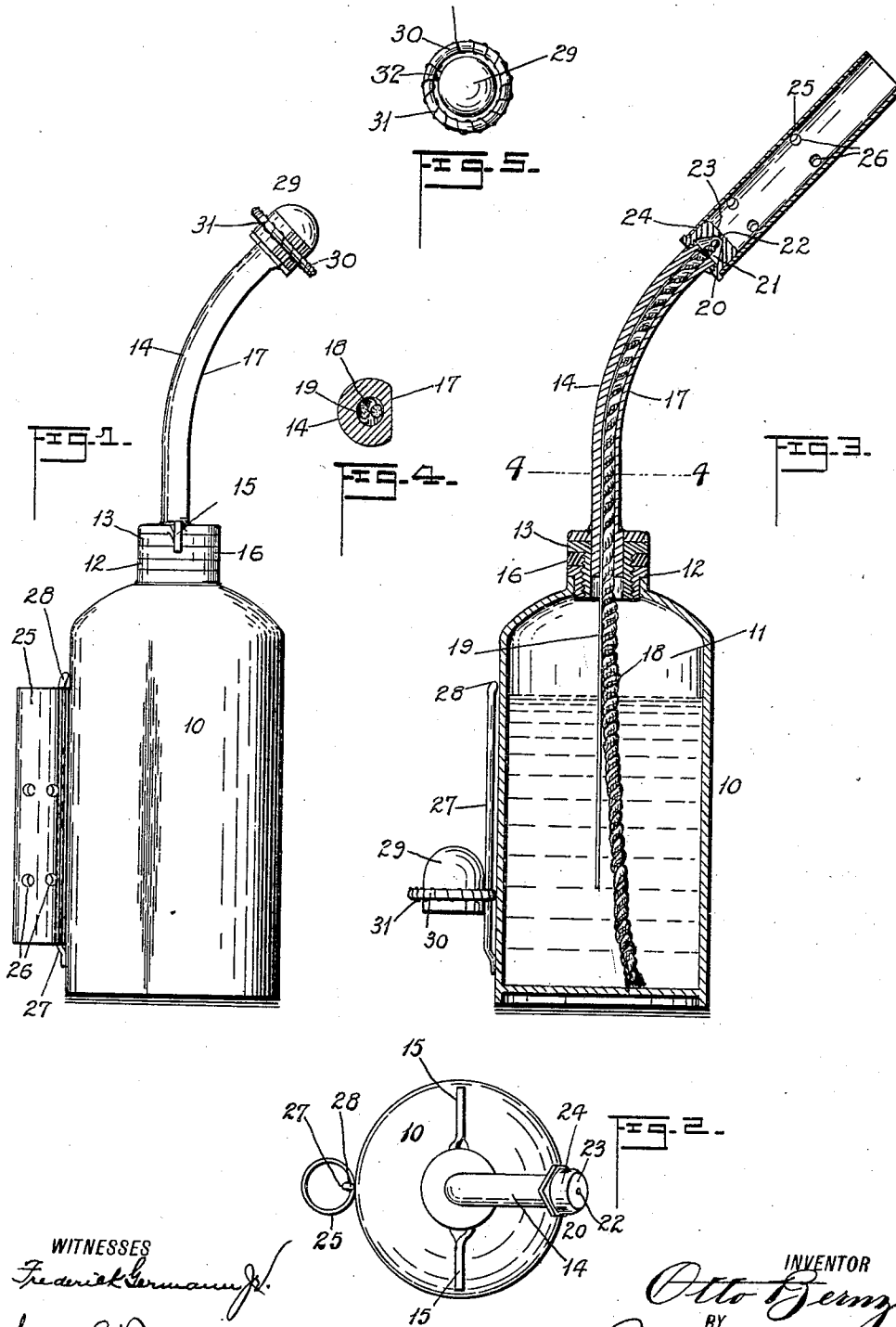


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O. BERNZ.
AUTOMATIC PRESSURE TORCH.
APPLICATION FILED JAN. 3, 1910.

992,399.

Patented May 16, 1911.



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AUTOMATIC PRESSURE-TORCH.

992,399.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, OTTO BERNZ, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain Improvements in Automatic Pressure-Torches, of which the following is a specification.

The objects of this invention are to provide a small inexpensive torch which can be used in many cases instead of a regular blow torch; to secure in such a torch complete and prompt vaporization of the hydrocarbon fluid; to guard against leakage; to make the device compact and convenient to handle; and to obtain other advantages and results as may be brought out in the following description.

Referring to the accompanying drawings, in which like numerals of reference indicate corresponding parts in each of the several figures, Figure 1 is a side elevation of a torch of my improved construction with a certain closure cap on the burner and the burner tube stored at the side of the body portion; Fig. 2 is a plan of the same with the closure cap removed entirely; Fig. 3 is a central vertical section of the torch with the burner tube in position for use and the closure cap stored; Fig. 4 is a cross section on line 4—4 of Fig. 3, and Fig. 5 is a plan of the closure cap for the burner.

In said drawings, 10 indicates the body portion of my improved torch, said body being adapted to stand upright on a bench or the like and providing a reservoir 11 for the hydrocarbon fuel such as gasoline. At its top said body 10 has an interiorly-threaded bushing 12 which is adapted to receive the correspondingly threaded lower end 13 of a neck 14, said neck being adapted to be turned by projecting finger-pieces 15 on the said lower end 13, a washer 16 being placed between said lower end 13 and the bushing 12 to secure a tight joint. The said neck 14 comprises a piece of tubing which is curved or bent laterally, as shown, so as to direct the flame obliquely, and the wall of said tubular neck is made thinnest at the inner or concaved side of said curve or bend. Preferably this thin portion of the walls of the neck is formed by flattening one side of the tube from which the neck is formed as by filing or grinding, swaging or other means, such flattened surface being indicated in the drawings by reference nu-

meral 17. This thin portion of the walls of the neck thus extends longitudinally of the neck and along the inner or concave side of its curve, while the walls for the rest of the periphery of the tube, in cross section as shown in Fig. 4, are thick and strong. Said thick strong portions of the walls of the neck give it strength and stiffness, which usage of the torch demands, while the thin-walled portion enables heat to be easily transmitted to the interior of the neck in starting the torch as hereinafter described.

A wick 18 extends from the reservoir 11 up through the tubular neck 14, being supported in any suitable and wellknown manner, as by the metal strip 19, and at the top of the neck 14 is a nozzle 20 made fast upon the upper end of the tubing of which the neck is formed, as by screwing. This nozzle 20 has an enlarged chamber 21 into which the wick 18 leads, and through the front wall of said chamber a minute aperture 22 is drilled, opening at the front end 23 of the nozzle. The front end portion of the nozzle 20 is exteriorly reduced as at 24 so as to telescopically receive a burner tube 25 having perforations 26 in its side as is common in torches.

In operation, the parts being as shown in Fig. 3, the flame of a lighted match is held against the under thin wall 17 of the curved neck 14, and the heat is sufficient to vaporize the small amount of hydrocarbon liquid in the upper part of the neck 14. The pressure of the gas thus generated forces it out through the aperture 22 of the burner, and it may then be ignited by holding a match at the end of the tube 25. As the flame, which is small at first, continues to burn, its heat is conducted back through the burner tube 25, nozzle 20 and neck 14 to vaporize more fluid, and thus a flame of considerable intensity of heat is developed and which may serve for many purposes.

When the torch is not in use, the burner tube 25 is taken off from the nozzle 20 and slid onto a holder 27 on the body 10. This holder preferably comprises a resilient strip or arm fastened at one end to the outside of the body portion 10 near its bottom and extending upward at a little distance from said body to receive the cap or tube upon itself. The upper free end of the spring 27 may be bent inward to normally clutch the body as at 28 if desired, and thus when the

burner tube is slid onto the said holder 27, as shown in Figs. 1 and 2, it is secured against loss.

A cap 29 is provided to take the place of the burner tube 25 on the nozzle 20, and close the same against leakage of gasolene through the aperture 22 when the torch is not in use. This cap has extending around itself at a little distance therefrom a ring 30, which is secured to the said cap at one point of their peripheries, as at 32. This ring 30 serves as a handle for the cap and furthermore affords a place for winding a fine wire 31 which can be used to open up the aperture 22 in case of stoppage. This wire is preferably fastened at one end to the cap so that it can not become detached or lost, but its other end is free so that as much as is desired can be unwound and pushed through the perforation 22. If necessary, the extreme end of the wire can be broken or cut off in order to secure a good unused end. It will be understood that the perforation 22 is very minute so that when it becomes obstructed, nothing usually at hand is fine enough to enter, and thus the torch is rendered partially or wholly useless. It is therefore a great advantage to have the wire 31 always at hand. The ring 30 furthermore serves to receive the spring holder 27 when the burner tube 25 is in use, and thus the cap may be stored upon the said holder 27 to prevent its loss, as shown in Fig. 3.

Having thus described the invention, what I claim is.

1. In a torch, the combination with a body portion providing a reservoir, of a tubular curved neck leading from said reservoir having its walls in cross-section of the neck thin at the inner side of said curve and thick and strong at other peripheral portions, whereby heat will be readily transmitted through said thin portion and strength and thickness given to the neck by the thick portions, a wick in said neck lying against said thin portion of its walls, and a nozzle leading from said tubular neck at the opposite end from the reservoir.

2. In a torch, the combination with a body portion providing a reservoir, of a curved neck leading from said reservoir comprising a piece of tubing having an outer chordal portion of its walls in cross section removed along the inner side of the curve of the neck, whereby the wall of the neck is

made thin along said inner side of the curved neck and left thick and strong at its other sides, a wick in said neck lying against said thin portion of its walls, and a nozzle leading from said tubular neck at the opposite end from the reservoir.

3. In a torch, the combination of a body portion providing a reservoir, a tubular neck leading from said reservoir, a nozzle leading from said neck, a burner tube and a closure cap for said nozzle adapted to be interchangeably mounted on said nozzle, and a holder in connection with said body portion adapted to removably support either said burner tube or said closure cap.

4. In a torch, the combination of a body portion providing a reservoir, a holder attached at one end to the outer wall of said reservoir and extending adjacent thereto, a tubular neck leading from said reservoir, an apertured nozzle leading from said neck, and a burner tube and a closure cap adapted to be interchangeably mounted on said nozzle and either one of which is adapted to be removably mounted on said holder.

5. In a torch, the combination with a body having an apertured nozzle, of a closure cap adapted to be removably applied to said nozzle, a wire attached at one end to said cap and free at the other end for insertion into the aperture of said nozzle, and means upon said cap for storing said wire when not employed in cleaning said nozzle.

6. In a torch, the combination with a body having an apertured nozzle, of a cap adapted to be removably applied to said nozzle, a wire adapted to be inserted in the aperture of said nozzle, a holder upon the body of the torch, and means on said cap for securing said wire and adapted to detachably engage said holder.

7. In a torch, the combination with a body portion and an apertured nozzle, of a holder on said body portion, a cap adapted to be removably applied to said nozzle, a ring around said cap secured thereto and lying for a portion of its circumference at a distance from the cap, and a wire attached at one end to said cap and wound upon said ring, said wire being adapted to enter the said aperture of the nozzle.

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In the presence of—

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