March 29, 1949. J. C. GOSS 2,465,643

HAND TORCH

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Fig. 1.

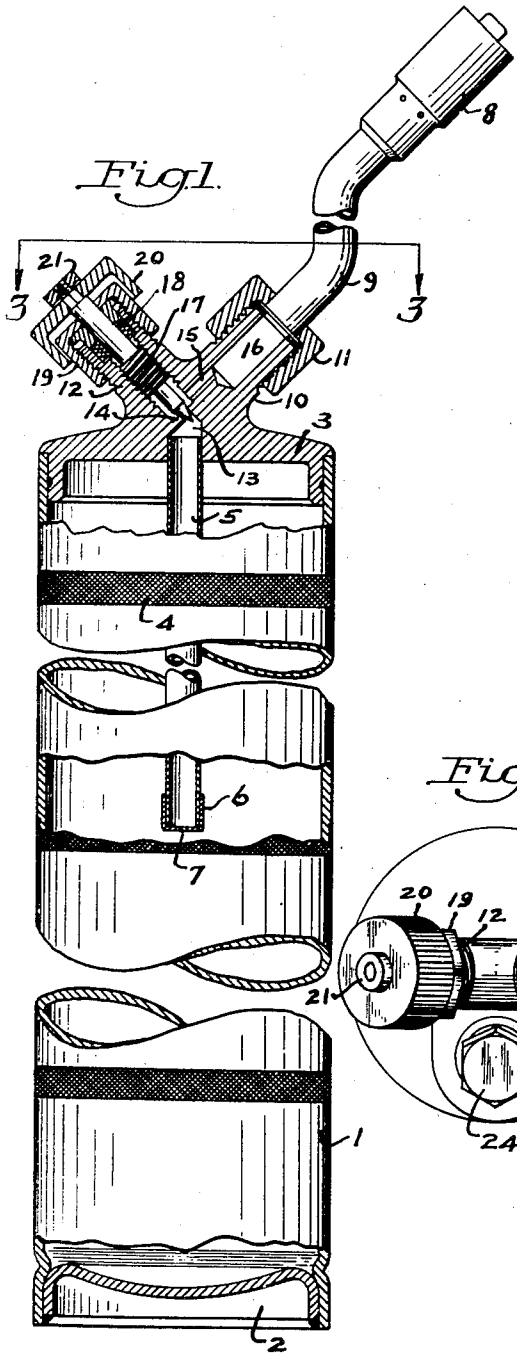

Fig. 2.

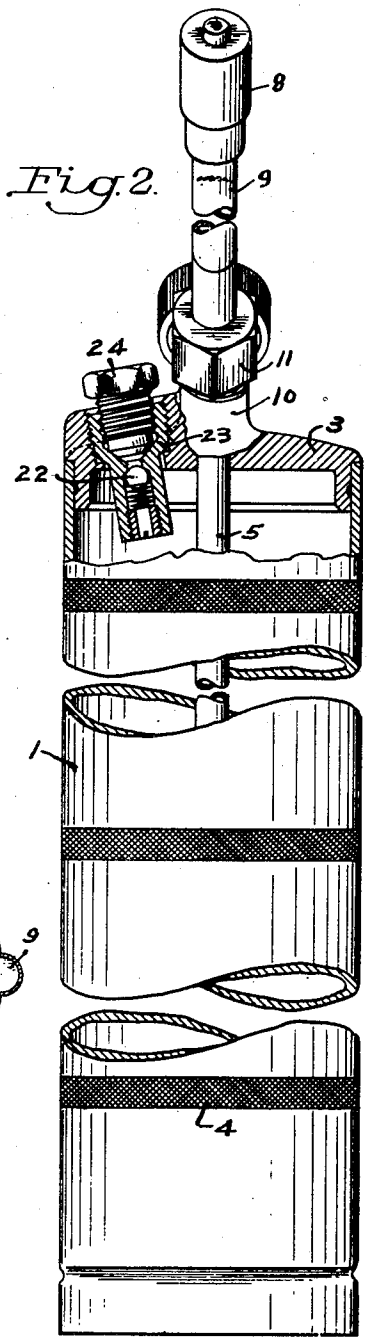

Fig. 3.

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HAND TORCH

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1 Claim. (Cl. 158—27.6)

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This invention relates to a hand torch, and while primarily designed and intended for use as the conventional type of blow torch for welding operations and the like, it will be obvious that the torch may be employed for removing paints or for any other purposes wherein it is found to be applicable.

Important objects and advantages of the invention are to provide a hand torch of the character described, which uses propane gas as a fuel agent, which will produce an instantaneous flame of constant uniformity and intensity with a minimum of adjustment, which requires no pressure pump to periodically build up the operating gas pressure, which will function for exceptionally long periods of time before requiring recharging, which will facilitate and expedite heating operations, which may be conveniently manipulated for any purposes required, which is simple in its construction, durable and highly efficient in its use, compact, attractive in appearance, positive in its action, and comparatively economical in its manufacture, operation, and maintenance.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the novel construction, combination, and arrangement of parts herein specifically described and illustrated in the accompanying drawing, but it is to be understood that changes in the form, proportions and details of construction may be resorted to that come within the scope of the claim hereunto appended.

In the drawing wherein like numerals of reference designate corresponding parts throughout the several views:

Figure 1 is a side elevational view, partly in cross section, of a hand torch constructed in accordance with the invention.

Figure 2 is a rear elevational view thereof, partly in cross section.

Figure 3 is a top plan view of the device taken on line 3—3, Figure 1.

Referring in detail to the drawing 1 denotes an elongated metallic tank including a bottom 2 and a top 3. The tank is cylindrical, and is air and gas tight, and is intended to receive the propane gas employed as the fuel agent for the torch apparatus.

The gas tank 1 virtually constitutes the handle of the torch apparatus, and preferably has its outer surface provided with a plurality of rows of circumferentially extending knurling 4 to facilitate its manipulation.

A dispersion tube 5 is fixed to the inner side of

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the tank top 3, preferably at the diametric center of the latter, and depends into the tank 1 to a distance approximately one-half of the height of the tank. The lower free end of the dispersion tube carries a fixed closure cap 6, which has a minute inlet port 7 in the closed end thereof.

A discharge nozzle 8 is carried at the outer end of a nozzle pipe 9, which latter is detachably secured and fixed on a tubular nozzle boss 10, formed integral with the tank top 3, by means of a crown nut 11 having a screw thread engagement on the nozzle boss 10. The nozzle pipe 9 is formed and directed to dispose the attached nozzle 8 rearwardly at an angle of approximately thirty degrees with respect to the longitudinal disposition of the gas tank 1, to facilitate the manipulation of the device to positions best suited for efficient heating operations.

A tubular valve boss 12 is formed integral with the tank top 3, and is provided with a valve chamber 13, which is divided by a valve seat 14. The upper open end of the dispersion tube 5 communicates with the valve chamber 13 below the valve seat 14, and a channel 15 provides communication between the valve chamber 13 above the valve seat 14, and the bore 16 of the nozzle boss 10.

A needle type control valve 17 is mounted in and has a screw thread engagement with the valve boss 12, and is adjustable in the valve seat 14. The control valve 17 projects through a packing gland 19 and a packing nut 19 to prevent leakage therethrough. An adjusting cap 20 is mounted on the projecting outer end of the control valve 17 and is secured to the latter by a nut 21.

A ball type, spring controlled check valve 22 is mounted in a valve casing 23, which is secured in the tank top 3. A sealing plug 24 is threadedly engaged in the valve casing 23 outwardly of the check valve 22.

The propane gas, in liquid form, is forced into the tank 1 by removing the plug 24 and attaching the gas supply storage receptacle with the threaded plug socket of the valve casing 23. The check valve 22 will function to allow the entrance of the gas therethrough into the tank 1, but will prevent the escape of the gas through said check valve 22. The insertion of the plug 24 provides an additional seal to prevent such leakage from the tank 1.

In practice, the tank 1 is filled with liquefied gas to not more than one-half of its capacity, or until the liquefied gas reaches the level with the lower end of the dispersion tube 5. By opening

the control valve 17 during the charging operation, the escape of liquid gas through the nozzle 8, when the liquefied gas level reaches the lower end of the tube 5, will apprise the operator that the proper maximum liquefied gas level in the tank 1 has been reached.

It will here be noted that the improved torch is specially designed for employing propane gas as a fuel agent. Propane gas is extremely volatile and rapidly transforms from its liquid state to the aeriform state, and thereby, when confined, creates and generates the proper gas pressure for efficiently operating the torch, without requiring periodical pressure boosts by manually operated devices of the type used in connection with the conventional hand blow torch.

In the operation of the improved torch, the aeriform gas will enter the dispersion tube 5 through the inlet port 7 in the closure cap 6, and pass through the control valve 17 and be discharged and ignited at the nozzle 8. The control valve 17 may be readily adjusted to assure an instantaneous, constant, and uniform flame of the required degree of intensity for the purpose employed.

The inlet port 7 should not be submerged in the liquid gas within the tank 1, and its position in the latter is such as to minimize such submersion possibility, while allowing the manipulation of the torch at various angles from the vertical for efficient heating operations.

The present invention provides a most efficient device of its kind, which may be economically manufactured, and successfully employed for the purposes and in the manner herein set forth.

What I claim is:

A hand torch of the class described, comprising the combination of an elongated cylindrical tank for receiving fuel gas and including a fixed top, a valve boss formed integral with said top and including a valve chamber, an apertured valve seat dividing said chamber, a nozzle boss combined with said valve boss and formed integral with the latter and with said top, a nozzle pipe secured in said nozzle boss, said nozzle boss being provided with a channel communicating with said nozzle pipe and with said chamber above said seat, a discharge nozzle carried at the free end of said pipe, a dispersion tube depending into said tank a distance approximately one-half the height of the latter and having the upper end thereof secured in said top and communicating with said chamber below said seat, a closure cap provided with an inlet port secured to the lower free end of said tube, a control valve adjustably mounted in said valve boss and cooperating with said seat operable for regulating the flow of gas from said tank through said tube to said nozzle, and a spring controlled check valve mounted on said top operable for allowing the entrance of gas therethrough into said tank and for preventing the escape of gas therethrough from said tank.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
19,636	Hollely	Mar. 16, 1858
885,263	Layng	Apr. 21, 1908

FOREIGN PATENTS

Number	Country	Date
61,955	Germany	May 7, 1892
63,457	Germany	July 22, 1892