PATENT SPECIFICATION

404,479

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COMPLETE SPECIFICATION.

Improvements in or relating to Lighters, especially Pocket Lighters.

We, OTTO REICH, of 13, Untere Viaduktgasse, Vienna III, Austria, and JULIUS VIGNATI, of 7, Margarethenstrasse, Vienna IV, Austria, both Austrian citizens, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to lighters, especially pocket lighters.

It has been heretofore proposed to provide lighters comprising a container adapted to receive a charge of gas or having the gas generated therein, the gas being subsequently discharged through a cock. It has also been proposed to provide pocket lighters, with liquid or solid combustibles and also such wherein the combustible acetylene gas is produced in the lighter itself through the action of water upon carbide.

Of the known pocket lighters only those operating with liquid combustible and a wick proved practicable, although in these the wick frequently causes failures, because it is difficult to seal it properly and to feed it forward. In addition to the wick opening a filling opening is also necessary for the liquid combustible, the proper sealing of which is also essential but difficult to accomplish with liquid combustibles.

The other types of lighters referred to above are unsuitable for practical use as pocket lighters due to their complicated construction and bulk.

The lighters wherein acetylene gas is produced require separate and well sealed chambers for receiving the water and the carbide and a complicated water control device. A gas cleanser is also necessary if an early blocking of the burner is to be avoided.

The present invention has for its object a lighter, especially pocket lighter, wherein the defects above referred to are eliminated.

According to the invention the lighter comprises a container for the combustible filled with compressed gas, the said container being provided with a valveless and wickless burner, directly mounted on the container, offering such resistance to the passage of the gas under pressure that thereby the gas pressure is reduced so that the gas can burn at the outlet with a steady flame, the outlet opening of the burner being the only opening to be opened and closed during the use of the lighter.

In order to increase the amount of gas filled into the container a gas may be used which can be filled in in liquid condition and gradually changes into gaseous condition in the container. In this lighter, if the gas exit opening is well sealed, when not in use, one filling will last for months of ordinary use. The ignition is effected in the usual manner, preferably by means of a pyrophoric igniter. The gas filling opening may be closed for example in the course of manufacture by means of an impressed plate in a permanent manner, so that in use no leakages can occur. The gas filling opening may, however, also serve to receive the burner which may be secured therein by skilled labour, in which case the container for the combustible has one opening only.

In the accompanying drawing a pyrophoric pocket lighter is shown by way of example.

Fig. 1 is a side elevation partly in section.

Fig. 2 is a plan view.

Fig. 3 shows a modified form of construction of the burner for the lighter.

In the form shown in Figs. 1 and 2 the container 1 for the combustible is filled with a purified gas, such as town gas, methane, hydrogen, or any other suitable combustible gas.

The container 1 is provided with a detachable or permanently fixed burner 3, which is of such construction as to be able suitably to reduce the inner gas pressure, so as to allow the gas to issue with the slight pressure necessary for producing the flame.

Housed within the burner there is a plurality of preferably refractory inserts 4, 5, 6 (Fig. 1), each of which has a small passage leading therethrough, the arrangement being preferably such that

[*Price* 1/-]

in each insert further outwards the diameter of the opening is reduced. The outermost insert may be provided with one or more exit passages 6^1.

If the container for the combustible is to be stored the exit opening 6^1 of the burner must be tightly sealed. This may be accomplished by means of a well sealing cap 8, which, in Fig. 1, is shown removed and screwed on the filling extension 1^1 for safe keeping. The said filling extension 1^1 is sealed by means of a metal plate 2 when the filling is completed.

The further details of this form of construction are as follows:—

The container 1 is introduced into a casing 10 which is provided with any known type of igniter and with a device for tightly sealing the exit opening of the burner. The drawing shows as an example the thumb wheel 12 to which is attached the friction wheel 11 and a rockable closing cap 13 for the burner. The container 1 may be secured in casing 10 for example by means of a spring 14 and the burner 3 protrudes through the opening 15.

When the container 1 is exhausted it is exchanged, together with all its parts for a filled up one.

The container 1 may also be used without the casing 10. In this case the igniter and the closure for the burner are disposed on the container 1 itself, preferably in a detachable manner, for example these parts are mounted on a cap which is pushed over the container.

If hydrogen is used as a combustible gas the same may be ignited in a well known manner by means of the catalytic action of a platinum wire or other suitable catalytic agent placed in the path of the issuing gas.

Fig. 3 shows a modified form of construction of the burner, as well as the way of disposing it on the container 1 for the combustible.

In this case the container 1 is provided with a single opening 1^{11} only, which first of all is used for filling in the combustible gas and then is closed for example by means of the impressed plate 2 above referred to which may be made of soft metal. When the lighter is put to use the burner 3 is fixed to the same opening, preferably by being screwed thereon, the burner being so constructed that when it is screwed on it opens a passage for the admission of the gas. In the example shown the burner is provided in a well known manner with an edged spike 9, which pierces the plate 2 when the burner is screwed on.

In this form of construction, as in the one first described, the burner is provided with a plurality of inserts 4, 5, 6 between which expansion spaces 7 are left for the gas, in order to obtain a better and gradual reduction of the gas pressure. In addition, the openings 6^1 are offset with respect to each other so as to obtain a choked zig-zag passage for the gas.

Having now particularly described and ascertained the nature of our said invention, and in what manner the same is to be performed, we declare that what we claim is:—

(1) Lighter, especially pocket lighter, characterised by a container for a combustible filled with a compressed gas and provided with a valveless and wickless burner directly mounted on the container and offering such resistance to the passage of the gas under pressure that thereby the pressure is reduced so that the gas can burn at the outlet with a steady flame, the outlet opening of the burner being the only opening to be opened and closed during the use of the lighter.

(2) Lighter as claimed in Claim 1 characterised in that the burner is provided with a plurality of inserts each of which has an opening or passage of very small diameter.

(3) Lighter as claimed in Claim 2, characterised in that the openings in the inserts are reduced in diameter towards the exit opening of the burner.

(4) Lighter as claimed in Claim 2, characterised in that between the inserts expansion chambers are provided for the gas.

(5) Lighter as claimed in Claim 2, characterised in that the openings or passages in the inserts are offset with respect to each other.

(6) Lighter as claimed in Claim 1, characterised in that the container has a single opening only which serves for filling in the combustible gas, fixing a closure and securing the burner, which on being secured in position liberates a passage for the admission of gas to the burner.

Dated this 22nd day of February, 1933.

RICHARD C. ROGERS,
Agent for the Applicants.

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Fig. 1

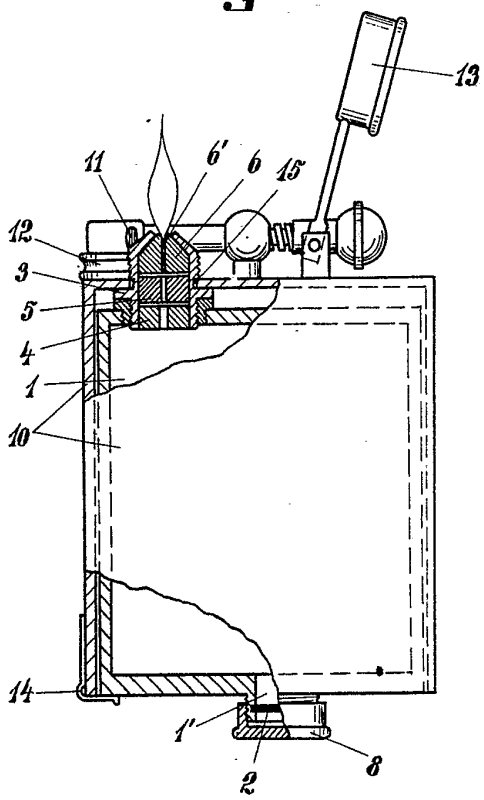


Fig. 3

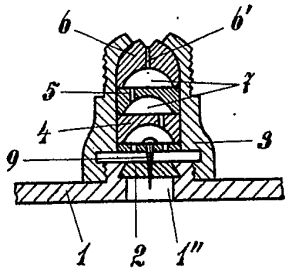
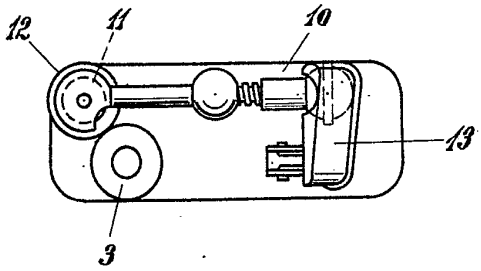


Fig. 2



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