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LIQUID GAS LIGHTER

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Fig. 1

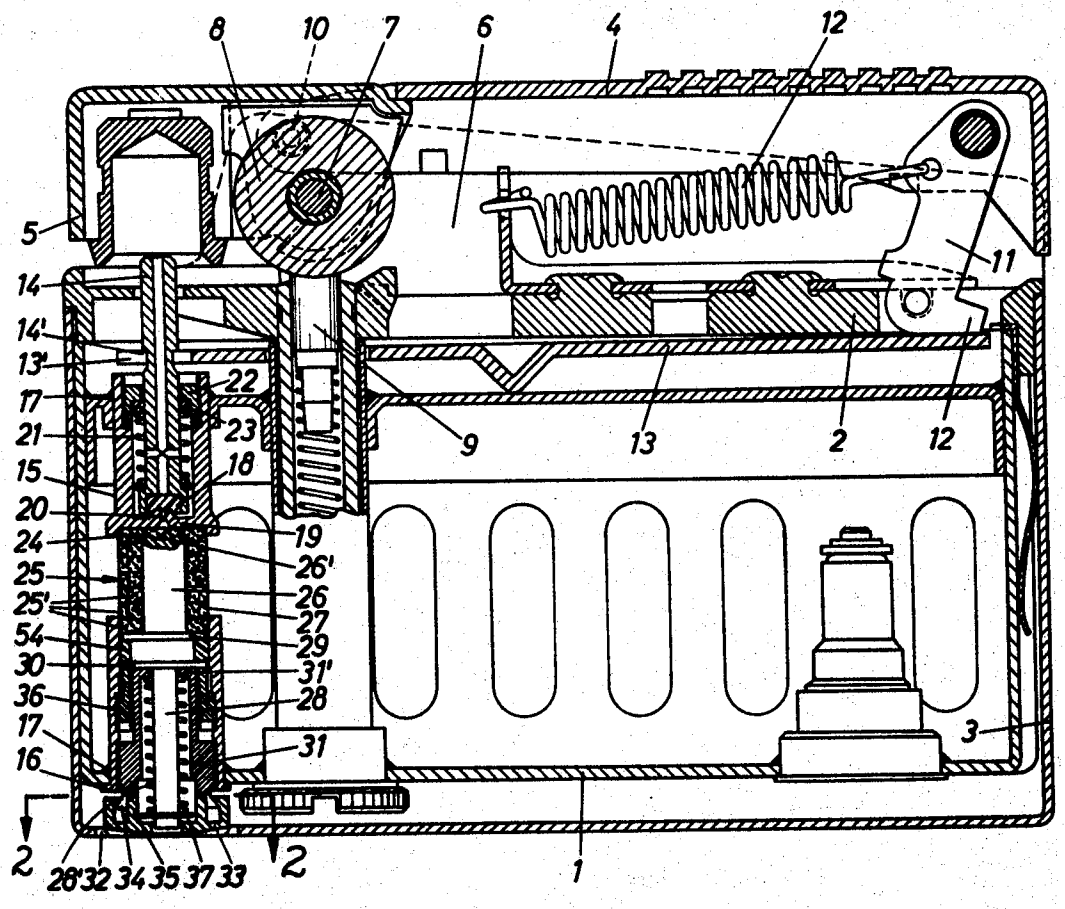
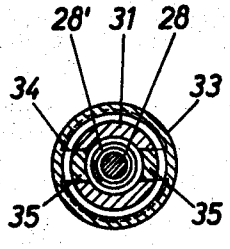


Fig. 2



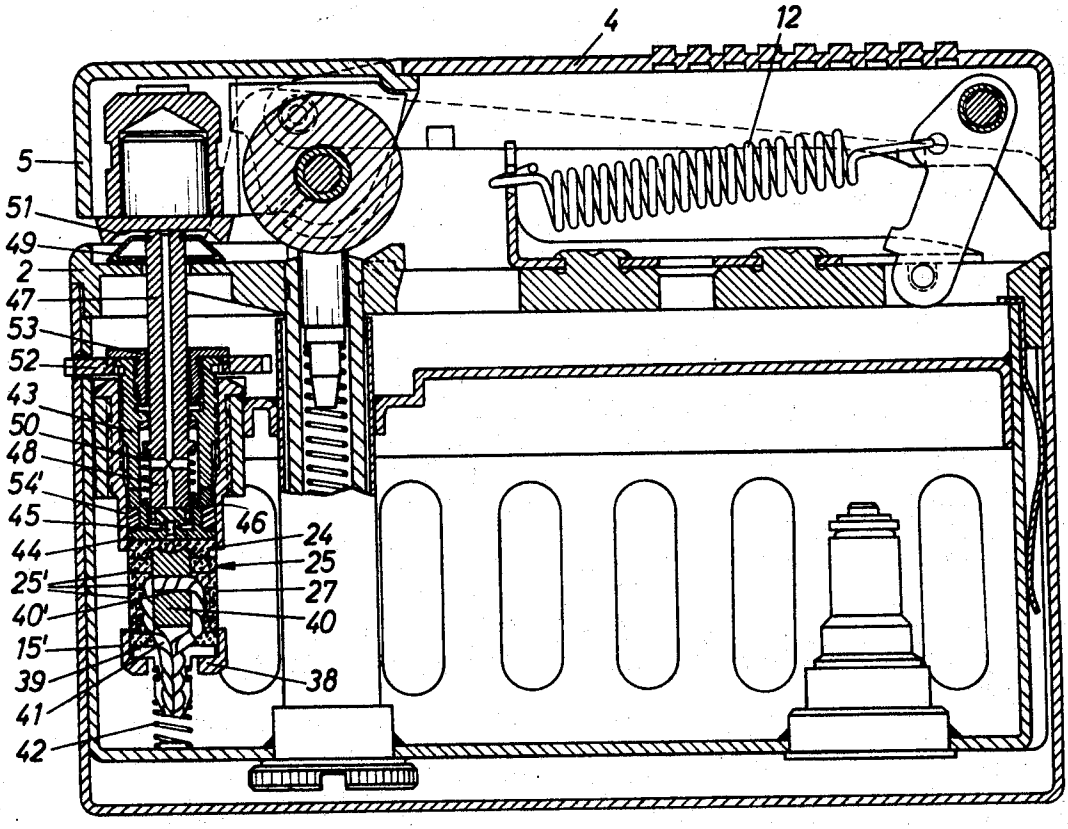
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Fig. 3



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LIQUID GAS LIGHTER

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ABSTRACT OF THE DISCLOSURE

A liquid gas lighter which comprises a burner housing including a burner having a throttle member below a gas outlet channel terminating in a valve seat face. The throttle member consists of a fiber disc, and a pin has an end face. The fiber disc is compressible against the end face of the pin for control of the gas feed. A fiber material body leads the liquid gas to the throttle member and is carried by the pin. The fiber material body comprises individual ring discs and is lined up on the pin. The burner housing has window-like recesses. The ring discs are disposed behind the window-like recesses, in engagement with the throttle member, and arranged above a ring shoulder of the pin.

The present invention relates to a liquid gas lighter having a burner which receives a throttle member, for instance, in the form of a fiber disk, below the gas outlet channel terminating into the valve seat face, which fiber disk can be compressed for the control of the gas escape.

In such lighters difficulties are encountered in feeding gas in sufficient quantity and first of all also equally to the burner nozzle during the entire time period of the flame formation. The drawback exerts itself to an appreciable extent to the ignition safety and the regularity of the flame of such lighters. They fall down, if the flame burns for a longer time period.

It is already known, to provide an annular throttle disk of porous material below the closing valve, which throttle disk is carried by a pressure stamp and engaged by the latter.

The inner space of the burner tube surrounding the pressure stamp, which burner tube projects through the fuel container, is in connection with the latter by means of two radial bores. The set-off end of the pressure stamp is guided in the valve bore. The corresponding design is complicated from a manufacturing point of view. Also, it is not possible, in spite of the use of the annular throttle disk, to obtain an equalized gas flow for the formation of a constant flame height during the conventional using time.

It is, therefore, one object of the present invention to provide a liquid gas lighter, wherein, in order to avoid the mentioned drawbacks, a liquid gas storage body is provided, which consists preferably also of fiber material and is disposed below the throttle member, which storage body is in face engagement with the throttle member and through which a stabilization core extends, the end face of which assumes the compression pressure for the throttle member.

It is another object of the present invention to provide a liquid gas lighter, wherein the storage body including the stabilization core is insertable through an end face opening into the burner housing, thereby providing a design advantageous as to construction and assembly.

It is yet another object of the present invention to provide a liquid gas lighter, wherein a design is arranged which is reliable as to its effect and according to which the storage body is disposed behind window-like recesses in the burner housing wall.

It is then of advantage, if the end face of the stabilization core has a concave recess disposed concentrically to the gas outlet channel, the concave recess having an inclined marginal edge, which has a larger diameter than that of the gas outlet channel.

It is still a further object of the present invention to provide a liquid gas lighter, wherein the storage body is formed of individual overlying annular disks of fiber material.

It is still a further object of the present invention to provide a liquid gas lighter wherein a spring is provided which engages the stabilization core and operates contrary to the direction of pressing against the throttle member, which spring abuts at one end the bottom of an adjustment member, which can be unscrewed.

Due to such arrangements, a lighter is produced, which is reliable concerning its manufacture and its assembly and first of all as to its use. The maximum liquid gas storage, required for the flame formation, is disposed directly within the range of the throttle position, that means, of the gas outlet channel.

As a liquid gas storage serves a body of fiber material capable of suction, due to the fact that the liquid gas storage body is in face engagement with the throttle member formed likewise of fiber material, a continuous after-feeding of liquid gas to the throttle member is obtained. The transmission cross-section between the throttle member and the engaging liquid gas storage body can be accommodated easily to the prevailing type of a lighter by a correspondingly large measurement. Due to the fully suctioning storage body already at a slightly inclined position of the lighter, a certain independency from the level of the gas liquid is obtained. The storage body has such a capacity that a burning duration above the normal average is available. First of all, if the storage body is disposed behind window-like recesses which are easily secured to the burning housing, the liquid gas is in direct connection with the storage body. Concerning the possibility to assemble the storage body also of individual overlying annular disks, an adjustment to the prevailing size of the burner can easily be obtained. It is not necessary, accordingly, to produce for each series a specially adapted storage body. In addition, the separation slots between the individual annular disks favor a fast feeding of the liquid gas into the total storage body. Due to the annular shape, in addition also an advantageous position-safe holding of the annular disks is given, since the latter are mounted on a stabilizing core, which forms, simultaneously with its recess disposed concentrically to the gas outlet channel and the throttle member, the throttle position itself. During the throttling, the storage body is practically not compressed. In case of a stronger throttling, the face engagement between the throttle member and the storage body becomes more intimate in favorable manner. Due to the fact, that the marginal edge of the core recess is inclined, the regulation possibility is improved. In particular, due to the fact that a spring is provided which abuts the stabilization core against the direction of its pressure towards the throttle member, the complete adjustment range for the variable gas passage is maintained, also over longest using times, because the stabilization core is always safely returned during the control in opening direction. The corresponding engaging face for this spring can be provided without difficulties at the bottom of the adjustment member. The spring prevents thereby continuously a complete fall-out of the adjustment member from the housing. Also, appreciable advantages as to production and mounting result, namely in the direction, that the storage body including the stabilization core is insertable from one end opening into the burner housing. This can be obtained by means of a

preliminary assembly. The insertion of the burner tube with the complementary valve seat in addition to the valve spring etc. can take place simultaneously, and in particular from the opposite side. Prior to that, the burner housing is inserted in pre-prepared bores of the lighter body and assembled with the latter by means of a solder or glue connection.

With these and other objects in view which will become apparent in the following detailed description, the present invention will be clearly understood in connection with the accompanying drawings, in which:

FIGURE 1 is a longitudinal section of the liquid gas lighter, designed in accordance with the present invention;

FIG. 2 is a section along the lines 2—2 of FIG. 1; and

FIG. 3 is a longitudinal section of a second embodiment of the liquid gas lighter designed in accordance with the present invention.

Referring now to the drawings and in particular to FIGS. 1 and 2, the liquid gas lighter comprises a fuel container **1**, an outer housing **3**, enveloping the container **1** and removable from a base plate **2**, and a cup member **5** connected with an operating member **4**.

Cheeks **6** raised laterally from the base plate **2** carry a bearing pin **7** for a friction gear **8**. A spring biased flint **9** engages in a known manner the friction gear **8**.

The cup **5**, which is swingable by operation of the member **4**, is also pivotally connected to the bearing pin **7**. The cup **5** and the operting member **4** are coupled with each other by means of pivot pins **10**.

A butt strap **11** provides on the opposite side the pivotal connection of the member **4** to the base plate **2**. A spiral draw spring **12** returns the operating member **4** to its original position.

At the pivot point on the side of the base plate **2**, the butt strap **11** has an operating nose **12**, which engages a control bar **13** extending into its operating range. The oppositely disposed free fork end **13'** of this control bar **13** is in pressure connection with a burner pin **14** of the burner housing **15** and engages an annular shoulder **14'** provided on the burner pin **14**.

The burner housing **15** comprises, in the embodiment disclosed in FIG. 1, a tubular base body, which is inserted into and secured to the fuel container **1** from the lower side of the latter. A corresponding annular flange **16** determines the exact position of the burner housing **15**. Solder and/or glue points **17** provide, simultaneously with the securing of the burner housing **15**, the required sealing closure at the bore slits.

The burner housing **15** is divided into two chambers, communicating with each other, merely by the gas outlet channel **20** by means of a separating wall **19** forming the valve seat face **18**. The upper of the chambers receives the tubular burner pin **14**, which is extended downwardly to a sealing piston. A pressure spring **21** has the tendency to press the piston equipped with a sealing disk to this valve seat face **18**. As a spring counter bearing serve annular disks widening in a favorable manner the engaging face, whereby the upper annular disk covers protectingly a sealing ring **23** held simultaneously between the screwed-in annular bushing **22** and the annular disk disposed therein.

The lower chamber of the burner housing **15** receives a throttle member in form of a fiber disk **24**, which throttle member engages the separating wall **19**.

A liquid gas storage body **25** formed under certain circumstances of the same fiber material, extends below this throttle member **24**. This storage body **25** is in face engagement with the throttle member **24**. The liquid gas storage body **25** has a stabilizing core **26** extending therethrough. The end face **26'** of this stabilizing core **26** receives the compression pressure for the throttle member **24**.

Instead of a continuous pot-shaped storage body **25**, the latter can, as shown, also be formed, if required, of individual annular disks **25'** of fiber material which are lined up on the stabilizing core **26**.

The storage body **25** is disposed directly behind window-like recesses **27** which are provided in the wall of the burner housing **15** at corresponding places. These window-like recesses are set back from the bottom face, formed by the separation wall **18**, to an extent that, on the one hand, a sufficient position-safety for the throttle member **24** is not directly set by the stabilizing core **26**, and, on the other hand, a part of its periphery is, nevertheless, directly in contact with the liquid gas filling.

The end face **26'** of the stabilizing core **26** is equipped with a concave recess disposed concentrically to the gas outlet channel. Its preferably inclined marginal edge has a larger diameter than that of the passage channel **20** and a channel widening extending in funnel-shape in the direction towards the recess, respectively.

The stabilizing core is extended to form a shaft **28**. The latter is equipped with annular ribs **29** and **30**, the upper rib **29** of which forms a supporting shoulder for the storage body **25**. An adjustment member **31** operable from the outside engages the lower rib **30**. The adjustment member **31** is equipped with a thread which finds its meshing thread in the end section of the burner housing **15**. As adjusting means serves a cup **33** having a cross slot and entering into an opening **32** in the wall of the outer housing **3**. The cup **33** is mounted on the adjustment member **31** which is equipped with conically cut faces. Coupling members **35** originating from the cup bottom and entering into a corresponding cross slot **34** of the adjustment member **31** transmit the rotary movement to the adjustment member **31**.

A pressure spring **28'** secured to the shaft **28** of the stabilizing core **26** has the tendency to move this stabilizing core **26** contrary to the direction of its pressure towards the throttle member **24**, thus in the sense of an enlargement of the gas passage on the throttle point. The corresponding spring bearing is formed there by the bottom **31'** of the removable adjustment member **31**.

The maximum opening position on the throttle position is determined by an annular screw **36** surrounding at its end side the adjustment member **31**, whereby the annular rib **30** engages the annular screw **36**. This latter prevents in addition also in a joint effect with the counter spring bearing **37**, that the adjustment member **31**, screwed completely outwardly, can be completely separated from the lighter body.

The storage bodies **25** and the stabilizing core **26** are inserted from the lower end opening into the burner housing **15**. With the annular screw **36** inserted therein, the determination of the throttle adjustment range takes place.

FIG. 3 shows the application of a similar liquid gas storage body **25**, however, in connection with a different type of lighter.

The particular burner housing **15'** is screwed from above into the fuel container. It forms at its bottom an annular engagement shoulder **38** for the support of the stabilizing core **40**, equipped with a corresponding annular rib **39**. The latter is half-slotted and equipped with a cross wall **40'**. The thus selected embodiment permits the safe securing of a wick **41**.

The use of a wick **41** in addition to the liquid gas storage body **25** can be of advantage in such lighters, which due to their structure are not brought or are hardly brought into a tipping position, as for instance, a table lighter.

A pressure spring **42** anchored at the lower end of the stabilizing core **40**, holds the wick **41** in its position directed towards the tank bottom. The counter bearing displaceable by means of an adjustment member **43** is formed by a pot-shaped annular body **44**. The latter has a centrally disposed gas outlet channel **45** and works by forming a valve seat face **46** with the valve piston **48** extended to a tubular burner pin **47**.

At the upper end of the tubular burner pin **47** is

secured a hood **49**. A spring **50**, which surrounds the valve piston **48**, is effective in opening position and supports thereby yieldingly the hood **49** including the burner pin **47** in outward position.

A pan **51** provided on the cup **5** engages the burner pin **47** in direction of closing the gas outlet channel **45**.

For the operation of the adjustment members determining the passage at the throttle point serves a setting wheel **52**. The latter extends through the lighter wall outwardly and is secured to the adjustment member **43** by means of an annular screw **53** which simultaneously limits the adjustment range. The inner chamber of the gas container is sealed off towards the outside in both embodiments by means of a sealing ring **54** and **54'**, respectively.

While we have disclosed several embodiments of the present invention, it is to be understood that those embodiments are given by example only and not in a limiting sense, the scope of the present invention being determined by the objects and the claims.

We claim:

1. A liquid gas lighter, comprising

a burner housing including a burner having a throttle member below a gas outlet channel terminating in a valve seat face,

said throttle member consisting of a fiber disc,

a pin having an end face and said fiber disc is compressible against said end face of said pin for control of the gas feed,

a fiber material body leading the liquid gas to said throttle member and carried by said pin,

said fiber material body comprising individual ring discs and lined up on said pin,

said burner housing having window-like recesses, and

said ring discs being disposed behind said window-like recesses, being in engagement with said throttle member and arranged above a ring shoulder of said pin.

2. A liquid gas lighter, as set forth in claim **1**, wherein the end face of said pin has a concave recess disposed concentrically in said gas outlet channel.

3. The liquid gas lighter, as set forth in claim **1**, wherein said pin is extended to form a shaft below sealing ribs carrying a sealing ring,

said shaft has a counter bearing,

a pressure spring,

an unscrewable adjustable member, and

said spring engages at one end the bottom of said adjustment member and at the other end said counter bearing of said shaft.

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