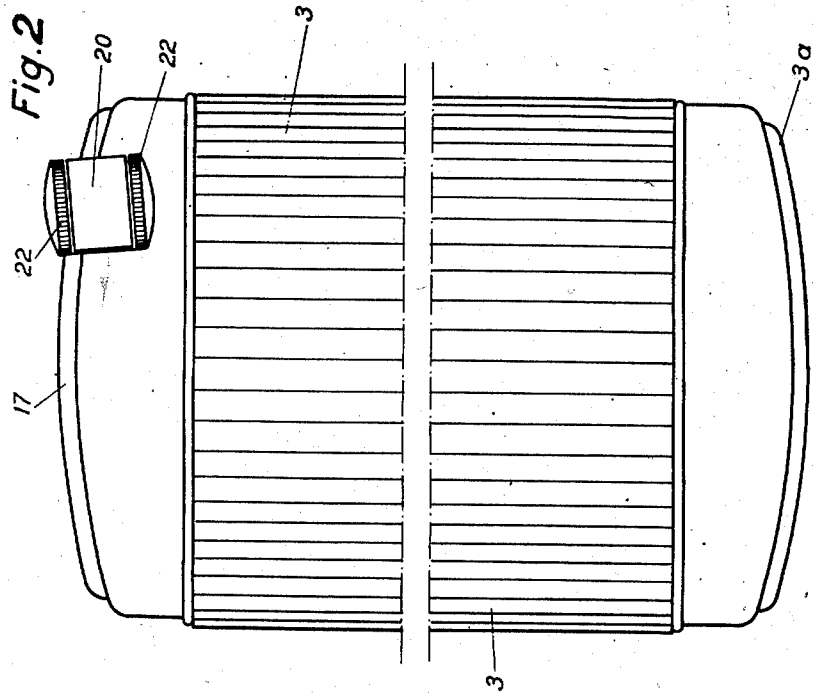
May 30, 1950 M. QUERCIA ET AL 2,509,744

LIGHTER OR IGNITER

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Fig. 2



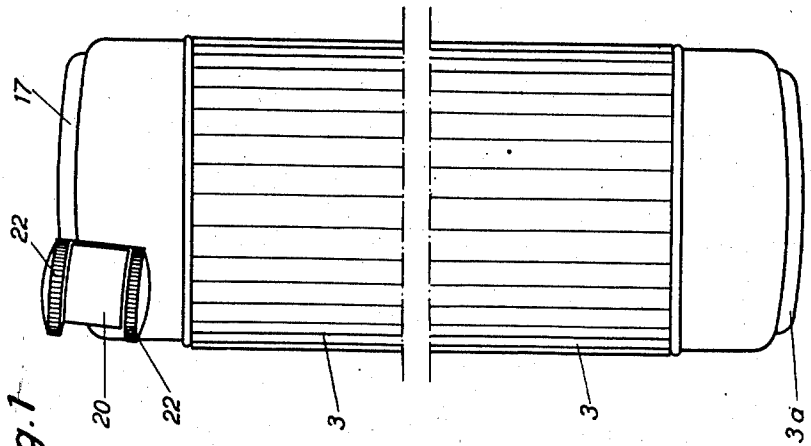


Fig. 1

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May 30, 1950 M. QUERCIA ET AL 2,509,744

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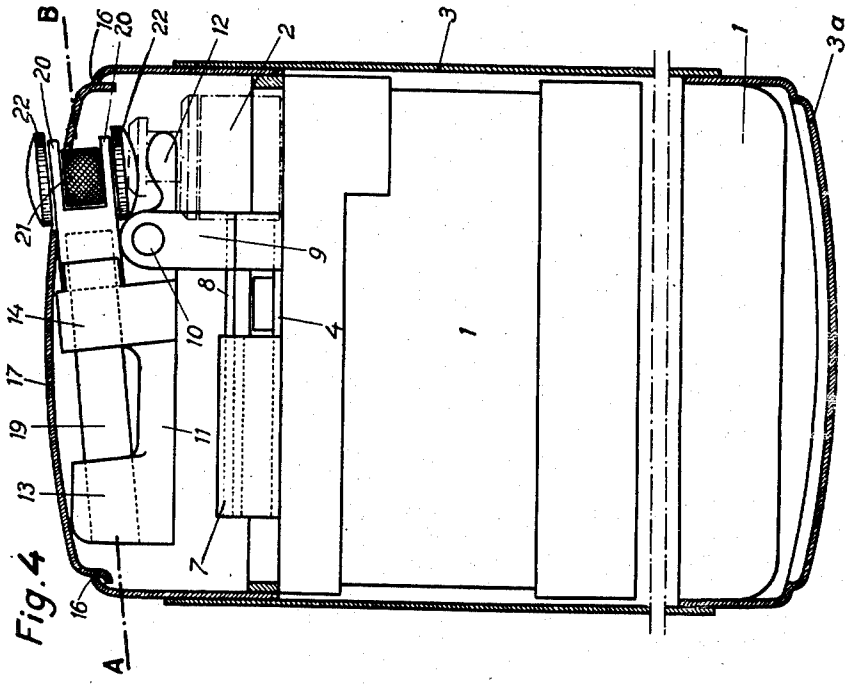


Fig. 4

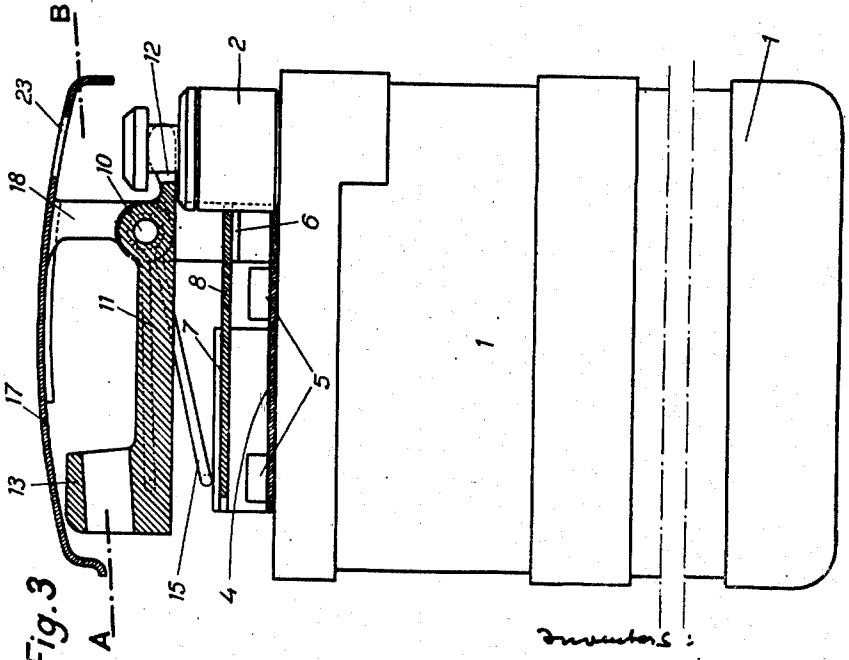


Fig. 3

Inventors:
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May 30, 1950 M. QUERCIA ET AL 2,509,744

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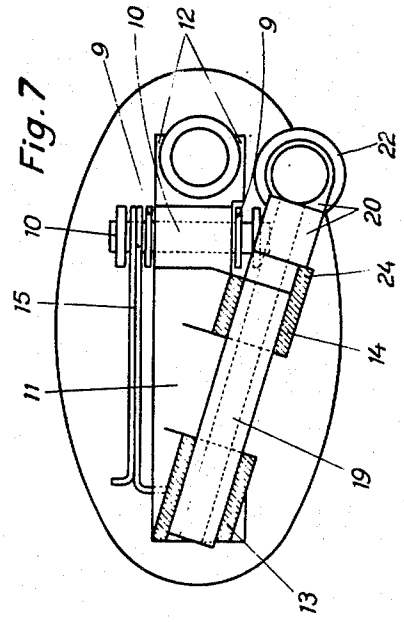


Fig. 7

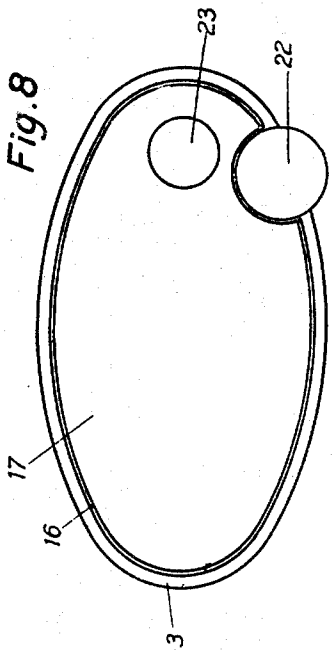


Fig. 8

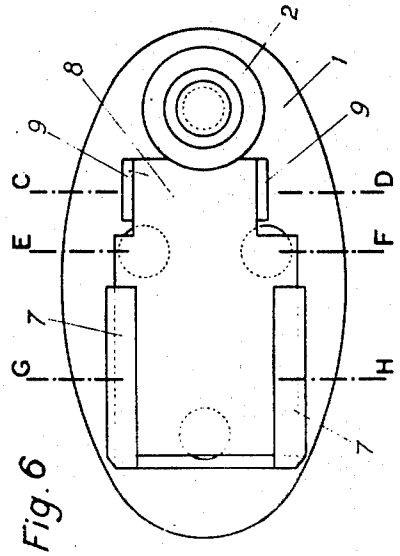


Fig. 6

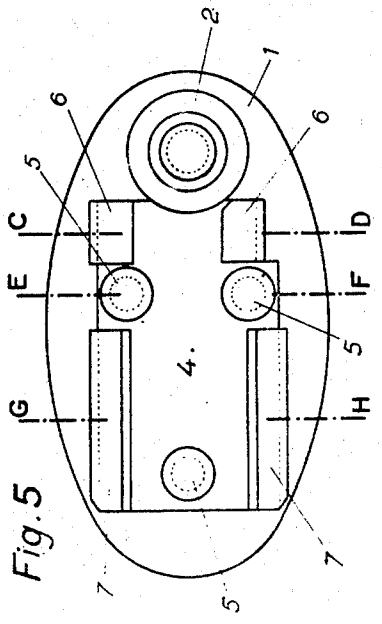


Fig. 5

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LIGHTER OR IGNITER

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Fig. 9

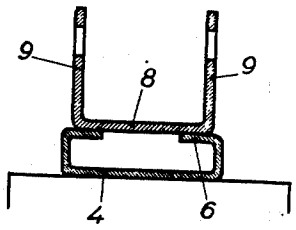


Fig. 10

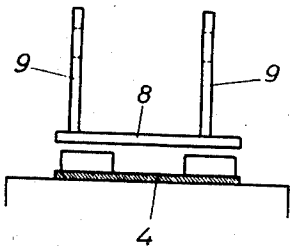


Fig. 11

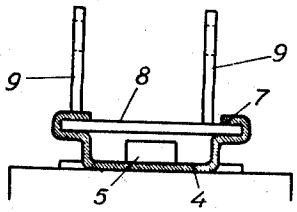


Fig. 12a

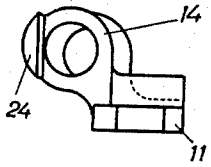


Fig. 12

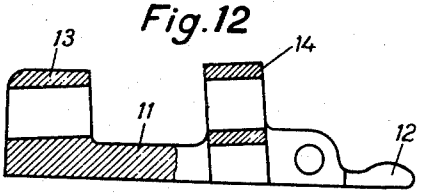


Fig. 12b

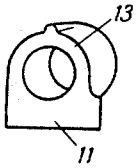


Fig. 13a

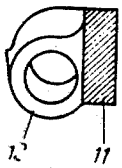


Fig. 13

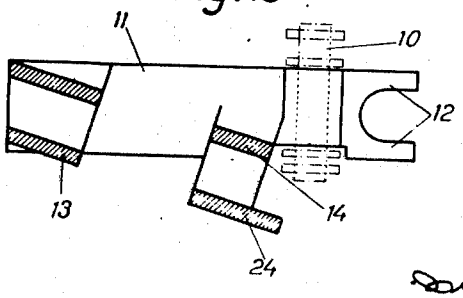
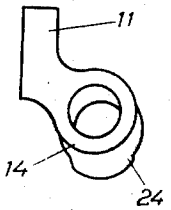


Fig. 13b



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Patented May 30, 1950 2,509,744

UNITED STATES PATENT OFFICE

2,509,744

LIGHTER OR IGNITER

Marcel Quercia, Paris, and Georges Ferdinand, Nogent-sur-Marne, France

Application May 1, 1948, Serial No. 24,616

8 Claims. (Cl. 67—7.1)

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The invention relates to improvements in cigar lighters and igniters and especially to apparatus of this type which are supplied with a liquefied compressed gas stored inside the tank of the lighter or igniter.

Apparatus of this kind, as is well known, comprise besides the storage tank an expansion and obturation device controlling the outlet of the gas from said tank, a device for igniting the gas, for instance with a ferro-cerium flint, for lighting the evacuated gas and means for controlling both devices.

The present improvements relate, first, to the control means for the expansion and obturation device, so as to obtain a simple and practical control of said device, allowing easy dismantling and re-assembly thereof; secondly, they relate to the control means of the ferro-cerium flint igniting device so as to constitute, at the same time a supporting device for the flint and the wheel, an assembling organ and a locking means for the whole operating mechanism of the lighter.

The present improvements further comprise the particular combination of the expansion and obturation element and of the supporting and controlling device for the ignition system with all the other construction elements of the lighter, namely the liquefied compressed gas tank, the expansion and obturation element and the casing or sheath containing the whole of the apparatus, so as to obtain an assembly capable of an easy and economical manufacture and of an easy handling.

These various improvements will be described hereinafter with reference to the appended drawings illustrating a type of embodiment of a lighter comprising the present improvements and wherein:

Figures 1 and 2 are an end view and a side view, respectively, in elevation, of the cigar lighter.

Figure 3 is a side view of the inner mechanism, the sheath of casing being removed. Figure 4 is a similar view of this mechanism inside its sheath or casing.

Figure 5 is a plan view of the fixation plate for the control fork for the obturation device.

Figure 6 is a plan view of the base plate for said fork.

Figure 7 is the horizontal section of the fork, along line A—B of Figures 3 and 4.

Figure 8 is a plan view of the cigar lighter.

Figures 9, 10 and 11 are three views in vertical section of the supporting device for the fork, taken respectively along lines C—D, E—F, and G—H in Figures 5 and 6.

Figures 12, 12ª and 12ᵇ are, respectively, the

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longitudinal section and the two opposite end views of the control fork.

Figures 13, 13ª, 13ᵇ are respectively the horizontal section and the two opposite end views of this same fork.

Referring to Figures 1 to 4 of the drawings, it will be seen that the cigar lighter comprises an inner tank 1, containing the liquefied compressed gas used, on which is attached the expansion and obturation device 2. This tank 1, with its expansion device 2 is housed inside a sheath or casing 3, which may be decorated in any suitable manner and whose lower bottom 3ª is removable to allow the insertion of the tank.

Above the tank 1, inside sheath 3, is housed the support and control device for the expansion and obturation element 2. This support and control element consists in a plate 4, attached, for instance by means of screws 5, on the upper wall of tank 1, and comprising side rims suitably bent back to form, at 6 and 7, horizontal guiding rims (see Figures 5, 9 and 11). On these rims 6 and 7 is engaged, in sliding relation, the base plate 8 comprising two turned up parts 9, for supporting the axle 10 of the control fork 11.

It is obvious that the slide could be provided on the base plate 8, the plate 4 being introduced in the folded rims of this plate 8.

The fork 11, which ends into a forked part 12, passing through the head of the expansion and obturation element 2, is provided, on its opposite arm, with two extensions 13 and 14, hollowed out circularly, directed obliquely along an axis inclined with respect to the axis of the fork, which, in the example represented is the same as the transverse axis of the lighter. The fork 11 may be made of stamped or punched metal, or, if desired of cut and folded sheet metal. A spring 15, such as a torsion spring, for example, mounted on the axle of articulation 10, of the fork, constantly tends to lift the rear end of the fork (left end on Figures 3, 4 and 7) so as to normally keep the obturation organ of the expander closed.

The upper part of the sheath, 3, comprises a large aperture 16, wherein a movable member 17 is mounted free, upon which bears the rear extension 13 of the fork and which, itself, bears on an arm 18 (see Figure 3) mounted on axle 10.

It will be understood that by lowering with the finger the rear end (left) of the movable member 17, the oscillation of fork 11 will be caused, by overcoming the action of spring 15 and consequently, by the action of the forked arm 12, the opening of the obturation organ of the expander.

In the oblique circular apertures of extensions

13 and 14 of the fork, is engaged the cylindrical stem 19 of the flint holder which ends, at its opposite end, in the yoke 20 carrying the axle of the ignition wheel 21 and of its two operating knurled wheels 22 (see Figures 4 and 7). The assembly of these wheels is thus offset with respect to the axis of the fork and arranged in such a way that the spark produced by the ferro-cerium flint will occur facing the outlet aperture of the expansion and obturation element. It will be noticed, further, that the flint holder, held inside the fork, follows the swinging motion of the latter and consequently the ascending motion of the burner terminating the expander.

An aperture 23, provided in the movable member 17, above this outlet aperture, allows the passage of the flame outside (Figures 3 and 8). A bossage 24, suitably provided on the front circular extension 14 of the fork ensures the correct placing in position of the flint holder in its housing.

It will be understood that once the fork has been fixed on the tank by means of its base plate 8 and the supporting plate 4—5—6, and once the assembly of the tank and fork has been inserted in the sheath, the placing in position of the flint holding device will cause, by the hooking of its stem in the hollowed extensions 13 and 14 of the fork, the locking in position of the whole inner mechanism which can then be withdrawn only by removing again the flint holder.

A suitable locking organ can also be provided in one the circular extensions of the fork for ensuring the locking of the mechanism in a correct position in the sheath.

The tank containing the compressed gas used as a fuel for the lighter can be of any known or suitable type; however it may conveniently be lined, inside, with an absorbent material for producing in the tank itself a first expansion of the gas, in accordance with the arrangement described in the U. S. patent application Quercia and Ferdinand No. 757,314 of June 26, 1947. The expansion and obturation device used for producing the final expansion of the gas and its evacuation can be of any type operating by a raising of the obturation organ of the expansion device. It can be, especially, of the type described in the U. S. patent application Quercia and Ferdinand No. 646,540 of February 9, 1946.

What we claim is:

1. A pyrophoric lighter for use with a liquified gas, comprising in combination, a tank for the liquified gas; a device mounted on said tank for releasing the gas; a head forming part of said gas-releasing device; a spring-loaded articulated lever having a forked end acting on said head; a sheath enclosing said tank, said gas releasing device and said lever; a flint-holding device projecting through an aperture in said sheath; means arranged on said lever for holding said flint-holding device; and a movable member arranged inside said sheath and bearing on the other end of said lever.

2. A pyrophoric lighter for use with a liquified gas comprising in combination, a detachable tank for the liquified gas; a device mounted on said tank for releasing the gas; a head forming part of said gas-releasing device; a detachable sheath enclosing said tank and said gas-releasing device; a plate arranged on top of said tank; a base plate slidably arranged on said plate on top of said tank; upwardly projecting parts connected to said sliding plate; a shaft mounted in said projecting parts; a spring-loaded lever mounted on said shaft and having a forked end acting on said head; a flint-holding device projecting through an aperture in said sheath and having a stem and a yoke; means arranged on said lever for holding said stem and said yoke; and a movable member arranged at the top of said sheath and abutting against the other end of said lever.

3. A pyrophoric lighter for use with a liquified gas, comprising in combination, a detachable tank for the liquified gas; a device mounted on said tank for releasing the gas; a head forming part of said gas-releasing device; a detachable sheath enclosing said tank and said gas-releasing device; a plate arranged on top of said tank; a base plate slidably arranged on said plate on top of said tank; upwardly projecting parts connected to said sliding plate; a shaft mounted in said projecting parts; a spring-loaded lever mounted on said shaft and having a forked end acting on said head; a flint-holding device projecting through an aperture in said sheath and having a stem; extensions arranged on said lever and having each an oblique circular recess holding said stem of said flint-holding device; and a movable member arranged at the top of said sheath and abutting against the other end of said lever.

4. A pyrophoric lighter for use with a liquified gas, comprising in combination, a detachable tank for the liquified gas; a device mounted on said tank for releasing the gas; a head forming part of said gas-releasing device; a detachable sheath enclosing said tank and said gas-releasing device; a plate arranged on top of said tank; a base plate slidably arranged on said plate on top of said tank; upwardly projecting parts connected to said sliding plate; a shaft mounted in said projecting parts; a spring-loaded lever mounted on said shaft and having a forked end acting on said head; a flint-holding device projecting through an aperture in said sheath and having a stem; extensions arranged on said lever and each having an oblique circular recess holding said stem of said flint-holding device; a profiled member arranged on one of said extensions and adapted to engage said flint-holding device so as to secure it in position in said extensions; and a movable member arranged at the top of said sheath and abutting against the other end of said lever.

5. In a pyrophoric lighter for use of a liquified gas, in combination, a tank for the liquified gas; a device mounted on said tank for releasing the gas; a spring-loaded lever mechanism for controlling said gas releasing device, said tank, said gas releasing device and said lever mechanism forming a detachable assembly; a sheath for housing said detachable assembly; a movable member arranged in the upper part of said sheath for controlling said lever mechanism; and a flint-holding device arranged in said sheath and adapted to lock said detachable assembly within said sheath.

6. In a pyrophoric lighter for use of a liquified gas having a detachable fuel reservoir, a gas releasing device arranged on the fuel reservoir, and an outer casing enclosing the fuel reservoir and the gas-releasing device, in combination, a support rigidly connected to the fuel reservoir; a base plate slidably arranged on said support; a spring-loaded lever for controlling the gas-releasing device; said lever being articulated to said base plate and having an aperture; a flint-holding device engaging said aperture and traversing the outer casing so as to lock in mutual position the fuel reservoir and the casing; and a movable

member arranged in the upper part of the casing and abutting against one end of said lever.

7. In a pyrophoric lighter for use of a liquified gas having a detachable fuel reservoir and a gas releasing device, in combination, a detachable unit including the reservoir and a spring-loaded lever mechanism for controlling the gas-releasing device; an outer casing into which said detachable unit is introduced as one piece; a movable member arranged in the upper part of said casing for controlling said lever mechanism; a lever forming part of said lever mechanism and having an opening and a flint-holding device adapted to engage the opening of said lever and to lock said unit in said case.

8. In a pyrophoric lighter for use of a liquified gas having a detachable fuel reservoir, a gas releasing device arranged on the fuel reservoir, and an outer casing enclosing the fuel reservoir and the gas-releasing device, in combination, a member movably connected to the top of the fuel reservoir; a lever articulated on said member for controlling the gas-releasing device; extensions arranged on said lever and each having a circular aperture arranged obliquely with respect to the

axis of said lever; a flint-holding device having a cylindrical stem and a yoke projecting to an opening of the outer casing; said stem being arranged in the apertures of said extensions of said lever; and a second movable member arranged in the top of the outer casing and abutting against one of said extensions of said articulated lever.

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