

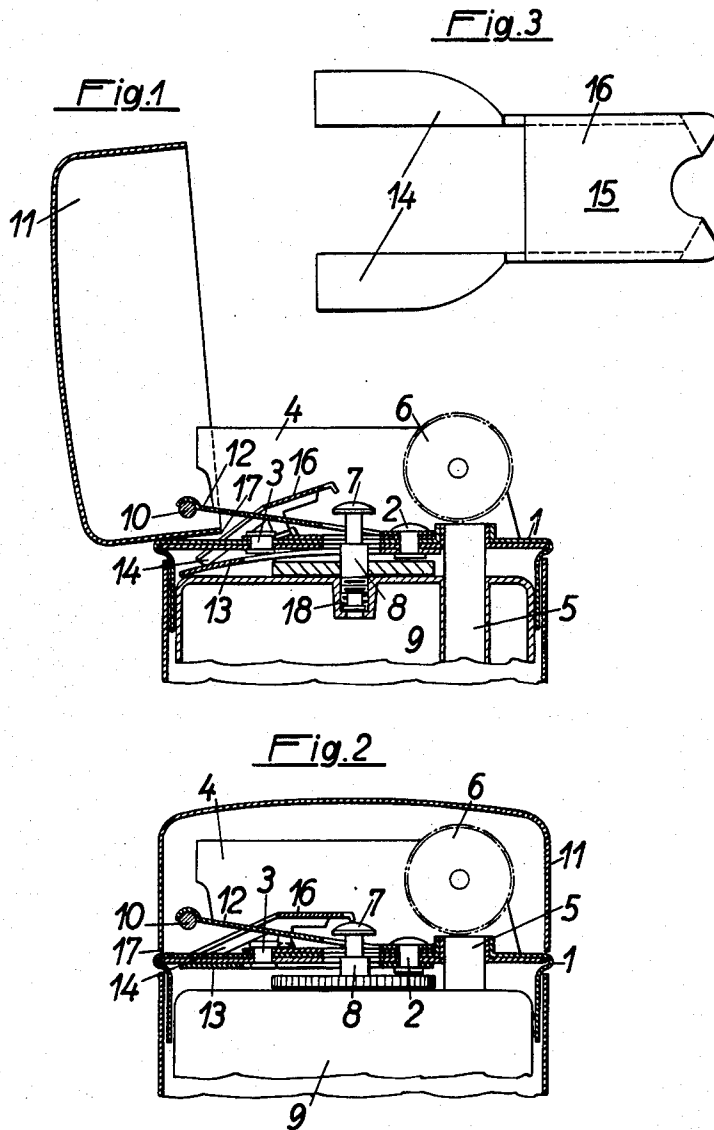
Aug. 11, 1964

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3,143,871

GAS-FUELED LIGHTER

Filed May 14, 1962



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BY

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GAS-FUELED LIGHTER

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Filed May 14, 1962, Ser. No. 195,042

Claims priority, application Austria May 15, 1961

3 Claims. (Cl. 67-7.1)

This invention relates to a device for actuating the burner valve in gas-fueled lighters, which comprise a valve which is opened and kept open by a spring provided in the burner whereas the valve is closed and kept closed by pressure applied to the valve stem.

Various devices for operating the burner valve in response to the movement of the lighter cover are known. For this purpose, a cap is usually employed which is similar to the wick cap of a gasoline lighter and which contacts the valve stem directly or through the intermediary of spring-loaded members, such as balls, plungers or the like incorporated in the cap. These devices have the disadvantage that the spring which keeps the cover closed, must be stronger because it must additionally overcome the valve spring pressure or the pressure of the spring in the burner cap before it can close the valve or keep it open. Another disadvantage of these known devices resides in that the valve is opened at the same time as the cover so that gas is discharged, which owing to its weight remains adjacent to the burner and fills the interior of the wind guard. If the friction wheel is not operated immediately after the opening of the cover or if an excessive amount of gas flows out, the resulting lack of oxygen may prevent the ignition by the sparks.

It is an object of the invention to overcome these disadvantages by the provision of a two-armed lever, one arm of which is loaded by a spring applying to said arm a pressure which depends on the position of the lighter cover whereas the second arm of the lever acts on the valve stem. This arrangement enables the use of much simpler tools in making the valve actuating mechanism. According to another feature of the invention, the lighter cover engages the spring-loaded lever arm, preferably when the cover is in open position, so that the burner valve is opened by the spring incorporated in the valve and by the gas pressure only immediately before the cover has reached its open position. This results in a saving of gas. According to the invention that edge of the cover which is close to its pivotal axis is caused to engage the lever. This arrangement provides for a desirable interaction of forces within the device. The use of a leaf spring in the actuating device according to the invention reduces the space requirement. A particularly simple and inexpensive structure will be obtained if the lever is pivoted to the wind guard.

Further details, features and advantages of the invention will be described more fully hereinafter with reference to an illustrative embodiment shown on the drawing.

FIG. 1 is a longitudinal sectional view showing the upper part of a gas-fueled lighter with the cover in open position and an actuating device according to the invention for the burner valve.

FIG. 2 shows the same lighter with the cover closed.

FIG. 3 is an enlarged top plan view showing the two-armed lever of the actuating device.

The wind guard 4 is secured with two rivets 2, 3 to the

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cap 1 and rotatably carries the friction wheel 6 above the flint tube 5. The stem 7 of the burner valve 8 screwed into the fuel tank 9 extends through the cap 1. The tank 9 is adapted to be fitted into the cap 1. The lighter cover 11 is pivoted to the cap 1 by means of the pivot 10 and the leaf spring 12, which is secured to the cap 1 by the rivet 2.

On the inside of the cap 1, the rivet 2 holds another leaf spring 13 of the actuating device according to the invention. The free end of the leaf spring 13 engages the arm 14 of a two-armed lever 15 pivoted to the wind guard 4. The second arm 16 of the lever 15 engages the valve stem 7, which forms a part of a burner valve, known per se, which is opened and kept open by a spring 18 provided in the burner and is closed and kept closed by pressure applied to the valve stem, more particularly the button at the top thereof.

As is apparent from FIG. 2, the leaf spring 13 applies pressure to the arm 14, which extends through the cap 1. As a result, the end of arm 16 of lever 15 pivoted to the wind guard 4 is urged against the valve stem 7 protruding over the cap 1. As a result, the valve stem 7 is urged into the valve against the action of the spring 18 incorporated in the burner 8 so that the valve is closed. When the lighter cover 11 is opened, its edge 17 next to the pivot 10 slides along the cap 1 and the spring 12 is strained. When the cover has been swung toward its open position by about 45°, it will be in an unstable position. When the opening movement has proceeded to an angle of more than about 75°, the edge 17 will engage the arm 14 of the lever 15 so that the latter is urged into the cap 1 against the action of the leaf spring 13 and the arm 16 releases the valve stem 7 to permit a discharge of gas, which is ignited by the sparks produced by the friction wheel 6. The consumption of gas will be greatly minimized because gas is not discharged through the valve 8 until the last phase of the opening movement of the cover 11, and because the arrangement according to the invention causes the arm 16 of the lever 15 to close the burner valve 8 shortly after the beginning of the closing movement of the lighter cover 11. This virtually precludes a contact of the fingers by a large flame during the closing movement of the cover. It will be apparent that the force applied to the arm 16 by the spring 13 must exceed the force applied to this arm by the spring 18 and the gas pressure in the tank.

Compared to the known actuating devices for automatically opening burner valves, the structural expenditure and the assembly time is reduced, which are significant advantages for a mass-produced article, such as a lighter. It is a special advantage that the gas cannot be discharged before the cover has been opened beyond a predetermined angle. This angle may be selected so that the discharge of gas does not begin as long as the return spring 12 can automatically close the cover. As a result, any unintended escape of gas is effectively prevented.

What is claimed is:

1. A gas-fueled lighter comprising a burner support, a burner carried by said support, a valve stem arranged to control the flow of gas through said burner, a valve-opening spring arranged in said burner and urging said stem toward an open position, a lighter cover connected to said support for pivotal movement about a pivotal axis between open and closed positions and having an edge

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portion next to said pivotal axis, a rigid lever having first and second arms, means supporting said lever between said arms for pivotal movement with respect to said support such that as the lever undergoes pivotal movement the arms respectively undergo angular movement of equal magnitude, said first arm being operable to engage said valve stem and to depress the same to a closed position against the action of said valve-opening spring, and a valve-closing spring secured to said support and engaging said second arm of said lever and tending to urge said first arm into engagement with said valve stem with a force sufficient to overcome the action of said valve-opening spring, said second arm of said lever being arranged to be engaged by the edge portion of said cover to be

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moved by the same against the action of said valve-closing spring during the final phase of said movement of said cover to the said open position thereof whereby said valve-opening spring is released to move said stem to its open position.

2. A gas-fueled lighter as set forth in claim 1, in which said valve-closing spring is a leaf spring.

3. A lighter as set forth in claim 1, in which said means supporting said lever comprises a wind guard secured to the support and to which the lever is pivotally mounted.

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