

- [54] **GAS LIGHTER**
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3,506,386 4/1970 Goto 431/255
 3,603,709 9/1971 Retzler 431/131

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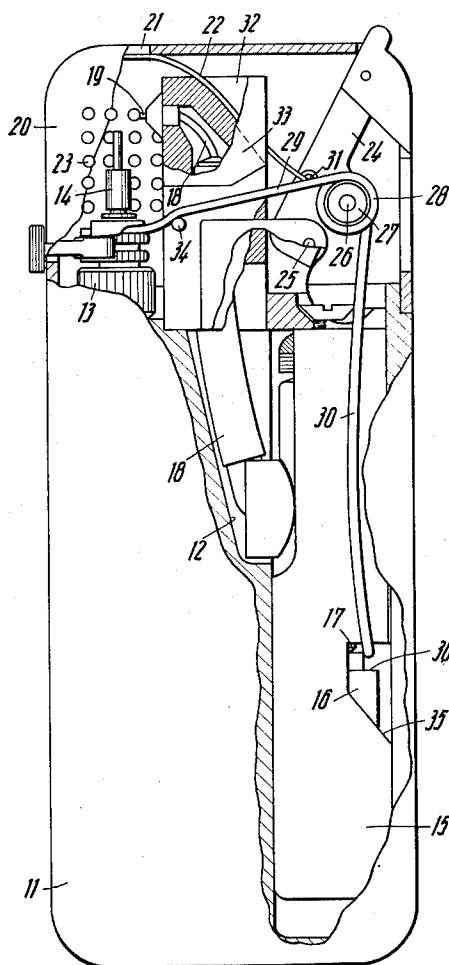
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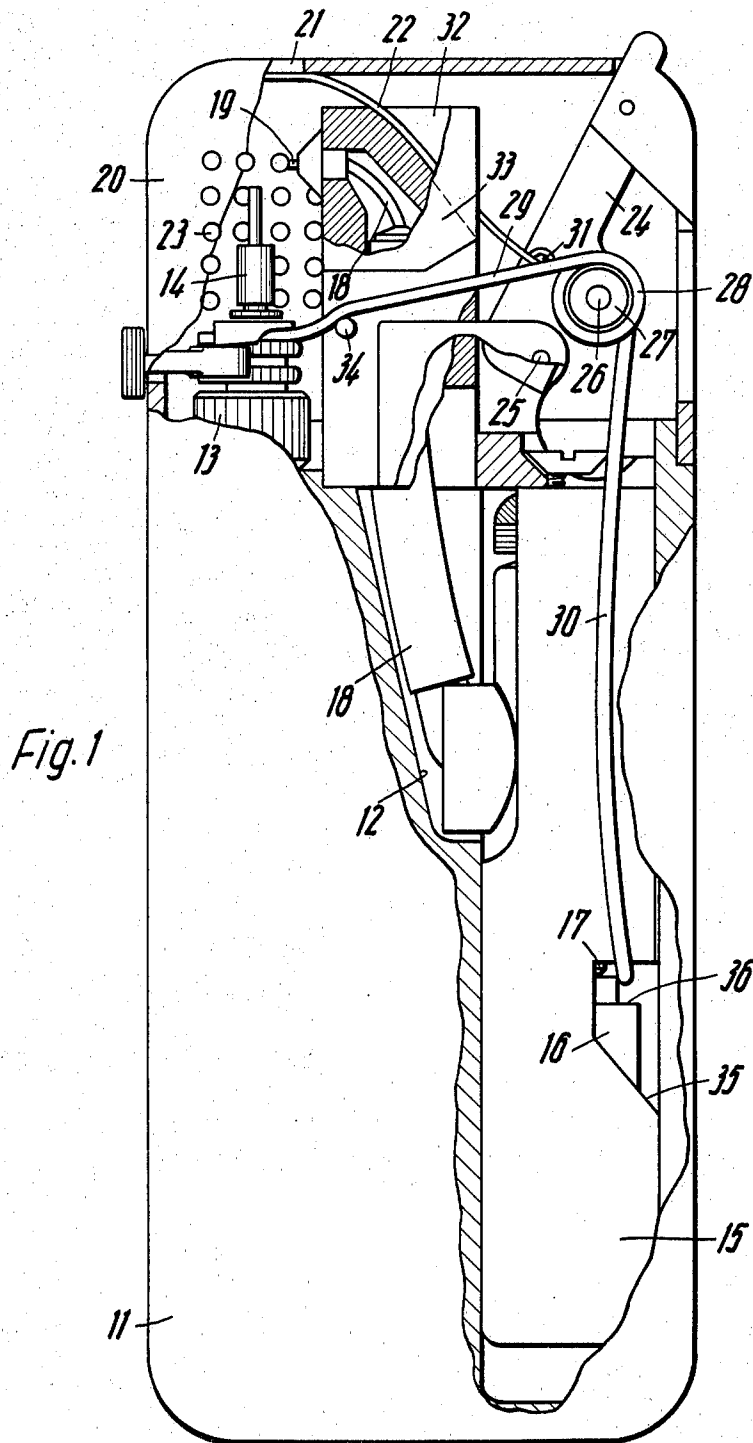
- [56] **References Cited**
UNITED STATES PATENTS
 3,387,912 6/1968 Goto 431/130
 3,493,313 2/1970 Schlamp 431/255

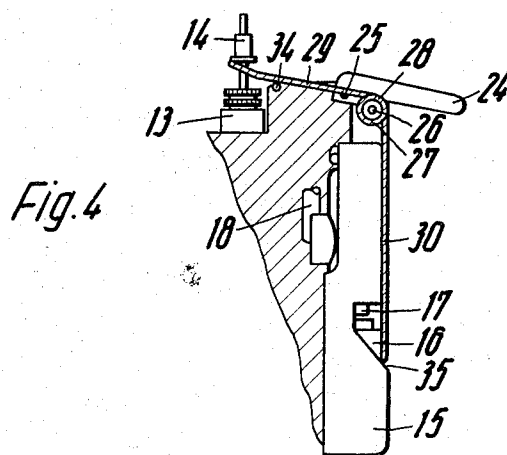
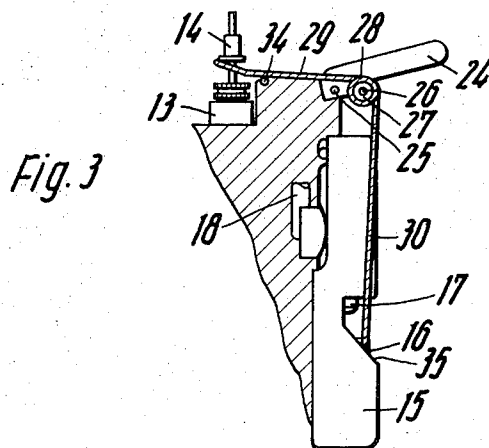
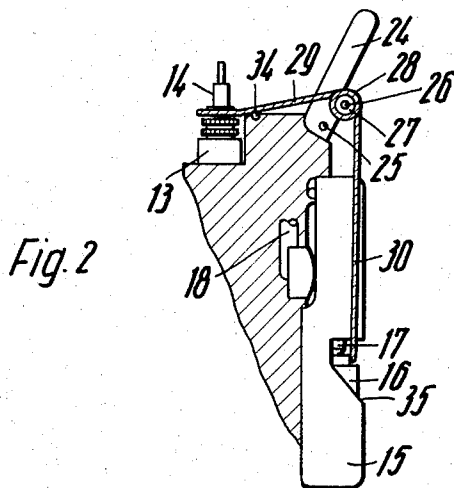
[57] ABSTRACT

A gas lighter or similar apparatus with a liquid gas container, a burner valve connected to the liquid gas container, a member for opening and closing the burner valve, a piezo electric ignition unit for igniting a gas flow issuing from the opened burner valve and a handle for actuating the ignition unit is disclosed. On the handle an intermediate member displaceable by movement of the handle is arranged, with two elastically spreadable arms one of which is used for opening and closing the burner valve and the other for actuating the ignition unit.

10 Claims, 4 Drawing Figures







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GAS LIGHTER

SUMMARY OF THE INVENTION

The invention concerns a gas lighter or similar apparatus with a liquid gas container, a burner valve in communication with the liquid gas container, a member for opening and closing the burner valve, a piezo electric ignition aggregate for igniting a gas flow issuing from the gas opened burner valve and a handle for actuating the ignition aggregate.

Gas lighters of the above type have as a rule a hammer which, against the effect of a spring, is tensioned and after release of a locking arrangement is caused by the spring to strike against an anvil. By the force exerted on the anvil, piezo electric crystals are deformed and between two electrodes which are arranged in the vicinity of the outflowing gas flow, an ignition spark is produced.

In order to avoid gas losses it is necessary to attune the point of time of the opening of the burner valve to the point of time of the spark occurrence. This attuning is comparatively complicated and in order to achieve it, a not inconsiderably constructional outlay has to be expended with conventional gas lighters or similar apparatus, as for instance gas spark plugs. The invention is based on the problem of creating a gas lighter of the initially described type, in which the temporal attuning between the gas outflow and the ignition spark formation is solved in accordance with the invention in that on the handle there is arranged an intermediate member with two elastically spreadable arms, displaceable by means of the movement of the handle, one of the arms being used for opening and closing the burner valve and the other being used for actuating the ignition unit.

By the use of an intermediate member with two elastically spreadable arms complicated control surfaces on parts that are movable in relation to each other can be dispensed with. The intrinsic elasticity of the intermediate member in addition makes the use of special return means superfluous. By the coupling of the intermediate member to the handle one obtains an enforced control of the burner valve and of the ignition unit.

The invention is explained in greater detail below with reference to an embodiment example shown in the attached drawing.

The drawings show:

FIG. 1: partly in section, the side view of a gas lighter;

FIG. 2: in diagrammatic representation, the important parts of the gas lighter according to FIG. 1, in the rest position;

FIG. 3: the important parts of the gas lighter according to FIG. 1 directly before the release of the ignition process; and

FIG. 4: the important parts of the gas lighter according to FIG. 1 at the moment of the ignition.

In FIG. 1 the number 11 is the housing of a gas lighter with a liquid gas container 12, in the upper wall of which is inserted a burner valve 13 with a rod 14 which may be moved up and down for the opening and closing of the burner valve. In the raised state (see FIG. 4) of the rod 14 the gas can flow out of the liquid gas container 12.

There is associated with the lighter moreover an ignition unit 15 with a hammer 16 and an anvil 17. The hammer 16 is pressed by a spring, not shown, against

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the anvil 17. The ignition unit 15 is in connection with an electrode 19 via a line 18, which electrode together with the end of the rod 14 forms an ignition gap. A lid 20 set on the housing 11 has an outlet opening for the flame, which (lid) in the rest position of the lighter is covered by a leafshaped closure element 22. The number 23 represents air inlet openings in the side walls of the lid 20.

For actuating the lighter it is provided with a handle 24 which is carried rotatably about an axis 25. The handle 24 carries a pivot axis 26 with a sleeve 27 which is surrounded by the helix 28 of an intermediate member formed by the helix 28 and two arms 29, 30 the intermediate member being bent out of spring wire. On the handle there is moreover fixed by means of a pin 31 the leaf-shaped closure element 22, which is carried by a guide 32 on the insulating member 33. The arm 29 of the intermediate member abuts against an abutment 34 which is carried on the insulating member 33. The arm 30 of the intermediate member rests with its free end on the hammer 16, but can be removed from the contact position by a deflecting edge 35.

The method of working of the lighter according to the invention is explained below with reference to FIGS. 2 to 4.

In FIG. 2 the important parts of the lighter are shown in the rest position. In order to put the lighter into operation the user tilts the handle 24 in the clockwise direction round the axis 25. Hereby also the axis 26 with the sleeve 27 is moved in the clockwise direction. The helix, surrounding the sleeve 27, of the intermediate member hereby moves downwards. During this downward movement the arm 29 abuts against the abutment 34. Its forklike free end thereby moves the rod 14 upwards and opens the valve. On the other hand the arm 30 presses with its end side against a collar 36 of the hammer 16 and displaces it downward against the effect of a spring, not shown. At the end of the downward movement there is a contact between the arm 30 and the deflecting edge 35. The arm 30 is hereby spread outwards and the hammer 16 can move freely towards the anvil 17 under the effect of the spring associated with it. The impact exerted on the anvil leads to deformation of the piezo element arranged underneath the anvil, the ignition voltage occurs and the ignition spark can travel between the electrodes. Since with the tilting of the handle 24 also the closure element 22 is removed from its position closing the flame outlet opening 21, the gas can be ignited and the flame can issue from the lighter.

As soon as the flame is no longer needed, the user releases the handle 24 again and this is moved back into its initial position by the intermediate member 28, 29, 30 stressed by a pretensioning, whereby the individual parts are automatically carried back again into their initial position shown in FIG. 1. In this initial or rest position the burner valve and the electrodes are protected by the closure element 22 from becoming dirty.

The description makes it clear that the intermediate member 28, 29, 30 exerts a plurality of functions and consequently considerably determines the simplicity of the lighter. By the eccentric arrangement of its pivot point it can be made use of for releasing the ignition unit, whereby at the same time the burner valve is opened. Since it is mounted with a certain pretensioning, the intermediate member acts moreover as return spring for the handle and the closure element.

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What is claimed is:

1. Gas lighter or similar apparatus comprising a liquid gas container, a burner valve connected to said liquid gas container and displaceable between an opened position and a closed position, a piezo electric ignition unit for igniting a gas flow issuing from the open burner valve, and means arranged for opening and closing said burner valve and for actuating said ignition unit, wherein the improvement comprises that said means include a pivotally mounted handle, an intermediate member pivotally mounted on said handle and displaceable therewith in response to the movement of the handle, and said intermediate member comprises a pair of elastically spreadable arms extending angularly relative to one another with one of said arms arranged to open and close said burner valve and the other of said arms arranged to actuate said ignition unit.

2. Gas lighter, as set forth in claim 1, including means forming a flame outlet opening about said burner valve, and an elastically deformable leaf-shaped closure element connected to said handle and being arranged when the handle is actuated for moving between a first position affording a closure of the flame outlet opening and a second position displaced from and providing an opening from the flame outlet opening.

3. Gas lighter, as set forth in claim 1, wherein said handle comprises a pivotally mounted lever and said intermediate member is pivotally mounted on said lever at a point spaced from the pivotal axis for the lever.

4. Gas lighter, as set forth in claim 1, wherein an abutment member is located between said burner valve and the point of pivotal connection of said intermediate member to said handle, and the one of said arms which opens and closes said burner valve is supported intermediate its ends on said abutment member which af-

fords a pivot axis about which the arm can be pivoted for actuating the burner valve.

5. Gas lighter, as set forth in claim 4, wherein the end of the one of said arms which opens and closes the burner valve has a fork-shaped construction for engaging said burner valve and said abutment member is stationarily positioned in the lighter and is spaced from the fork-shaped end of the arm.

6. Gas lighter, as set forth in claim 1, wherein said intermediate member is formed of spring wire and said spring wire is formed in a helix circling the axis of pivotal attachment of the intermediate member to said handle with said arms extending outwardly from the opposite ends of said helix.

7. Gas lighter, as set forth in claim 6, wherein said arms of said intermediate member extend at approximately right angles to one another.

8. Gas lighter, as set forth in claim 7, wherein a pin is formed on and extends outwardly from said handle, and said helix in said intermediate member being mounted on said pin so that the pin serves as the pivot axis for the intermediate member.

9. Gas lighter, as set forth in claim 1, wherein said ignition unit includes a displaceably mounted hammer, an anvil arranged to be contacted by said hammer in actuating said ignition unit, wall means located adjacent said hammer and providing a deflecting edge, the other arm of said intermediate member which actuates the ignition unit being arranged to contact and movably displace said hammer and after displacing said hammer to contact said deflecting edge for removing the arm from contact with said hammer so that the hammer can impact against said anvil in actuating the ignition unit.

10. Gas lighter, as set forth in claim 1, wherein the arms of said intermediate member are pretensioned.

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