

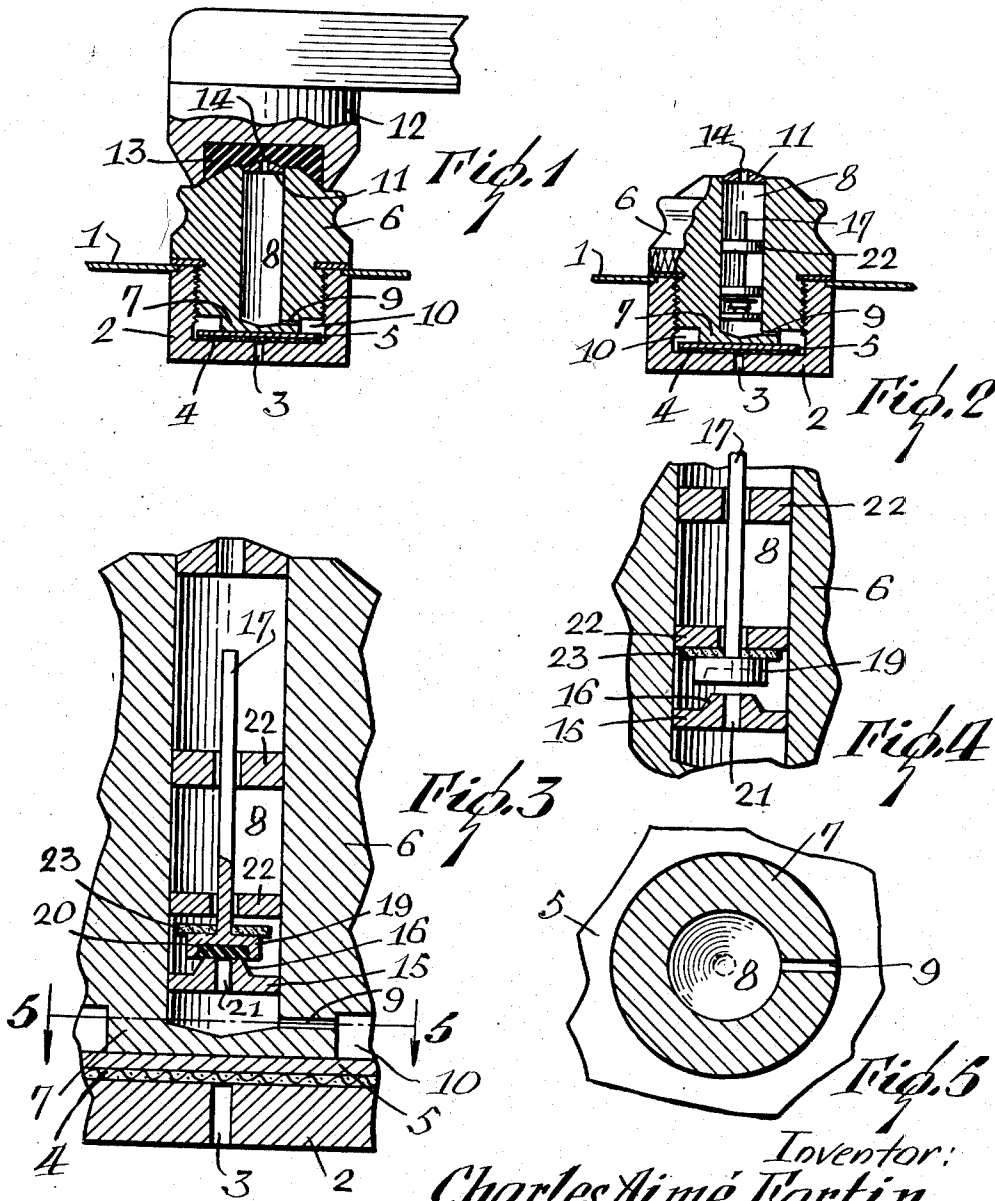
April 13, 1954

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2,675,205

VALVE FOR COMPRESSED GAS SMOKER'S LIGHTER

Filed Aug. 17, 1951



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UNITED STATES PATENT OFFICE

2,675,205

VALVE FOR COMPRESSED GAS SMOKERS' LIGHTERS

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Application August 17, 1951, Serial No. 242,375

4 Claims. (Cl. 251-121)

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The present invention pertains to a novel smoker's lighter of the type which burns a gaseous fuel such as butane gas.

One of the objects of the invention is to provide a manual adjustment for the discharge gas pressure. Another object is to provide an automatic adjusting mechanism for this pressure for lighters in which the gas is stored under high pressure.

In the accomplishment of these objects, a cup-shaped housing is suspended from the top of the lighter body and has a porous disk laid in its bottom over an intake port. A chambered plug is screwed in the top of the housing and is adjusted to compress the disk to produce the desired discharge pressure.

The automatic control mechanism includes a seating member secured in the chamber of the plug a distance from the bottom thereof. An apertured disk above this member loosely guides a stem having a head adapted to close by gravity on the seating member. Low operating pressure in the lighter body is sufficient to raise the head and permit discharge of gas.

The top of the head carries a porous disk which closes against the apertured disk under high pressure in the lighter body. The porous disk is compressed in proportion to the pressure of the gas, and the discharge pressure is reduced accordingly. Thus, the discharge pressure is automatically reduced in proportion to the storage pressure.

The invention is fully disclosed by way of example in the following description and in the accompanying drawings in which:

Figure 1 is a vertical section of the device;

Figure 2 is a vertical section of a modification;

Figure 3 is an enlarged view thereof;

Figure 4 is a similar view in a different position; and

Figure 5 is a cross section on the line 5-5 of Figure 3.

References to these views will now be made by use of like characters which are employed to designate corresponding parts throughout.

In the top 1 of a conventional smoker's lighter is suspended a cup-shaped housing 2 having a gas inlet port 3 in its bottom. In the bottom of the housing is laid a porous disk 4 over which is laid a soft metal disk 5 as known in the art.

In the housing 2 is screwed a plug 6 having a reduced end 7 bearing on the disk 5. The plug has a longitudinal passage or chamber 8 communicating with a lateral passage 9 in the reduced end. The passage 9 connects the chamber 8 to the chamber 10 formed by the reduced end.

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The upper end of the chamber 8 receives an apertured plug 11. The usual cap 12 has a rubber packing 13 that covers the plug 11. The butane or similar gas in the body escapes through the aperture 3 and seeps through the disk 4 to the chamber 10 where it expands. It then flows through passage 9 to the chamber 8 where it expands again. When the plug 11 is uncovered, the gas flows through the restricted aperture 14 thereof and is ignited in the usual manner. The compression of the disks is regulated by screwing the plug in the body with a special tool.

The modification shown in Figures 2-5 is designed for gas stored under high pressure. A seat member 15 with a conical top 16 is fixed in the chamber 8 somewhat above the bottom thereof. In the chamber 8 is a stem 17 having at its lower end a head 19 with a rubber packing 20 adapted to engage the member 15 and cover the port 21 thereof. The stem is guided loosely in a pair of apertured disks 22 fixed in the chamber 8. Upon the head 19 is mounted a compressible porous disk 23 adapted to close upward against the lower disk 22.

The high gas pressure in the body lifts the head 19 and closes the disk 23 against the lower disk 22, as shown in Figure 4. The gas must flow through disk 23 to reach the chamber 8 and is reduced in pressure in flowing through the disk. The compression of the disk is proportional to the pressure of the gas, and the gas pressure is reduced correspondingly.

When the gas pressure in the body is insufficient to raise the head 19 and stem 17, the packing 20 merely rests on the member 15. Even this pressure is sufficient to lift the head somewhat, but the reduction in pressure is not as great as when the disk 23 is compressed. The control of the outlet pressure is automatic, according to the compression of the disk 23.

Although specific embodiments of the invention have been illustrated and described, it will be understood that various alterations in the details of construction may be made without departing from the scope of the invention as indicated by the appended claims.

What I claim is:

1. In a smoker's lighter, a body, a cup shaped housing suspended from the top thereof and having a port in its bottom, a manually adjustable plug inserted in said housing and having a reduced lower end, a porous disk covering said port, a soft metal disk laid over said porous disk, said metal disk being engaged by said reduced end, said plug having a longitudinal chamber

3 and a lateral passage extending from said chamber through said reduced end, an apertured seating member in said chamber and spaced from the bottom thereof, an apertured disk in said chamber above said member, a stem guided loosely in the last named disk, a head on the lower end of said stem and adapted to cover said seating member, and a compressible porous disk upon said head and adapted to close against said aperture disk under pressure in the bottom of said chamber.

2. In a smoker's lighter, a body, a cup shaped housing suspended from the top thereof and having a port in its bottom, a manually adjustable plug inserted in said housing and having a reduced lower end, a porous disk covering said port, a soft metal disk laid over said porous disk, said metal disk being engaged by said reduced end, said plug having a longitudinal chamber and a lateral passage extending from said chamber through said reduced end, an apertured seating member in said chamber and spaced from the bottom thereof, said member having a conical top, an apertured disk in said chamber above said member, a stem guided loosely in the last named disk, a head on the lower end of said stem and adapted to cover said seating member, and a compressible porous disk upon said head and adapted to close against said aperture disk under pressure in the bottom of said chamber.

3. In a smoker's lighter, a body, a cup shaped housing suspended from the top thereof and having a port in its bottom, a manually adjustable plug inserted in said housing and having a reduced lower end, a porous disk covering said port, a soft metal disk laid over said porous disk, said metal disk being engaged by said reduced end, said plug having a longitudinal chamber and a lateral passage extending from said chamber through said reduced end, an apertured seating member in said chamber and spaced from

4 the bottom thereof, an apertured disk in said chamber above said member, a stem guided loosely in the last named disk, a head on the lower end of said stem, a resilient packing in said head and adapted to cover said seating member, and a compressible porous disk upon said head and adapted to close against said aperture disk under pressure in the bottom of said chamber.

4. In a smoker's lighter, a body, a cup shaped housing suspended from the top thereof and having a port in its bottom, a manually adjustable plug inserted in said housing and having a reduced lower end, a porous disk covering said port, a soft metal disk laid over said porous disk, said metal disk being engaged by said reduced end, said plug having a longitudinal chamber and a lateral passage extending from said chamber through said reduced end, an apertured seating member in said chamber and spaced from the bottom thereof, said member having a conical top, an apertured disk in said chamber above said member, a stem guided loosely in the last named disk, a head on the lower end of said stem, a resilient packing in said head and adapted to cover said seating member, and a compressible porous disk upon said head and adapted to close against said aperture disk under pressure in the bottom of said chamber.

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