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(54) **An adapter for releasably attaching a cartridge to an appliance**

(57) An adapter for use with a gas cartridge comprises a housing having two interengageable parts (12, 14) to enable the housing to be opened and closed about a gas cartridge (26). The upper part (12) incorporates a piercing pin (16), spring loaded sealing piston (17), valve (20), and screwthread (24) to allow an appliance to be fixed thereto. On engaging the parts about a gas cartridge, the sealing piston (17) seals on the surface and the pin (16) pierces the cartridge. Flow of gas from the cartridge is controlled by the valve (20). The adapter enables appliances to be removed from a pierceable cartridge after piercing and to be used with both pierceable and valved cartridges.

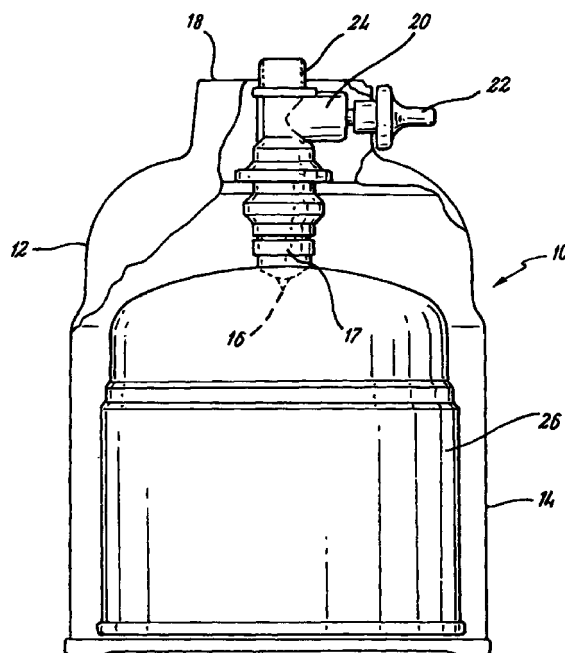


FIG. 2

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Description

[0001] This invention relates to an adapter, particularly, but not exclusively for use with gas cartridges.

[0002] One known form of a gas cartridge consists of a canister which houses the gas and possesses a breakable seal. The canister may be used in conjunction with a gas burner. The gas burner includes a piercing pin and a spring loaded sealing piston. When the gas canister and gas burner are connected together the piercing pin pierces the breakable seal to allow gas to flow through the pin into the gas burner, a gas tight seal being formed between canister and burner around the pin by the spring loaded sealing piston. This assembly of gas cartridge and gas burner suffers from the drawback that once the breakable seal has been punctured by the gas burner the gas canister and gas burner cannot be separated as the gas would leak from the cartridge.

[0003] A second known form of a gas cartridge comprises a canister with a spring loaded aerosol type valve. A securing thread is roll-formed on the external surface of the valve, which allow gas burners of various designs to be attached. In use a gas burner with means to open the valve is attached to the canister which opens the valve. The gas is then free to flow to the gas burner. In this arrangement removal of the gas burner results in the closure of the valve. Thus the gas in the gas cartridge does not have to be fully used up before the gas burner is removed.

[0004] The designs of both the pierceable gas cartridge and the valved gas cartridge are standard throughout the industry and the design specifications are set down in European Standard EN 417:1992.

[0005] The corresponding design specifications for gas burners designed to be used with the gas cartridges of both types are set down in European Standard EN 521:1998.

[0006] The main drawback of the two systems of gas cartridges and gas burners is that they are not compatible with each other. Therefore it is not possible to connect a gas cartridge of one type to a gas burner of the other type. It is noted that the two systems are not equally dispersed throughout the world. Different countries tend to favour one type of system, and where both types of system are available, supplies of both types of gas cartridge in particular are not always available to consumers.

[0007] The consumer, therefore, can be at a disadvantage, particularly when travelling through a number of countries on holiday, for instance, in that the consumer may have to take a considerable number of gas cartridges to complete the journey.

[0008] The present invention has been made in consideration of these problems.

[0009] According to the present invention there is provided an adapter comprising means to break the seal of a sealed cartridge, valve means operative to

control flow of cartridge contents there through and means enabling the adapter to be releasably attached to an appliance.

[0010] Preferably, the means enabling the adapter to be realisably attached to an appliance is compatible with a burner of the type described above.

[0011] The adapter allows one burner to be used on both types of gas canister described above.

[0012] In a preferred embodiment of the invention the means to puncture a sealed cartridge comprises a piercing pin and a spring loaded sealing piston.

[0013] Preferably the appliance comprises a gas burner.

[0014] Preferably the adapter further comprises a housing for the attached gas cartridge. In a preferred embodiment the housing comprises a two part canister, which encloses the gas cartridge.

[0015] Preferably urging the two parts of the canister together facilitates the pin piercing the breakable seal.

[0016] In order that the present invention be more readily understood embodiments thereof will now be described, by way of example, with reference to the accompanying drawings in which;

Fig. 1 is a side view of an adapter, in use on a cartridge; and

Fig. 2 shows a cross sectional view through a cartridge adapter of figure 1;

[0017] Referring to the drawings an adapter comprises a hollow casing with upper and lower sections 12, 14. Upper section 12, comprises a top face 18 and an open ended bottom face which is releasably engageable with lower section 14.

[0018] A piercing pin 16 and a spring loaded sealing piston 17 are located in the top face 18 of the upper section 12. The pin 16 incorporates a valve 20. The valve may be moved from an open position in which flow through the valve is permitted, to a closed position in which flow through valve is prevented by a turning knob 22 located on an outer wall of the upper section 12.

[0019] The top face 18 further comprises a screw thread 24 to allow an appliance, such as a gas burner to be connected to the adapter.

[0020] In use, the valve is moved into the closed position. A gas cartridge 26 of the type with a pierceable seal is placed into the lower section 14. The lower section is then connected to the upper section 12 of the casing. This results in the piercing pin 16 puncturing the seal on the gas cartridge after the spring loaded sealing piston which coaxially surrounds the pin, has been urged into sealing contact with the surface of the cartridge. A gas burner 28 is then secured onto the top face 18 of the upper section 12. By opening the valve gas is allowed to flow from the gas cartridge through the valve to the gas burner. When a user has finished and wishes to remove the gas burner the valve 20 is moved into the

closed position, which closes the passage through the valve and therefore seals the gas inside the gas cartridge. The gas burner may then be removed from the cartridge adapter.

[0021] The advantages for the consumer are as follows: 5

The consumer can use a gas burner designed for use with a valved gas cartridge with either a valved gas cartridge or a pierceable gas cartridge, depending on availability. 10

The consumer can travel through many countries with only the minimum amount of gas cartridges. The adapter allows a variety of gas burners designed for use with valved gas cartridges to be used with the adapter as necessary. eg. A camping stove burner can be connected to the adapter during the daytime for cooking purposes, and then a lantern burner could be connected to the adapter instead for use during the evening. 20

The consumer would not have to worry about obtaining the correct type of gas cartridge for his gas burner, as the combined gas burner and adapter would allow the use of either type of gas cartridge with the gas burner. 25

For travelling purposes, the adapter can be disconnected from the gas burner for ease of packing and storage during transit.

[0022] It will be appreciated that the above embodiment has been described by way of example only and that many variations are possible without departing from the invention. 30

Claims 35

1. An adapter characterised by means (16) to break the seal of a sealed cartridge, valve means (20) operative to control the flow of cartridge contents therethrough and means (24) enabling the adapter to be releasably attached to an appliance. 40
2. An adapter as claimed in claim 1, in which the means to break the seal of a sealed cartridge comprises a piercing pin (16). 45
3. An adapter as claimed in claim 2, in which the means to break the seal of a sealed cartridge comprises a spring loaded sealing piston (17) to seal the adapter against the surface of the cartridge. 50
4. An adapter as claimed in claim 3, in which the means enabling the adapter to be releasably attached to an appliance comprises a screwthread (24). 55
5. An adapter as claimed in any preceding claim, in which means are provided for opening and closing

the valve (20).

6. An adapter as claimed in any preceding claim, comprising a hollow casing comprising releasably engageable sections (12 and 14).
7. An adapter as claimed in claim 6, in which the means to break the seal are disposed in one of the sections (12) so that when the sections are engaged the means are caused to break the seal of a cartridge placed in the other section (14).
8. An adapter as claimed in claim 7, in which the valve means (20) are housed in the said one section (12).

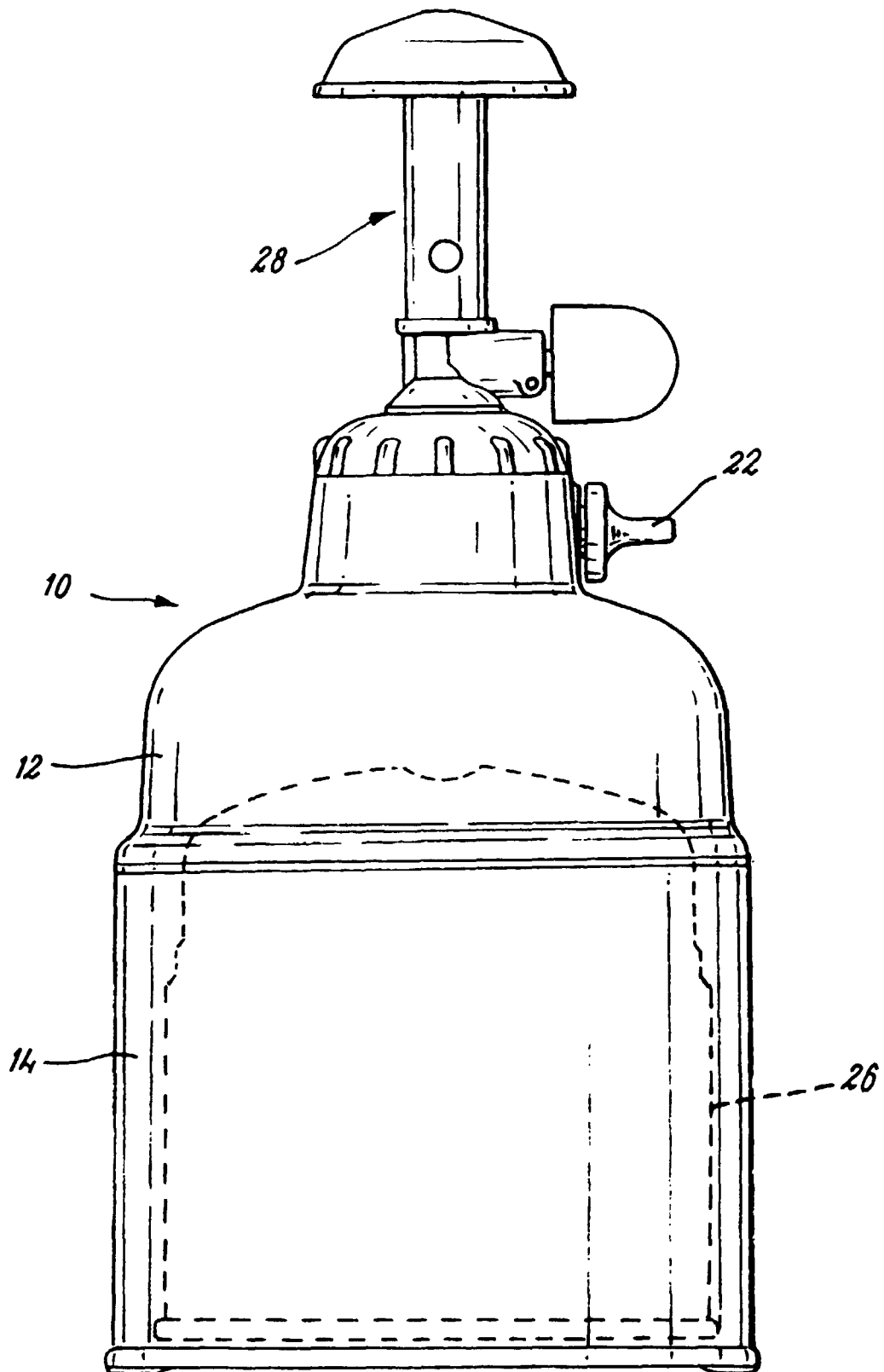


FIG. 1

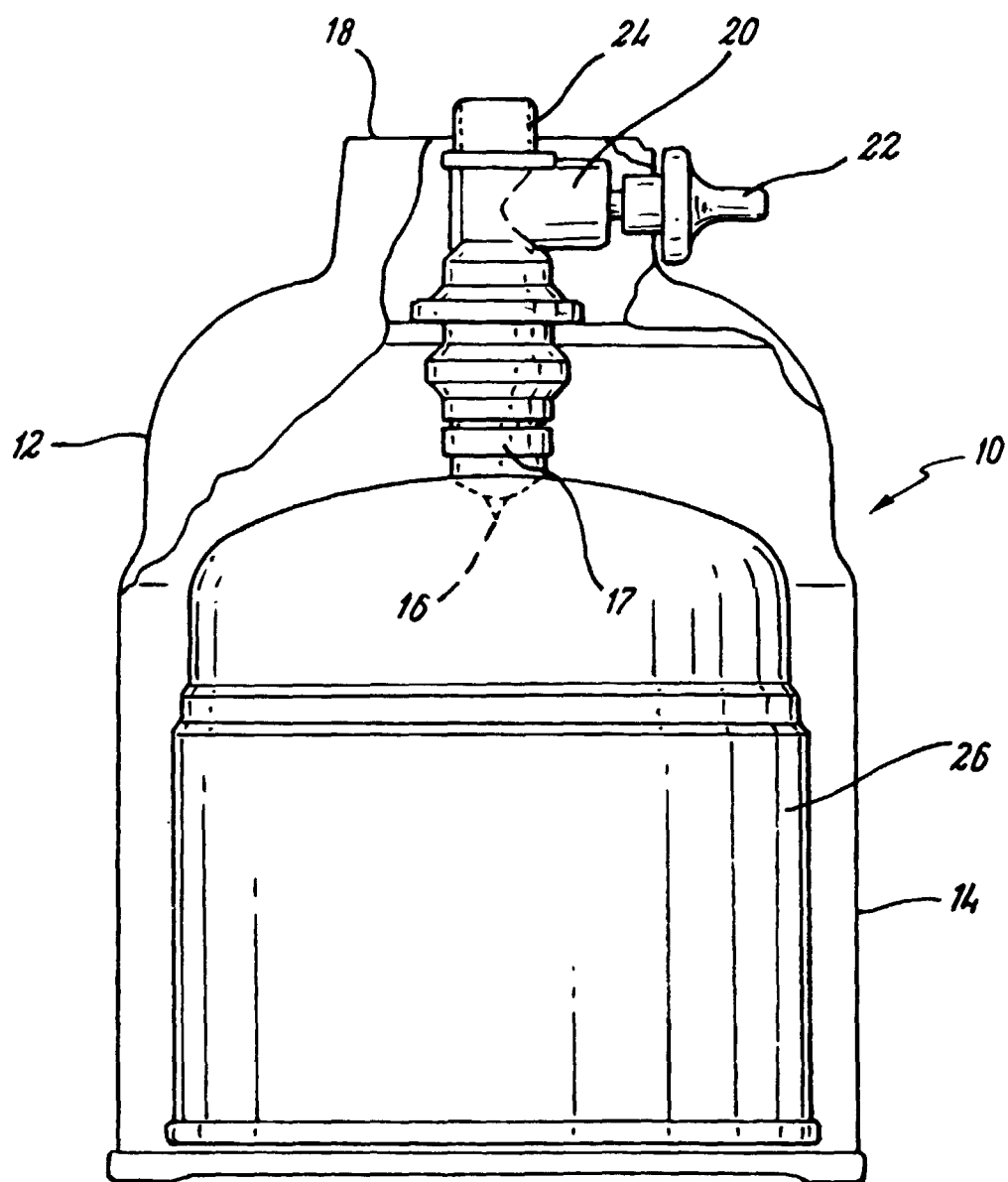


FIG. 2