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(54) Fire extinguisher head cap

(57) There is provided a fire extinguisher head cap (12) incorporating a valve with a valve body (16) having an upper portion formed with a screw thread and wherein the valve body has a lower portion formed with an integral channel (36) in which is seated an o-ring (38) for sealing surfaces external to the valve.

In a first embodiment, the upper portion, lower portion and channel are integrally formed in the valve body (16). In a second embodiment, the valve body comprises an outer body (16') joined to an inner body (16") formed with a channel (36) in which is seated the sealing means, wherein the inner body extends beyond the outer body so that the channel and seal are clear of the outer body. The inner body is formed with a second channel (36') in which is seated a further o-ring means to seal the valve body (16) internally.

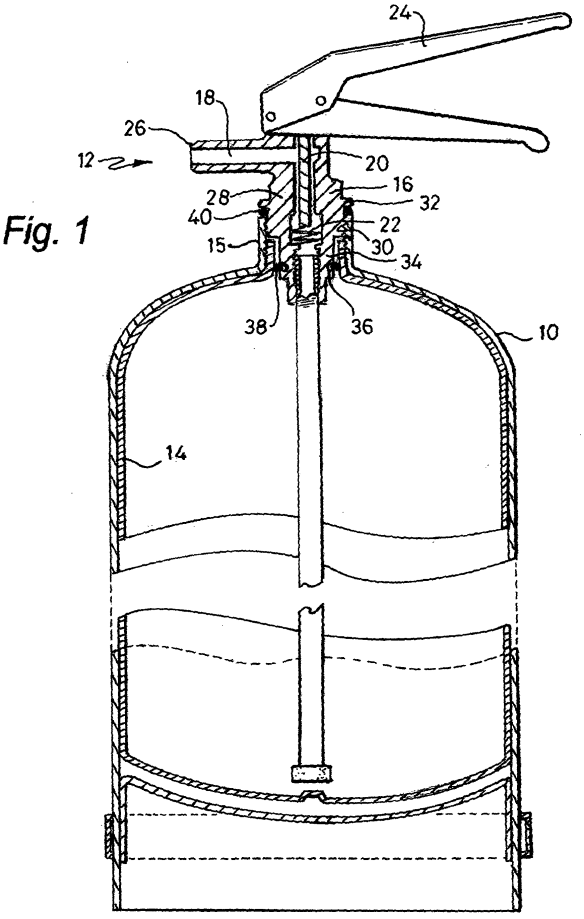

Fig. 1

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Description

Field of the Invention

[0001] This invention relates to a fire extinguisher head cap with a modified valve.

Background to the Invention

[0002] A variety of different types of valve are available for use in fire extinguisher head caps so as to release the contents of a fire extinguisher when required. Some valves use a piercing mechanism which breaks a sealed container so as to dispense fire-fighting substances, other valves rely on a biasing means which is depressed to open up a channel for dispensing the fire-fighting substances. The latter valves are more commonly used and hence less expensive than a valve using a piercing mechanism.

[0003] The common valves using biasing means are not suitable for certain types of fire extinguisher where instead the valve using the piercing mechanism is used. It is an aim of the present invention to provide a head cap incorporating a modified valve dependent on a biasing means which can be used in a wider variety of fire extinguishers than existing valves which incorporate a biasing means.

Summary of the Invention

[0004] In accordance with one aspect of the present invention, there is provided a fire extinguisher head cap incorporating a valve means with a valve body having an upper portion formed with a screw thread and wherein the valve body has a lower portion formed with an integral channel in which is seated a sealing means for sealing surfaces external to the valve means. Such a fire extinguisher head cap is of particular advantage in fire extinguishers where fire extinguishing chemicals are contained within a rigid plastics container held inside a metal canister as the valve means sits within an open neck of the container, with the sealing means sealing the container to prevent water vapour leaving the container and corroding the outer metal canister, so extending the life expectancy of such fire extinguishers.

[0005] The channel preferably extends around the external surface of the valve body to form a continuous channel.

[0006] In a first embodiment, the upper portion, lower portion and channel are integrally formed in the valve body.

[0007] In a second embodiment, the valve body may comprise an outer body joined to an inner body formed with a channel in which is seated the sealing means, wherein the inner body extends beyond the outer body so that the channel and seal are clear of the outer body. The inner body may be formed with a second channel in which is seated a further sealing means to seal the valve body internally, the second channel being placed between the first channel and the threaded upper portion.

[0008] The sealing means may be "o" rings.

[0009] The invention will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a sectional view through a first embodiment of a fire extinguisher head cap in accordance with the present invention;
Figure 2 shows a detailed sectional view of the head cap;
Figure 3 shows a sectional view through a second embodiment of a fire extinguisher head cap; and
Figure 4 shows a detailed sectional view of the second embodiment.

Description

[0010] A fire extinguisher incorporating a head cap with a modified valve is shown in Figure 1. The fire extinguisher comprises a sealed metal canister 10, head cap 12 secured to the canister 10 by co-operating threaded portions, and a plastics container 14 in communication with the valve body 16. The container or bottle 14 is capable of withstanding high pressures and is filled with fire controlling chemicals or water under pressure. The body 16 is formed with an integral central channel 18 which in the non-operative position (as shown) is closed by a release mechanism comprising a push rod 20 and biasing means 22. A gauge carried on body 16 registers the pressure in the bottle 14 through a gas hole (not shown). Closing two arms of handle 24 depresses the push rod 20, compressing biasing means 22 and so opening channel 18. This releases the contents of the container 14 through a nozzle 26 to which a hose is normally attached.

[0011] As shown in detail in Figure 2, the valve body 16 is made from metal and is integrally formed in one piece with an cylindrical neck 28, bearing a screw-threaded portion 30 and a circumferential lip 32, and a shoulder 34 formed with a circumferential channel 36 in which is placed an "o" ring 38 or other sealing means.

[0012] The "o" ring seals the shoulder 34 to the container 14 around its entire circumference. This prevents moisture from escaping from the container 14, and so prevents corrosion of the metal canister, increasing the life expectancy of the extinguisher. As a result of the "o" ring seal, the head cap 12 is of particular advantage for extinguishers using open containers, such as a rigid plastics bottle, to hold fire-fighting substances.

[0013] During assembly of the fire extinguisher, plastics container 14 which has an external threaded section is screwed into a thread formed internally on a locking neck ring 15 welded onto the metal canister 10. The head cap 12 is then screwed into the canister 10 with the "o" ring 38 compressing slightly into channel 36 as the body 16 is screwed down so that the shoulder 34 is able to move down into the open neck of the plastics container

14. When the head cap 12 is fully screwed into position, "o" ring 38 expands slightly to seal the gap between the shoulder 34 and the plastics container 14. A location "o" ring 40 ensures the lip 32 sits securely on top of the metal canister 10.

[0014] An alternative embodiment of the head cap is shown in Figures 3 and 4.

[0015] As shown in detail in Figure 4, the valve body 16 comprises a cylindrical outer body 16' and an inner body 16" with an external screw thread for engaging with locking neck ring 15 welded to the top of the metal canister 10. The outer body 16' has a stepped internal diameter so as to create an internal shoulder 44 and neck 46. The neck 46 is formed with a screw thread for receiving and securing a complementary threaded neck of the inner body 16" which defines a central channel 50 for receiving and securing a siphon tube 52 which extends into the bottle 14 (shown also in Figure 1). Two spaced apart channels 36, 36' are provided around the external circumference of the inner body 16". One "o" ring 38' is seated in the channel 36' so as to seal the two separate parts of the body, the outer body 16' and inner body 16". A second "o" ring 38 is placed in the channel 36 providing a seal between the inner body 16" and the container 14.

[0016] A small aperture 54 extends through the body 16', 16", communicating with a pressure gauge. The gas or vent hole 54 ensures the gauge indicates the internal pressure of container 14 so that an engineer inspecting the extinguisher can readily see whether the contents of the extinguisher have been compromised in any way. A similar arrangement is employed in the embodiment shown in Figures 1 and 2.

Claims

1. A fire extinguisher head cap, incorporating a valve means, with a valve body having an upper portion formed with a screw thread, wherein the valve body has a lower portion formed with an integral channel in which is seated a sealing means for sealing surfaces external to the valve means.

2. A fire extinguisher head cap according to claim 1, wherein the channel extends around the external surface of the valve body to form a continuous channel.

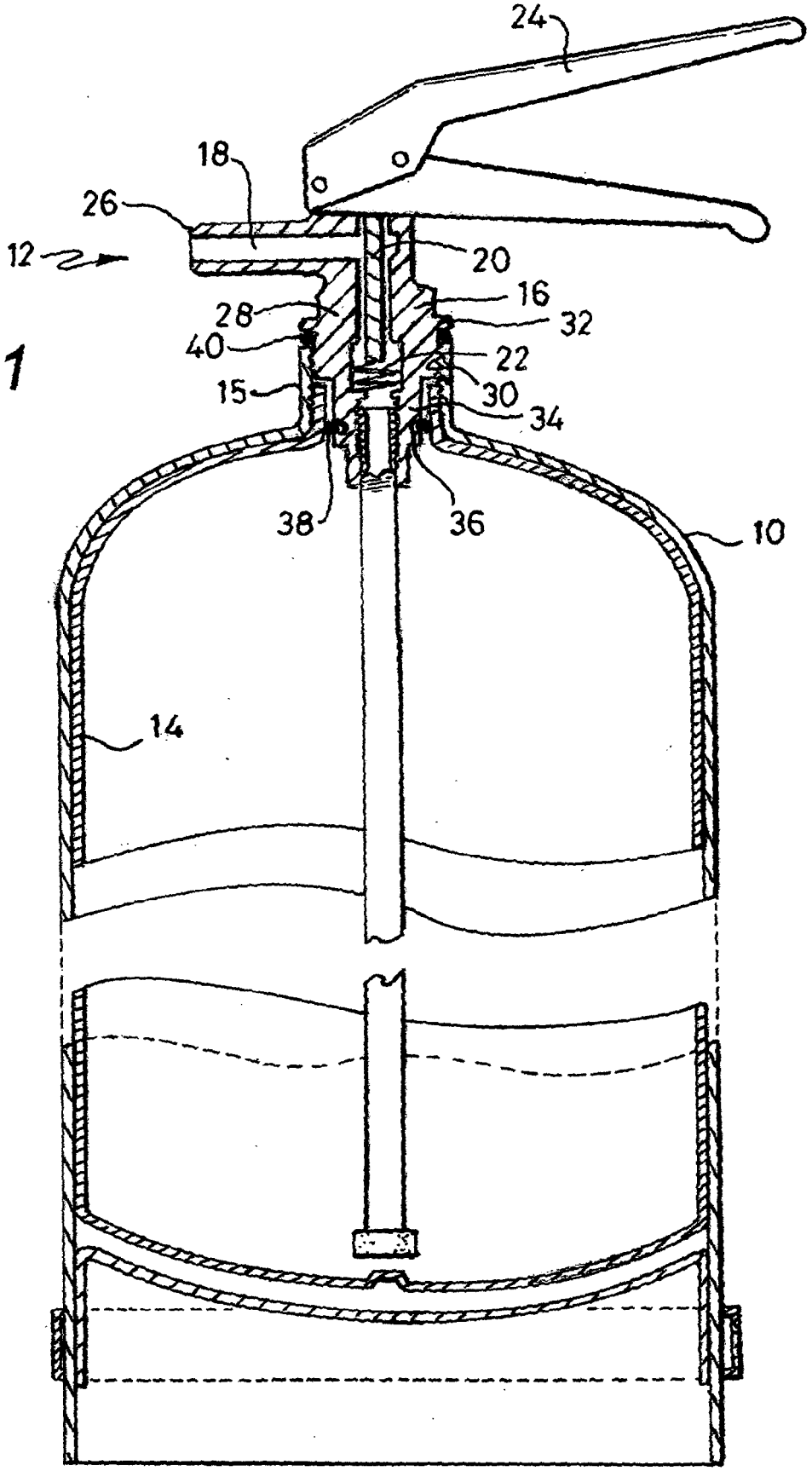
3. A fire extinguisher head cap according to claim 1 or claim 2, wherein the upper portion, lower portion and channel are integrally formed in the valve body.

4. A fire extinguisher head cap according to claim 1, wherein the valve body comprises an outer body joined to an inner body formed with a channel in which is seated the sealing means, wherein the inner body extends beyond the outer body so that the channel and seal are clear of the outer body.

5. A fire extinguisher head cap according to claim 4, wherein the inner body is formed with a second channel in which is seated a further sealing means to seal the valve body internally, the second channel being placed between the first channel and the threaded upper portion.

6. A fire extinguisher head cap according to any of the preceding claims, wherein sealing means is an "o" ring.

Fig. 1



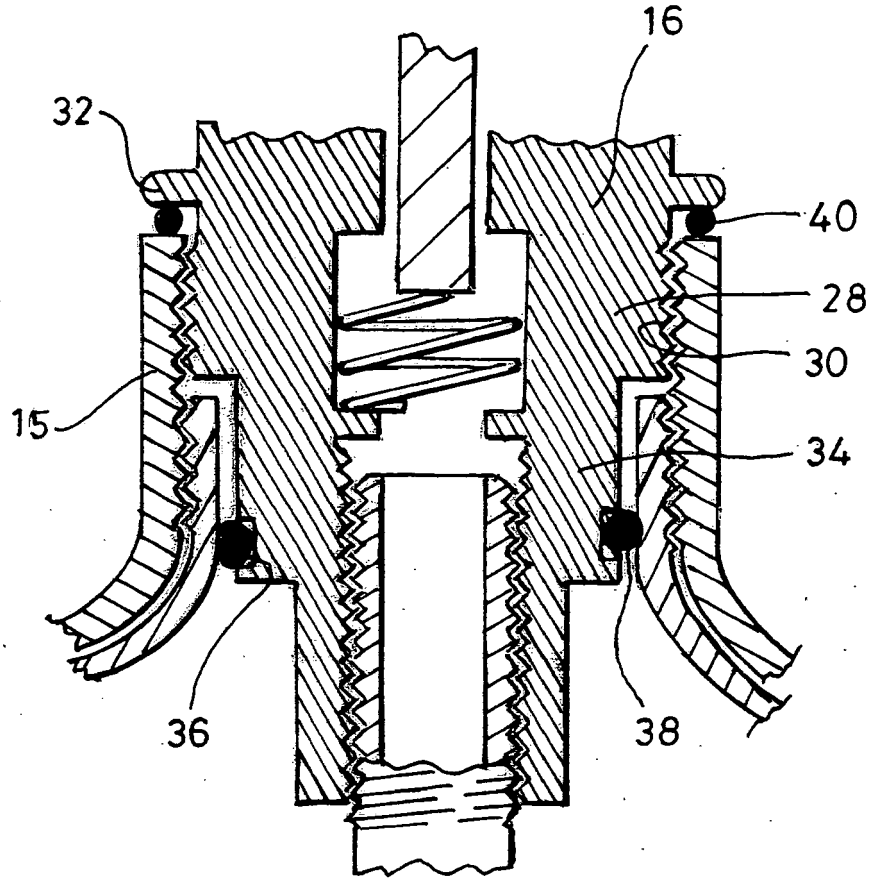


Fig. 2

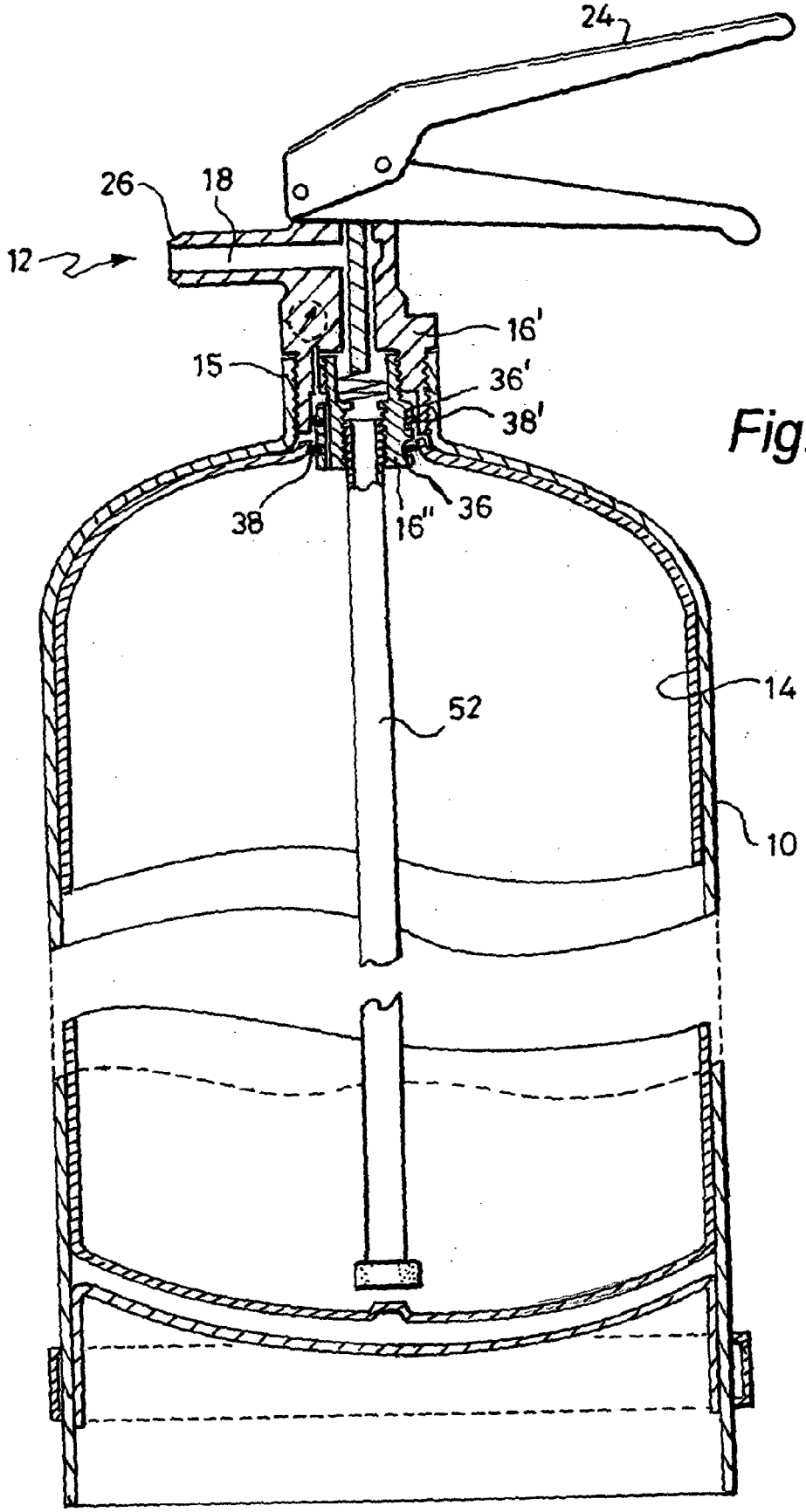


Fig. 3

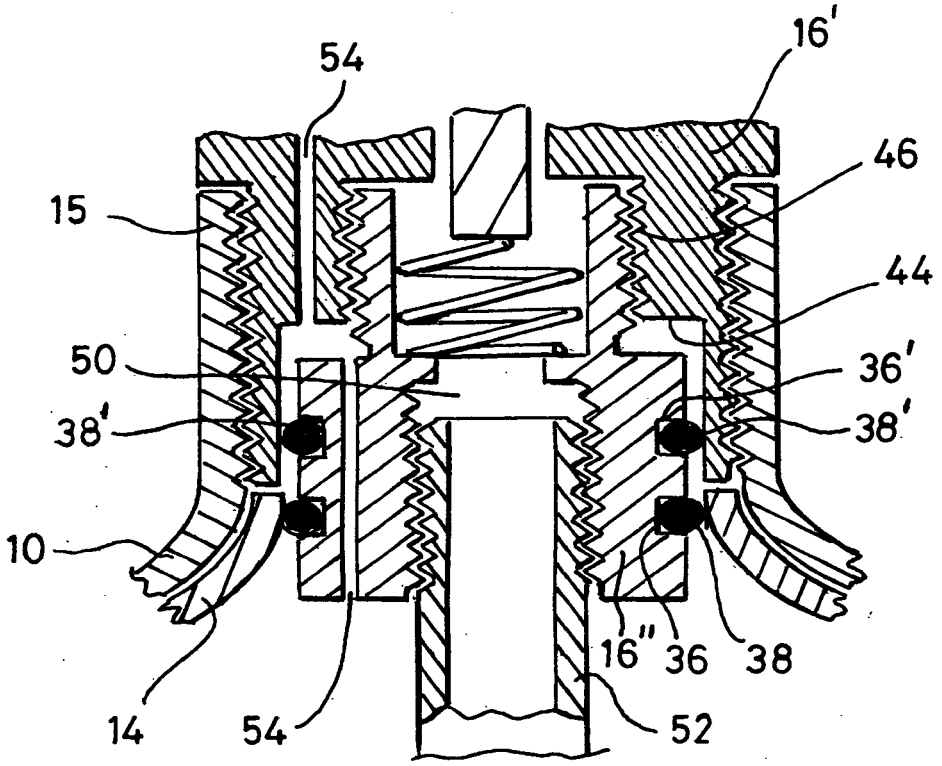


Fig. 4