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(54) **A fire extinguisher.**

(57) A fire extinguisher comprises a pressurised aerosol container (48) closed by a rupturable seal (52) and fitted with a valve (10). The valve includes means (34) for breaking the seal.

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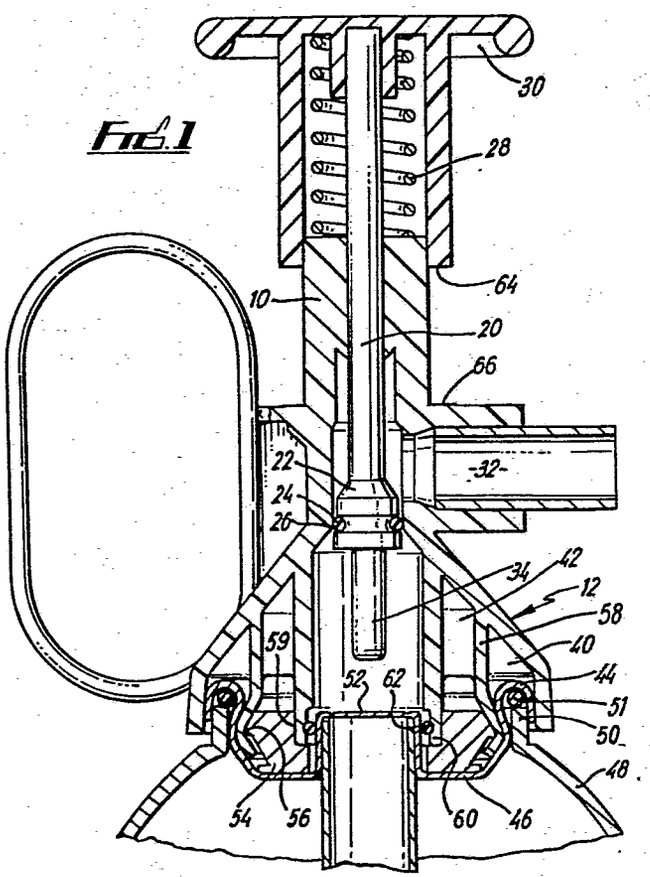
FIG. 1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A FIRE EXTINGUISHER

This invention relates to fire extinguishers and more particularly a device for controlling the discharge of extinguishant from a fire extinguisher.

According to the invention there is provided a fire extinguisher comprising a pressurised container having an outlet closed by a rupturable seal, a valve body fixed to the container, a valve stem movable in the body between a first position wherein the extinguisher outlet is in communication with the valve outlet and a second position in which communication between the extinguisher outlet and the valve outlet is closed, means being provided on said valve stem for breaking said rupturable seal.

In a preferred embodiment of the invention the pressurised container is of the kind known as an "aerosol containers". The container outlet is preferably closed by a seal which can be ruptured for example by a spike or rod mounted on the valve stem.

A specific embodiment of the invention will now be described by way of example with reference to the

accompanying drawings in which:-

FIG 1. shows an extinguisher discharge control device in axial section and

FIG 2. in a section through a pressure gauge.

Referring to Fig 1 the drawing the device comprises a hollow, tubular body 10. A valve stem 20 is axially slidable in the body. The stem has an outwardly projecting sealing surface 22 fitted with a sealing ring 24 which seats on a complementary surface 26 in the body. The surface 22 on the stem is normally urged into engagement with surface 26 by the action of a spring 28 one end of which bears on the top of the body and the other end of which is located in a hollow plunger 30 bearing against the underside of the top thereof, the plunger being fixed to the upper end of the valve stem. An outlet port 32 is provided in the body above the surface 26. The lower end 34 of the valve stem projects beyond the surface 22 into the lower end 12 of the body.

The lower end 12 of the body is enlarged. In the enlarged end an outer channel 40 and an inner channel 42 is formed. The outer channel 40 receives the rim

44 of a closure 46. For a pressurised container 48 of the aerosol kind. Prior to location in channel 40 the rim 44 is crimped onto the rim 50 of container 48, sealing ring 51 being disposed between rim 44 and rim 50.

The closure 46 is similar to the closure commonly used with aerosol containers in that it comprises a dish shaped body having a central boss. It differs from usual closures because instead of having a valve in the central boss for releasing the contents of the container it is provided with a rupturable seal 52 which closes the outlet 53 from the container.

A profiled ring 54 is disposed in the dished part of the closure 46. The ring is provided with an outwardly projecting nose or barb 56. At the same time as rim 44 is received in the outer channel 40 the ring 54 is received in the inner channel 42. The nose 56 of the ring bears against, and deforms, the wall 58 dividing the inner and outer channels thus ensuring that rim 44 is firmly held in channel 40 and also ensuring that rim 50 remains fast within the crimped rim 44. The inner surface 59 of the ring 54 bears against the inner wall 60 of the inner channel 42 thereby urging the wall 60 into engagement with

seal 62 located between said wall 60 and the side of the central boss of the closure 46.

In use, the extinguisher is intended to be installed with the seal 52 intact. If a fire is to be extinguished the plunger is depressed whereby end 34 breaks the seal 52 and extinguishant escapes through outlet 32. By releasing the plunger the valve is closed and the extinguisher can be used on other, later, occasions.

If desired a removable ring (not shown) can be fitted around the valve body between the lower end 64 of the plunger 30 and a shoulder 66 formed around the valve body just above the level of outlet 32. With the ring in place the plunger cannot be moved to rupture seal 52 and therefore such a ring helps to prevent inadvertant use of the extinguisher.

The use of the invention in combination with a sealed container such as an aerosol provides a leak-free extinguisher which does not require any servicing. Of course, such an extinguisher is not intended to be re-filled and is designed to be discarded once the contents have been ejected.

With a pressurised fire extinguisher it is often useful to be able to check that the pressure within the container is adequate for proper operation. There are many ways in which that can be done. One simple and inexpensive pressure gauge which can advantageously be used is shown in Fig 2.

The pressure gauge comprises a hollow cylinder 70 having one end 72 of reduced internal and external dimension thus defining external and internal shoulders 74 and 76 respectively. The free end 78 of the reduced dimensioned part 72 is sharpened so that it can be punched through the side wall of the container 48 from the inside thereof prior to filing of the container. A seal 80 is disposed between the container wall and the external shoulder 74. The sharpened end 78 is preferably folded outwardly over the outer surface of the container wall to secure the gauge in place.

A piston 82 is located in the cylinder. A piston rod 84 extends from the piston through end 72 and projects from the container as illustrated. A compression spring 86 bears against internal shoulder 76 and the underside of pistons and urges the piston towards the right as viewed in the drawing, that is to say towards the interior of the container 48. The inner end 88

of cylinder is open so that pressure within the container acts on the piston to move it towards the right as viewed in the drawing. Thus the extent to which rod 84 projects from the container is an indication of the pressure within the container. The rod 84 can be marked and/or coloured if desired for easier evaluation of the pressure.

CLAIMS

1. A fire extinguisher comprising a pressurised container having an outlet characterised in that the outlet is close by a rupturable seal, a valve body fixed to the container, a valve stem movable in the body between a first position wherein the extinguisher outlet is in communication with the valve outlet and a second position in which communication between the extinguisher outlet and the valve outlet is closed, means being provided on said valve stem for breaking said rupturable seal.

2. A fire extinguisher as claimed in Claim 1, wherein the means for breaking said rupturable seal comprises a rod or spike on said valve stem.

3. A fire extinguisher as claimed in Claim 1, and Claim 2, wherein the container is fitted with means adapted to provide an indication of the pressure within the container.

4. A fire extinguisher as claimed in any preceding Claim, wherein the valve body is fixed to the rim of a container closure member, the rim of the said container closure member being itself fixed to the rim of the

container, the rupturable seal being comprised in said container closure member.

5. A fire extinguisher as claimed in Claim 4, wherein the rim of said container closure member is located in a channel formed in said valve body and held in said channel by means urging a wall of said channel towards the opposite wall.

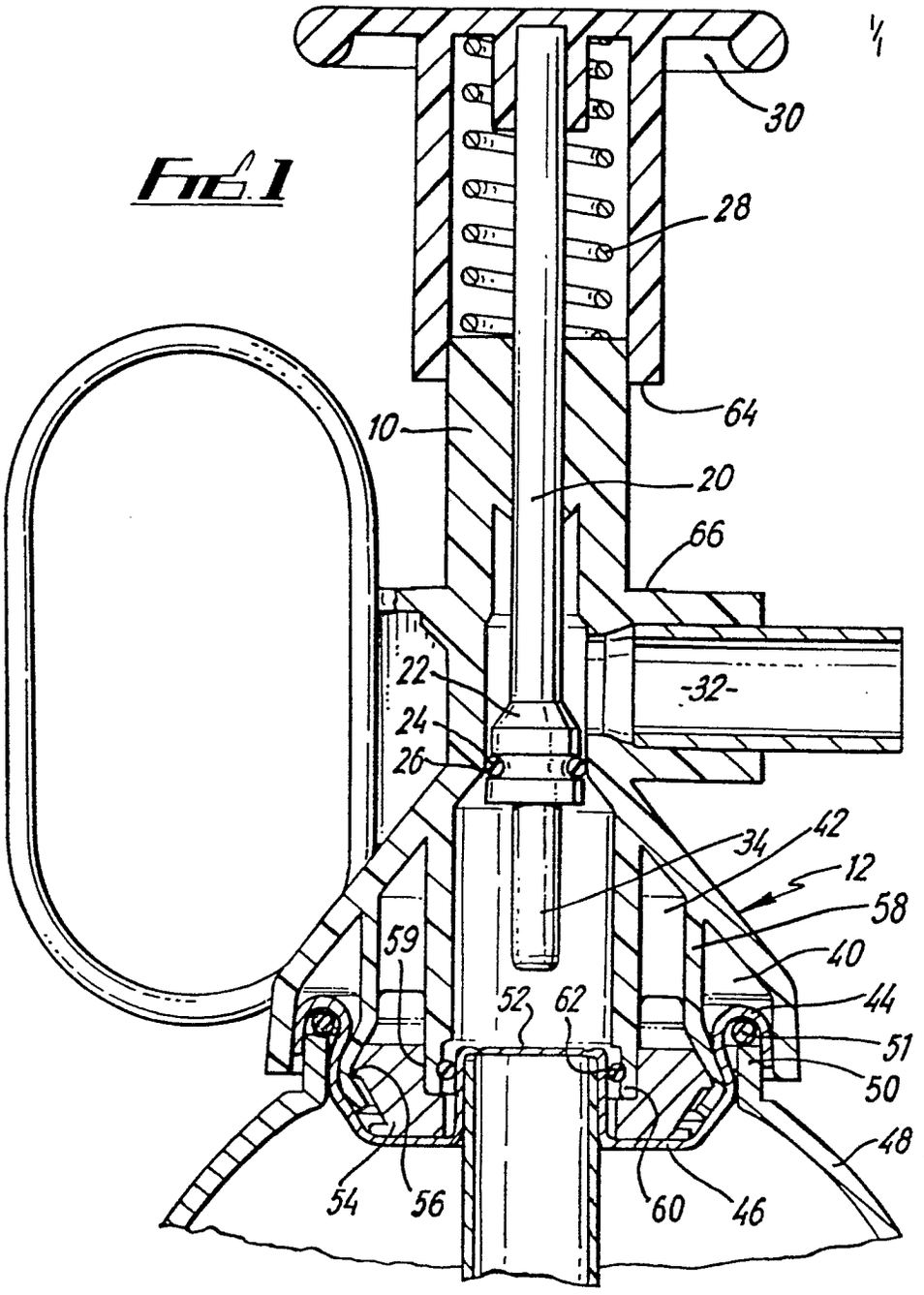
6. A fire extinguisher as claimed in Claim 5, wherein the means for urging a channel wall towards the opposite wall comprises a profiled ring located in a second channel in the valve body adjacent the first channel, said ring being arranged to bear against the wall dividing the first and second channels.

7. A fire extinguisher as claimed in Claim 6, wherein the profiled ring is seated on the container closure member.

8. A fire extinguisher as claimed in any preceding Claim, wherein said rupturable seal is made of metal.

9. A fire extinguisher as claimed in any preceding Claim including removable means for holding said valve stem in said first position.

FIG.1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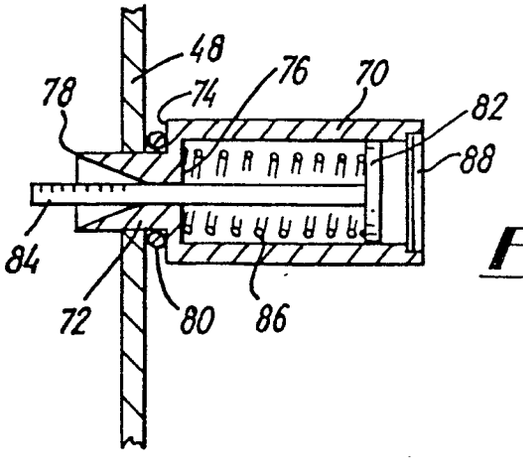
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FIG.2

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EUROPEAN SEARCH REPORT

Application number
EP 81 30 0213

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl.³)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
	GB - A - 1 553 659 (NU-SWIFT) * Pages 1,2; figure 1 * --	1,2,8	A 62 C 23/00 13/24 B 65 D 83/14
	US - A - 3 918 611 (EWALD) * Column 6, lines 15-50; figure 1 * --	4-7,9	
	GB - A - 1 069 208 (MIDLAND AEROSOLS) * Pages 1,2; figures 1,2 * --	2,4,5,8	TECHNICAL FIELDS SEARCHED (Int Cl ³)
	GB - A - 761 007 (GALEAZZI) * Pages 1,2; figure sole * --	1,2,9	A 62 C B 65 D
	DE - A - 1 708 107 (VULKAN) * Page 2, last paragraph - page 3, 1st paragraph; figures 1, 2 * ----	3	

CATEGORY OF CITED DOCUMENTS

- X: particularly relevant
- A: technological background
- O: non-written disclosure
- P: intermediate document
- T: theory or principle underlying the invention
- E: conflicting application
- D: document cited in the application
- L: citation for other reasons
- &: member of the same patent family, corresponding document

X The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	07-05-1981	WOHLRAPP

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