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(54) ACTUATOR MECHANISM FOR FIRE EXTINGUISHERS

(57) The invention relates to an improved actuator mechanism for fire extinguishers, having a convenient estructure which faciliates an efficient and correcto operation and handling of the fire extinguisher when used to extinguish a fire. It comprises a body (1) wherein is housed a CO_2 cartrigde or bottle (7) whose lower end remains at a close vicinity to a striker (4) arranged at the bottom of the body (1). In the lower part of said body, there is provided a cylindrical narrow space (5) wherein is fitted the low portion of the bottle containing the pressure gas; an elastic seal (6) is arranged therebetween in order to conveniently impede, when using the fire extinguisher, that the mixture of gas and the powder substance of said fire extinguisher passes to the cavity (20) containing said bottle (7).

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Description

OBJECT OF THE INVENTION

As expressed in the title of the present specification, the present invention refers to an improved actuator mechanism for fire extinguishers, whose handling causes the bottom perforation of a bottle, capsule or cartridge containing pressure gas, such as CO_2, the gas coming out of the same through the nozzle, at the same time that it will mix with a powdered substance, which is of course located inside the fire extinguisher itself.

The mechanism of the invention includes important advantages over the Utility Model no. 9301448 which also refers to an actuator mechanism for fire extinguishers.

BACKGROUND OF THE INVENTION

Conventional fire extinguishers include a head on the top part of which is mounted a hand-operated swivelmounted lever, which when pressed on moves an axial shaft which is to perforate the top end of a CO_2 bottle or capsule located inside a tube-probe, in such a way that the perforation involves the outflow of the gas contained in the bottle or capsule and the corresponding mixing and draught of the powdered product contained in the fire extinguisher, so that by virtue of that pressure the mixture comes out through the corresponding nozzle, so that it complies with its last purpose, which is to try to put out a fire that has started.

Logically, the CO_2 capsule or bottle is hermetically sealed until the moment when the fire extinguisher is to be used, or in other words until the top lever is actuated, which involves the perforating of the capsule or bottle.

As it can be seen from what has just been said, perforating the CO_2 bottle or capsule is done by the top end thereof in such a way that the gas that comes out will remove part of the powder contained in the fire extinguisher itself, but it will not be able to reach the bottom area of said fire extinguisher, where large amounts of powder that, obviously, become spoiled, are deposited.

Therefore, in accordance with the perforating system of the CO_2 bottle provided with fire extinguisher heads, to provide the corresponding discharge means, part of the powdered product contained in the fire extinguisher is not used advantageously, that is to say, that it remains in the bottom of the fire extinguisher precisely because the gas that comes out through the top part of the bottle does not effectively move the bottom of the fire extinguisher, leaving, as it has been said, part of the powder in said bottom.

The actuator mechanism for fire extinguishers corresponding to Utility Model no. 9301448 does not have the above mentioned problems, mainly thanks to the perforating of the CO_2 bottle or capsule located in a probe-tube, is carried out by the bottom part of said bottle, there being in correspondence with the area of that perforation, some side outlets through which the gas comes out to mix with the powder inside the fire extinguisher, the mixture then coming out with a lot of force and speed through the corresponding nozzle.

DESCRIPTION OF THE INVENTION

The improved actuator mechanism for fire extinguishers, object of the invention, has important advantages with regard to other conventional ones and also with regard to Utility Model no. 9301448. The improvements introduced in connection with the latter are centered on the structure thereof which contributes to simpler and more effective operation, at the same time that the manufacturing cost is reduced notably.

It comprises a probe-tube, inside of which a bottle or capsule containing pressure gas, such as CO_2, is housed, coupling in the top part of the same a head that is provided with an articulated lever, actuating a sealing shaft stabilized axially by means of a spring, in such a way that upon pressing on the lever, the sealing shaft drops and pushes directly downward the CO_2 bottle, whose bottom end will knock against, as it happened in Utility Model no. 9301448, a striker established in the probe-tube, which has some side gas outlets so that the gas mixes with the powdered substance of the fire extinguisher, the mixture finally coming outside to extinguish a possible fire.

On the other hand, the bottle adjust and fits by its bottom part into a circular opening where an elastic seal is inserted to prevent the CO_2 gas once the bottle is perforated, from escaping upward, or in other words, towards the cavity where the gas capsule is located.

Hence, this new mechanism as it has already been said above, is more effective and simpler than the mechanism of Utility Model no. 9301448, as the extension piece has been eliminated and also due to the inclusion of the elastic adjustment seal of the gas bottle and the prevention from the same from escaping upward.

Hereinafter to provide a better understanding of this specification and forming an integral part of the same, a figure in which the object of the invention has been represented in an illustrative and non-restrictive manner is attached hereto.

BRIEF DESCRIPTION OF THE FIGURE

Figure 1 is a sectioned view of the improved actuator mechanism for fire extinguishers, object of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Making reference to the numbering used in the figures, the improved actuator mechanism for fire extinguishers is formed from a probe-tube or body (1), in whose bottom (2) there is a small cavity where a piece (3) carrying a striker (4) fits in, defining in the bottom part of said body (1), a cylindrical narrow space (5) where a CO_2 bottle or cartridge (7) located inside the probe-tube (1) and whose bottom end remains very close to the

striker (4) adjusts by insertion of an elastic seal (6.) Of course, said bottle (7) is hermetically sealed and contains pressure gas, such as the above cited CO_2.

On the other hand, in the top part of the body (1) a head (8) provided with an operating lever (9) that is articulable around a rivet or pin (10) is housed, said head (8) also including inside it a sealing shaft (11) axially stabilized by means of a coaxila spring (12), at the same time that the bottom end of the former, remains near the top part of the bottle (7.) The sealing shaft (11) has a bottom narrow space where a bottom seal (13) that contacts with the side wall of a conical generating opening is adjusted, also including a top washer (15) and another bottom washer (16), both coupled to the shaft and between which the spring (12) remains retained, at the same time that the bottom washer (16) sits on an inside annular projection (17) of the head (8), with the insertion of an elastic seal (18.)

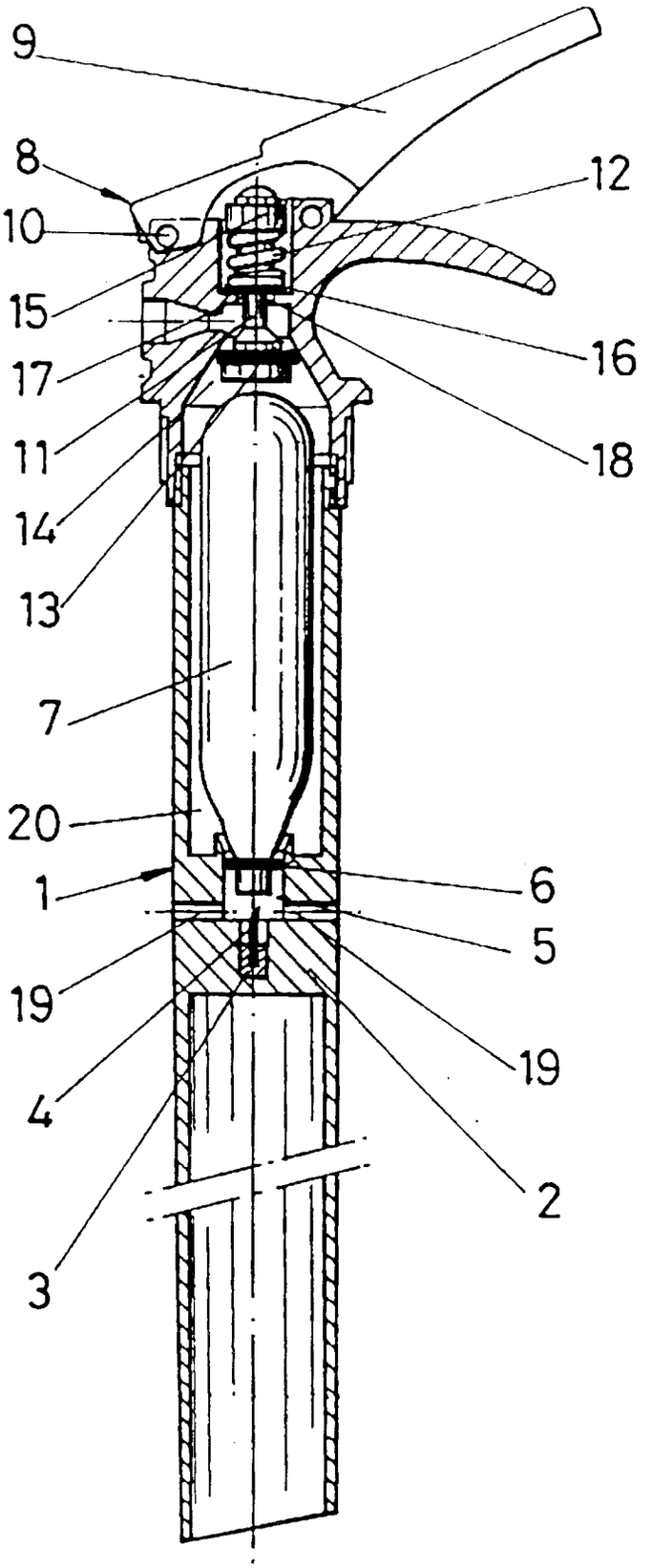
With the described arrangement, upon pressing on the lever (9) the sealing shaft (11) will drop axially pushing the bottle (7) downward until the bottom end of the same knocks against the striker (4) which will cause the gas contained in the cited bottle (7) initially sealed hermetically to come out. Hence, this gas, will then come out under pressure through some side outlets (19) close to the bottom of the body (1), the gas then mixing with the powdered substance of the fire extinguisher, the mixture then coming out at a high speed through the corresponding nozzle of the same.

The elastic seal (6) where the bottom part of the capsule (7) adjusts, advantageously prevents the mixture of gas and powder from going into the cavity (20) where said capsule (7) is located.

Claims

1. Improved actuator mechanism for fire extinguishers, being of the type which is comprised of a probe-tube or body (1), inside of which a CO_2 bottle or cartridge (7) is housed, coupling in the top part of said body, a head provided with a lever (9), while in the bottom part there are some side CO_2 gas outlets, once the bottle has been perforated by a striker (4) located in the bottom of the body, said perforation being carried out by the action of the lever that pushes a sealing shaft (11) and this shaft pushes down said bottle (7) until the same contacts with said striker that perforates it; characterized in that the CO_2 bottle or cartridge (7) remains adjusted and stabilized at the bottom in an elastic seal (6) fit in a cylindrical narrow space (6) of the probe-tube (1), this seal preventing the flow of the mixture of gas and powder towards the cavity (20) where the CO_2 cartrdige (7) is located; it being provided for that to the sealing shaft (11) that pushes directly on the bottle (7) upon actuating the lever (9) is coupled a coaxial spring (12) retained between a top washer (15) fixed to the shaft itself and a bottom washer (16) that sits on a seal (18) that rests on an inside annular projection (17) of the head (8), said shaft (11) also containing a bottom narrow space where another seal (13) whose edge contacts with the side wall of a truncated-cone shaped opening (14) of the head (8) is adjusted.

2. Improved actuator mechanism for fire extinguishers, according to the above claim, characterized in that the striker (4) is fixed to a piece (3) which is fit in the bottom or base (2) of the probe-tube (1.)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INTERNATIONAL SEARCH REPORT

Inte ›nal Application No
PCT/ES 94/00117

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 A62C13/74

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 A62C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	DE,A,17 59 582 (COMPAGNIE CENTRALE SICLI SA) 16 June 1971 see page 3, paragraph 4 - page 8, paragraph 2; figures 1-3	1,2
Y	DE,A,25 32 562 (MINIMAX GMBH) 10 February 1977 see page 4, paragraph 1 - page 7, paragraph 1; figure 1	1,2
A	FR,A,2 602 685 (ALVES) 19 February 1988 see figure 1	1,2
A	BE,A,866 485 (BAVARIA FEUERLOSCH APPARATEBAU ALBERT LOOS) 14 August 1978 see the whole document	1,2

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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Date of the actual completion of the international search	Date of mailing of the international search report
17 February 1995	0 8. 03. 95

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INTERNATIONAL SEARCH REPORT

Inte onal Application No
PCT/ES 94/00117

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FR,A,2 513 728 (VIGNAUD) 1 April 1983 see figures	1
A	GB,A,1 478 602 (RAMPART ENGINEERING COMPANY LTD) 6 July 1977 see the whole document	1,2
A	EP,A,0 283 568 (TOTAL WALTHER FEUERSCHUTZ GMBH) 28 September 1988 see the whole document	1,2

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