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(54) **ACTUATOR MECHANISM FOR FIRE EXTINGUISHERS**

BETÄTIGUNGSMECHANISMUS FÜR FEUERLÖSCHER

MECANISME D'ACTIONNEMENT POUR EXTINCTEURS D'INCENDIE

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Description

OBJECT OF THE INVENTION

[0001] 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 CO₂, 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.

[0002] The mechanism of the invention includes important advantages over the Spanish Utility Model no. 9301448 which also refers to an actuator mechanism for fire extinguishers.

BACKGROUND OF THE INVENTION

[0003] Conventional fire extinguishers include a head on the top part of which is mounted a hand-operated swivel-mounted, lever, which when pressed on moves an axial shaft which is to perforate the top end of a CO₂ 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.

[0004] Logically, the CO₂ 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.

[0005] As it can be seen from what has just been said, perforating the CO₂ 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.

[0006] Therefore, in accordance with the perforating system of the CO₂ 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.

[0007] 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 CO₂ bottle or capsule located in a probe-tube, is carried out by the bottom part of said bot-

tle, 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.

[0008] DE-A-1 759 582 discloses a device according to the preamble of claim 1 of the present patent.

[0009] DE-A-25 32 562 and BE-A-866 485 disclose actuator shafts arranged such that they can close off the opening through which the extinguishing medium escapes; the shafts comprise strikers for breaking the closures of the corresponding bottles with pressurised gas.

DESCRIPTION OF THE INVENTION

[0010] 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.

[0011] It comprises a probe-tube, inside of which a bottle or capsule containing pressure gas, such as CO₂, 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 CO₂ 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.

[0012] 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 CO₂ gas once the bottle is perforated, from escaping upward, or in other words, towards the cavity where the gas capsule is located.

[0013] 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.

[0014] 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

[0015] Figure 1 is a sectioned view of the improved actuator mechanism for fire extinguishers, object of the

invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0016] 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 CO₂ 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 CO₂.

[0017] 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 coaxial 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 broadening 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.)

[0018] 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.

[0019] 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. Actuator mechanism for fire extinguishers, comprising: a probe-tube or body (1), inside of which a CO₂ bottle or cartridge (7) is housed; and a head (8) provided with a lever (9) coupled to the top part of said body (1), while in the bottom part of said body there are some side outlets for letting out CO₂ gas 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 bottle contacts with said striker that perforates it; wherein the CO₂ 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 body (1), this seal preventing the flow of the mixture of gas and powder towards the cavity (20) where the CO₂ cartridge (7) is located; characterised in 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 broadening, where another seal (13), whose edge contacts with the side wall of a truncated-cone shaped opening (14) of the head (8), is adjusted, and in that the striker (4) is fixed to a piece (3) which is fit in a small cavity in the bottom or base (2) of the body (1), so that there is a free space between the striker and the walls of said small cavity.

Patentansprüche

1. Betätigungsmechanismus für Feuerlöscher, der umfaßt: eine Sondenröhre bzw. einen Körper (1), in dessen Innerem eine CO₂-Flasche bzw. -Patrone (7) aufgenommen ist; und einen Kopf (8), der mit einem Hebel (9) versehen ist, der mit dem oberen Teil des Körpers (1) verbunden ist, während im unteren Teil des Körpers einige seitliche Auslässe vorhanden sind, über die CO₂-Gas abgelassen wird, wenn die Flasche von einem Schlagbolzen (4) durchstoßen worden ist, der sich im unteren Teil des Körpers befindet, wobei das Durchstechen durch die Wirkung des Hebels ausgeführt wird, der auf einen Dichtschaft (11) drückt, und dieser Schafft die Flasche (7) nach unten drückt, bis die Flasche mit dem Schlagbolzen in Kontakt kommt, der sie durchsticht, wobei die CO₂-Flasche bzw.-Patrone (7) an der Unterseite in einer elastischen Dichtung (6) eingestellt und stabilisiert bleibt, die in einen zylindrischen schmalen Raum (6) des Körpers (1) eingepaßt ist, wobei diese Dichtung das Strömen des Gemischs aus Gas und Pulver auf den Hohlraum (20) zu verhindert, in dem sich die CO₂-Patrone (7) befindet; **dadurch gekennzeichnet**, daß an dem Dichtschaft (11), der direkt auf die Flasche (7) drückt, wenn der Hebel (9) betätigt wird, eine koaxiale Feder (12) angebracht ist, die zwischen einer oberen Scheibe (15), die an dem Schafft selbst befestigt ist, und einer unteren Scheibe (16) gehalten wird, die auf einer Dichtung (18) sitzt, die auf einem inneren ringförmigen Vorsprung (17) des Kopfes (8) aufliegt, wobei der Schafft (11) des weiteren eine un-

tere Verbreiterung enthält, an der eine weitere Dichtung (13), deren Rand mit der Seitenwand einer kegelsegmentförmigen Öffnung (14) des Kopfes (8) in Kontakt kommt, eingestellt ist, und dadurch, daß der Schlagbolzen (4) an einem Teil (3) befestigt ist, das in einen kleinen Hohlraum in dem Boden bzw. der Basis (2) des Körpers (1) eingepaßt ist, so daß ein freier Raum zwischen dem Schlagbolzen und den Wänden des kleinen Hohlraums vorhanden ist.

Revendications

1. Mécanisme d'actionnement pour extincteur d'incendie, comprenant : un corps ou tube-sonde (1) dans lequel est logée une cartouche ou bouteille (7) de CO₂, et une tête (8) ayant un levier (9) couplé à la partie supérieure du corps (1), alors que, à la partie inférieure du corps, sont disposées quelques sorties latérales destinées à l'évacuation de CO₂ gazeux lorsque la bouteille a été perforée par un percuteur (4) placé à la partie inférieure du corps, la perforation étant réalisée sous l'action du levier qui pousse un arbre (11) de scellement, cet arbre poussant la bouteille (7) vers le bas jusqu'à ce que la bouteille soit au contact du percuteur qui la perce, dans lequel la cartouche ou bouteille de CO₂ (7) reste ajustée et stabilisée à la partie inférieure dans un joint élastique d'étanchéité (6) ajusté dans un étroit espace cylindrique (6) du corps (1), ce joint d'étanchéité empêchant la circulation du mélange de gaz et de poudre vers la cavité (20) dans laquelle la cartouche de CO₂ (7) est placée, caractérisé en ce que l'arbre d'étanchéité (11) qui pousse directement la bouteille (7) lors de la manoeuvre du levier (9) est couplé à un ressort axial (12) retenu entre une rondelle supérieure (15) qui est fixée à l'arbre lui-même et une rondelle inférieure (16) qui est en appui sur un joint d'étanchéité (18) lui-même en appui contre une saillie annulaire interne (17) de la tête (8), l'arbre (11) contenant aussi un fond qui s'élargit à un endroit où est ajusté un autre joint d'étanchéité (13) dont le bord est au contact de la paroi latérale d'une ouverture de forme tronconique (14) de la tête (8), et en ce que le percuteur (4) est fixé à une pièce (3) qui est ajustée dans une petite cavité formée dans le fond ou base (2) du corps (1), si bien qu'il existe un espace libre entre le percuteur et les parois de la petite cavité.

