

Oct. 4, 1955

A. B. GUISE  
FIRE EXTINGUISHER

2,719,590

Filed Feb. 10, 1954

3 Sheets-Sheet 1

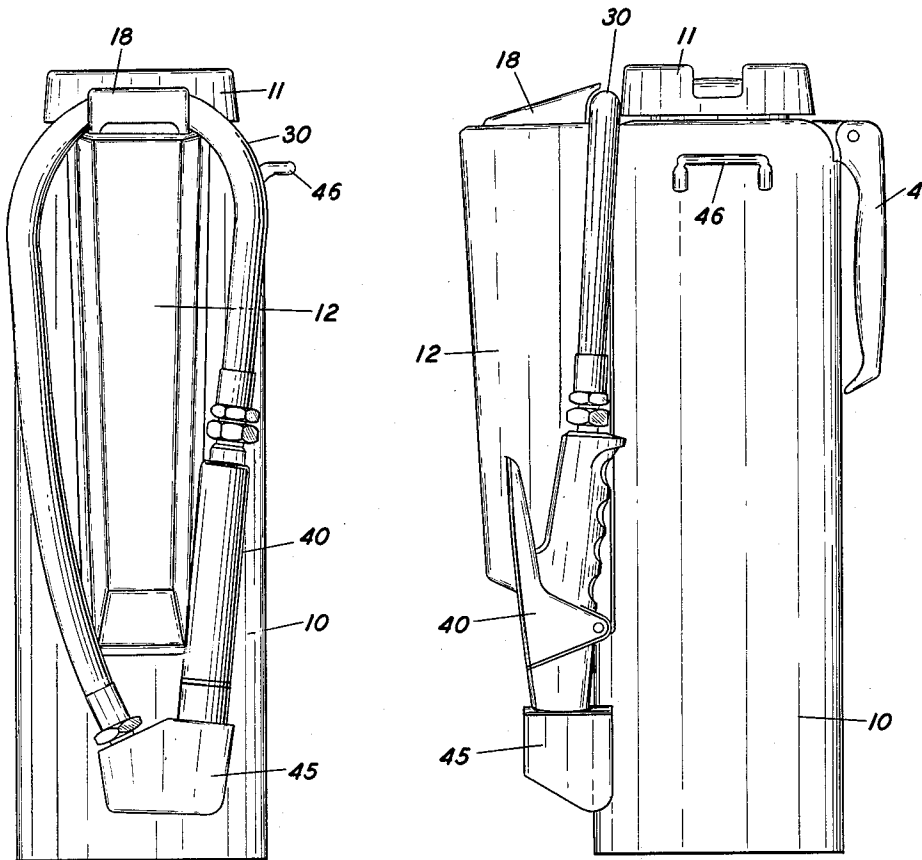


FIG. 1

FIG. 2

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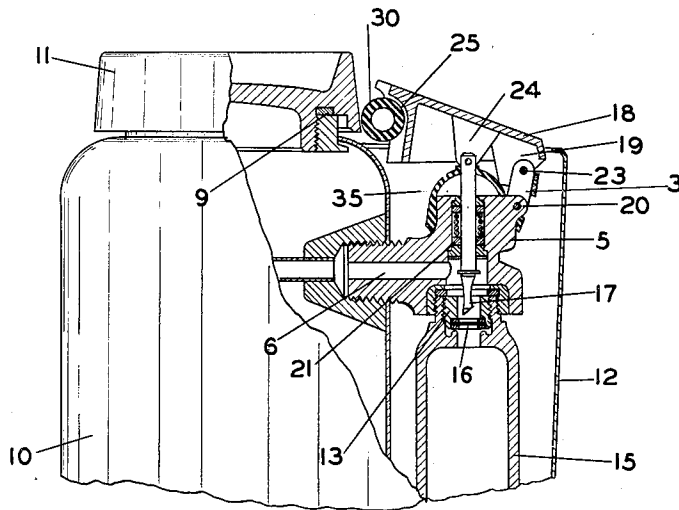


FIG. 3

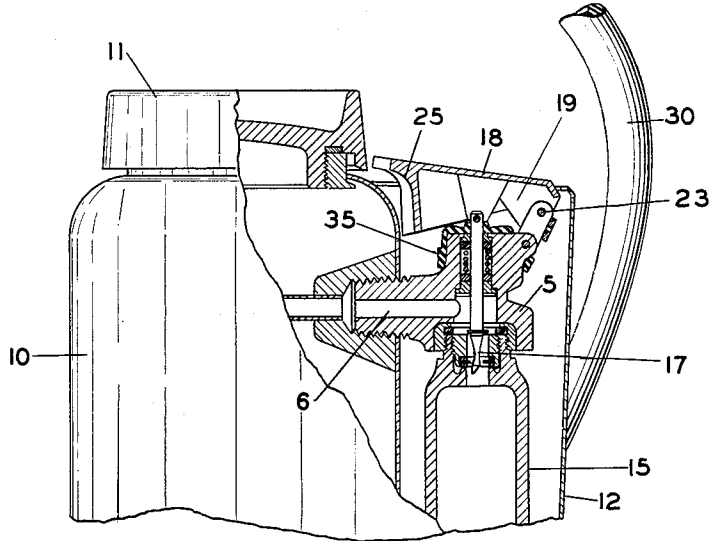


FIG. 5

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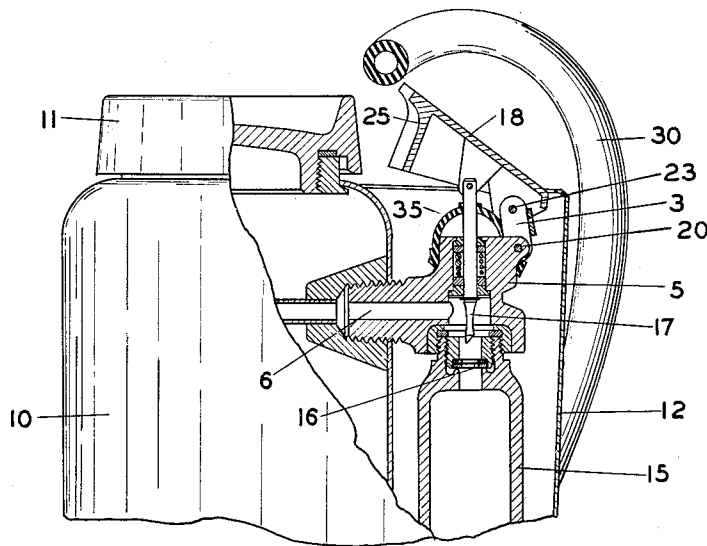
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3 Sheets-Sheet 3



**FIG. 4**

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**FIRE EXTINGUISHER**

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6 Claims. (Cl. 169—31)

The invention relates to improvements in fire-extinguishing equipment. More specifically, the invention relates to fire-extinguishing equipment of the type wherein a dry, powdered, free-flowing, non-caking fire extinguishing composition is expelled and borne under high pressure by an inert gas to the flame to be extinguished.

Also more specifically, this invention is an improvement of the portable hand fire-extinguishing apparatus of the type disclosed in Guise et al. Patent 2,531,123, November 21, 1950. In such construction there is provided a dry chemical container and a gas cartridge of relatively smaller size retained immediately adjacent the container. The cartridge and container are in cooperative relation through the cartridge receiver fitting which also is provided with a movable puncture pin for puncturing the sealing means of the cartridge to thereby allow the compressed inert gas to enter the dry chemical container where the gas acts as a medium for carrying the dry, powdered, fire-extinguishing chemical under the desired pressure through the nozzle to the area of application. Means are also provided in such prior construction for releasably sealing the equipment against tampering. A ring pin is inserted through the hand lever and its link to prevent downward movement of the puncture pin through the cartridge sealing disk. Removal of the ring pin is required before the equipment may be used. The ring pin is suitably fastened to the equipment by a chain so that the ring pin will not be lost and will be available for reuse. A lead and wire seal is also threaded through the ring pin to inform a fire inspector whether or not the equipment has been used or tampered with.

Such sealing means have a number of distinct disadvantages. Before the equipment can be used, it is first necessary to withdraw the ring pin. Sometimes in the panic and confusion caused by a fire, an inexperienced person attempting to use such equipment is not fully acquainted with the instructions to first pull the ring pin so that vital time may be lost in putting out a fire. Also the metal puncture pin occasionally may become bent from a blow on the puncture pin mechanism and therefore cannot be removed when needed. The metal puncture pin is also liable to corrosion and freezing in position making removal difficult. The puncture pin may also occasionally be lost, fall out of position or may not be replaced when the extinguisher was recharged and so there is no protection from inadvertent puncturing of the cartridge.

The present invention overcomes these disadvantages by providing a fire-extinguishing equipment in which the need for a sealing ring pin is eliminated. In the present construction, the discharge hose is used to prevent depression of the puncture mechanism when the unit is not in operation. To puncture the cartridge it is only necessary to remove the nozzle from the nozzle holder, remove the hose from beneath the puncture pin handle and then depress the puncture pin mechanism.

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Further details and advantages of the present invention will be apparent from the following specification and accompanying drawings, wherein:

Figure 1 is a front elevational view of the fire-extinguisher construction,

Figure 2 is a side view thereof,

Figure 3 is a fragmental side view of the upper portion of the apparatus, partly in section, showing the hose in locking position to prevent puncturing of the cartridge,

Figure 4 is a view similar to Figure 3 showing the hose removed prior to depressing the puncture lever, and

Figure 5 is a view similar to Figure 3 showing the hose removed from under the puncture pin handle and the puncture pin depressed for puncturing the cartridge seal.

Referring to the drawings, the dry chemical fire-extinguishing apparatus comprises a steel cylindrical shell or receptacle 10 in which is stored a powdered, free-flowing, non-caking, fire-extinguishing composition of the type, for example, as described in Block Patent 1,793,240, February 17, 1931. The container is adapted to be closed by a fill cap or closure 11 which is sealed by gasket 9. A carrying handle 4 is suitably secured to the shell. A hanger hook 46 is also affixed to the upper portion of the shell 10 for hanging the unit on a wall bracket if desired. An outlet hose 30 is suitably connected to the lower portion of the shell 10. The hose is provided at its free end with a nozzle 40 which is removably retained in nozzle holder 45 affixed to shell 10.

A cartridge receiving stud 5 is suitably retained in the upper portion of the shell 10. The receiving stud is provided with a passageway 6 communicating with shell 10. The lower end of the stud 5 is adapted to receive a steel cartridge 15 containing an inert gas, such as carbon dioxide or nitrogen, under pressure. The cartridge 15 is preferably cylindrical in shape and relatively small in comparison with shell 10. The upper end of the cartridge is provided with a seal-retaining element 13 for retaining a frangible metal disc 16 which is adapted to be punctured by depressing puncture pin 17. The puncture pin 17 is activated by handle 18 connected thereto by pivot arm 24. Handle 18 is carried by pivot arm 19 carried by pivot pin 23. Pivot pin 23 is carried by link 3 retained on stud 5 by pin 20. A packing assembly 21 is provided in stud 5 to seal the puncture pin 17 against escape of gas. A flexible rubber cap 35 is provided at the upper portion of the stud 5 to exclude moisture or other foreign substances.

The puncture lever 18 is provided at its free end with a recessed curved surface 25 of suitable contour and dimensions to receive a portion of the hose 30 as shown in Figure 3.

A removable metal cartridge guard 12 is also provided of suitable contour and dimensions for completely enclosing the cartridge 10 as illustrated in Figures 1 and 2 so as to protect the cartridge against accidental blows or other damage. This construction is similar to that disclosed in Guise et al. Patent 2,531,123, November 21, 1950.

The operation of the present device will be apparent from the foregoing description. When it is desired to extinguish a fire the operator first removes the nozzle 40 from its holder 45 and then removes the hose 30 from its normal position shown in Figure 3 beneath the puncture lever or handle 18 to the position shown in Figure 4. The puncture lever 18 can now be depressed to the position shown in Figure 5 so as to cause puncture pin 17 to puncture the cartridge seal 16. The gas in cartridge 15 will then flow into shell 10 where it will fluidize the dry chemical powder stored therein and expel it through hose 30. Upon depressing the handle of nozzle 40, a stream of dry chemical will be expelled for extinguishing a fire. It will be apparent that the puncture lever 18 cannot be

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activated and depressed unless hose 30 is first released from its normal initial position shown in Figure 3. The hose-retaining means provided by the curved retaining surface 25 of the puncture lever 18 thus functions as releasable locking means by snugly receiving and retaining a portion of the hose therein. The present construction obviates the use of a locking pin which often causes difficulties as previously explained. In the present construction the fire-extinguishing unit can be readily operated and refilled with dry chemical and supplied with a fresh gas cartridge. The unit is simply locked by merely placing the looped portion of the hose beneath the retaining portion of the puncture lever 18 in the position shown in Figure 3. The unit can be instantly used without any delay by merely removing the hose and depressing lever 18 as previously explained.

The present construction may, of course, be applied to various types of fire-extinguishing equipment besides the dry chemical type. The use of the flexible hose for inactivating a pivoted lever may also be applied to other types of fire-extinguisher constructions in addition to the specific construction herein described. It is therefore to be understood that changes and modifications may be made in the construction described which are intended to be included in the appended claims.

I claim:

1. A dry chemical fire-extinguishing apparatus comprising a container for storing powdered dry chemical therein, a fitting connected to said container, a gas cartridge retained by said fitting, said gas cartridge being sealed by a frangible seal, a puncture pin carried by said fitting for puncturing said frangible seal, a flexible hose connected to said container for conveying a stream of dry chemical expelled from said container, a puncture lever pivoted on said fitting for manually actuating said puncture pin, said lever being provided with a curved hose-retaining portion for removably retaining a looped portion of said flexible hose whereby said puncture lever is rendered inoperable except when said looped hose portion is removed from engagement with said puncture lever.

2. A dry chemical fire-extinguishing apparatus comprising a container for storing powdered dry chemical therein, a fitting connected to said container, a gas cartridge retained by said fitting, said gas cartridge being sealed by a frangible seal, a puncture pin carried by said fitting for puncturing said frangible seal, a flexible hose connected to said container for conveying a stream of dry chemical expelled from said container, a puncture lever pivoted on said fitting for manually actuating said puncture pin, said lever being provided with a hose-retaining means for removably retaining a looped portion of said flexible hose whereby said puncture lever is rendered inoperable except when said looped hose portion is removed from engagement with said puncture lever.

3. A dry chemical fire-extinguishing apparatus comprising a container for storing powdered dry chemical therein, a fitting connected to said container, a gas cartridge retained by said fitting, said gas cartridge being sealed by a frangible seal, a puncture pin carried by said fitting for puncturing said frangible seal, a flexible hose connected to said container for conveying a stream of

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dry chemical expelled from said container, a puncture lever pivoted on said fitting for manually actuating said puncture pin, the free end of said puncture lever terminating adjacent said container, said lever being provided with a curved hose-retaining portion adjacent said container for removably retaining a looped portion of said flexible hose whereby said puncture lever is rendered inoperable except when said looped hose portion is removed from engagement with said puncture lever.

4. A dry chemical fire-extinguishing apparatus comprising a container for storing powdered dry chemical therein, a fitting connected to said container, a gas cartridge retained by said fitting, said gas cartridge being sealed by a frangible seal, a puncture pin carried by said fitting for puncturing said frangible seal, a flexible hose connected to said container for conveying a stream of dry chemical expelled from said container, a nozzle connected to the free end of said flexible hose, means on said container for removably retaining said nozzle, a puncture lever pivoted on said fitting for manually actuating said puncture pin, the free end of said puncture lever terminating adjacent said container, said lever being provided with a curved hose-retaining portion adjacent said container for removably retaining a looped portion of said flexible hose whereby said puncture lever is rendered inoperable except when said looped hose portion is removed from engagement with said puncture lever.

5. A fire-extinguishing apparatus comprising a container for storing the extinguishing agent and a gas cartridge, means for releasing gas pressure from said gas cartridge into said container, a flexible hose connected to said container for conveying a stream of extinguishing agent expelled from said container, a nozzle connected to the free end of said flexible hose, means on said container for removably retaining said nozzle, a pivoted lever for actuating said means for releasing gas pressure in said gas cartridge, said pivoted lever being provided with a curved hose-retaining portion for removably retaining a looped portion of said flexible hose whereby said pivoted lever is rendered inoperable except when said looped hose portion is removed from engagement with said pivoted lever.

6. A fire-extinguishing apparatus comprising a container for storing extinguishing agent and a pressure means for expelling said extinguishing agent, means for releasing said extinguishing agent into a flexible hose connected to said container for conveying a stream expelled from said container, a nozzle connected to the free end of said flexible hose, means for removably retaining said nozzle, a pivoted lever for actuating said means for releasing said extinguishing agent, said pivoted lever being provided with a curved hose-retaining portion for removably retaining a looped portion of said hose whereby said pivoted lever is rendered inoperable except when said looped hose portion is removed from engagement with said pivoted lever.

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