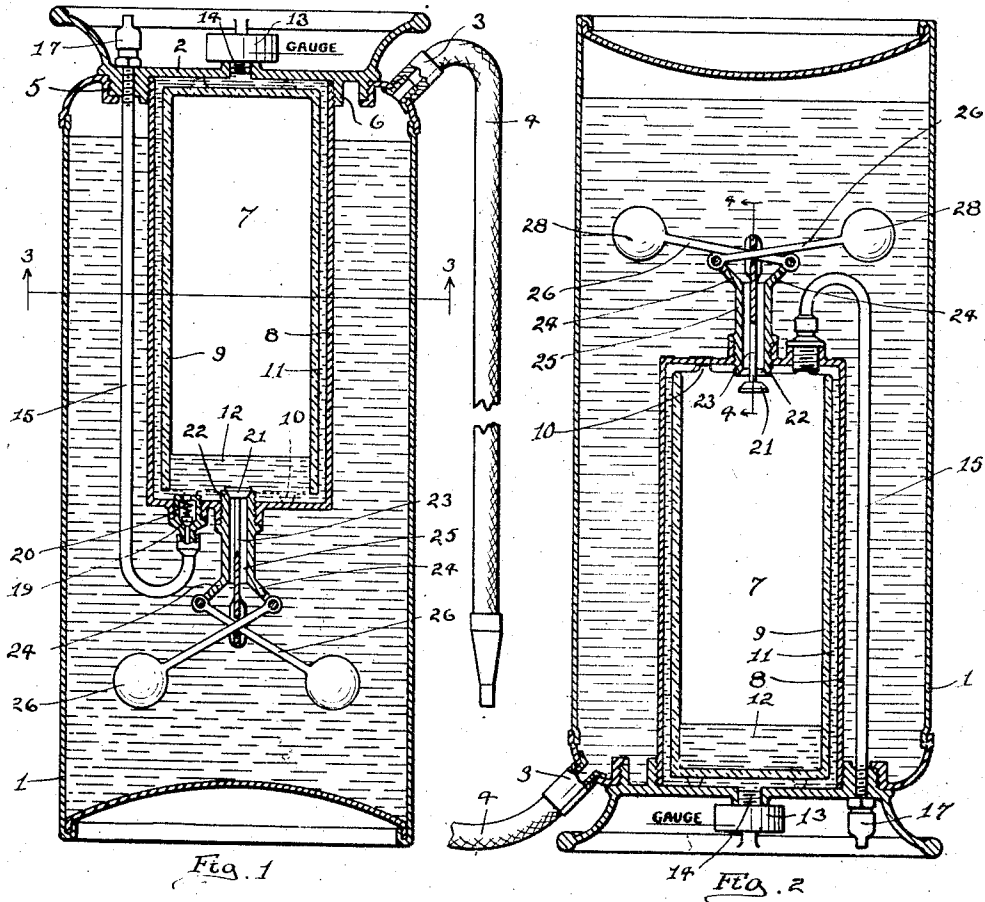
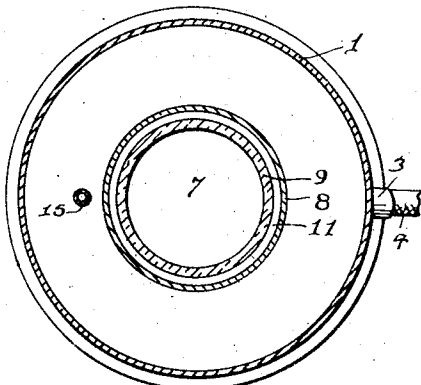
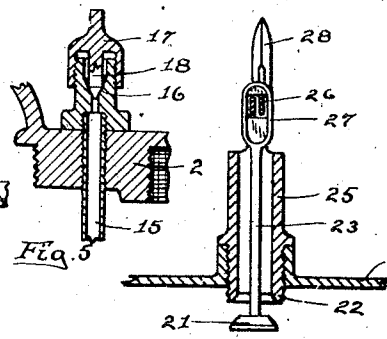


F. C. BARGAN.
FIRE EXTINGUISHER.
APPLICATION FILED APR. 12, 1917.

1,289,360.

Patented Dec. 31, 1918.



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FIRE-EXTINGUISHER.

1,289,360.

Specification of Letters Patent.

Patented Dec. 31, 1918.

Application filed April 12, 1917. Serial No. 161,419.

To all whom it may concern:

Be it known that I, FREDERICK C. BARGAR, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Fire-Extinguishers, of which the following is a specification.

This invention relates to fire extinguishers and is particularly directed to the improvement of that type of extinguisher employing an expelling fluid under pressure to force the extinguishing chemical from its container.

The main object of my invention resides in the combination of a chemical container and a pressure medium container, the latter being normally filled with expelling fluid under pressure and the two containers being so related that this expelling fluid is released by the mere inversion of the extinguisher as a whole. By the inversion of the extinguisher, the expelling fluid is released to become effective directly upon the chemical extinguisher and in this manner the latter is forced out of its container.

A further object of my invention resides in the pressure container itself which is so constructed and arranged to prevent the leakage of the pressure medium itself after the same has been placed therein under pressure. In this connection, my improved pressure tank is formed of an inner and outer receptacle arranged one within the other, together with a sealing medium located within the outer receptacle above the level of the lower open portion of the inner receptacle, so that when pressure is introduced, this sealing liquid is forced into the space between the two receptacles. In this arrangement I also preferably locate the inlet and outlet valve structures in such position that they are normally sealed by this sealing liquid.

To effectually seal the expelling fluid such as air, against escape, I have constructed the inner receptacle of glass, it being recognized that metal is not totally impervious to air or gas. As stated, this receptacle is provided with an open bottom, the lower edge of which is located below the level of the top of the sealing liquid so that the pressure medium when confined, is in contact with the glass and liquid sealing mediums only.

In order to at all times determine the pressure within the pressure tank, I have also provided a gage member which communicates with the gas or air pressure medium by means of the sealing liquid, the gage being in communication with the space formed between the inner and outer receptacles.

Other objects of my invention will become more apparent after a detailed description of the accompanying sheet of drawings, in which similar characters of reference designate corresponding parts, and in which:

Figure 1 is a vertical sectional view of my improved type of extinguisher shown in its normal or closed position.

Fig. 2 is a similar section showing the extinguisher inverted to release the expelling fluid.

Fig. 3 is a transverse section taken on line 3—3 of Fig. 1.

Fig. 4 is a vertical section through a portion of the outlet valve structure represented by line 4—4 of Fig. 2, and,

Fig. 5 is a view in detail showing the auxiliary valve arrangement for closing the inlet pipe.

The extinguishing chemical container is represented by the reference numeral 1, this container being of any preferred type of construction, but being provided with a cap closure 2 and an outlet fitting 3, to which the hose 4 is attached. This cap closure is threaded into position as is shown at 5 and is provided with an additional shoulder 6 to which the pressure tank 7 as a whole is secured. This pressure tank comprises an outer shell 8 threaded into the shoulder 6, as is shown. Within this shell 8 there is located an open bottom cylindrical glass receptacle 9 provided with a series of shoulders 10 at its lower end to space its lower edge slightly from the bottom wall of the outer shell. This glass receptacle is also of a size slightly smaller than the internal diameter of the shell 8 so that a space 11 is formed entirely around the same. Within the outer receptacle there is also located a sealing liquid 12 which may be of any desired nature, it being sufficient to say that this sealing liquid is of a form to freely flow from one end of the receptacle to the other as the extinguisher as a whole is inverted or righted. Means are provided for introducing a pressure medium such as air

or gas into the pressure tank 7 and this forces the sealing liquid through the space 11 entirely surrounding the glass receptacle. The quantity of sealing liquid used is such that its level is above the lower edge of the glass receptacle after pressure has been introduced and when in the position shown in Fig. 1. In this manner, the pressure medium is in contact with the glass and sealing medium only and in this manner its seepage or leakage is prevented. To determine the pressure within the tank, I have provided a gage 13, which gage communicates with the sealing liquid by a threaded connection 14 through the top of the cap closure and into the space formed between the outer shell and the inner receptacle 9.

In order to introduce the pressure medium, I have provided an inlet pipe 15 passing through the top of the cap closure and into the bottom of the outer shell 8 beneath the sealing liquid. The top of the pipe 15 is provided with a valve seat 16 and is closed by means of the cap 17 carrying the needle valve stem 18. At its other end, this pipe 15 is provided with the ordinary type of check valve 19, urged toward its seat by means of the spring 20. Thus, in introducing air or gas, the cap 17 is removed and the incoming gas operates against the tension of the spring 20. After sufficient pressure has been introduced, this check valve is forced toward its seat by both the spring 20 and the action of the pressure against the sealing liquid 12. To additionally safeguard against the escape of the pressure medium, I have provided the needle valve 18 carried by the cap 17.

I have so arranged the structure that, in order to permit the escape of the extinguishing chemical, all that is necessary is to invert the extinguisher as a whole. The outlet valve is normally located beneath the sealing liquid and is designated by the numeral 21. This valve operates upon the seat 22 and is attached to the stem 23. A pair of arms 24 are formed on the lower end of the fitting 25 in which the valve seat is formed, and to these arms there are pivotally secured a pair of weighted levers 26. These weighted levers are arranged to cross each other and to pass through the looped portion 27 on the lower end of the valve stem 23. The distance of the pivot point of these levers and their weight, has been so proportioned that when the extinguisher is inverted, the valve 21 is moved from its seat to open position against the internal pressure of the pressure tank. Inversion of the extinguisher causes the sealing liquid 12 to flow to the opposite end of the pressure tank and thus brings the expelling air or gas into direct contact with the outflow or escape valve. This saves the expelling liquid from being lost and also permits the direct escape of the expelling gas to act directly upon the extinguishing chemical to

force it out of its container 7. It will be understood that this pressure tank is so proportioned that for a given pressure, the volume contained therein is sufficient to expel the entire volume of extinguishing chemical within the container 7.

From the foregoing description, it will be apparent that I have provided an extinguisher of considerable utility and one wherein the extinguishing properties of the chemical are in nowise affected since there is no chemical action between the expelling medium and this extinguishing liquid when the two are brought into engagement. The entire extinguishing chemical is forced out of the container due to the pressure within the pressure tank 7 and normally, escape of this pressure is impossible because the pressure medium is in contact only with its glass receptacle and the sealing liquid 12 covering the release valve structure. In addition, there is no breaking strain upon the glass receptacle, inasmuch as the pressure is equal on both sides. By the use of the sealing liquid, the dual advantage of sealing the valve mechanism and also preventing corrosion of the outer receptacle is obtained. In addition to this, the sealing liquid may also be utilized to operate directly upon the gage 13 to at all times give a visual indication of the internal pressure. The weighted portions 28 of the levers 26 are preferably of a flat disk form tapered to a knife edge around their periphery to permit their ready fall through the extinguishing chemical when the extinguisher is inverted.

It will also be noted that the entire pressure tank 7 is removable by removing the cap closure 2. To recharge the pressure tank, it is not necessary to remove this cap, but should it be desired to ascertain the appearance of the inside of the pressure tank, all that is necessary is to remove the cap closure and then to remove the outer shell 8 from its threaded connection with the shoulder 6.

What I claim, is:

1. A fire extinguisher comprising an extinguishing chemical container, a pressure medium container normally filled with an expelling fluid under pressure within said first named container, and means whereby said pressure medium is released to become effective to expel said chemical upon inversion of said chemical container.

2. A fire extinguisher comprising an extinguishing chemical container, a pressure medium container normally filled with an expelling fluid under pressure, and means whereby said pressure medium is released to become effective to expel said chemical upon inversion of said chemical container.

3. A fire extinguisher comprising an extinguishing chemical container, a pressure medium container normally filled with a compressible expelling fluid under pressure,

communicating means normally closed between said two containers, and a sealing liquid within said pressure container normally covering said communicating means, said means being opened and said liquid moved to the other end of its container by inversion of the extinguisher as a whole.

4. A fire extinguisher comprising an extinguishing chemical container, a pressure medium container formed of an outer shell within which is located an open bottom glass receptacle, the latter being smaller than the former, a sealing liquid in the bottom of said shell above the level of the bottom of said glass receptacle, and means for permitting the escape of the expelling fluid out of said receptacle to become effective on said chemical.

5. A fire extinguisher comprising an extinguishing chemical container, a pressure medium container formed of an outer shell within which is located an open bottom glass receptacle, the latter being smaller than the former, a sealing liquid in the bottom of said shell above the level of the bottom of said glass receptacle, and means for permitting the escape of the expelling fluid out of said receptacle to become effective on said chemical by the inversion of the extinguisher as a whole.

6. A fire extinguisher comprising an extinguishing chemical container, a pressure medium container located within said chemical container and formed of an outer shell within which is located an open bottom glass receptacle, valve mechanism in the bottom of said outer shell for admitting and releasing the pressure fluid, and a sealing liquid in the bottom of said shell above the level of the bottom of said glass receptacle and normally sealing said valve mechanism.

7. A fire extinguisher comprising an extinguishing chemical container, a pressure medium container located within said chemical container and formed of an outer shell within which is located an open bottom glass receptacle, valve mechanism in the bottom of said outer shell for admitting and releasing the pressure fluid, and a sealing liquid in the bottom of said shell above the level of the bottom of said glass receptacle, said release valve mechanism being automatically effective to release the pressure fluid upon inversion of said chemical container.

8. In a fire extinguisher, the combination with a chemical container, of a pressure tank comprising an outer shell, an open bottom glass receptacle smaller than and located within said shell, a sealing liquid within

said shell above the level of the open bottom of said receptacle and forced into the space between said receptacle and shell, and an outlet valve located in the bottom of said shell.

9. In a fire extinguisher, the combination with a chemical container, of a pressure tank comprising an outer shell, an open bottom glass receptacle smaller than and located within said shell, a sealing liquid within said shell above the level of the open bottom of said receptacle and forced into the space between said receptacle and shell, an outlet valve located in the bottom of said shell, said pressure tank being located within said chemical container, and a weighted lever structure for opening said outlet valve against the internal pressure within said tank upon inversion of said chemical container.

10. A fire extinguisher comprising an extinguishing chemical container, a cap closure therefor, a pressure medium container carried by and removable from within said first named container by removal of said cap, and a valve mechanism carried by said pressure tank operable to release the pressure therein by inversion of the extinguisher as a whole.

11. In a fire extinguisher, the combination with a chemical container, of a pressure tank comprising an outer shell, an open bottom glass receptacle smaller than and located within said shell, a pressure indicating means in communication with the space formed between said shell and said receptacle, and a sealing liquid within said shell above the level of the open bottom of said receptacle and forced into the space between said receptacle and shell, and outlet valve mechanism located in the bottom of said shell and normally sealed by said liquid.

12. A fire extinguisher comprising an extinguishing chemical container, a pressure medium container formed of an outer shell within which is located an open bottom receptacle, the latter being smaller than the former, a sealing liquid in the bottom of said shell above the level of the bottom of said receptacle, and means for permitting the escape of the expelling fluid out of said receptacle to become effective on said chemical.

In testimony whereof I affix my signature in presence of two witnesses.

F. C. BARGAR.

Witnesses:

WALTER E. L. BOCK,
A. L. PHELPS.