Jan. 12, 1954 L. I. TALBOT 2,665,768

FIRE EXTINGUISHING BOMB

Filed Sept. 14, 1951

Fig_1

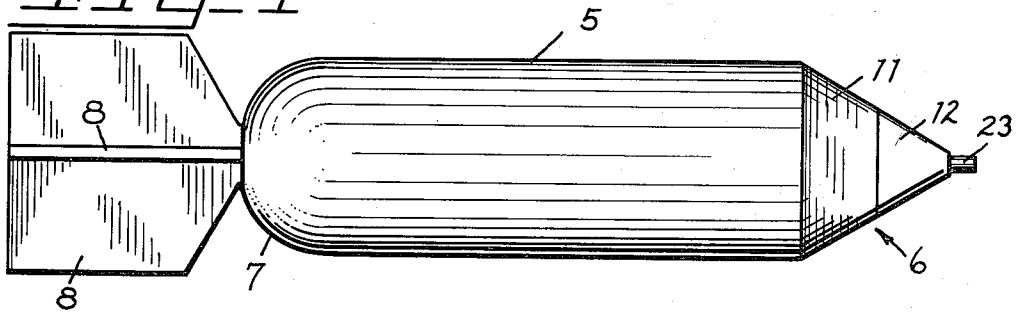


Fig_2

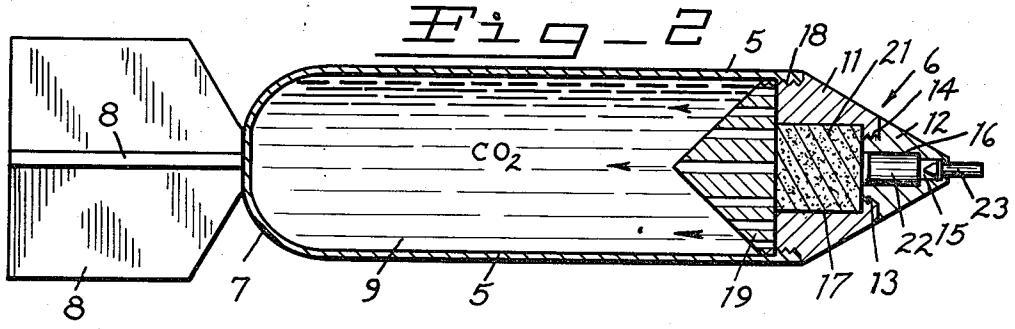


Fig_3

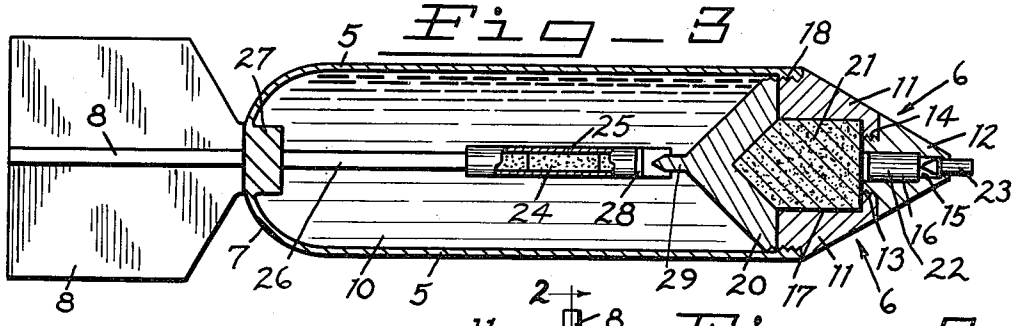


Fig_4

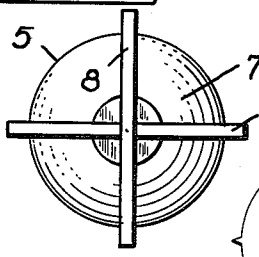


Fig_5

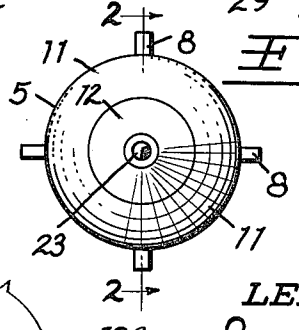
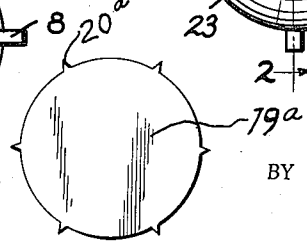


Fig_6



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FIRE EXTINGUISHING BOMB

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6 Claims. (Cl. 169—36)

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This invention relates to new and useful improvements in fire extinguishers, and more particularly to a bomb especially designed for employment for fighting forest fires, oil fires and like conflagrations.

The primary object of the present invention is to provide a fire extinguishing bomb whereby carbon dioxide, CO_2, or water, H_2O, may be used with equal facility as a fire extinguishing agent or medium to greater advantage than has heretofore been the case.

The fire extinguishing bomb of this invention is characterized by a combination and arrangement of parts whereby the bomb is adapted to be detonated or exploded, and the fire extinguishing or blanketing agent of the bomb caused to follow the outward motion of the explosion in a manner to take full advantage of, and replace, the vacuum normally created by the explosion for effectively transforming the fire extinguishing or blanketing agent into a fog or mist, and in that form be most effectively dispersed over a considerable area of the fire and thereby extinguish the fire in much less time than is now practicable with known or used fire extinguishers.

The invention, together with its objects and advantages, will be best understood and appreciated when the following detailed description is read with reference to the accompanying drawing in which are illustrated what are presently considered preferred embodiments of the invention, and wherein:

Figure 1 is a side view of a fire extinguishing bomb embodying the features of this invention;

Figure 2 is a longitudinal sectional view thereof taken substantially on line 2—2 of Figure 5;

Figure 3 is a view similar to Figure 2 but illustrating a slightly modified form of the invention;

Figure 4 is an end elevational view of the bomb showing the tail or fin-equipped end thereof;

Figure 5 is an end elevational view showing the front or nose end of the bomb, and

Figure 6 is an end elevational view of another form of driving head.

Referring now in detail to the drawings, the numeral 5 indicates the body of the bomb, and which bomb is also provided with a pointed front or nose 6 and a butt or rear end 7, the latter being provided with vanes or tail fins 8. In this connection it will be understood that the tail fins 8 are employed only when it is desired to use the bomb as an aerial bomb to be dropped from an aircraft to the ground in fighting conflagrations. As is well known, the fins 8 when

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employed serve to guide or steer the bomb and maintain it in perpendicular or vertical position during its descent when dropped from the aircraft to the ground.

The body 5 of the bomb is in the nature of a shell or container fabricated of fragile or frangible material, possessing a sufficient rigidity to withstand the normal shocks to which it may be subjected during handling and transportation. The body shell or container 5 is adapted to contain the fire extinguishing or blanketing material, as for example carbon dioxide, CO_2, as shown in Figure 2 and indicated by the reference numeral 9, or water, H_2O, as shown in Figure 3 and indicated by reference numeral 10, as may be found desirable.

The nose 6 of the bomb, in accordance with this invention, comprises two complemental sections 11 and 12 detachably connected together as by having the section 12 provided with an integral threaded pin 13 screw-threadedly engaging a threaded orifice 14 provided in the part or section 11 of the nose 6 and as shown to advantage in Figures 2 and 3.

The nose 6 of the bomb is further characterized by an axial bore of different diameters having different bore portions 15, 16 and 17 (see Figures 2 and 3).

The part or section 11 of the nose 6 is detachably secured to the forward or open end of the body 5 in any suitable manner, preferably by being screw-threadedly engaged therewith as indicated at 18.

The inner end of the bore section 17 of the nose 6 and the mentioned end of the body 5 are normally substantially closed through the medium of what may be termed a driving head, one form of which is shown in Figure 2 and indicated by the reference numeral 19, another form of which is shown in Figure 3 and indicated by the reference numeral 20, and a third form of which is shown in end elevation in Figure 6 and indicated by the reference numeral 19a.

The driving head just mentioned is preferably of conical form and is secured within the body 5 at either the nose or tail-equipped end thereof in any suitable manner. In the present instance the driving head is illustrated as being secured within the body 5 at the nose-equipped end thereof. The purpose and function of the driving head, as will be hereinafter more fully explained, are, when the bomb is detonated or exploded for the urpose of shattering the shell or body 5, to so control the emission or discharge of the fire extinguishing agent (9 or 10, as the

case may be) that the latter will spread more rapidly and over a greater area by following the suction created by the explosion than has heretofore been the case with fire extinguishing bombs of this general type.

Referring now more in detail to the nose 6 of the bomb, it will be seen that in the portion 17 of the bore of the nose there is arranged an explosive 21, while in the portion 16 of the bore there is arranged a detonator 22 interposed between the explosive 21 and a firing pin 23. The pin 23 is slideable in the bore portion 15 of the nose and has its front end protruding a limited distance beyond the nose for contact with the ground or other target so that on engagement therewith the impact will drive the pin 23 against the detonator for the actuation of the latter.

From the description of the invention thus far, it will be seen that when the detonator 22 is actuated the explosion gases will pass through the bore of the nose 6 to contact the explosive powder 21. The firing of the explosive powder 21 will cause the driving head (19 or 20, as the case may be) to move forceably inwardly and axially of the body 5 while at the same time causing the body 5 to shatter. The shattering of the body 5 will of course permit the fire extinguishing agent (9 or 10, as the case may be) to be scattered, and the action of the conical driving head on the fire extinguishing agent will be such as to accelerate the discharge of the fire extinguishing agent to the end that the dispersion of the fire extinguishing agent will practically immediately replace the vacuum normally created by the explosion. As a result the full force of the explosion will be utilized to put out the fire and scatter the fire extinguishing agent with the consequence that the agent will be scattered over a considerably greater area than has heretofore been possible with known fire extinguishers.

The above-mentioned action characteristic of the fire extinguishing bomb of this invention is obtained whether the fire extinguishing agent be carbon dioxide, as shown in Figure 2, or is water, as shown in Figure 3. However, when water is employed as the fire extinguishing agent the operating effectiveness of the bomb is enhanced by employing, as shown in Figure 3, an added explosive 24 located within the body 5. This added explosive charge 24 is preferably confined within a cartridge or container 25 that is axially supported within the body 5 through the medium of a connecting rod 26 that at one end is suitably secured to a boss or enlargement 27 formed internally of the body 5, at the tail end of the body, and at an opposite end suitably secured in any desired manner to one end of the cartridge 25. At the free end thereof the cartridge 25 is provided with a detonating cap 28, and in this form of the invention the driving head 20 is provided with an integral firing pin 29. It is apparent that in this form of the invention when the driving head 20 forceably moves inwardly of the body 5 in response to the force of the exploded powder 21, firing pin 29 will contact the detonating cap 28. The explosive charge 24 which may be in the form of sticks of dynamite or TNT, is thus exploded and the resulting concussion implements the action of the driving head 20 for effecting a rapid but controlled scattering of the water 10, and the scattering of that water over an area greater in extent that has heretofore been effected with fire extinguishing bombs employing water or any other fire extinguishing material or agent.

If desired, and as shown in Figure 6, the driving head, therein indicated by the reference numeral 19a, may be provided with slitting fingers 20a circumferentially spaced thereon at the base or largest diameter of the head for slitting engagement with the walls of the body 5. In this connection it will be apparent that with the head so equipped, the inward and axial movement of the head relative to the body 5 will result in slitting the latter 5 thus facilitating shattering of the body 5 and further accelerate the discharge of the fire extinguishing agent.

From the foregoing, it will be seen that I have provided a fire extinguishing bomb whereby explosives may be used in combination with non-combustible gases and liquids, in a manner to effect a retarding and controlling action of the dispersion of such gas or liquid with the result that the non-combustible gas or liquid, employed as it is as a fire blanketing or extinguishing agent, is caused to disperse with greater rapidity and scatter over a greater area for the purpose intended than has heretofore been obtained with various other and known types of fire extinguishing bombs, whether or not equipped with an explosive for effecting a fragmentizing of the frangible shell or body of such fire extinguisher. In this connection it may be further observed that the fire extinguishing bomb of this invention lends itself to advantageous use in connection therewith of a proximity fuse for exploding the bomb at tree-top or other predetermined levels.

While the invention has been described in detail in its presently preferred embodiments, it will, of course, be understood that such has been done for purposes of illustration only and not by way of limitation, and therefore only such limitations are to be imposed thereon as may reasonably come within the scope of the appended claims.

What I claim is:

1. A fire extinguishing bomb comprising a frangible shell, water within the shell, a driving head within the shell adjacent one end thereof, a detonating mechanism and explosive secured to the mentioned end of the shell, a second explosive mounted within the shell, and a firing pin for said latter explosive carried by the driving head.

2. A fire extinguishing bomb comprising a frangible body, a fire extinguishing agent confined within the body, a nose member for the body secured to one end of the latter and provided with an axial bore of different diameters, a firing pin movably mounted in the forward end of the bore and having a part protruding beyond said nose, an explosive arranged in the rear end of the bore of the nose, a detonator arranged in the bore of the nose intermediate and in operative proximity to the pin and explosive, and a substantially conical driving head closing the mentioned end of the body and the inner end of the bore of the nose.

3. A fire extinguishing bomb comprising in combination a non-combustible fire extinguishing agent, an explosive agent, and a driving head interposed between the mentioned agents and reacting in response to explosive force, said driving head being of substantially conical shape in order to accelerate the discharge of the fire extinguishing agent sufficiently to practically immediately replace the vacuum normally created by the explosion.

4. A fire extinguishing bomb comprising a shell, a fire extinguishing agent within the shell, an explosive agent, a driving head interposed be-

tween the mentioned agents and reacting in response to explosive force to accelerate the discharge of the fire extinguishing agent, and said driving head being provided with a plurality of slitting fingers for slitting the shell upon reaction of said driving head.

5. A fire extinguishing bomb comprising a frangible shell open at one end, a fire blanketing and extinguishing agent confined within the shell, a driving head normally sealing said one end of the shell, said driving head being of substantially conical shape to permit a more rapid dispersion of the agent over a greater area, and a detonating mechanism secured to the mentioned end of the shell, said driving head being responsive to the explosive action of the detonating mechanism to move inwardly of the shell for controlling the discharge of the fire blanketing and extinguishing agent incidental to a shattering of the shell.

6. A fire extinguishing bomb comprising a frangible shell, a fire blanketing and extinguishing agent confined within the shell, a driving head normally sealing one end of the shell, and a detonating nose secured to the mentioned end of the shell, said nose comprising a frustro-conical section detachably attached to the shell, an explosive charge in said section, and a conical section detachably attached to the frustro-conical section, said conical section housing a detonating mechanism.

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