ROCKET MOTOR HOT ASH EXTINGUISHING AND COOLING DEVICE

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The invention described herein may be manufactured and used by or for the Government of the United States for governmental purposes without the payment to me of any royalty thereon in accordance with the provisions of the act of April 30, 1928 (Ch. 460, 45 Stat. L. 467).

My invention relates to the shooting of life-lines by means of a jet or "rocket" propelled projectile using a solid type propellant.

When such rockets are used, there is danger that the shell may still contain burning particles of powder or may be red-hot when it lands upon the deck of a wrecked ship or in the water surrounding it, and may thereupon ignite gasoline or other inflammable vapors or oil on the ship's deck or floating on the water surrounding the ship.

The purpose of my invention is to equip such rockets with a means for expelling and extinguishing hot ash residue and for cooling the shell below the lowest temperature at which gasoline or other highly volatile inflammable liquids may be ignited.

In the accompanying drawings, which illustrate a preferred embodiment of my invention:

Figure 1 is a longitudinal section of a rocket propelled projectile equipped with a cylinder containing, under pressure, an inert gas which is releasably confined by a fusible plug.

Figure 2 is a detail section of an externally threaded hollow plug which has a hemispherical fusible closure.

Figure 3 is a view of the plug as seen from the right of Figure 2.

Referring to Figure 1, the rocket comprises a propellant barrel 10 provided with a jet nozzle 11, and a rocket filler plug 12.

A weighted rounded nose 13 is bolted to the rocket filler plug 12 by a holding screw 14. A bridle harness 15 is attached to two metal bridles 16 for two non-inflammable leaders 17 to which a tow-line (not shown) is tied.

My improvement comprises an inert gas confining cylinder 18 which fits within the propellant barrel 10, and is closed by a screw threaded hollow plug 19 having a central hemispherical closure 20 of suitable fusible metal or alloy. The discharge end of the cylinder 18 and the plug 19 are surrounded by an annular form fitting metal block 21. A suitable powdered propellant charge 22 is compressed between the nozzle 11 and the block 21. The closure 25 is provided with a retaining flange 23. Suitable means, not illustrated, are provided for at will igniting the charge 22.

The cylinder 18 may be charged with inert carbon dioxide gas by dropping into it a measured or weighed charge of Dry Ice, after which the cylinder would be sealed by screwing into the cylinder the threaded plug 19. Other means of charging the cylinder may include the provision of a small tube in the bottom which could be sealed by heating to the fusion point and collapsing as is common practice in the manufacture of incandescent light bulbs.

The operation of aiming and firing the rocket follows that used prior to my invention, and the initial portion of the flight of the rocket is not modified.

Heat from the rocket propelling charge melts the fusible closure 20, thereby releasing the inert compressed gas in the cylinder 18. This gas quenches the remaining particles of hot ash and cools the shell 10 and nozzle 11 below the ignition temperatures of gasoline or other inflammable gases likely to be encountered.

While I have shown and described a preferred embodiment of my invention, changes may be made in the construction and arrangement without departing from the spirit and scope of the invention as disclosed herein.

What I claim is:

1. In a line projecting device the combination with a cylindrical propellant barrel having a restricted discharge outlet, a cylinder charged with inert gas within and at the forward end of said barrel, a charge of propellant powder in said barrel in the rear of said charged cylinder, a non-inflammable leader operatively connected with said barrel, and a fusible closure sealing the rearward end of said charged cylinder.

2. In a line projecting rocket provided with a weighted head, a propellant barrel having a jet nozzle, a charge of propellant powder in said barrel, and two non-inflammable line connecting leaders operatively connected with said barrel, the improvement which comprises an enclosed cylinder charged with inert gas within and at the forward end of said barrel and provided with a fusible seal adapted to fuse and release said gas charge when heated by the ignited propelling charge, whereby the hot products of combustion will be extinguished and cooled during the flight of the rocket.

JOSEPH JAMES DE CARLO.

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2 Claims. (Cl. 102—89)

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