

[54] **MULTIPLE PURPOSE DISPERSER**

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[22] Filed: **Nov. 27, 1970**

[21] Appl. No.: **93,208**

[52] U.S. Cl. .... **222/175, 222/396, 222/399, 239/154**

[51] Int. Cl. .... **B05b 9/08, F41h 9/02**

[58] Field of Search ..... **222/400.7, 399, 396, 175, 222/136, 529; 239/152, 154, 526; 431/91; 89/1 A**

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[57] **ABSTRACT**

An apparatus and method for dispersing solid and liquid materials by utilizing a medium under pressure in one chamber to force the material in another chamber to a discharge means to be dispersed upon actuation of the discharge means; the apparatus being unitary, compact, lightweight, and portable.

**4 Claims, 4 Drawing Figures**

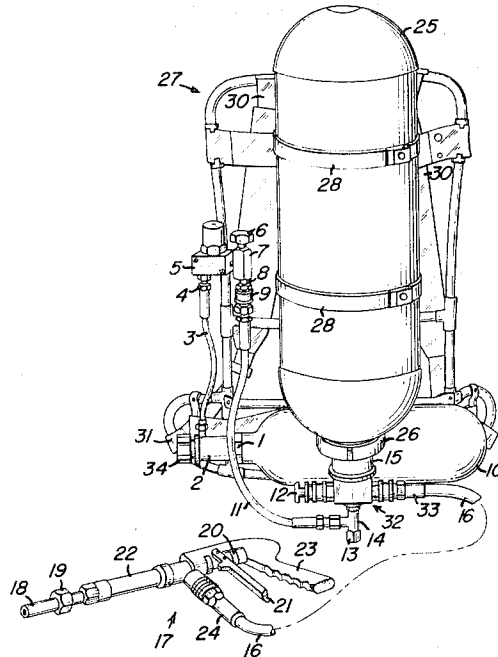


Fig. 1

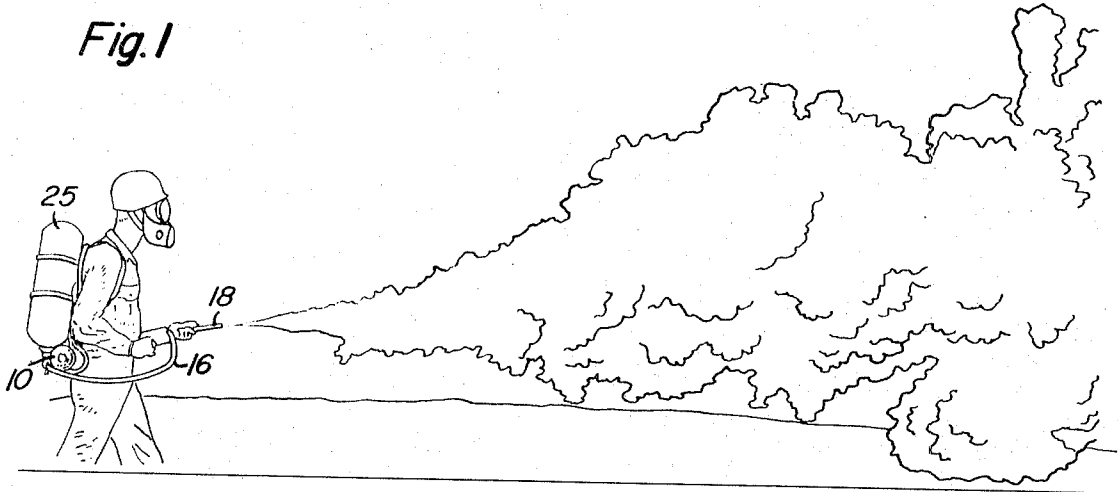


Fig. 2

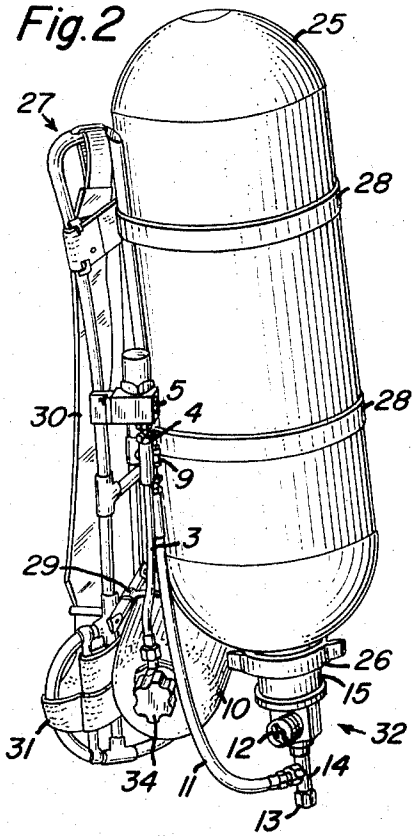


Fig. 3

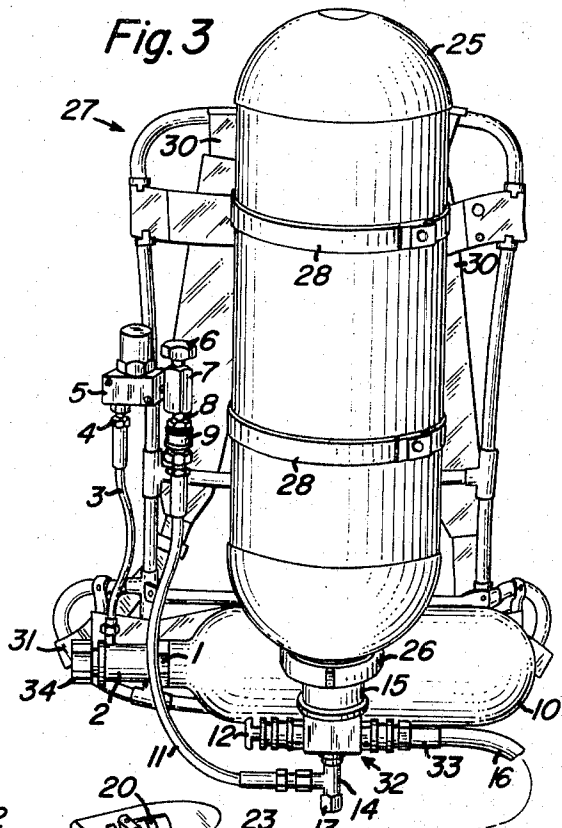
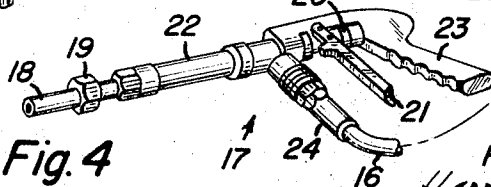


Fig. 4



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## MULTIPLE PURPOSE DISPENSER

### DEDICATORY CLAUSE

The invention described herein may be manufactured, used, and licensed by or for the Government for governmental purposes without the payment to me of any royalty thereon.

My invention relates to a multi-purpose disperser means and method of dispersion which has utility for dispersing lachrymatory materials to control riots, dispersing pyrophoric material to start back fires for fire fighting purposes, as a flame thrower for military applications, to decontaminate, as a fire extinguisher, as an insecticide spray means, etc.

Prior art disperser means presented the problems that they were limited to dispersing liquid materials or solid materials only by separate apparatus and they required 30 to 45 minutes to service in the field; such as the device disclosed in U.S. Pat. No. 3,106,238. My invention was conceived and reduced to practice to solve the aforementioned problems and to satisfy the long felt need for a lightweight disperser means adaptable for a plurality of utilities, which can be serviced in less than 2 minutes in the field, and which can be utilized to disperse either liquid or solid materials.

A principal object of my invention is to provide a lightweight disperser means for a plurality of utilities which can be serviced in the field in less than two minutes.

Another object of my invention is to provide a lightweight disperser means for a plurality of utilities to disperse either liquid or solid materials.

Other objects will be obvious from or will appear in the specification hereinafter set forth.

FIG. 1 is a view showing the utility of my invention as an apparatus for dispensing lachrymatory material.

FIG. 2 is a side view of the tank, conduit, valve, and carrier means for my disperser means.

FIG. 3 is a front view of the view shown in FIG. 2.

FIG. 4 is a view of the gun discharge means for my disperser means.

My invention and FIGS. 1 to 4 will now be described in detail as follows.

Tank 25 containing the material to be dispersed, such as solid or liquid insecticide, fire extinguisher material, lachrymatory material, decontaminating solution, pyrophoric material, etc. is removably mounted on the carrier means shown at 27 by strap means 28 in conventional harnessing manner. Conventional air cylinder 10 is removably mounted on carrier means 27 in the same manner as tank 25 by strap means 29. Conventional pressure regulator 5 is removably mounted to carrier means 27 in any conventional manner, such as screw and nut means, etc., and the adaptor means shown at 32 is removably connected to tank 25 by conventional quick disconnect coupling 15; structure 15 being coupled to a conventional quick disconnect adaptor removably mounted within the mouth of tank 25 by wing nut 26, the quick disconnect adaptor not being shown in the drawing. Adaptor 32 is connected to the low pressure side of regulator 5 by means of low pressure hose 11, quick disconnect coupling 9, nipple 8, and tee 7 in the conventional manner. The high pressure side of regulator 5 is connected to cylinder 10 by connector and strainer 4, high pressure hose 3, quick disconnect coupling 2, and nipple and rupture disk as-

sembly 1 in the conventional manner. Gun 17 is connected to the outlet side of adaptor 32 by means of hose 16 and quick disconnect couplings 24 and 33. To operate my disperser, knob 34 is turned in a counterclockwise direction which permits fluid at a pressure of 2,000 to 3,000 psig to flow from cylinder 10 to regulator 5 where the pressure is reduced to 80 to 200 psig by regulator 5 to be transmitted to tank 25 to expel the material to be dispersed which flows to gun 17. Aforementioned pressures are merely exemplary and can be adjusted within the skill of the art for any given application. The fluid in cylinder 10 can be any suitable medium, such as air or nitrogen, to suit a given application. The material to be dispersed is expelled from gun 17 in the conventional manner by squeezing trigger 21 while gripping handle 23, fixedly mounted on one end of barrel 22, in one hand and barrel 22 in the other hand, as shown in FIG. 1, which opens a valve means within barrel 22 in the conventional manner. Trigger 21 travel is controlled by adjusting nut 20. Nozzle 18 is interchangeable by means of nut 19 for nozzles having a suitable orifice size to suit a predetermined stream pattern for the material to be dispersed, such as a steady stream or a spray. Optionally, trigger 21 may be provided with a locking means, not shown in the drawing, to hold the trigger in the discharge position for continuous dispensing of material without the application of finger pressure to the trigger, such as the locking means utilized for the trigger on an electric drill. Counterclockwise rotation of knob 34 drives a shaft, not shown in the drawing, inside quick disconnect coupling 2 to force open a spring-loaded check-valve that is inside of nipple and rupture assembly 1 which releases the pressurized air within cylinder 10 in the conventional check valve manner. Adaptor 32 is provided with a pressure cap and bleeder means 12 to remove any residual pressure in tank 25 prior to disassembly for refilling of tank 25. Tank 25 and cylinder 10 can be of any suitable size for any given application, and while a single cylinder 10 and tank 25 are shown in the drawing, a plurality of tanks 25 and cylinders 10 can be connected in series by means of tee 14 after removal of cap 13. My disperser is transported in knapsack fashion, as shown in FIG. 1, by placing straps 30 over the shoulders and securing the apparatus about the waist by strap 31. Low pressure rupture disk assembly 6 cooperates with regulator 5 as a safety means to release pressure in the event of pressure at the low pressure side of regulator 5 being built up to a value which exceeds a predetermined amount.

It is obvious that other modifications can be made of my invention, and I desire to be limited only by the scope of the appended claims.

I claim:

1. An apparatus for dispensing liquid and solid material comprising: a tubular frame carrier of substantially rectangular shape adapted for fitting to the back of a human being by way of shoulder and waist straps fixedly connected to said carrier with the long sides of said tubular frame carrier oriented vertically; a portable elongated tank containing material to be dispersed mounted centrally on said frame carrier parallel to said long sides; an elongated cylinder confining therein gas at high pressure mounted upon said frame carrier extending transverse to said long sides and adjacent to said tank lower most on said frame when in carrying position; a regulator means mounted upon one of said

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long sides and located between the tank and cylinder  
 said regulator means being adapted to reduce the pres-  
 sure between the cylinder and the tank; a first conduit  
 means connecting a high pressure side of the regulator  
 means to the cylinder; a second conduit means connect-  
 ing a low pressure side of the regulator means to an  
 adapter means; said adapter means being adapted to  
 connect to the tank and including a quick disconnect  
 coupling means; flow means including a check valve  
 connected to the cylinder to permit fluid flow from the  
 cylinder to the regulator means; and a trigger activated  
 gun discharge means connected to an outlet side of the  
 adapter means with hose to dispense the material from

the tank.

2. The apparatus of claim 1 wherein the pressure is  
 reduced by said regulator means from a high pressure  
 range of 2,000 psig to 3,000 psig to a low pressure of  
 80 psig to 200 psig.

3. The apparatus according to claim 1 further includ-  
 ing a low pressure rupture disc assembly disposed inter-  
 mediate said regulator and said tank.

4. The apparatus according to claim 3 further includ-  
 ing a pressure cap and bleeder assembly disposed at the  
 outlet of said tank.

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