Aug. 23, 1966 T. G. LANCASTER 3,267,810

GRENADE CARRYING ROCKET

Filed June 23, 1964

Fig. 1

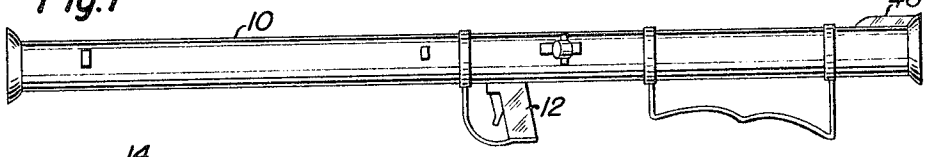


Fig. 2

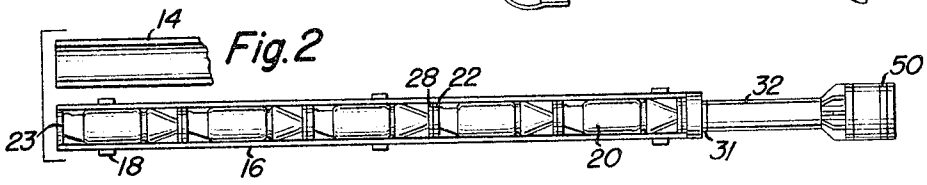


Fig. 3

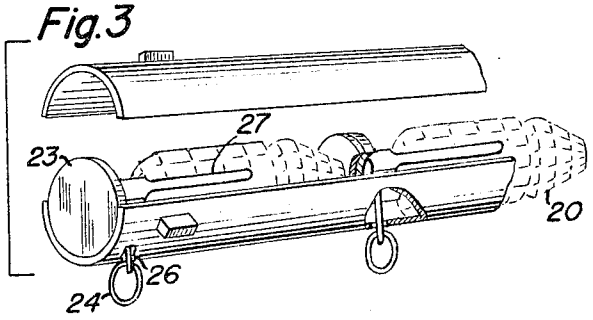


Fig. 4

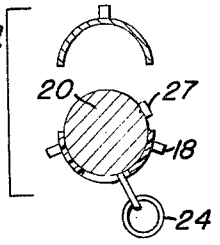


Fig. 5

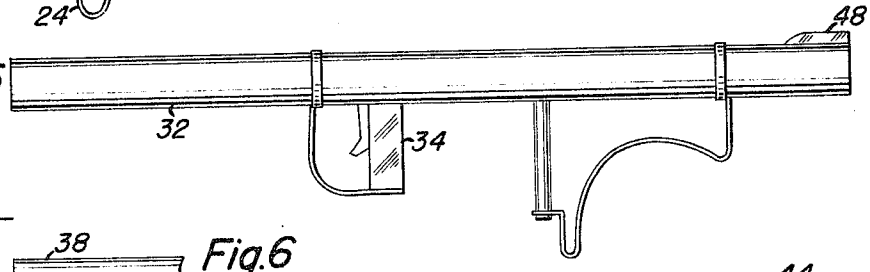


Fig. 6

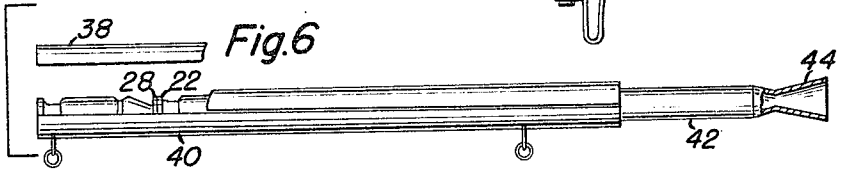
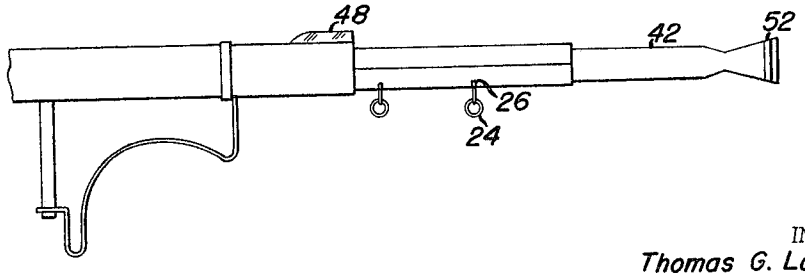
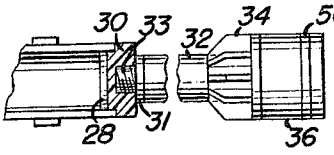


Fig. 7



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Fig. 8



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GRENADE CARRYING ROCKET

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6 Claims. (Cl. 89—1.816)

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

This invention relates to apparatus for dispersing grenades of various types over a considerable distance and area.

The principal object of this invention is to provide a modified rocket warhead whereby a plurality of grenades are launched from a one man rocket launcher as a unit and then have the warhead release the grenades in flight whereby the grenades are given a much greater range and dispersion pattern than has heretofore been achieved.

The prior art of which I am aware has indicated that the only way to disperse solid shot or small explosive shells is to fire them out of a cannon encased in an elongated projectile and have the projectile casing fall apart in flight thereby releasing and scattering the solid or explosive shells on the target. This is illustrated by the patent to Cleu #45,474 dated Dec. 20, 1864.

By means of my invention, I have provided a lightweight portable weapon which achieves the above results in a much more efficient manner since only one operator is needed to load and fire the device.

The use of rocket munitions in warfare goes back for hundreds of years. In recent years there has been developed the fixed fin stabilized rocket which can be fired by one man from a relatively simple manually held tube or rocket launcher. These fin stabilized rockets normally have a high explosive warhead and are extremely useful against tanks and vehicles.

The present invention is essentially directed towards converting these rockets to antipersonnel use. In my invention, the high explosive rocket warhead is replaced with a split tube which is adapted to contain a plurality of high explosive grenades, smoke grenades, white phosphorus grenades, tear gas grenades and the like. Thus, in my invention the rocket shoots or carries the grenades high in the air whereupon the tube splits apart and tumbles back to earth along with the rocket motor due to their great wind resistance while the momentum imparted to the grenades carries them a much greater distance to the desired target where they perform their normal function. Thus, in my invention the grenades are given a much greater range and dispersion than has been previously obtained.

It is common in the art to adapt single grenades to be shot from rifles or mortars. This is illustrated by the patents to Post 1,311,006 and Farrell 1,309,280. My invention provides means to shoot a plurality of grenades a distance equal to or greater than the prior art devices and therefore is considered to be a substantial improvement since more grenades are delivered at or near the target.

The specific nature of the invention as well as other advantages thereof will clearly appear from a description of a preferred embodiment as shown in the accompanying drawings in which:

FIGURE 1 is a view of the standard U.S. Army manual rocket launcher;

FIGURE 2 is a view of a loaded split tube warhead mounted on a finned rocket with the top half separated and partially broken away;

FIGURE 3 is a partial isometric view of the same warhead showing how the firing lever opens the split tube after the pull rings are removed. The pull rings are shown in place for illustrative purposes;

FIGURE 4 is a cross-sectional view showing the placement of the spacing blocks;

FIGURE 5 is a view of a disposable rocket launcher which shoots non-finned rockets;

FIGURE 6 is a view of a loaded split tube warhead mounted on a non-finned rocket with the top half separated and only partially shown;

FIGURE 7 illustrates how the split tube rocket warhead is loaded into the rear of a launcher;

FIGURE 8 is a partial cross-section through the area where the split tube warhead of FIGURE 2 joins the rocket. The warhead of FIGURE 6 is built in the same manner.

As shown in the drawings, my invention consists of a finned rocket **32** having attached to it a split tube warhead made up of half sections **14** and **16** by means of a threaded plug **31** on the forward end of the rocket **32**. The plug **31** is diagrammatically illustrated in FIGURE 8 and consists of a threaded male portion **33** which screws into the pusher or end plate **30** and a threaded male portion (not shown) of a larger diameter which screws into the forward end of the rocket motor **32** or **42**. It is to be understood that the threaded plug **31** is merely illustrative and that any equivalent fastening means such as welding or riveting may be used at this point.

The split tube warhead **14** and **16** is divided up into a plurality of compartments by the separators or circular disks **22** and the end plates **23** and **30**. The spacing of the separators **22** is so chosen that the longest grenade will easily fit into each compartment. For shorter grenades a spacer **28** is used to take up the space. Block spacers **18** are provided in this type of my grenade rocket so that the split tube **14** and **16** is held together when the warhead is loaded into the launcher **10** since the diameter of the split tube is substantially less than the internal diameter of the launcher **10**.

I have also provided a split tube warhead having half sections **38** and **40** which is attached to a non-finned or definned rocket **42**. This device is essentially the same as the above device except that the diameter of the assembled split tube rocket **38** and **40** is substantially the same as the internal diameter of the expendible rocket launcher **32**.

In loading this device, the grenades **20** are placed in the half sections **16** and **40** so that the pull rings **24** of the munition fall through the slots **26** which is in each half section **16** or **40** adjacent to and to the rear of each separator disk **22**. It is to be understood that the slots **26** can be eliminated if desired by assembling the grenades so that the pull ring **24** extends out of the gap between each half section **14** and **16** in FIGURE 2 or **38** and **40** in FIGURE 6.

In loading the split tube warhead into the launcher, I proceed as indicated in FIGURE 7. As the warhead is pushed into the rear end or the forward end of the launcher, each pull ring is extracted until the entire warhead is in the launcher.

In operation, the operator squeezes the combination trigger and handle **12** or **34**. This activates a small magneto built into the handle. The current generated is carried by conventional wires and contacts to ignite the rocket motor in rocket **32** or **42**. Shortly, after the warhead is in flight, the sub-sections **14** and **16** or **38** and **40** are pushed apart by the firing levers **27** of the grenades **20**. The current generated is carried by an insulated wire (not shown) to the yieldable contact pins located in housing units **46** and **48** whereby contact is made with the insulated contact strips **50** and **52**. The other side of the magneto is, of course, grounded to the launcher and rocket.

Therefore, when the warhead is positioned by the contact pins of housing unit **46** and **48** and electrical energy is fed into the strips **50** and **52** from the trigger, the igniter, and propellant (both not shown for purposes of clarity) of the rocket motor **32** or **42** are touched off and the hot gases roar out of the venturi **44** to launch the warhead and rocket.

The materials used in my device are not critical. The split tube warhead **14** and **16** or **38** and **40** can be constructed from aluminum or plastics such as polymethylmethacrylates. The expendible launcher **32** can be made of a fiberglass reinforced plastic or aluminum tube. The separators **22**, the spacers **28**, and the end plates are preferably made from plastics such as polymethylmethacrylates.

Since the foregoing is a full and complete disclosure of my invention, I claim:

1. A rocket device for dispersing grenades with a rocket launcher comprising in combination:

(a) split tube means of predetermined length having a diameter substantially less than the diameter of said rocket launcher, said split tube means comprising a first and second half section, said first half section having a plurality of circular disk means mounted transversely to the axis of said tube means and spaced a predetermined distance apart throughout the length of said section, said section being mounted on end plate means having attaching means therein, said first and second sections being provided with a plurality of spacing means on the exterior thereof whereby said tube means is substantially centered in said rocket launcher;

(b) rocket means comprising a finned casing having propellant means, nozzle means, and igniter means therein, said rocket casing having attaching means on the forward end thereof adapted to be secured to the end plate attaching means.

2. A rocket device as set forth in claim **1** in which said first half section is provided with a hole immediately to the rear of said disk means.

3. A rocket device for dispersing grenades with a rocket launcher comprising in combination:

(a) split tube means of predetermined length having a diameter substantially less than the diameter of said rocket launcher, said split tube comprising a first and second half section, said first half section having a plurality of circular disks mounted transversely to the axis of said tube and spaced a predetermined distance apart throughout the length of said first half section; said section being mounted on a circular end plate having attaching means therein, said first and second sections being provided with a plurality of spacers on the exterior thereof whereby said tube means is substantially centered in said rocket launcher;

(b) rocket means comprising a finned casing having propellant means, nozzle means, and igniter means therein, said rocket casing having attaching means on the forward end thereof adapted to be secured to the end plate attaching means.

4. A rocket device as set forth in claim **3** in which said first half section is provided with a hole immediately to the rear of each of said disks.

5. A rocket device for dispersing grenades having pull rings with a rocket launcher comprising in combination:

(a) split tube means of predetermined length having a diameter substantially equal to the diameter of said rocket launcher, split tube means comprising a first and second half section, said first half section having a plurality of circular disk means mounted transversely to the axis of said tube means and spaced a predetermined distance apart throughout the length of said first half section, said first half section being mounted on end plate means having attaching means therein, said first half section further having a hole immediately to the rear of each of said disk means, whereby said grenade pull rings are extracted through said hole during the loading procedure;

(b) a rocket motor comprising a casing having propellant means, nozzle means, and igniter means therein, said casing having attaching mean on the forward end thereof, adapted to be secured to said end plate attaching means.

6. A rocket device for dispersing grenades having pull rings with a rocket launcher comprising in combination:

(a) a split tube of a predetermined length having a diameter substantially equal to the diameter of said rocket launcher, said split tube comprising a first and second half section, said first half section having a plurality of circular disks mounted transversely to the axis of said tube and spaced a predetermined distance apart throughout the length of first half section, said section being mounted on a circular end plate having attaching means therein, said first half section further having a hole immediately to the rear of each of said disk means, whereby said grenade pull rings are extracted through said hole during the loading procedure;

(b) a rocket motor comprising a casing having propellant means, nozzle means, and igniter means therein, said casing having attaching means on the forward end thereof adapted to be secured to said end plate.

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