

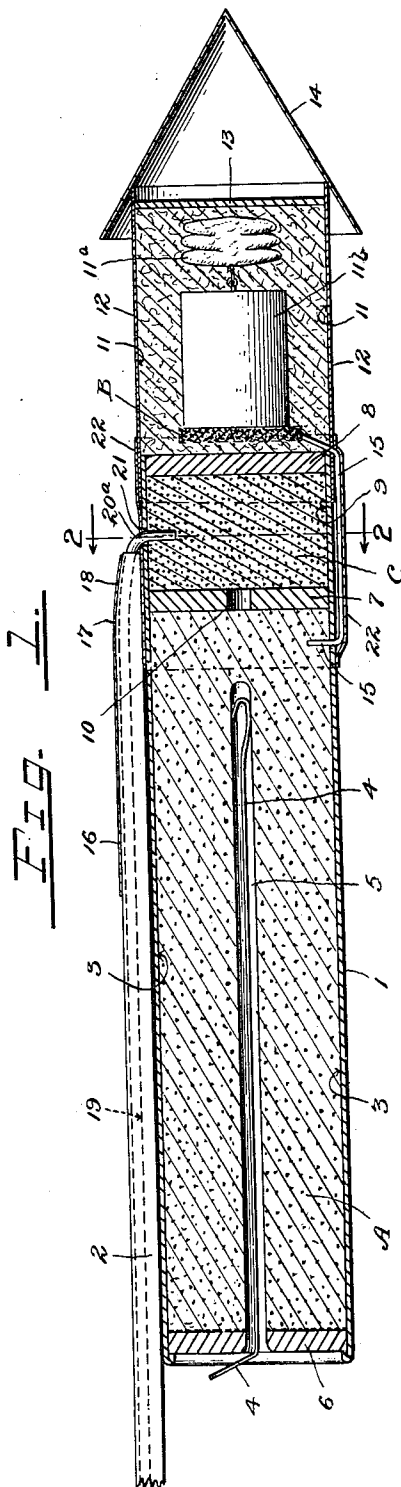
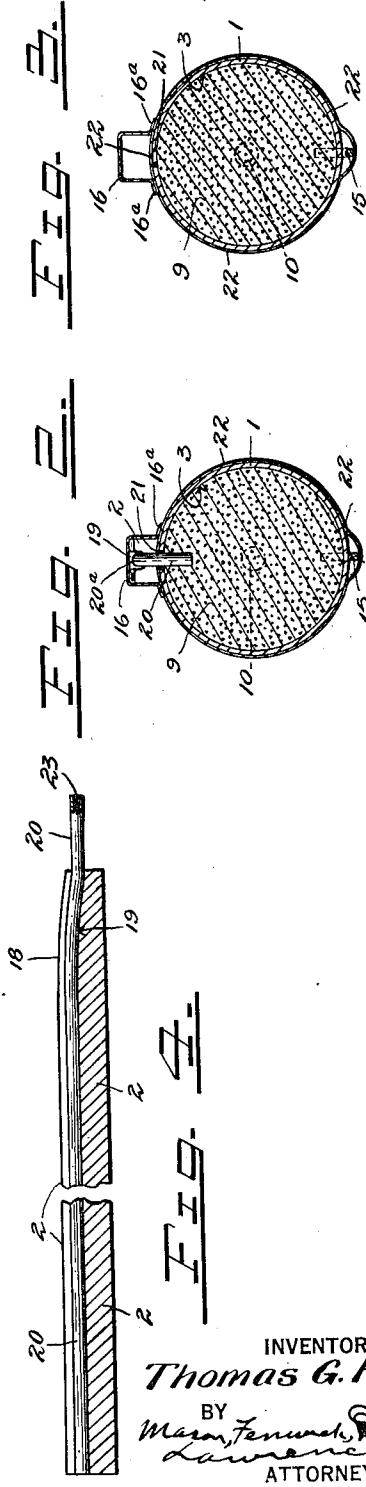
Dec. 29 1925

T. G. HITT

1,567,267

ROCKET

Filed Dec. 4, 1924



INVENTOR
Thomas G. Hitt.
BY
Mason, Fenwick & Lawrence
ATTORNEY

UNITED STATES PATENT OFFICE.

THOMAS G. HITT, OF SEATTLE, WASHINGTON.

ROCKET.

Application filed December 4, 1924. Serial No. 753,858.

To all whom it may concern:

Be it known that I, THOMAS G. HITT, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Rockets; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to rockets, and particularly to display rockets designed for use where large crowds of people are assembled, and it is desired to have all danger from falling parts of the rockets eliminated;

The objects of the invention are to provide a pyrotechnic rocket for use in carrying high into the air various forms of illuminating stars, flags, parachutes and other articles for display or signals, and after the discharge of the said articles to so destroy the parts of the rocket that no large parts will remain to injure persons or property in the fall.

I have heretofore been granted Letters Patent of the United States No. 957210, for the destruction of the shell and for causing the guide rod or stick to fall in a horizontal manner, but as there is still danger from the falling stick, and from the base of the shell which is not always destroyed, I have invented the further means for rendering the guide rod and all parts of the shell harmless, as new and useful, improvements over my former patent, as more fully explained herein.

I have illustrated my invention by the accompanying drawings:

Figure 1 represents a longitudinal sectional view of the shell with a portion of the guide rod in place.

Figure 2 represents a cross section of the shell taken on line 2 of Fig. 1.

Figure 3 represents a view similar to 2 with parts removed,

Figure 4 represents the guide rod and explosive tube contained therein.

Like numerals on the different figures represent like parts. 1, is the ordinary rocket shell, with my guide rod 2 affixed, 3 is the large chamber in the shell for packing the carrying charge A, which is fired by the ordinary quick match fuse 4, which extends up through tube 5 to give a large area for burning of the carrying charge to form

gases which are driven out from the mouth of the tube in the abutment 6, all as usual.

Above the chamber 3 I have affixed two partitions, 7 and 8, which may be of clay or other suitable material which is readily shattered by a sharp hard explosion, the space between these partitions forms a chamber 9 in which I place a detonating charge C or suitable explosive for destroying the partitions and shell and firing my other destroying agent as hereinafter shown. The charge in 9 is ignited through the duct 10 when the carrying charge has burned up to that point.

Above chamber 9 is a larger chamber 11 in which is placed any suitable display materials such as parachute 11^a or stars, flags or signals, etc. The walls 12 of this chamber are thin, and are readily burst by a light explosive B carried in the chamber beneath the display articles. A light cap 13 covers the chamber and display articles and is readily blown off by the charge B. The pointed cap 14 over all facilitates the upward passage. The charge B is ignited by a quick match or fuse 15 which extends from chamber 11 through the wall thereof and down the outside of the shell to a point below the partition 7 and there enters the chamber 3, and is ignited by the carrying charge when it burns up to the lower end of the fuse 15. The lower end of 15 is so spaced below 7, that the charge B in chamber 11 will have been exploded and the articles of display dispersed before the fire reaches and explodes the charge in the chamber 9.

For my guide rod, I use either a tube which may be formed of card board or other suitable material, or preferably a wooden stick shown as 2, which may be affixed to the shell by a bracket number 16, with a sloping end 17, into which the corresponding sloping point 18 of the rod 2 may be easily pressed until sufficiently tight to remain in position to guide the rocket. This bracket may be provided with flanges 16^a, affixed to the shell 1. In the outer side of the rod adjoining the shell is cut a deep groove 19, wherein is carried my destroying agent in thin tube 20. A hole 21 is provided through the wall of the chamber 9 near the top end of the rod 2, through which the end 20^a of the tube 20 is inserted until it is embedded in the detonating explosive C. In tube 20 I use a quick acting explosive 23, which is not exploded by the necessary

manipulations and transportation, but which is readily exploded by the blast of a detonating explosive such as contained in the chamber 9, and I preferably use the cordu Bickford tube, or one containing such explosive known as "T. N. T." in leadfoil or thin lead tubing, which can be readily bent to enable the point to be inserted into the hole 21 till embedded in the charge in 9.

10 Where a tube is used for the guide rod, the tube 20 may be carried within the tubular rod, and where the grooved stick is used. The tube 20 may be held within the groove by glue or other suitable means. In cases
15 where it is desired to facilitate packing for transportation, the sticks and shells may be disconnected, as shown in Figures 3 and 4 and tube 20 may be rolled on suitable spools and shipped separately.

I preferably place the fuse 15 on the side of the shell opposite the hole 21, and affix a suitable wrapper 22 around that part, or all, of the shell, which wrapper holds in place and protects the fuse 15, and also closes the mouth of the hole 21 and prevents the explosive in chamber 9 from escaping. This covering is readily punctured by the end of the tube 20^a when it is pressed into place as shown in Fig. 1.

30 In the chamber 11 I have shown a simple form of parachute 11^a folded and connected to a slow burning lantern, all packed about with suitable material, and supported by the light charge of explosive B, which is merely
35 sufficient to disperse the contents of the chamber and ignite the lantern, which serves as the basket for the parachute, as 11^b.

In operation, the rocket is fired by igniting the fuse 4 and the carrying charge in chamber 3, and when the rocket is near the end of its upward journey the light charge B, in chamber 11 is ignited by the fuse 15, and shortly after the articles in such chamber have been thereby dispersed, the detonating charge C in the chamber 9 will be ignited and the blast therefrom will cause

a loud report and bright flash and the partitions and walls of the shell be torn to small fragments thereby, and by the same blast of the detonating charge, the contents of
50 tube 20 will be exploded throughout the length of the rod, and all parts of the rod be torn to small particles. The action of the explosive in tube 20 being practically
55 instantaneous, any parts of the shell which remain other than minute after the blast from chamber 9, will be further reduced by the blast of the tube 20, and all danger from falling parts of the discharged rocket thereby removed.

Having described my invention, I claim:

1. A rocket comprising a shell body having a plurality of chambers therein, a propelling charge in one chamber a dispersing charge in another, and a destroying and
60 detonating charge in another chamber, said last named chamber being arranged between the said first named chambers, a quick burning fuse connecting the dispersing charge
65 with the propelling charge to be fired by the latter at a point below the floor of the detonating chamber, said propelling chamber and detonating chamber having an opening
70 therebetween, and a guide stick adjustable to the shell and provided with a tube of explosive material extending along the length thereof and connected with the detonating chamber.

2. A pyrotechnic rocket comprising a shell having a carrying charge and a bursting charge therein, said shell being provided with a hole through the side thereof opposite the bursting charge, a cover for said hole and a guide for the shell, said guide having a flexible tube filled with an explosive carried thereby, said tube having one end bent to perforate the cover and contact with the bursting charge, said guide and said tube being adjustably connected to the said shell.

In testimony whereof I affix my signature.

THOMAS G. HITT.