

1,297,898.

Patented Mar. 18, 1919.

Fig. 1

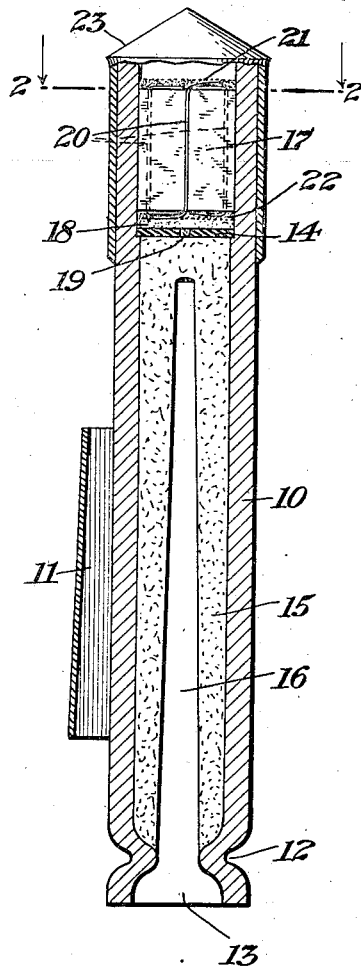
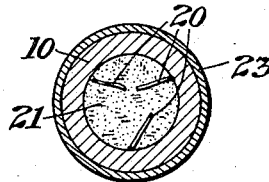


Fig. 2



WITNESSES
Chas. J. Clagett

INVENTOR
Henry J. Pain
 BY
Surrell
 HIS ATTORNEYS

UNITED STATES PATENT OFFICE.

HENRY J. PAIN, OF NEW YORK, N. Y.

ROCKET.

1,297,898.

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To all whom it may concern:

Be it known that I, HENRY J. PAIN, a citizen of the United States, residing in the borough of Manhattan, city, county, and State of New York, have invented an Improvement in Rockets, of which the following is a specification.

This invention relates to a rocket, and more particularly to a signal rocket, although as will be understood, its particular use is not so limited, because obviously it may also be used for display and other purposes. Heretofore, in the manufacture of signal rockets, in order to maintain a signal light in an elevated position as long as possible, it has been customary to employ in conjunction therewith, a parachute or other similar means for maintaining the signal light when ignited in the air. Rockets of this type are used extensively for signal purposes by the armies and navies of the nations engaged in the war, and due to the poor quality of material obtainable for the parachutes and possibly to imperfection in manufacture, it has been found in practice that an exceedingly large percentage of parachutes fail to perform their intended functions.

In order to obviate this difficulty, and at the same time to increase the intensity of the signal light, I have proposed to dispense with the parachutes in the manufacture of signal rockets, and to so construct the rocket that the signal light or star member thereof is simultaneously lighted or ignited in firing the rocket at a plurality of its parts. By so doing, I have found that the signal light or star member of the rocket remains in the air sufficiently long for the intended purposes, and at the same time gives a largely increased light and hence a correspondingly increased range of visibility.

The rocket constructed in accordance with my present invention will be hereinafter more particularly described in conjunction with the accompanying drawing, in which Figure 1 is a central longitudinal cross-section of a rocket illustrating the invention, and Fig. 2 is a cross-section on line 2—2 of Fig. 1.

Referring to the drawing, it will be seen that in carrying out the invention I employ the usual cylindrical case 10, forming the body of the rocket, and as is customary this may be made of cardboard, paper or any other suitable material. Secured to the case

10 in a convenient position is a socket 11 for receiving the stick, upon which the rocket is placed in being fired. One end of the case 10 is constricted as indicated at 12 and open as designated by 13. At a suitable distance from the open end of the case a transverse head or partition wall 14 is suitably fixed therein. Between the head 14 and the open end of the case the rocket is provided with an elevating charge of the material usually employed as indicated at 15. This is made with a bore 16, so that when ignited by a match, fuse, or otherwise, the gas generated by the burning charge is emitted so rapidly at the open end of the rocket as to so act against the air as to cause the rocket to rise.

In the opposite or closed end of the rocket, I employ a signal light, or so called star, indicated at 17. This is composed of a suitable pyrotechnic material to give a required light when burning. It is customary to make these signal lights or star to show red, white, or green, but of course substantially any color may be effected. The signal light 17 is preferably covered with a suitable coating of a mixture of alcohol and shellac and forced to place in the casing 10. Between the signal light or star 17 and the head 14 there is a signal firing charge indicated at 18. This is ignited by the inner end of the elevating charge 15 by means of a fuse or opening 19 in the head 14.

In conjunction with the signal light or star 17 and in order to simultaneously light or ignite the same at the opposite ends thereof, I employ a plurality of fuses, indicated at 20. These fuses 20 are rapid burning fuses, and while I have illustrated three of them any desired number may be employed. Each fuse 20 extends along the outer surface of the signal light or star, extending an appreciable distance beyond the ends thereof, and the extremities of the fuses are turned down against the ends of the signal light, so as to lie within priming charges 21 and 22 of gunpowder or other similar material, in order to insure the ignition of the signal light at both ends thereof. Also as illustrated, this end of the case may be provided with a paper cap 23 or other suitable covering.

As will now be apparent, the rocket hereinbefore described, upon being fired will rise in the air, and after the elevating charge has burned to the inner end, the signal light

firing charge will be ignited therefrom and the signal light or star ejected from the case, and simultaneously, the firing charge for the signal light, ignites the fuses 5 which ignite the priming charges and thus insure the substantially simultaneous lighting of the signal light or star at the opposite ends thereof.

I claim as my invention:

10 1. A signal rocket comprising a case, a transverse partition wall therein, an elevating charge extending between the transverse wall and an open end of the case, a signal light in the other end of the case, and means 15 associated with the signal light and fired by the elevating charge for ejecting the signal light from said case and directly and simultaneously igniting the same in a plurality of its parts distant from each other.

2. A signal rocket comprising a case, a transverse partition wall therein, an elevating charge extending between the partition wall and an open end of the case, a signal light in the other end of the case, and means 25 associated with the signal light for ejecting the same from said case and directly and simultaneously lighting the opposite ends thereof.

3. A signal rocket comprising a case, a transverse partition wall in the case, an elevating charge extending between the transverse wall and an open end of the case, a signal light in the other end of the case, a

charge between the signal light and the said transverse wall for ejecting the signal light, a fuse extending beyond the ends of the signal light and running longitudinally with the case, and a priming charge at either end of the signal light and in which the ends of the said fuse are turned so that both of the ends of the signal light are ignited substantially simultaneously upon the signal being ejected from the case.

4. A signal rocket comprising a case, a signal light contained in the said case, a charge for ejecting the signal light from the said case, and a fuse extending beyond the ends of the signal light and having its ends turned over the extremities of the signal light so that when ignited from the charge 5 for ejecting the signal light from the rocket case, both ends of the light are ignited substantially simultaneously.

5. A signal rocket comprising a case, an elevating charge therein, a signal light also 5 in the said case, an ejecting charge ignited from the elevating charge for expelling the signal light from the rocket case, and a fuse extending beyond the ends of the signal light and folded over the same so that when 60 lighted from the ejecting charge, both ends of the signal light are ignited thereby substantially simultaneously when the signal light is ejected from the rocket case.

Signed by me this 15th day of June 1918. 65

HENRY J. PAIN