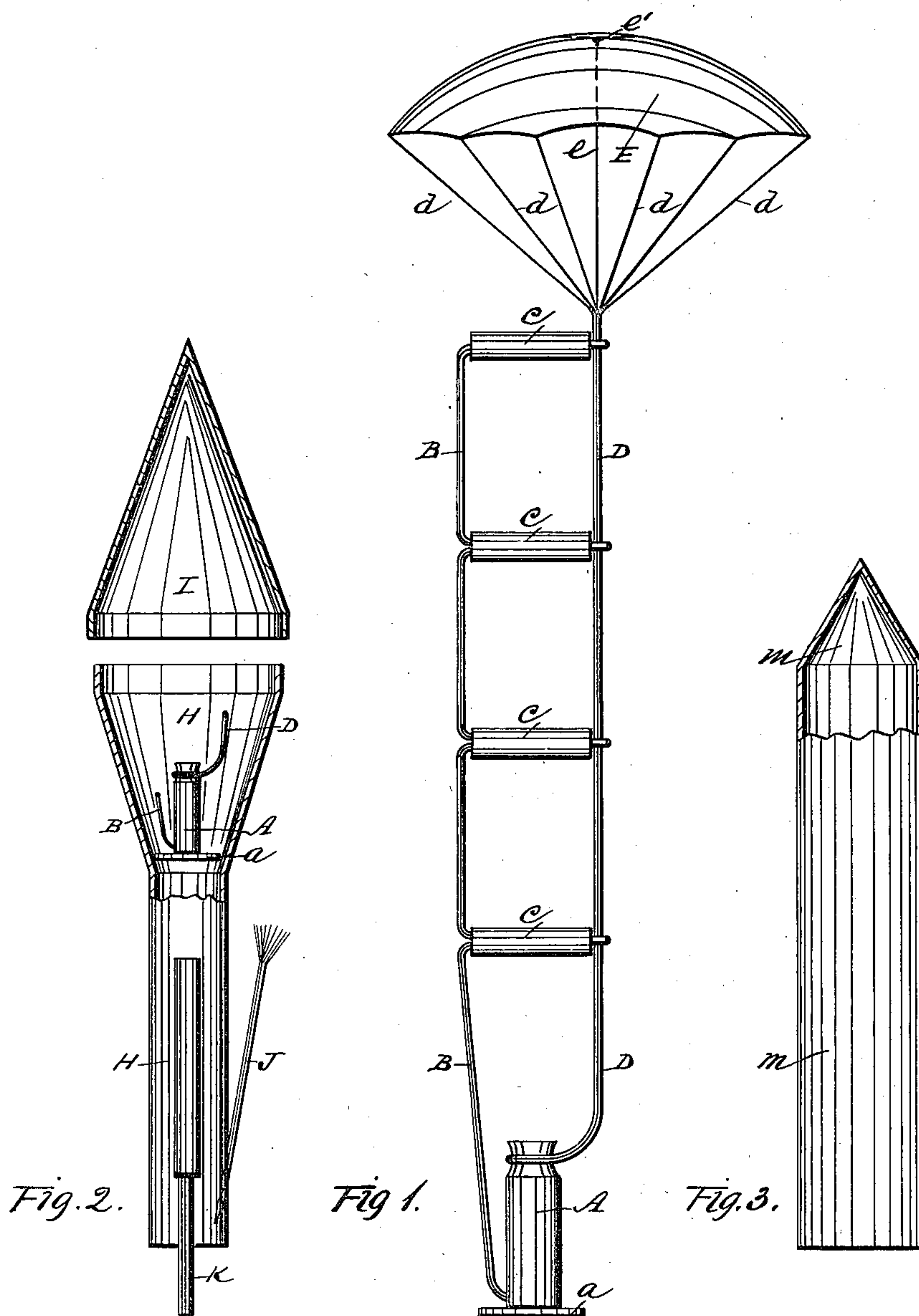


(No Model.)

T. W. HAND & W. TEALE.  
SIGNAL ROCKET FOR VESSELS.

No. 480,012.

Patented Aug. 2, 1892.



Witnesses.  
A. M. Hinz  
A. W. O'Leary

Inventors.  
Thomas William Hand  
and Walter Teale.  
by their Atty. John Hendry.



# UNITED STATES PATENT OFFICE.

THOMAS WILLIAM HAND AND WALTER TEALE, OF HAMILTON, CANADA.

## SIGNAL-ROCKET FOR VESSELS.

SPECIFICATION forming part of Letters Patent No. 480,012, dated August 2, 1892.

Application filed January 9, 1892. Serial No. 417,459. (No model.)

*To all whom it may concern:*

Be it known that we, THOMAS WILLIAM HAND and WALTER TEALE, citizens of Canada, residing at Hamilton, in the county of Wentworth and Province of Ontario, Canada, have invented a new and useful Signal-Rocket for Vessels or other Signal Service, of which the following is a specification.

Our invention relates to improvements in signal-rockets; and it consists of a rocket-igniting light loaded or charged and to which is attached a fuse of suitable length to carry and light a series of smaller lights, which are also loaded with combustible matter. This series of lights are attached at their other ends by a connecting-line of asbestos or fire-proof cord, flexible chain or links, which hold the lights in position when the fuse has ignited them and expended itself. These lights burn and send forth a certain colored light and are arranged for the purposes of signal service. The aforesaid cord or chain, besides being attached to the said series of lights, has its lower end firmly secured to the igniting-light and at the other end separates into a series of strands attached to a parachute; and the objects of our improvements are, first, to provide a series of colored lights arranged in proper position and order and ignited with one-rocket power, and, second, to afford facilities for the suspending of the same in the air or where required for signal services. We attain these objects by the device illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of the signal apparatus with a series of lights all connected consecutively by means of the fuse and the connecting-line of non-ignitable material, the upper end of said line being attached to a parachute of flexible material and construction. Fig. 2 is an elevation of a rocket of smaller scale, its upper part in section, with its cover detached, also in section, showing the position of the lower igniting-light, Fig. 1, in its interior, said interior, with its said cover, to contain the whole of the signal apparatus when carefully folded together and placed therein; and Fig. 3 is an elevation of a gun or mortar shell, its upper part in section, in which also this signal apparatus may be placed.

Similar letters refer to similar parts throughout the several views.

A is the igniting-light of a signal-rocket, to which is attached a fuse or quick match B, of suitable length to be attached to and light any number of shells or lights C, containing different-colored lights and arranged in such a manner and order to suit the requirements of signal service.

D is the asbestos or non-ignitable connecting-line connecting the said shells or lights C and the igniting shell or light A, so that when the fuse B is exhausted the lights are still held in their proper position and order of color for the desired signal. This connecting-line D separates at its upper end into strands *d*, which support a flexible fabric parachute E. *e* is an elastic strand extending from the line D to the center of the parachute E. This device, as delineated and as shown in Fig. 1, forms the essential elements in our invention.

In Fig. 2 is shown the igniting-light A, broken from its attached fuse and connecting-line, in position, with its wad *a* fitting in the lower part of the upper chamber of the rocket H. The cover I fits snugly to the upper part of said rocket H and holds and retains compactly the whole of the apparatus when folded, as shown in Fig. 1. The rocket-fuse J communicates power to the lower part of said rocket, and the rod K is for steadying purposes.

M is a gun or mortar shell, which will also contain our invention in its upper part and may at certain times be more convenient for signal purposes than the rocket, either of which will give the necessary force and power.

The igniting-light A, which is of greater power than the colored lights C, is also for the purpose of first drawing attention to the coming signal and in turn giving power to the colored lights by means of its fuse.

The elastic strand *e* holds the center *e'* of the parachute E in position to insure the even inflation of the whole.

We make no claim to the rocket or rocket power, for we are aware that these are not new; but

What we do claim as our invention, and desire to secure by Letters Patent, is—

1. In a signal-rocket, the combination of an



igniting-light A with its wad *a* and its attached fuse B, which is also attached to a series of colored lights C, substantially as described.

2. In a signal-rocket, an igniting-light A and its attached fuse B, with the colored lights C, in combination with the non-ignitable connecting-line D, substantially as described.

3. In a signal-rocket, the combination of the igniting-light A, colored lights C, fuse B, connecting-line D, and a parachute E, with its strands *d*, its center elastic strand *e*, and its center *e'*, substantially as described and set forth.

4. The rocket H, having widened top with

its close-fitting conical cover I, forming a chamber containing and inclosing the igniting-light and wad, the flexible fuse, the colored lights, the flexible and non-ignitable connecting-line, and fabrical parachute, with fuse J, attached to lower part of said rocket H, giving power to the whole, substantially as described and set forth.

THOMAS WILLIAM HAND.  
WALTER TEALE.

Witnesses:

A. MCKENZIE,  
A. MCPHERSON.