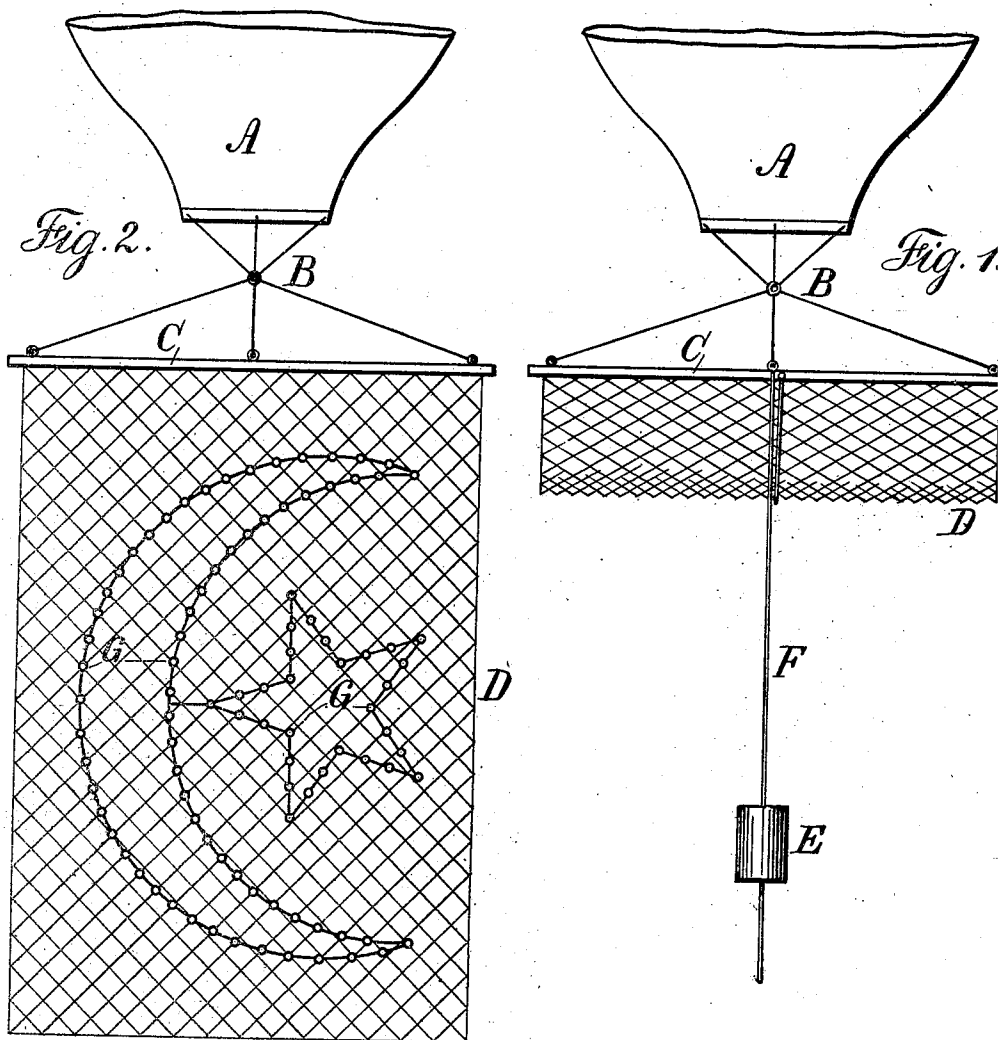


(No Model.)

H. J. PAIN.
PYROTECHNIC DEVICE.

No. 519,159.

Patented May 1, 1894.



Witnesses:
J. Stait
Chas. N. Smith

Inventor:
Henry J. Pain
per Lemuel W. Serrell

UNITED STATES PATENT OFFICE.

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

PYROTECHNIC DEVICE.

SPECIFICATION forming part of Letters Patent No. 519,159, dated May 1, 1894.

Application filed August 10, 1893. Serial No. 482,856. (No model.)

To all whom it may concern:

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

This invention is allied to that set forth in my concurrent application, Serial No. 452,649, filed November 21, 1892.

The object of this invention is to display against the dark background of the sky a pyrotechnic device suspended from a balloon, such pyrotechnic device being emblematic, as distinguished from the pyrotechnic devices which have heretofore been exploded from balloons, and also as distinguished from illuminated balloons or lanterns or transparencies from balloons. The balloon itself may be a fire balloon which becomes buoyant in consequence of the air being heated within the same, but any suitable balloon may be made use of, and suspended from this balloon is a framework or foundation of woven wire or other suitable material that is non-combustible, and upon the surface of the same fireworks and pyrotechnic devices are arranged so as to form an emblem when the fireworks are ignited, such for instance as a star, a cross, a portrait or words or letters, all formed by the firework itself, so that when the device is at the proper height, the firework is ignited and the emblem produced by the fire, and the same shining against the dark background of the sky produces a beautiful effect which is radically different from the illumination of a transparency by lights either in front of or behind the transparency or article illuminated.

In carrying out my invention I find it advantageous to employ a suitable cross bar suspended from the balloon and carrying one end of a wire frame or curtain to the surface of which are attached the firework lights of similar or different colors, which lights are arranged upon such curtain or framework in the proper manner to produce the desired emblem, and suspended from or connected to such curtain or framework is a time fuse, so that after the lapse of time necessary for the ascent of the balloon the fuse will ignite the explosive material that connects the various

lights and fireworks upon the surface of or connected with the netting or framework, so as to set off the firework design and produce a substantially instantaneous illumination of the same; and where more convenient, this curtain may be rolled up and secured with some of the fuse connections, so that when such fuse connections burn or explode, the moving edge of the curtain or frame will be liberated so as to allow the same to unroll or hang down and display the firework design as the same is ignited, and the balloon may be constructed in such a manner that the action of the air upon the same as the balloon is borne along by the atmospheric currents, will cause the balloon to rotate more or less upon its vertical axis so as to display to the best advantage the firework design as the same hangs from below the balloon.

In the drawings, Figure 1 illustrates the lower end of a balloon and the supporting device and the curtain or frame in its compact form with a time fuse suspended from the same. Fig. 2 is a similar view illustrating the curtain or foundation frame suspended from the balloon and having a design upon the same in fireworks.

A represents a portion of the lower end of a balloon, B the suspending devices for the rod or frame C to which is connected the curtain D of wire-work of any suitable character or other backing to which the fireworks are connected, and at E I have represented a time fuse suspended from the frame or curtain D and adapted to burn for the proper length of time before producing the explosion of the suspending or securing cord F which connects with the respective fireworks and ignites the same, and these fireworks are shown at G arranged to form a design, the design shown being a crescent and star, the design however is to vary and may contain letters or other characters as required for the special occasion or a portrait or picture may be produced by the fire works.

The design of the firework may be made up of numerous small blue lights, Roman candles or other similar devices that will burn with one or more different colors, and by the grouping of these together the special design to be displayed is provided.

I do not herein claim a series of receptacles with pyrotechnic devices in lengths secured to such receptacles and connected to a frame, as the same forms the subject of my
5 aforesaid application.

By the term balloon I mean such an air displacing device as will sustain the firework in the air at an elevation or prevent its rapid fall.

10 I claim as my invention—

1. The combination with a balloon and fireworks of a suspending device from the balloon and to which the fireworks are connected and a fuse by which the fire works are ignited after
15 the device has reached the desired height substantially as specified.

2. The combination with a balloon, of a frame or flexible backing adapted to be secured in a comparatively small compass, and
20 fireworks connected with such frame or backing and arranged to produce letters, charac-

ters or designs, an igniting fuse for the respective fireworks and means for holding the backing in its contracted condition, which means are burned away by the fuse to allow
25 the frame or backing to become distended as the fireworks are ignited, substantially as set forth.

3. The combination with a balloon, of a frame or backing suspended from such balloon, fireworks connected to such frame or
30 backing and arranged to produce letters, numbers or emblematic devices, and a time fuse suspended from such backing and adapted to igniting the fireworks nearly simultaneously after the time fuse has burned, sub-
35 stantially as set forth.

Signed by me this 8th day of August, 1893.

HENRY J. PAIN.

Witnesses:

GEO. T. PINCKNEY,

A. M. OLIVER.