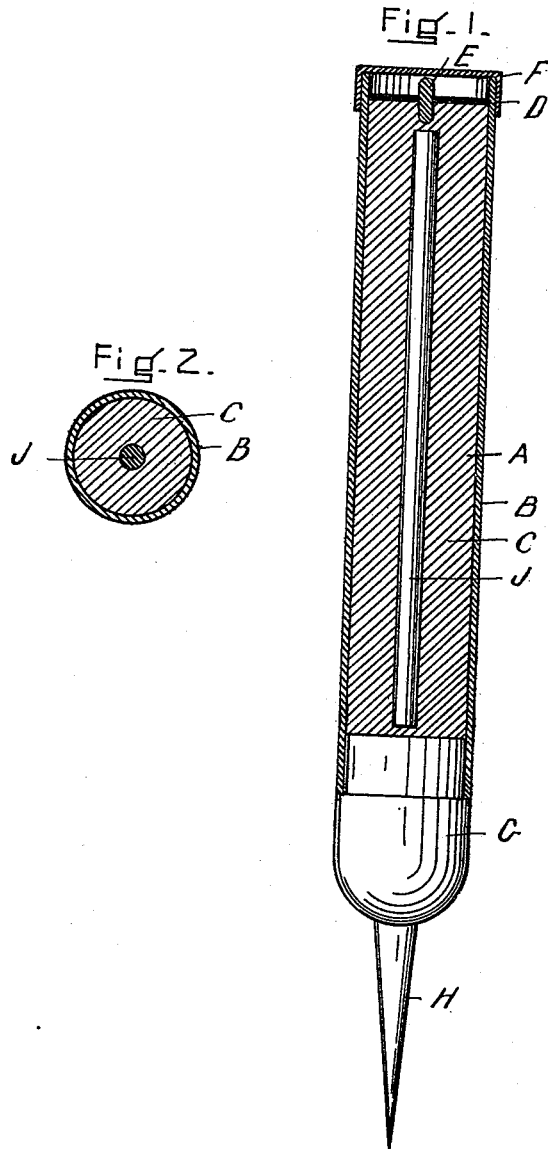


(No Model.)

T. M. PIERCE.  
FIREWORKS TORCH.

No. 494,440.

Patented Mar. 28, 1893.



WITNESSES.

*Leon C. Arno.*  
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INVENTOR.

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# UNITED STATES PATENT OFFICE.

THOMAS M. PIERCE, OF CONCORD, MASSACHUSETTS.

## FIREWORKS-TORCH.

SPECIFICATION forming part of Letters Patent No. 494,440, dated March 28, 1893.

Application filed December 22, 1892. Serial No. 456,094. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS M. PIERCE, of Concord, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Fireworks-Torches or Signal-Fusees, of which the following is a full, clear, and exact description.

This invention has for its object the manufacture of fireworks torches or signal fusees, whereby a comparatively thin casing or tube of paper or other suitable sheet material for the fireworks composition can be used, so it can burn freely, and yet have the requisite strength of the torch for use, and the invention consists of a fireworks torch composed of a casing or tube, fireworks composition therein, and a wire, rod or stem longitudinally within the composition preferably central, all substantially as hereinafter fully described reference being had to the accompanying sheet of drawings in which:

Figure 1, is a vertical central longitudinal section of a fireworks torch constructed according to this invention. Fig. 2, is a cross section on line 2—2 Fig. 1.

In the drawings A represents a fireworks torch of which B is the casing or tube of paper, or other suitable sheet material, C the fireworks composition, D the priming, E the fuse, F a cap secured to and closing the upper end of the casing, G a plug or stopper in the lower end of the casing and H a steel point by which the fusee is supported in use, all substantially as usual in the construction of fireworks torches and signal fusees and needing no more particular description herein.

J is a rod, or wire or stem, which is longitudinally centrally in the composition preferably extending substantially its length as shown.

In securing the wire, rod or stem in the torch or fusee it can be first placed centrally longitudinally in the casing, resting on the plug, or so held in any suitable manner, and then the composition placed in the casing about and around the wire and firmly packed therein.

To produce the best practical results in the use of the fireworks torch or signal fusee, the casing should burn freely and quickly with the composition, but when made of paper thin enough to accomplish this result, the torch

will not have sufficient strength and will be easily broken in transportation and use, and to make the casing of paper or other material thick enough to give the requisite strength, the thickness is liable to interfere with the perfect burning of the torch, but with the application of the central wire, or rod, or stem embedded in the fireworks composition, the composition being firmly pressed in the casing around and about the wire, rod or stem, the requisite strength of the torch is secured enabling the casing to be made of quite thin paper or other material, for the perfect burning of the torch.

The wire or rod or stem can be made of any suitable metal, or it can be made of wood or paper, and can be made solid as shown or hollow, in tube form, and of any suitable form, round, square or otherwise in cross section, but being made of metal it can be made somewhat smaller in diameter than if made of wood or paper so that it might be preferable to make it of metal. It can be disposed in the composition longitudinally at one side in lieu of centrally therein, although it is preferable to have it as described, and shown; also the wire, rod or stem need only extend part way, substantially half way, the lower half, as the principal part of the torch requiring the strength is at the lower half of the torch.

The fireworks composition being firmly packed within the casing and around and about the central wire, stem or rod, makes a very compact, solid and strong torch, and of such strength that the casing can be made of quite thin paper enabling it to burn freely and thus make a perfect burning torch. The central wire or rod or stem embedded in the composition, secures the strength desired for the torch.

Having thus described my invention, what I claim is—

A fireworks torch or signal fusee, consisting of a tube or casing, fireworks composition therein, and a longitudinal wire, rod or stem embedded in the composition.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

THOMAS M. PIERCE.

Witnesses:

EDWIN W. BROWN,  
LEONA C. ARNO.