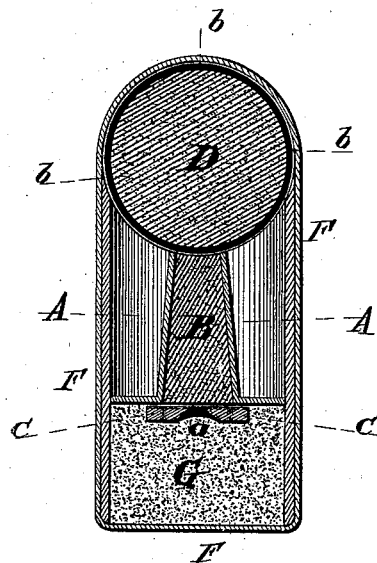


E. D. KENDALL.
Pyrotechnic-Cartridge.

No. 217,115.

Patented July 1, 1879.



Witnesses:
P. Q. Dietrich.
John H. Duffy.

Inventor
Edward D. Kendall.
Per *C. H. Watson & Co.* Attorneys.

UNITED STATES PATENT OFFICE.

EDWARD D. KENDALL, OF JERSEY CITY, NEW JERSEY.

IMPROVEMENT IN PYROTECHNIC CARTRIDGES.

Specification forming part of Letters Patent No. **217,115**, dated July 1, 1879; application filed May 10, 1879.

To all whom it may concern:

Be it known that I, EDWARD D. KENDALL, of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Nautical Signal-Light Cartridges; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which forms a part of this specification.

The nature of my invention consists in the construction of a nautical signal-light cartridge which will leave a line or path of fire when the projectile is shot into the air, as will be hereinafter more fully set forth.

In the annexed drawing, which fully illustrates my invention, the figure represents a central vertical section of my improved cartridge.

A represents a hollow cylinder, of wood, paper, or other suitable material, and of any desired dimensions. The bore of this cylinder is made tapering, as shown, and contains a composition, B, which is slow-burning and scintillating.

At the end of the cylinder A is placed a disk, C, of hard wood or other suitable material, holding the fulminate *a*.

The other end of the cylinder A is made concave to receive a ball, D, of colored-fire

composition, and this ball is surrounded by or inclosed within a coating, *b*, of meal-powder. The whole is then inclosed within a shell or casing, F, leaving a chamber, G, for gunpowder.

In this signal-light it will thus be seen that I have a cylinder filled with comparatively slow-burning pyrotechnic composition, which is adapted to leave a line or path of fire when the projectile is shot into the air. To one end of this cylinder is attached a pyrotechnic composition, D, for colored fire, and to the other end is attached fulminating material *a*, which will explode by percussion.

The outside case or wrapper, F, may be of paper, cloth, or other material suitable for the purpose.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination of the hollow cylinder A, less in diameter than the outer wrapper, the pyrotechnic compositions B D, disk C, with fulminate *a*, and the outer case or wrapper, F, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

EDWARD D. KENDALL.

Witnesses:

W. M. WALTON,

J. EDGAR CORLIES.