

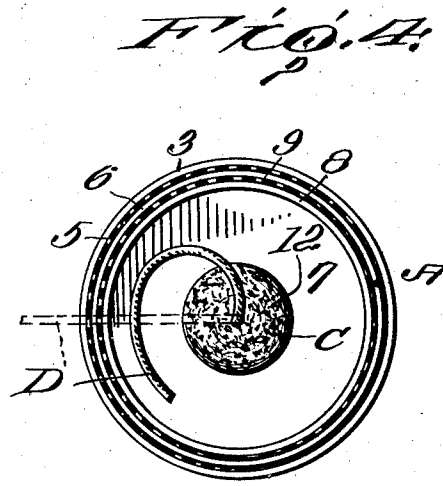
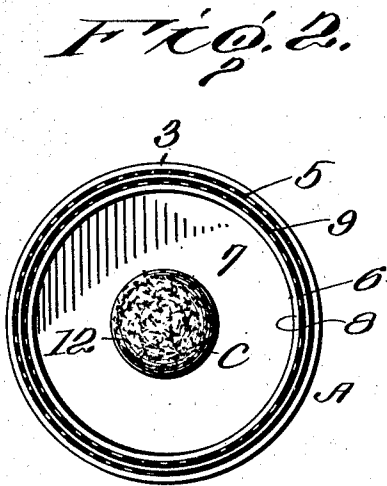
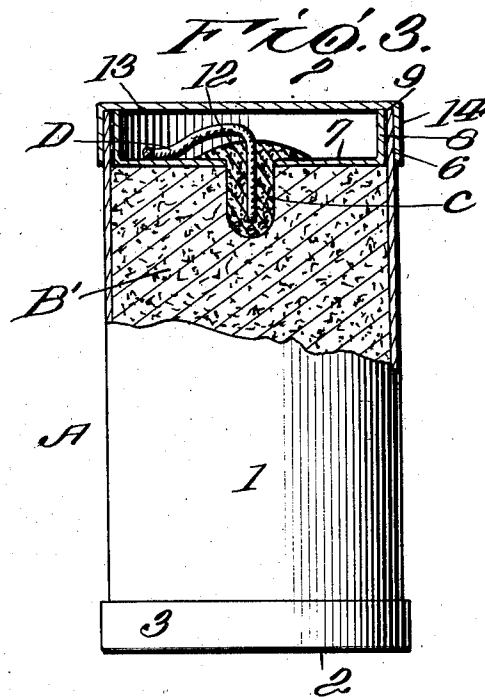
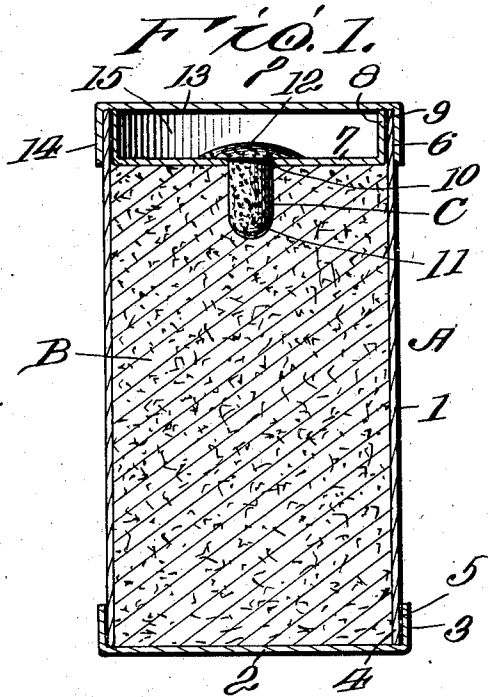
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F. DUTCHER

FLARE LIGHT

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UNITED STATES PATENT OFFICE.

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FLARE LIGHT.

Application filed November 12, 1921. Serial No. 514,633.

To all whom it may concern:

Be it known that I, FRANK DUTCHER, a citizen of the United States, residing at Versailles, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Flare Lights, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in flare lights and deals more particularly to the construction of the container for the burning powder.

At the present time there are in force in the several states different and divers laws and statutes pertaining to the use and sale of fire works and the specifications which the fire works must meet before the same can be sold within the confines of the different states.

My improved invention is designed to meet the requirements of these specifications and also constructed in a manner to possess certain advantages which will be set forth hereafter.

The primary object of my invention is to provide a flare light wherein the container is so constructed that the powder or burning composition together with its lighter or primer are protected against possible ignition by friction from without.

Another object of my invention is to provide a flare light which is so constructed that the cover of the container carrying the burning compound and its lighter are protected by the same.

Another object of my invention is to provide a container for the burning compound of a flare light or the like wherein the container is so constructed as to have its walls strengthened to lessen the likelihood of the container being crushed.

Another and further object of my invention is to provide a flare light which is safe during transportation and in use.

A still further object of my invention is to provide a flare light which is cheap and simple of manufacture and safe in use.

Other and further objects and improved results of my invention will appear in the

following description and accompanying drawings.

In the accompanying drawings:—

Fig. 1 is a vertical sectional view taken through my improved flare light.

Fig. 2 is a top plan view of the flare light shown in Fig. 1, the cover of the container having been removed.

Fig. 3 is a side view of my improved flare light appearing partly in fragmental vertical section.

Fig. 4 is a top plan view of the flare shown in Fig. 3, the cover to the container having been removed.

Referring now to the drawings in which like parts are designated by similar reference numerals throughout the description, A represents the container for the burning composition powder B while the lighter or primer is designated at C.

As clearly appears in the drawings the container A consists of an open ended cylinder 1 although it will be readily understood that this member could be constructed of a different shape, as for instance square, without departing from the spirit of my invention. The lower end 4 of the cylinder 1 is closed by a bottom cover 2 provided with an upwardly extending wall 3 which fits over the lower end 4 of the cylinder 1 and is cemented thereto as at 5.

The upper end 6 of the cylinder 1 is closed by a supplemental cap 7 which fits within the end 6 of the cylinder 1 and extends into the cylinder, a distance equal to the depth of the upstanding wall 8 of the supplemental cap, which wall can be made as will readily appear, of any desired depth. The wall 8 of the supplemental cap 7 is cemented to the inner face of the upper end 6 of the cylinder, as clearly appears at 9.

The burning powder or composition B is carried within the container A between its bottom cap 2 and its top supplemental cap 7, as clearly appears in the drawings, the composition B being put into the cylinder before the supplemental cap is put in place although the cylinder could be loaded after the placement of the supplemental cap, as will appear later.

The center of the supplemental cap 7 is provided with an opening 10 through which projects downwardly into the burning composition B the end 11 of the primer C, while
 5 above the opening and resting upon the upper face of the supplemental cap 7 is the lighting head 12 of the primer C.

The primer C preferably consists of a composition of chlorate of potassium; charcoal; nitrate of strontium; and a pigment, such as burnt umber or the like. The primer
 10 when placed is in a plaster form and its head 12 extends around and above the opening 10 in the supplemental cap, as clearly appears in the drawings. After having
 15 set for a short time the primer becomes hardened.

The upper end 6 of the cylinder A carries in addition to the supplemental cap 7 a removable top 13 which has downwardly extending walls 14 for engaging the outer face
 20 of the upper end 6 of the cylinder. As clearly appears in the drawings there is an air chamber or space 15 between the cover 13 and the supplemental cap 7 which protects the primer or lighter C against possible engagement from the outside. As
 25 also will be readily understood the upper end 6 of the container is reinforced to strengthen it against being crushed because of the fact of the triple thickness of the container at this point, consisting namely of the wall 8 of the supplemental cap, the upper end 6 of the cylinder 1 and the downwardly extending wall 14 of the cover 13.
 35

Although I have described the particular composition used for the primer or lighter C, I wish it to be understood that I do not limit myself to the use of a primer of this
 40 particular composition as lighters of other compositions well known in the art can be used without departing from the spirit of my invention.

I have referred to the burning powder of the composition B generally without defining the component parts of the composition. Preferably this composition B is slow burning. The composition is made to burn in
 50 any desired color, such as white, red, blue, green etc.

In operation the cover 13 of the container is removed and a match or light applied to the primer or lighter C. After the primer has been lighted, the same burning downwardly ignites the composition B which
 55 burns slowly through the opening 10 in the supplemental cap 7, gradually burning away and increasing this opening 10 until the end 6 of the cylinder 1 of the container is completely open, at which time a brilliant and beautiful light of the desired color is being thrown out of the container.
 60

Coming now to the modified form of my invention as shown in Figures 3 and 4 of the
 65 drawings, the component parts of this device

are similar to that of the preferred form already described, with the exception of the composition B prime and the supplemental primer fuse D.

In the modified form of my invention it
 70 is my intention to have the burning composition B prime burn in the several different colors already specified, but this composition will be fast burning so that when the flare is in operation the light and fire will be
 75 thrown upwardly and outwardly a considerable distance through the open upper end of the container.

As there will be some danger in standing immediately above the primer or lighter C
 80 when igniting a flare of this type, I have provided the primer C with a supplemental fuse D which is extended over the side of the container A, as clearly appears in Fig. 4 of the drawings, so that a match can be applied to this fuse and the operator of the
 85 flare could be a safe distance away from the same before the composition is ignited and begins to burn.

Having thus described by invention, what
 90 I desire to protect and secure by Letters Patent is—

1. A flare light comprising a container having a burning compound receiving chamber, a primer for the compound carried by
 95 a supplemental cap within the container, the primer provided with a fuse, and a primer protecting chamber above the primer and the supplemental cap.

2. A container for a flare light or the like
 100 having an open end, the open end of the container provided with a removable cover, a supplemental cap carried within the container adjacent its open end, the supplemental cap provided with upwardly extending
 105 walls, the cover provided with downwardly extending walls adjacent the outer face of the open end of the container, whereby the open end of the container is strengthened by three thicknesses of material.
 110

3. A flare light comprising a container having a burning compound receiving chamber, a primer for the compound carried by a supplemental cap within the container; the primer provided with an enlarged lighting head having a fuse, and a
 115 primer protecting chamber above the primer and the supplemental cap.

4. A container for a flare light or the like comprising, an open ended cylinder having
 120 one end closed by a bottom cover, the opposite end provided with a removable top cover, a supplemental cap composed of material similar to that of the container carried within the container adjacent its top end, the supplemental cap provided with upwardly extending walls, the top cover provided with downwardly extending walls adjacent the outer face of the upper end of the cylinder, whereby the
 125

upper end of the cylinder is strengthened by three thicknesses of material.

5 5. A container for a flare light or the like having an open end, the open end of the container closed by a removable cover, a supplementary cap having a central opening carried within the container intermediate its

ends, and a primer having a fuse adapted to close the opening in the supplementary cap, the parts arranged for the purpose de- 10 scribed.

In testimony whereof I hereunto affix my signature.

FRANK DUTCHER.