

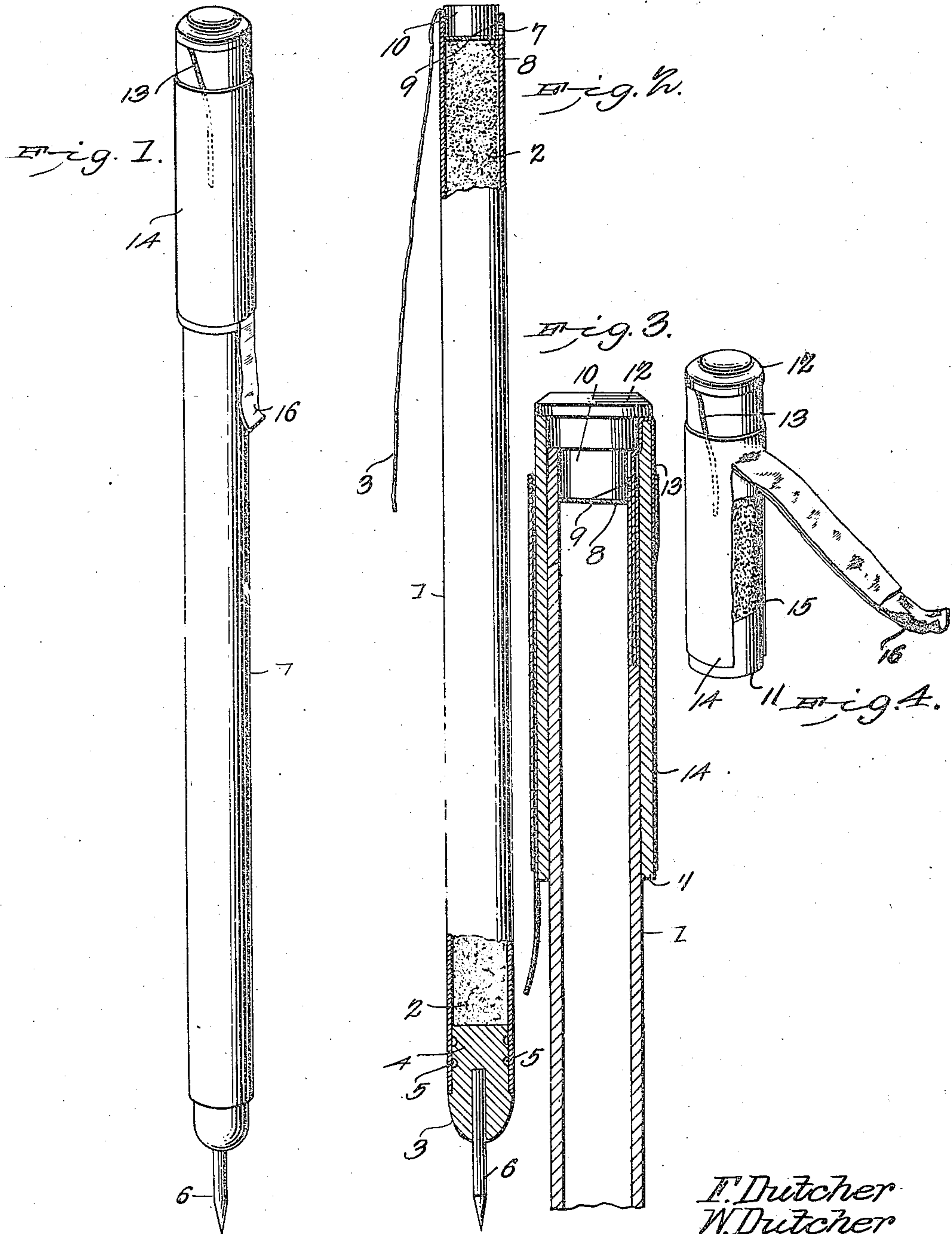
No. 725,231.

PATENTED APR. 14, 1903.

F. & W. DUTCHER.
SIGNAL TORCH.

APPLICATION FILED AUG. 29, 1902.

NO MODEL.



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UNITED STATES PATENT OFFICE.

FRANK DUTCHER AND WARREN DUTCHER, OF WEST NEWTON,
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SIGNAL-TORCH.

SPECIFICATION forming part of Letters Patent No. 725,231, dated April 14, 1903.

Application filed August 29, 1902. Serial No. 121,520. (No model.)

To all whom it may concern:

Be it known that we, FRANK DUTCHER and WARREN DUTCHER, citizens of the United States, residing at West Newton, in the county of Westmoreland and State of Pennsylvania, have invented a new and useful Signal-Torch, of which the following is a specification.

The invention relates to improvements in signal-torches.

10 The object of the present invention is to improve the construction of railway emergency signal-torches or colored-light fuses and to increase the durability and efficiency of the same and to provide a comparatively simple and inexpensive torch or fusee which will be damp-proof and which will prevent acciden-
15 tal displacement of its cap.

A further object of the invention is to enable the plug at the lower end of the torch to be firmly secured in the tube and to arrange the quick-igniting material so that it may be conveniently ignited and also to cause the fire to be quickly fed or conducted to the pyrotechnic compound.

25 The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

30 In the drawings, Figure 1 is a perspective view of a signal torch or fusee constructed in accordance with this invention. Fig. 2 is a longitudinal sectional view, partly in elevation, the cap being removed. Fig. 3 is an enlarged longitudinal sectional view of the upper portion of the torch, illustrating the manner of securing the cap to the tube. Fig. 4 is a detail perspective view of the cap, the water-proof strip being torn away to uncover the
40 friction material.

Like numerals of reference designate corresponding parts in all the figures of drawings.

1 designates a tube constructed of paper or other suitable material and designed to contain a pyrotechnic compound 2, which may be of any desired character, and the lower end of the tube is closed by a plug 3, of wood or any other suitable material. The plug 3, which is preferably rounded, is provided with
50 a reduced inner portion 4, fitting within the lower end of the tube and provided with an-

nular grooves 5, designed to be filled with glue or other adhesive material, whereby the plug is securely fastened within the tube. The plug is also provided with a spike 6, having
55 a pointed outer end to enable it to be readily embedded in a cross-tie or in the ground or a bank adjacent to the track for supporting the torch or fusee in an upright position. The spike is embedded in the plug when the latter
60 is constructed of wood; but it may be secured to the plug in any other suitable manner, as will be readily understood.

The tube is provided near its upper end with an opening 7, and a disk 8 is secured
65 within the tube by glue or other adhesive material and is arranged slightly below the side opening of the tube and is provided with a central opening 9. The space above the disk, which is constructed of paper or other
70 suitable material, is filled with quick burning or igniting material 10, which is placed in the upper end of the tube in a plastic condition and is forced outward through the side opening of the tube to enable the torch to be
75 ignited by rubbing the friction material hereinafter described against either the side of the tube or the end thereof. The disk may be provided with one or more apertures, which are for the purpose of feeding the fire
80 quickly to the pyrotechnic compound.

The upper end of the tube is closed by a tubular cap 11, constructed of paper or other suitable material and provided at its upper
85 end with a plug 12, of wood or other material. The plug 12, which is reduced, as shown, to fit into the upper end of the body of the cap, is secured to the same by tacks or other suitable means after the said body portion of the cap has been applied to the tube. The tube
90 is provided with a cord 13, secured at one end between the layers of the paper of the tube and adapted to be drawn outward through the body portion of the cap. After the cord
95 has been drawn outward through the body portion of the cap the plug is fitted in the outer end of the latter and is secured to the same, the cord being interposed between the plug and the body portion of the cap, as
100 clearly shown in Fig. 3. The free end of the cord is preferably covered by a label 14, and the said cord is adapted to retain the cap on

the tube until sufficient force is applied to break the cord, whereby the cap is effectually prevented from becoming accidentally displaced from the tube.

5 The cap is provided with suitable friction material 15, designed to be rubbed over the quick-igniting material to ignite the torch, and the two materials may be of any desired chemical composition, as will be readily understood. The friction material 15 is protected and rendered damp or water proof by means of a strip 16 of waterproof material, which is arranged over the friction material 15, being secured in such position by the label 14. The label 14 is constructed of paper or other material, and the waterproof strip is extended beyond the inner or lower edge of the label to enable it to be readily grasped and torn off to expose the friction material, as illustrated in Fig. 4 of the drawings. The label is pasted or otherwise secured to the tube, and the friction material is easily exposed when desired.

It will be seen that the torch or fusee is exceedingly simple and inexpensive in construction, that it is damp-proof, and that the cap is securely held on the tube to prevent the torch or fusee from being accidentally opened. It will also be seen that the torch may be ignited by rubbing the friction material on the side or end of the tube and that the fire is quickly conducted or fed to the pyrotechnic material. Furthermore, it will be seen that the plug which closes the lower end of the tube is securely fastened within the same and effectually prevented from becoming displaced.

What is claimed is—

1. A torch or fusee of the class described having a tube and provided with a plug closing one end of the tube and having an interior groove adapted to contain adhesive material, substantially as described.

2. A torch or fusee of the class described comprising a tube having a flexible connection attached to it, a cap fitting on the tube and consisting of a tubular body portion, and a plug, the flexible connection being extended outward through the cap and secured to the

same, whereby the cap is held on the tube, substantially as described.

3. A torch or fusee of the class described comprising a tube, a cap fitted on the tube, and a flexible connection secured to the cap and to the tube and arranged to hold the former on the latter and adapted to be broken by the removal of the cap, substantially as described.

4. A torch or fusee of the class described comprising a tube, a cap consisting of a tubular body and a plug, and a flexible connection secured to the tube and extended through the cap between the body portion and the plug and secured to the same by the means for holding the plug in the tubular body portion, substantially as described.

5. A torch or fusee of the class described comprising a tube, a cap, a flexible connection secured to the tube and extended through the cap, and a label securing the free end of the flexible connection to the tube, substantially as described.

6. A torch or fusee of the class described provided with a cap having exteriorly-arranged friction material, a narrow strip of waterproof material arranged over the friction material, and means for securing the strip of material to the cap, and for exposing the strip and permitting the same to be readily torn off to expose the friction material, substantially as described.

7. A torch or fusee of the class described provided with a cap having exteriorly-arranged friction material, a narrow strip of waterproof material arranged over the friction material, and a label secured to the cap and partially covering the strip, substantially as described.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

FRANK DUTCHER.
WARREN DUTCHER.

Witnesses:

A. M. DICK,
B. B. HUNTER.