No. 795,632. PATENTED JULY 25, 1905.

W. E. MATTHEW.

FUSEE CONSTRUCTION.

APPLICATION FILED JULY 13, 1904.

3 SHEETS—SHEET 1.

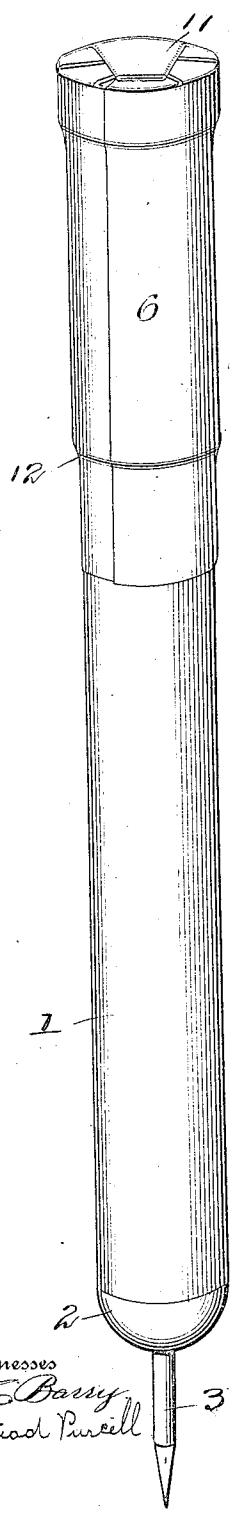


Fig. 1.

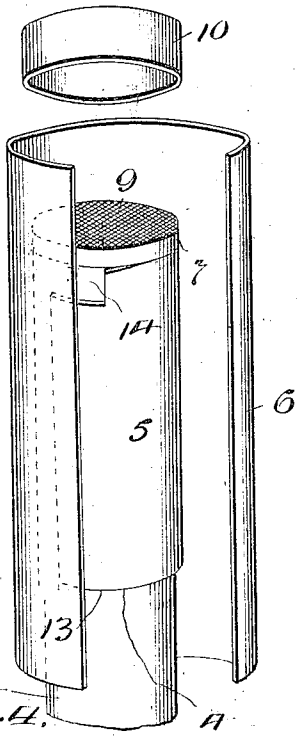
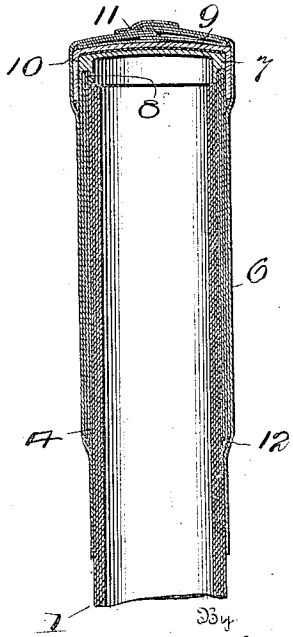
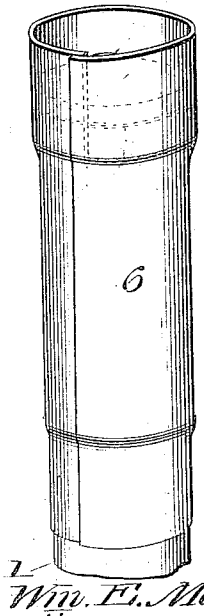


Fig. 3.

Fig. 4.

Fig. 2.





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3 SHEETS—SHEET 2.

Fig. 5

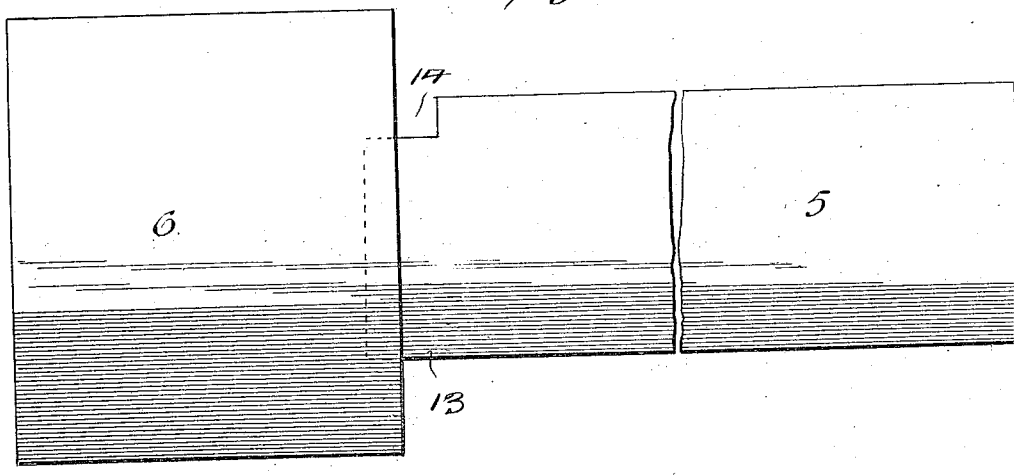


Fig. 6.

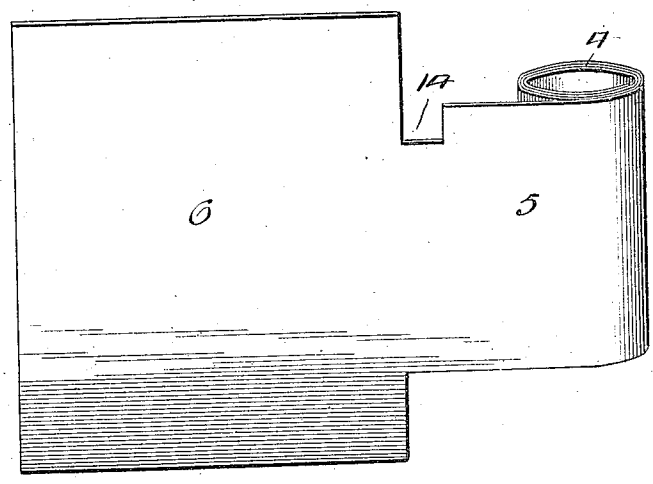
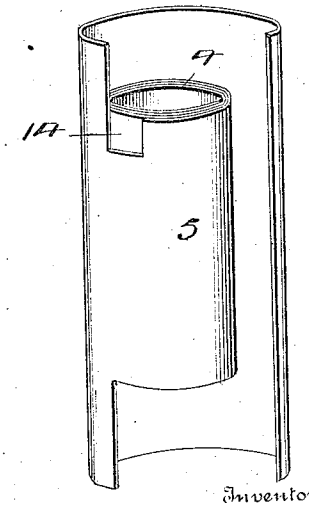


Fig. 7.



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3 SHEETS—SHEET 3.

Fig. 8.

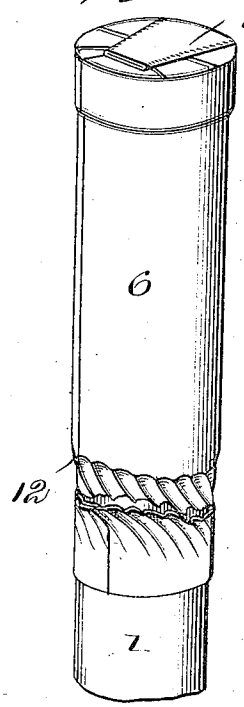


Fig. 9.

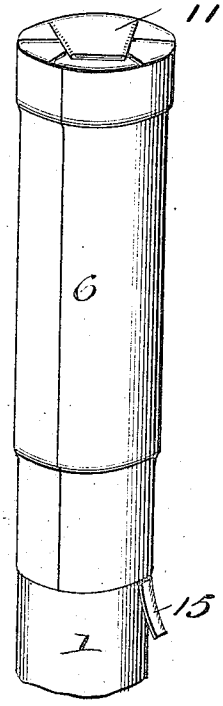
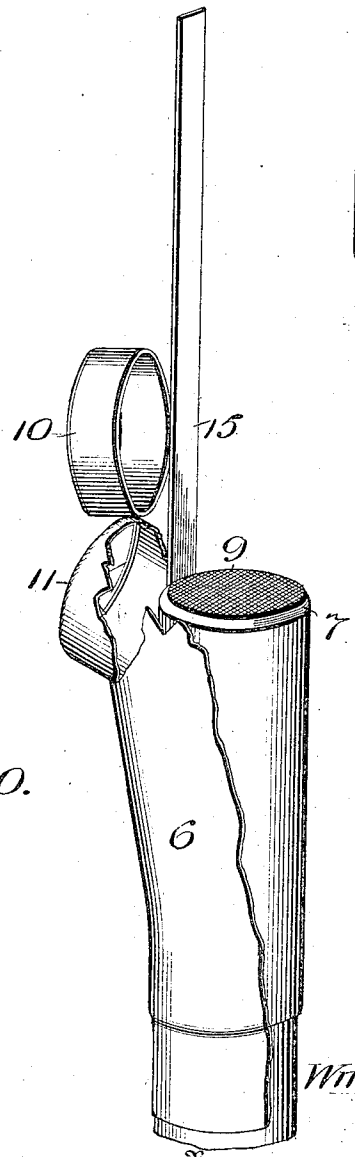


Fig. 10.



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UNITED STATES PATENT OFFICE.

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FUSEE CONSTRUCTION.

No. 795,632. Specification of Letters Patent. Patented July 25, 1905.

Application filed July 13, 1904. Serial No. 216,430.

To all whom it may concern:

Be it known that I, WILLIAM E. MATTHEW, a citizen of the United States, residing at Bucyrus, in the county of Crawford and State of Ohio, have invented certain new and useful Improvements in Fusee Construction; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to signaling torches or fusees, and more particularly to the construction of the casing or housing designed to hold and protect the light-producing material or combustible substance of any desired character; and my invention consists of certain novel features of combination and construction of parts constituting said casing, as will be hereinafter set forth, and pointed out in the claims.

The main object of my invention is to provide simple though reliably efficient means for housing or inclosing the light-forming material whereby such material will be sheltered and completely protected against moisture and particularly against the passage of moisture into the joint or section of juncture of the cap and the body portion of the housing.

Other objects will be hereinafter made clearly apparent, together with advantages arising therefrom, reference being had to the accompanying drawings, in which—

Figure 1 shows my improved fusee complete ready for use. Fig. 2 is a longitudinal central section of the upper end thereof, the material to be burned being removed. Fig. 3 is a perspective view of the closure or lid section in a partly-finished condition and showing the terminal cap ready to be dropped down into position upon the end of the closure proper. Fig. 4 is a perspective view of that part illustrated in Fig. 3, showing the terminal cap in place, as by dotted lines, and also showing the waterproof material brought around in position to overlap itself. Fig. 5 shows one form of blank from which my waterproof closure is formed. Fig. 6 is a similar view to that presented in Fig. 5, illustrating a slightly-modified form and showing the closure-body proper as partly formed and ready to coöperate with the waterproof terminal thereof. Fig. 7 is a perspective view of the parts shown in Fig. 6 disposed in a more completed position. Fig. 8 is a detail perspective view of the upper end of my fusee, showing the waterproof material severed, as by twisting the same; and Figs. 9 and 10 are perspective views showing a different means for separating the waterproof material previous to removing the closure or lid section.

For convenience of reference to the various parts of my invention and accessories coöperating therewith designating-numerals will be employed, and, referring to the numerals on the drawings, 1 indicates the main or body portion of my fusee, which consists of a preferably-tubular casing formed of any preferred material, as paper, the lower end thereof having a metallic insert or member 2, provided with an anchoring-spear or sharpened extension 3, adapted to take into an object, as a cross-tie, or the ground, whereby the fusee may be thrown and left standing in an upright position, as is common with signaling devices of this character.

The interior of the section 1 is filled with two or more varieties of compounds so proportioned that a light of one particular color will burn a specified time or until a compound of a different color is reached, when a light of a different color will burn a specified time—that is to say, the compounds may be so regulated and proportioned that, for instance, a red light will be shown for five minutes and then a green light for the next five minutes, whereby trains may be held a certain distance apart, as desired. However, the arrangement or proportions of the compound contained within the section 1 form no part of this application, inasmuch as it is my intention to file a subsequent application covering these features. It becomes desirable, therefore, to provide a suitable closure for the upper open end of the body-section which shall be absolutely waterproof in character, and I therefore call attention to the form of closure-body as indicated by the numeral 4, which, as will be observed, is formed by winding a strip of paper of proper width and length upon itself in a well-known manner, whereby a closure having a wall of sufficient thickness corresponding to the wall of the body portion 1 will be produced. It will be understood that the wall of the closure may be formed in any of the well-known ways of producing tubing of paper or other material that may be adopted, and I therefore deem it unnecessary to go into detail in respect thereto. Suffice it to say that the said body portion of the closure 4 may be formed of a continuous strip

of paper, as indicated in Figs. 5, 6, and 7 of the drawings and designated by the numeral 5 in said views, said strip being wound upon itself and secured together until a wall of proper thickness is provided. After the closure-section 4 is formed in the manner above set forth or in any preferred way I attach to the end of the strip 5 the edge of the finished member 6, which latter consists of waterproof material, as paraffin paper or the equivalent thereof, the edges of the members 5 and 6 being joined together in any preferred way, as by employing any suitable adhesive material interposed between the meeting edges thereof. It is therefore obvious that after the parts 5 and 6 have been connected together the said member 6 may be extended snugly around the body portion of the closure 4, and the extreme outer edge of the member 6 will overlap itself and may be secured by suitable adhesive material.

It will be seen that the waterproofing member 6 is of greater width than the strip 5, and it therefore follows that the waterproofing material will project beyond both ends of the closure 4, a valuable and important desideratum, inasmuch as I utilize the extended edges of the member 6 to attain a more perfect insulation or protection of the parts covered thereby, inasmuch as the lower edge of the member 6 is designed to be secured (as by the use of adhesive material) into direct engagement with a continuous part of the body portion 1, while its upper edge is designed to be folded down directly upon the upper end of the closure member 4, it being understood that said closure is provided with a permanent closure or cap 7, having a flange 8 designed to fit within the open end of the closure 4, as more clearly shown in Fig. 2. The permanent cap 7 is commonly designated a "striker," its office being hereinafter clearly set forth. The outer surface of the cap 7 is provided with a coating of igniting substance, as indicated by the numeral 9, the said igniting substance being of such character as to have an affinity for a special form of match inserted in the contents of the body portion 1, whereby when the outer surface of the cap 9 is brought into frictional contact with said match it will cause a perfect ignition of the substance, thus obviating the necessity of the employment of any other means to accomplish the same result. It therefore becomes desirable to provide protection for the igniting substance 9 upon the cap 7; and with this purpose in view I provide the auxiliary cap or shield 10, designed to fit snugly over the closure-body 4, and the cap 7, entered in the end hereof, all of which is fully illustrated in Fig. 2. The auxiliary cap or guard 10 may be cheaply formed of paper or other preferred material, and after it has been disposed over the striker 7 the extended edges of the waterproof member 6 may be folded down thereupon, said folded edge being designated by the numeral 11 in Figs. 1 and 2.

It will thus be seen that I have provided what will be an absolutely water-tight closure for the body-section 1 and that the closure thus relied upon may be instantly removed by simply applying a twisting movement thereto, when the waterproof material 6 will be severed at the point indicated by the numeral 12 in Figs. 1 and 2, the result of said twisting movement being clearly shown in Fig. 8, thus allowing the closure 4 to be slipped off the end of the body portion 1, when by opening the folded sections 11 the cap 10 may be removed, thereby exposing the igniting substance 9 upon the permanent closure or striker 7, when by reversing the position of the closure 4 and rubbing the igniting substance 9 upon the striker-match in the end of the body portion 1, left exposed by the removal of the closure 4, the combustible material will be ignited and the signaling-torch be disposed in a condition ready to be applied to use, as by throwing the same, so that the anchoring-stem 3 will take into a cross-tie or into the surface of the ground contiguous to the trackway, as is common.

It will be understood that the waterproof member 6 may consist of a separate piece of proper material, or it may consist of an integral part of the strip 5, and when made integral with the part 5 only the member 6 need be dipped in the solution, which will coat it with paraffin or other waterproof substance.

In Fig. 5 I have shown the member 6 as separately formed from the member 5, a reduced portion or neck 13 being formed upon the strip 5, the edge of the neck and contiguous part of the member 6 being secured together, as before stated, by suitable adhesive material.

In Figs. 6 and 7 I have shown the members 5 and 6 as being integrally formed, in which case it will only be necessary to make the member 6 of greater width than the strip 5 and dip said member 6 in waterproofing material, and I therefore reserve the right to fashion the parts in either way which I may find most desirable and effective in practice.

I also form a recess, as indicated by the numeral 14, the object of said recess being to permit the cap-section 10 to be disposed upon the upper end of the closure-body 4 and its permanent cap or striker 7, inasmuch as if said notch or recess was not provided the edge of the cap 10 would engage and tear a contiguous part of the edge of the paper strip or neck 13.

Obviously the folded portion 11 may be additionally secured by use of adhesive material applied to proper parts thereof.

Inasmuch as it is highly important that the combustible contents of the body portion 1 shall be kept safely sheltered and protected against all moisture, whereby the device now

widely relied upon and used as a railway-signal will at all times be found efficient, the value of my waterproof housing will be more fully appreciated. Since my waterproof closure for the end of the body portion 1 completely envelops said end, the signal thus reinforced and shielded may be relied upon even during a rain-storm, when a device not so protected would soon become unreliable and worthless.

It will be found that my method of protecting the signaling or lighting compound will in no wise interfere with an instant use thereof, inasmuch as the closure 4 may be readily twisted off the end of the body portion 1, when the folded portion 11 may be torn away to expose the surface of the striker-cap, thus placing it in readiness to be instantly applied to the striker-match carried by the compound within said body portion.

In Figs. 9 and 10 I have shown a different means of removing the waterproof material and at the same time removing the auxiliary cap or shield 10 from the end of the closure-body 4. In this instance I attach one end of a tape 15 to the closure-body 4 near the upper end thereof, after which the tape is disposed across the striker 7 and thence brought down the side of the closure 4, said tape being of sufficient length to extend beyond the lower edge of the waterproof material 6, as best shown in Fig. 9 of the drawings. After the tape has been thus placed the auxiliary cap 10 is placed in position over the striker 7 and the tape thereon and the waterproof material then placed in position, as before described. When it is desired to remove the waterproof material, whereby the closure 4 may be removed from the upper end of the body portion 1, the protruding end of the tape 15 is grasped and an upward pull given which will sever the waterproof material and at the same time remove the auxiliary cap 10, as shown in Fig. 10 of the drawings.

From the foregoing description it will be obvious that I have provided an absolutely reliable safeguard which will insure that the compound within a signaling-torch will be shielded against deterioration from moisture or exposure to the atmosphere, and while I have described the preferred combination and construction of parts I wish to comprehend such substantial equivalents and substitutes as may be regarded as falling fairly within the scope of my invention.

Believing that the manner of applying my invention to use and advantages have been made clearly apparent, further description is deemed unnecessary.

What I claim as new, and desire to secure by Letters Patent, is—

1. A light or signaling-torch comprising a main or body portion; a closure 4 fitting over the end thereof, said closure having an inclosing member 6 of waterproof material secured thereto and extending beyond each end thereof whereby the inner edge of the waterproof member may be permanently secured to a contiguous part of the body portion, while its outer edge is folded down to wholly inclose the end of said closure and a protecting-cover 10, all combined substantially as specified and for the purpose set forth.

2. A signaling-torch comprising a tubular body portion for receiving light-producing material of any desired color or colors, having upon one end means to anchor the same in an upright position and a closure for the opposite end, said closure having an outer covering of waterproof material extending beyond the ends of the closure whereby one of said ends may be secured to a contiguous part of the body portion while the opposite end may be twisted to form a covering or complete inclosure for the end of the cover, as and for the purpose set forth.

3. A torch comprising a tubular body portion adapted to carry light-producing material or materials, and having at one end an anchoring device to hold it in an upright position, and also having a closure, said closure fitting the end of the body portion and having an exterior casing of waterproof material and of sufficient length to reach beyond both ends of the closure whereby one of the extended ends of the covering may be permanently secured to a contiguous part of the body portion while the other extended end may be folded down to completely inclose the cover and thereby hold said parts housed against admission of moisture into the body portion, substantially as set forth.

4. A signaling-torch comprising a body portion adapted to carry combustible material for producing a light or lights of the desired color and having an anchoring device at one end and a closure for the other end, said closure consisting of a cap-like member to fit the end of the body portion and provided with a waterproof coating consisting of a strip of waterproof material of greater width than the length of the closure whereby one edge may be permanently secured to a contiguous part of the body when the closure is placed in position thereon while the other edge may be folded down upon the end of the closure and thereby protect the contents of the body portion against the admission of moisture, substantially as set forth.

5. In a signaling-torch, a body portion having an anchoring device at one end and open at the opposite end; a lid-section adapted to inclose the open end of said body, in combination with a covering of waterproof material carried by the lid-section and extending beyond the ends thereof; a tape extending over the end of the lid-section and having its other end exposed below the edge of the waterproof material whereby, when said edge is secured to the body portion by adhesive substance or

the like, a pull upon the end of the tape will sever the waterproof covering and permit the lid to be removed, substantially as specified and for the purpose set forth.

6. A signaling-torch, comprising a tubular body and means to anchor the same in an upright position, in combination with a lid-section adapted to inclose the upper open end of the body portion; a covering of waterproof material carried by and made a part of the lid-section, the ends of said waterproof material extending beyond both ends of the lid-section whereby one of the protruding ends may be permanently secured to the body portion while the other end may be folded down to completely inclose the lid-section and house it against the admission of moisture, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM E. MATTHEW.

Witnesses:
C. H. MYERS,
C. L. BUCK.