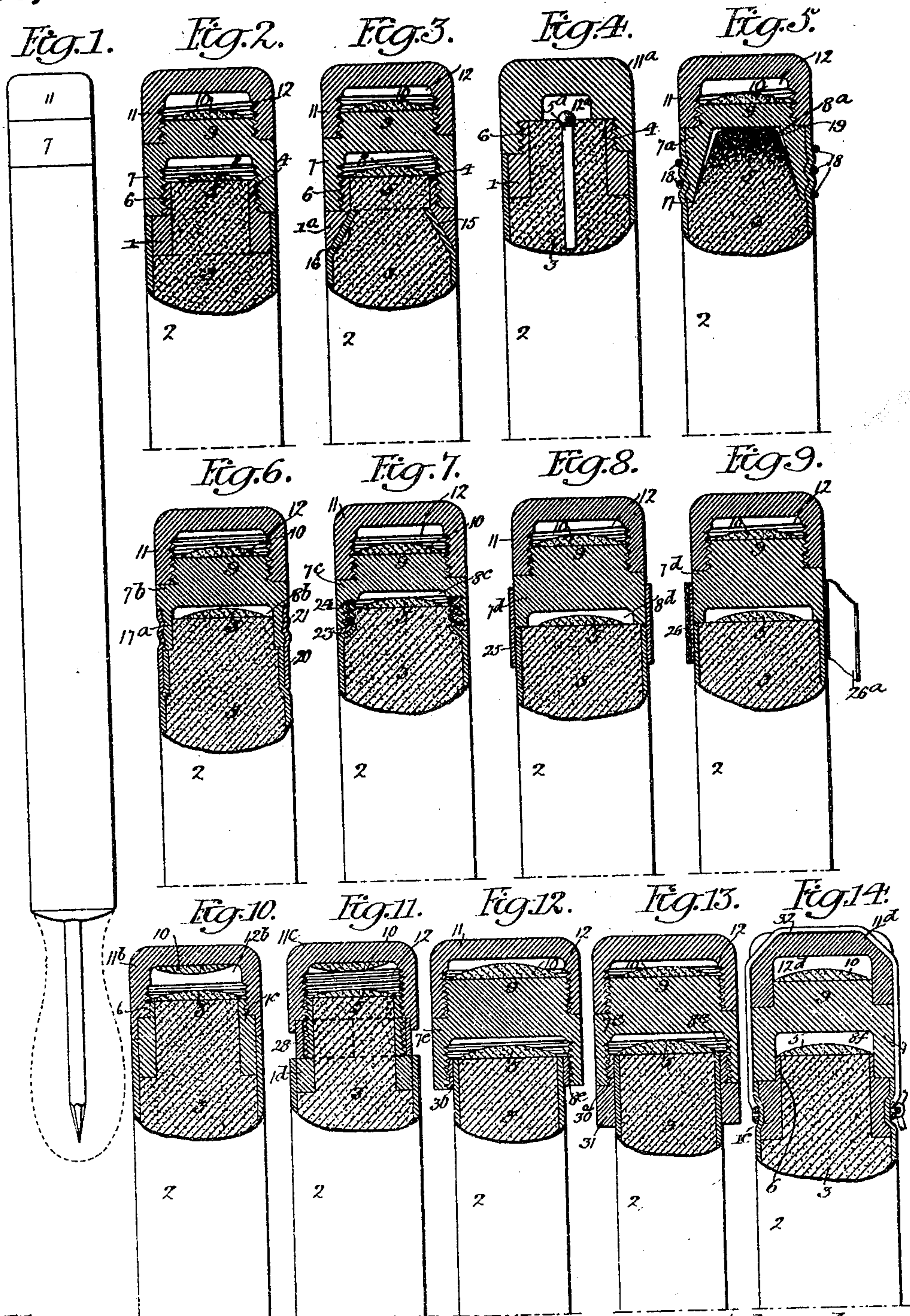


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FUSEE.  
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# UNITED STATES PATENT OFFICE.

WILTON D. JACKSON, OF PHILADELPHIA, PENNSYLVANIA.

FUSEE.

960,094.

Specification of Letters Patent.

Patented May 31, 1910.

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*To all whom it may concern:*

Be it known that I, WILTON D. JACKSON, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Fusees, of which the following is a specification.

My invention relates to fusees, more particularly those employed for railroad work, comprising a tube of suitable material serving to hold the illuminating substance, with a cap to protect the ignitable end of the same; such fusees having at their opposite ends either a handle or spike, the latter adapted to be secured in a railroad tie, when the fusee is used in railroading.

The object of my invention is to provide means for protecting the ignitable end of the fusee; to provide independent scratching means, preferably the composition used for safety matches, in such form that it can be readily attached to, or detached from the fusee and then applied to the ignitable end of the same, and to provide a combination cap that will protect the scratching means and the ignitable end of the fusee.

My invention may be carried out in various ways, a number of which are illustrated in the accompanying drawing; Figure 1, being a view of an ordinary form of fusee to which my invention is applied; Fig. 2, is an enlarged sectional view of the ignitable end of the same and one form of cap carried thereby; Fig. 3, is a similar sectional view illustrating a modification of the tube carrying the ignitable material; Figs. 4 and 5, are similar sectional views of still further modifications, in which one of the parts illustrated in Figs. 2 and 3 is omitted, Fig. 4, showing also a modified form of igniting means; Figs. 6 and 7, are sectional views of further modifications along this same line, in which a metallic sleeve is mounted at the end of the tube carrying the illuminating substance; Figs. 8 and 9, are similar sectional views illustrating a still further modified form of structure; Figs. 10 and 11 are views of structures in which the ignitable material and the scratching means are held adjacent to each other; Figs. 12 and 13, are views of structures resembling that shown in Fig. 2, but in which the retaining means for the cap are carried on the outside of the tube, and Fig. 14, is a view of a still further modification in which the cap is tied in place.

The essential feature of my invention is the providing of the ignitable end of the

fusee with a substantially stiff and non-crushable cap or cover that will effectually protect the igniting and ignitable substance of the fusee, and one that is readily removable when it is desired to use the fusee.

A further object of my invention is to insure that such end shall be capable of resisting moisture and dampness.

In Fig. 1, I have simply shown the ordinary type of fusee to which my invention is applied.

In the structure shown in Fig. 2, a three-part inclosing cap is provided, which comprises first, the tubular member 1, secured in the end of the tube 2. The illuminating material 3 carried by such tube extends into the central aperture 4 of said tubular member, and carries at the extreme top the ignitable composition indicated at 5. This member 1 has a threaded portion 6, which projects beyond the end of the tube, and the ignitable substance is mounted at the end of this projection. Adapted to the threaded portion of the projection 6 is an intermediate cap piece 7 having a recess 8 internally threaded, and a projecting threaded member 9, carrying the composition forming a scratching surface, which is to be rubbed against the composition 5 to effect ignition; and 11 is the final cap or cover having a recess 12 internally threaded to engage the threaded projection 9 carrying the composition 10. When the different sections of the cap are fitted together in the manner shown, the end of the fusee will be dipped in paraffin or other self-hardening, water-proofing material.

In Fig. 3, the tubular portion 1<sup>a</sup> has a tapered end recess 15, which fits over the conical end 16, of the tube 2 of the fusee, but in all other respects the structure is the same as in Fig. 1.

In the form of cap shown in Fig. 4, I dispense with the special igniting composition 5, and in lieu thereof simply embed a friction match 5<sup>a</sup> whose head projects in position to be ignited when the cap 11<sup>a</sup> is removed. With this structure I do not need the section 7, and the cap 11<sup>a</sup> has a recess 12<sup>a</sup> to receive the match-head.

In the structure shown in Fig. 5, I dispense with the tubular member 1, and in its place the section 7<sup>a</sup> is threaded at 17 on its exterior, into which threads the end wall of the tube may be crimped and held by a cord 18 as shown, effecting a secure joint between



the parts, but not preventing the ready removal of the member carrying the composition 10. In this instance the composition will preferably have a hardened portion 19 extending into the recess 8<sup>a</sup> of the member 7<sup>a</sup>, and at the top of this hardened portion of the illuminating material the ignitable composition 5 will be placed. The member 7<sup>a</sup> in this instance, as in the structures shown in Figs. 2 and 3, carries the scratching substance 10 whereby the composition 5 may be ignited.

In Fig. 6, the end of the tube 2 is provided with a metallic sleeve 20, having a threaded portion 21, and the member 7<sup>b</sup> will be provided with an externally threaded portion 17<sup>a</sup> to engage this threaded sleeve, such portion being recessed at 8<sup>b</sup> to receive the illuminating material and the ignitable composition 5 carried on top of the same. In Fig. 7, I have illustrated a slight modification of this structure, in which the end of the tube 2 is reduced in size so as to form a shoulder 23, and mounted outside of this tube and abutting the shoulder is a metallic sleeve 24, which may be secured to the tube in any suitable manner. This sleeve is threaded as shown, and the end of the tube is crimped into the threaded portion so that it may be readily retained in place. The member 7<sup>c</sup> having the recess 8<sup>c</sup> to receive the end of the tube is arranged to screw on to the metallic sleeve. Both of these structures have the caps 11 to inclose the scratching substance 10, whereby the composition 5 may be ignited.

In the structure shown in Figs. 8 and 9, the illuminating material 3 is brought up to the end of the tube 2, and the ignitable substance 5 is placed at the end of the same. On top of the tube and over this ignitable substance the member 7<sup>a</sup> will be placed, having a hollow recess 8<sup>a</sup> to inclose the ignitable substance 5, without injuring the same, and this member will be held to the tube by means of a strip of paper or other suitable material pasted around the joint, as clearly shown in the view and indicated at 25. In lieu of the paper a piece of tape 26 may be wound around the joint, as illustrated in Fig. 9, with a free end 26<sup>a</sup> to assist in its removal. The paper securing the cap, shown in Fig. 8, may be readily ruptured to expose the illuminating material within the tube, and in both cases the outer cap 11 protecting the scratching substance 10 will be used.

In Fig. 10, I have shown a form of structure in which I employ a tubular member 1<sup>c</sup> through which the illuminating material projects, as in Fig. 1, such projecting portion carrying the ignitable substance 5 and being threaded in the usual manner. Instead, however, of employing an intermediate member or cap, as in the other structures I provide a cap 11<sup>b</sup> having an internal

recess 12<sup>b</sup>, which is threaded on to the projection 6 of the tubular member 1<sup>c</sup>. This cap which carries the scratching substance in the usual manner, is preferably made of some stiff material that is more or less friable, for instance wood, so that when it is desired to ignite the fusee, this may be done by striking the end of the same a direct blow and crushing the shell of the cap 11<sup>b</sup>, thereby bringing the scratching substance into contact with the ignitable substance.

In Fig. 11, I have shown a structure somewhat similar to that illustrated in Fig. 10, but one in which the cap 11<sup>c</sup> carrying the scratching substance is kept normally out of engagement with the ignitable substance by means of a two-part ring 28 carried by the tubular member 1<sup>d</sup>. To bring the igniting and scratching material of this form of fusee into contact, it is necessary to back off the cap 11<sup>c</sup> for a short distance, thereby permitting the removal of the split ring 28, and after this is done, the cap 11<sup>c</sup> may be returned to its place, and upon continuing the turning of the same, the scratching substance will be brought into contact with the ignitable material and the fusee will be lighted.

In Figs. 12 and 13, are shown still further modifications of my fusee cap, in which, instead of a tubular member, a sleeve 30 is provided, threaded on its exterior and glued or otherwise fastened to the end of the tube 2 on the outside of the same. To this sleeve the member 7<sup>e</sup> is secured, having the projection 9 which carries the scratching material, and the latter in turn carries the usual cap or cover 11. In the form of cap shown in Fig. 13, the sleeve 30<sup>a</sup> has a lower part 31, which provides a shoulder against which the member 7<sup>e</sup> carrying the scratching material 10 abuts.

In Fig. 14, I have shown a form of cap in which I have dispensed with the threaded portions, and the parts are simply slipped on and off. To hold this cap in place, I provide the tie member 32, which may be made of wire or string, as desired.

The several parts of the cap structure are preferably made of wood, but I do not wish to limit my invention to wooden structures, and they may be made of any suitable tough composition of matter, or papier mâché, or parchmented fiber.

In all instances after the parts of the fusee cap have been set in place, the end of the fusee will be dipped in a bath of some water-proofing composition, such as paraffin, or a suitable moisture-resisting varnish.

While I have shown the parts of my structure as being threaded, it is obvious that they might be arranged to slip on as in Fig. 14, and provide a tight fit without the tie member, and they might even be arranged



to fit loosely together and be covered with a suitable structure or band of paper to retain them in place.

Having thus described my invention, I claim and desire to secure by Letters Patent:

1. A cap or cover for fusees made of a plurality of relatively stiff, non-metallic sections fitted together and having internal portions definitely spaced apart with means for retaining said sections in place, one of said sections engaging the tube of the fusee, an ignitable substance carried by the fusee and protected by a section, and an ignition substance carried by the section engaging the tube of the fusee and protected by another section.

2. A cap or cover for fusees, comprising a member fitting the end of the fusee and having a projection, an ignitable composition carried by said projection, a member having a recess to fit said projection, said member carrying another projection, a scratching substance carried by said projection, and a cap or cover fitting said projection and inclosing the scratching substance.

3. A cap or cover for fusees, comprising a member fitting the end of the fusee tube and having a threaded projection, an ignitable composition carried by said projection at the end of the illuminating material carried by the tube, a member having a recess to fit said projection, said member carrying another threaded projection, a scratching substance carried by said latter projection, and a cap or cover fitting said projection and inclosing the scratching substance.

4. The combination in a fusee, of an end member secured to the same, and having a body of greater strength than the fusee or its composition, said end member having a projecting portion, a recessed member adapted to engage said projecting portion and inclose the end of the fusee, said recessed mem-

ber having a projection, a scratching substance carried by said projection and a cap or cover for engaging said projection and inclosing said scratching substance.

5. The combination in a fusee, of an end member secured to the same, and having a body of greater strength than the fusee or its composition, said end member having a threaded portion, a recessed member adapted to engage said threaded portion and inclose the end of the fusee, said recessed member having a threaded projection, a scratching substance carried by said projection and a cap or cover for engaging said threaded projection and inclosing said scratching substance.

6. The combination, in a fusee, of a tube carrying illuminating material, a separable threaded member carried at the end of said tube, ignitable material carried by said member, a threaded cover for inclosing the same, scratching material carried by the cover, and a threaded cap for said scratching material.

7. The combination, in a fusee, of a tube carrying illuminating material, an annular threaded member secured to the end of the tube through which said illuminating material extends, an ignitable substance carried by the end of the illuminating material, an intermediate cover piece having a threaded portion to engage the threaded member carried by the tube, said cover piece having a threaded projection, an ignition substance carried by said projection, and a cap having a threaded recess adapted to fit over said projection.

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

WILTON D. JACKSON.

Witnesses:

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JOS. H. KLEIN.