

I. NIDITCH.
RAILWAY SIGNAL FUSEE.
APPLICATION FILED DEC. 16, 1909.

955,671.

Patented Apr. 19, 1910.

Fig. 1.

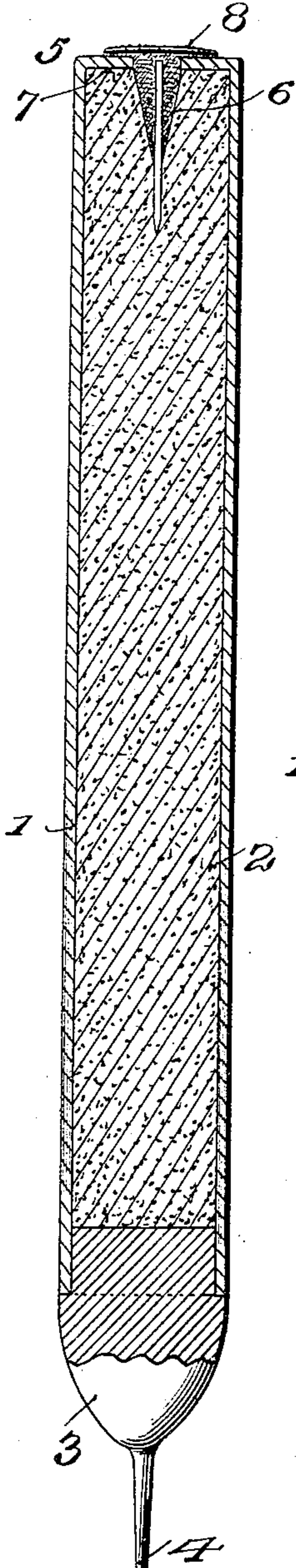


Fig. 2.

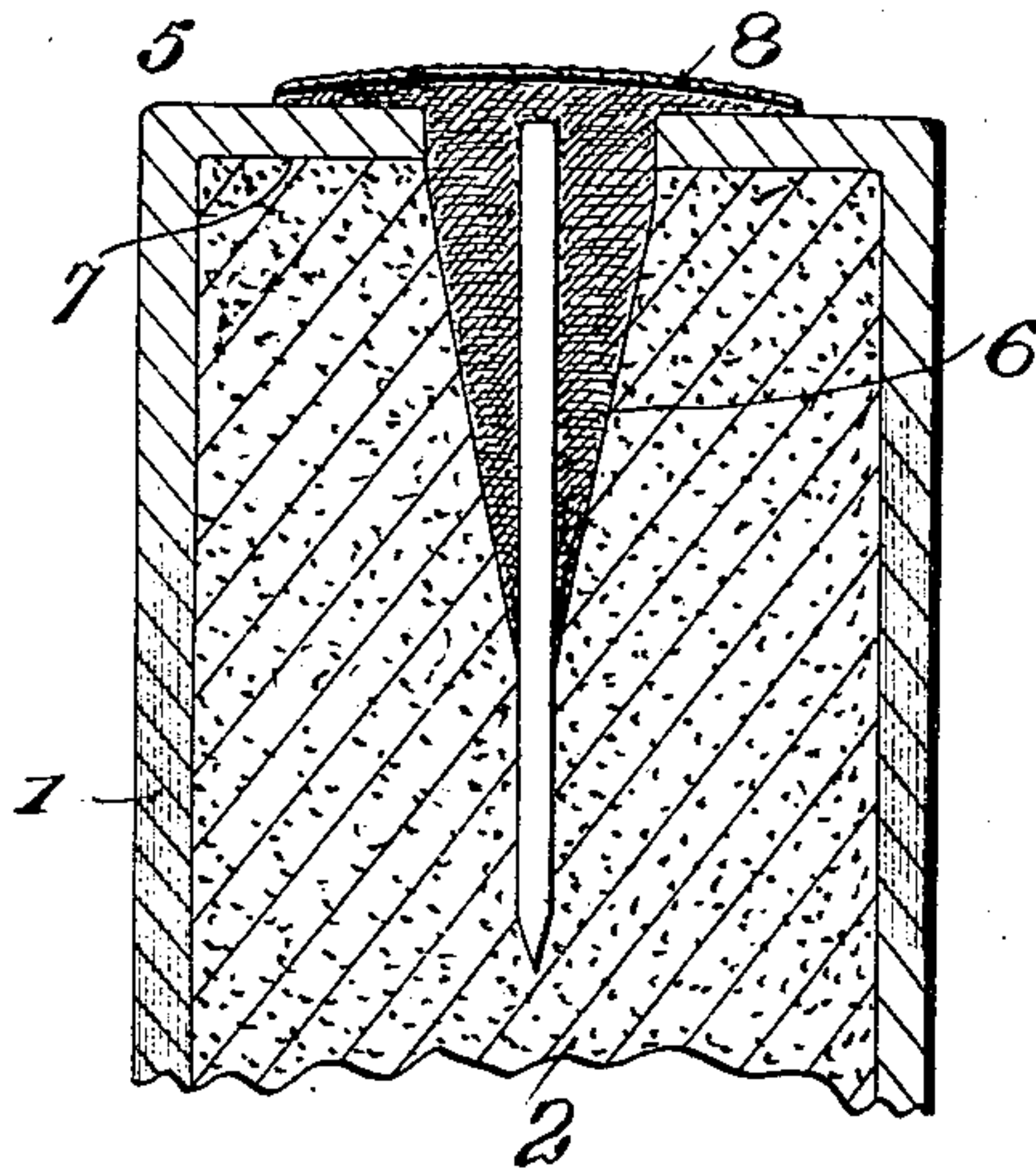
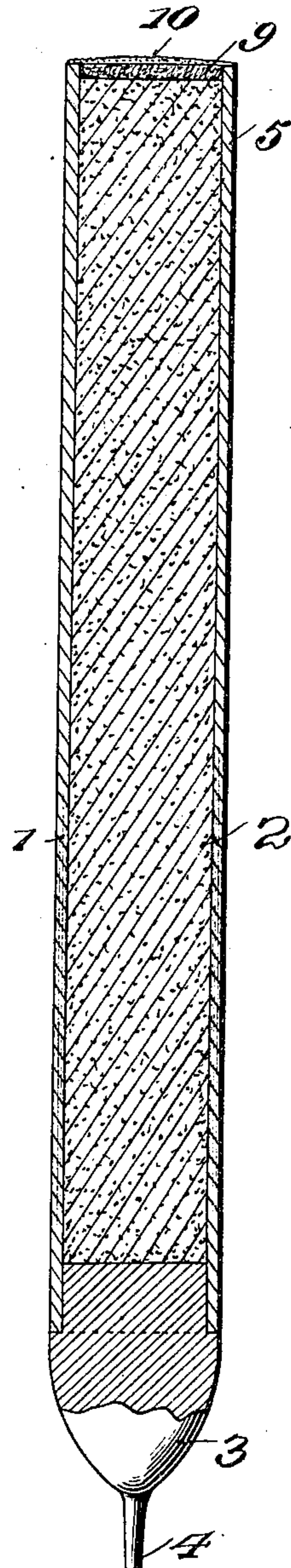


Fig. 3.



Witnesses to Invention

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RAILWAY SIGNAL-FUSEE.

955,671.

Specification of Letters Patent. Patented Apr. 19, 1910.

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To all whom it may concern:

Be it known that I, ISADORE NIDITCH, a citizen of the United States, residing at
Dorchester, in the county of Suffolk and
5 State of Massachusetts, have invented certain new and useful Improvements in Railway Signal-Fusees, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to improvements in railway signal fusees, the object of which will be fully described hereinafter.

Referring now to the drawings—Figure 1 is a longitudinal central sectional view of a
15 fusee which embodies my present improvement. Fig. 2 is an enlarged sectional view of the head or lighting end of the fusee. Fig. 3 is a longitudinal sectional view of a fusee embodying a modification of my present improvement.

Referring now to the drawing, 1 is the usual paper tube in which the combustible mixture 2 is contained. Connected with one
25 end of this tube is the usual plug 3, with the spike 4.

It is well known to those skilled in this art that signal fusees have their lighting end
5, provided with an igniting material consisting principally of potassium chlorate
30 and also a member carrying a priming material, consisting principally of phosphorus, and that the fusee is ignited by frictional contact between the priming agent and the
igniting material. It is also well known
35 to those skilled in this art that the commercial signal fusee has its combustible compound including sulfur and potassium chlorate. The composition of my improved fusee differs from the foregoing composition in
40 that potassium chlorate is omitted, thereby avoiding the liability to spontaneous ignition which exists in a mixture, or combination of sulfur and potassium chlorate.

This improved fusee is also ignited by
45 friction between potassium chlorate and phosphorus, and my improvement consists in separating the chlorate in the igniting head from the combustible compound of the
fusee, so that any acid within this com-
50 pound will not re-act on the potassium chlorate igniting mixture, thereby avoiding every possibility of spontaneous ignition.

The foregoing result is accomplished by separating the combustible compound of the
55 fusee from the potassium chlorate, stratum

or lighting head, by a material which is undecomposable by acids in the composition, or liable to be generated by the composition. This material or substance is preferably, though not necessarily, made in the form of
60 a core 6, which projects a suitable distance into the compound 2, of the fusee.

One of the chemical expressions of the compound 2, comprises a metallic nitrate, sulfur, carbohydrate, and a perchlorate,
65 (preferably potassium perchlorate) the latter ingredient is undecomposable in the presence of the sulfuric and sulfurous acids generated or that may be generated in the compound, and is a fusee compound which
70 is not subject to spontaneous combustion. The separating core 6, consists chiefly of a perchlorate, preferably potassium perchlorate, and is undecomposable in the presence of any acid generated in the fusee com-
75 pound 2.

In the form of tube shown in Fig. 1, which has the wall of the tube crimped inward, as shown at 7, this separating medium
80 or core projects outside and extends over on the outside of the crimped end 7. The stratum or lighting head 8, which consists principally of potassium chlorate is now preferably painted in the form of a thin
85 film on the projecting portion of the separating medium or core 6. This construction entirely separates and isolates the potassium chlorate of the stratum or lighting head 8 from the sulfur or other acid producing
90 ingredient in the combustible compound of the fusee, thus absolutely preventing the action of any possible acid within the body of the fusee on the potassium chlorate contained in the stratum or lighting head.
95 Attention is called to the fact that neither the separating medium 6, nor the lighting head 8 contains any sulfur.

A fusee of this construction avoids the possibility of spontaneous ignition from the compound of the fusee itself, and also from
100 the re-action of any acid within the combustible body of the fusee on the chlorate in the igniting head.

In the modification shown in Fig. 3, in which the end of the paper tube 1 is open,
105 the foregoing result is accomplished by a layer 9 of the separating medium between the combustible body 2 of the fusee and the stratum or lighting head 10, which is composed principally of potassium chlorate.
110

The constructions here shown are intended as illustrations of my invention, but they may be varied without departing from the scope and spirit of my invention, so long as the compound in the body of the fusee omits potassium chlorate, and a medium undecomposable in the presence of acids in the compound, or liable to be generated by the compound, separates the compound of the fusee from the potassium chlorate stratum or lighting head.

I do not make any claim herein for the new fusee compound 2, for this is made the subject-matter of a separate co-pending application, and I therefore retain the right to separate protection therefor.

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

1. An improved signal fusee comprising an elongated combustible tube, a combustible compound including an ingredient liable to produce acids and an oxidizing agent undecomposable by the acids, an outside

lighting stratum, and a combustible separating medium, the chief constituent of which is an oxidizing substance undecomposable by said acids between and uniting the combustible compound and the lighting stratum.

2. An improved signal fusee comprising an elongated combustible tube, a combustible compound including sulfur and an oxidizing agent undecomposable by the acids generated from the compound, an outside lighting stratum composed principally of potassium chlorate, and a combustible separating medium the chief constituent of which is an oxidizing substance undecomposable by said acids between and uniting the combustible compound and the lighting stratum.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

ISADORE NIDITCH.

Witnesses:

JOHN L. FLETCHER,
C. R. WRIGHT, Jr.