

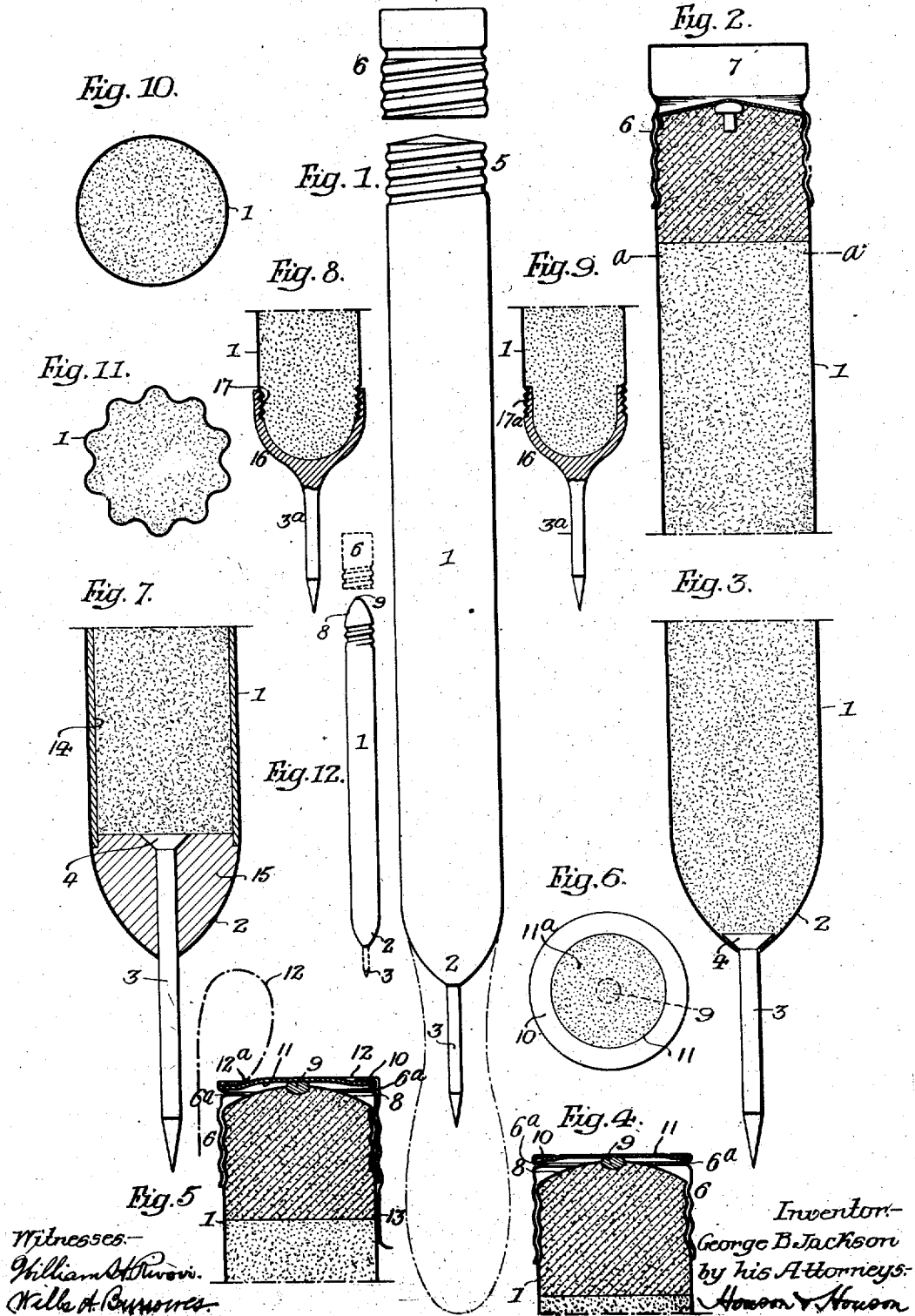
G. B. JACKSON.

FUSEE.

APPLICATION FILED JUNE 15, 1911.

Patented Nov. 19, 1912.

1,045,033.



Witnesses—
William A. Brown.
Will A. Brown.

Inventor—
George B. Jackson
by his Attorneys—
Hosson & Hosson

UNITED STATES PATENT OFFICE.

GEORGE B. JACKSON, OF WESTMINSTER, MARYLAND.

FUSEE.

1.045,033.

Specification of Letters Patent.

Patented Nov. 19, 1912.

Application filed June 15, 1911. Serial No. 633,410.

To all whom it may concern:

Be it known that I, GEORGE B. JACKSON, a citizen of the United States, and a resident of Westminster, Carroll county, Maryland, have invented certain Improvements in Fusees, of which the following is a specification.

My invention relates to fusees employed as railway or ship signals, or for pyrotechnic displays. When employed for railway purposes, the fusee is usually thrown from the rear of a train to serve as a signal for following trains, and for such purpose it must be relatively strong. It is also desirable that one end of the same be pointed in order that it may readily stick in the ground or in a tie. For other uses a handle may be employed. These and other features of my invention are more fully referred to hereinafter, reference being had to the accompanying drawings, in which:

Figure 1, is a view of one form of fusee made in accordance with my invention; Fig. 2, is an enlarged sectional view of the upper portion of the fusee shown in Fig. 1; Fig. 3, is an enlarged sectional view of the lower portion of the fusee shown in Fig. 1; Figs. 4 and 5, are sectional views illustrating cap and head constructions for the fusee within the scope of my invention; Fig. 6, is a plan view of Fig. 4; Figs. 7, 8 and 9, are sectional views illustrating base constructions within the scope of my invention; Fig. 10, is a sectional view on the line *a-a*, Fig. 2; Fig. 11, is a similar sectional view illustrating a modified detail of my invention, and Fig. 12, is a view on a reduced scale of another form of fusee within the scope of my invention.

Fusees of the character to which my invention relates comprise a tubular element which may be and usually is composed of several layers of paper or pasteboard, waterproof or not, or with a waterproof lining or insert; such tubes generally containing slow burning material throughout the body of the same, with a portion of quick burning material at the end having a suitable ignition portion, normally covered by a suitable cap. While the so-called paper or pasteboard tubes are required to stand a certain test with regard to breaking strains and are so designed, inasmuch as structures of this character are handled usually more or less carelessly, it frequently happens that the shell or casing is made in such a manner instead of consuming away with the

burning material, it forms a chimney, thereby reducing the value of the illumination.

The object of my invention therefore is to provide a shell or tube for a fusee which will consume away at substantially the same rate as the burning material, thereby avoiding the formation of a chimney on the one hand, and on the other hand providing a structure much stronger than the ordinary paper or pasteboard tube; one that is sufficiently stiff and strong to stick in a tie when thrown from a train, and one that is relatively cheap and easy of manufacture. The shell or tube for my improved fusee is made of metal, and of a number of metals which may be employed, I prefer to use zinc, or a suitable alloy having a large percentage of zinc, such metal in either instance having a melting point sufficiently near the temperature of the burning material so that its consumption is at substantially the same rate.

In the drawings, 1 represents a metallic tube which may be an integral drawn structure, or formed from a lapped sheet, and of a plain smooth surface, as indicated in the cross-section, Fig. 10, or corrugated, as indicated in the cross-section, Fig. 11, from end to end, helically or straight. This tube is contracted or reduced to substantially tapered form at the lower end, as indicated at 2, and in such end a pointed member is inserted, such as a nail 3, having a head 4 which lies within the metal tube and serves to prevent the nail falling out. The nail may be soldered to the tube, or the filling material may be packed or tamped in such manner as to engage the head and hold the nail in place. At the upper end of the tubular shell, a thread 5 is formed in the wall of the same, which thread may receive a cap 6 of some suitable soft metal, or the metal of which the tube is composed. Preferably the threads of the cap do not extend throughout its length so that a pocket 7 is provided in the top of the same protecting the ignition end of the fusee, which latter may be of a character such as that set forth in Patent No. 712,932. I prefer, however, to spin the end of the tubular metal container over the ignition end of the fusee, as indicated at 8 in Figs. 4 and 5; leaving a small central aperture to receive an igniting substance 9. The cap to protect this igniting substance may have an apertured head 10, with a disk 11 of suitable material, paper for instance,

closing the same and protecting the igniting substance. This disk will preferably carry a scratching material 11^a, against which the igniting substance 9 may be rubbed when the fusee is to be put into use.

The disk should be retained in place by suitable means so that it will not be pushed in when the scratching surface is applied to the igniting substance 9. This may be accomplished by forming an annular bead or rib in the cap as indicated at 6^a in Figs. 4 and 5.

The scratching material should preferably be covered for protection, and for this purpose I may employ a piece of waxed paper, fabric, or the like, 12, one end of which is caught under the flange of the cap, as at 12^a, while the other end may extend down the surface of the tube and be secured by paste, as at 13, or be partly caught between the cap and shell, so as to leave a projecting end that may be grasped when it is to be stripped from the cap to permit the scratching substance to be brought into use. In some instances a plain slip cap may be employed instead of the screw cap, and if frictional engagement is insufficient to hold such slip cap, it may be held by indenting the wall of the same and the tube where they are in engagement. If the cap is of soft metal, it may be readily torn from the end of the fusee.

In lieu of making the tube wholly of metal, it may be of wood veneer, or soft paper or pulp stock, as indicated at 14, inclosed by a metal shell. I may also employ the usual wooden block 15 at the lower end of the fusee, as shown in Fig. 6, bored entirely through, however, and receiving a headed nail of the character illustrated in Fig. 3. Cast members of the type illustrated in Figs. 8 and 9 may also be employed for the end of the fusee. In Fig. 8, the member is cupped at 16, and internally threaded at 17 to receive the threaded end of the tube, and has a pointed end 3^a. In Fig. 9, threads 17^a, to receive the end of the tube, are disposed externally. It will be understood, of course, that other forms of cast metal ends may be provided with projections, annular or otherwise, and that the metal tube may be secured thereto by spinning or shaping the same over such projections. To additionally strengthen the tubular member it may be corrugated, as indicated in Fig. 11, and the corrugations may extend longitudinally of the tubular shell, or be disposed helically of the same.

In Fig. 12, I have shown a fusee in which

both ends are spun down to substantially the same extent, the upper end having a small aperture for the igniting substance 9 and being threaded to receive the cap 6, and the lower end having the pointed member 3.

It will be understood, of course, that I make no claim to the character of material forming the burning content of the fusee, as the same in all respects may be substantially that set forth in the patent before referred to, or any other well-known or approved illuminating material commonly employed with fusees.

I claim:

1. The combination, in a fusee, of a metallic shell, ignitable illuminating material inclosed by said shell, said shell being spun over the end of the illuminating material with a central aperture, an ignition member disposed in said aperture, the shell being threaded below its closed end, and a threaded cap engaging the threaded end of the shell.

2. The combination, in a fusee, of a shell of metal, ignitable material therein, a metal cap for said shell having a central aperture, a paper disk within said cap and expanded into the aperture of the same, and a protective covering for said cap and disk.

3. The combination, in a fusee, of a metallic shell, ignitable material therein, said shell having a threaded end inclosing said ignitable material, ignition means at the end of the shell, a metal cap threaded onto the end of the shell and having a central aperture, a paper disk within said cap and expanded into the aperture of the same and overlying said ignition means, and a protective covering for said cap and disk.

4. The combination, in a fusee, of a metallic shell, ignitable material carried thereby, said shell having a threaded end, ignition means at the end of the shell, a cap threaded to fit on said end and having a central aperture, a paper disk inclosed by said cap and expanded into the aperture of the same, a scratching substance carried by said disk complementary to the ignition means at the end of the fusee, said scratching substance being on the outer surface of the paper disk, and a waterproof protective covering for said cap and disk.

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

GEORGE B. JACKSON.

Witnesses:

JNO. T. BROWN,
GEO. H. ARMACOST.