No. 809,029. PATENTED JAN. 2, 1906.

R. STANFORD & R. R. COLPITT.

SIGNAL.

APPLICATION FILED AUG. 19, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

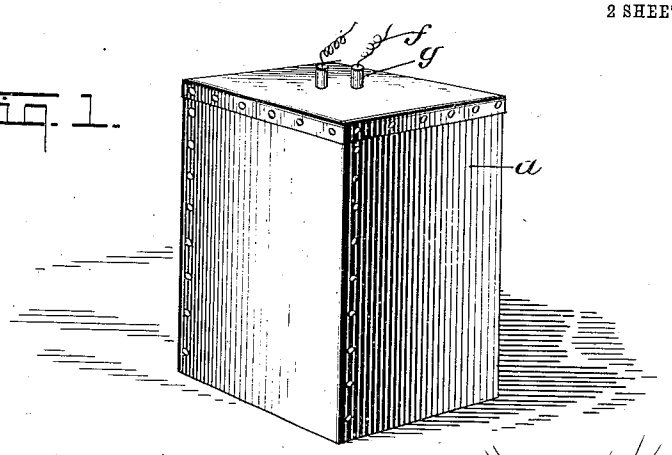


Fig. 2.

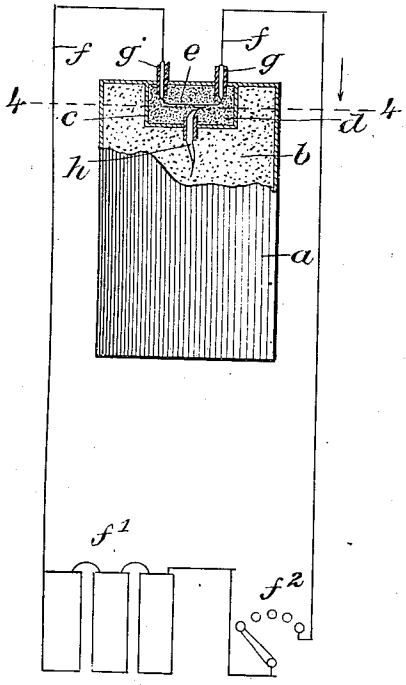


Fig. 3.

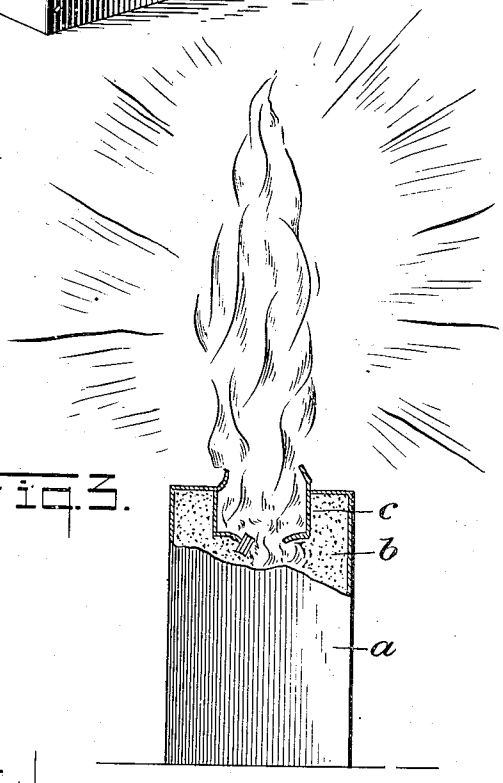
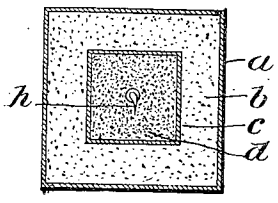


Fig. 4.



WITNESSES:

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2 SHEETS—SHEET 2.

Fig. 5

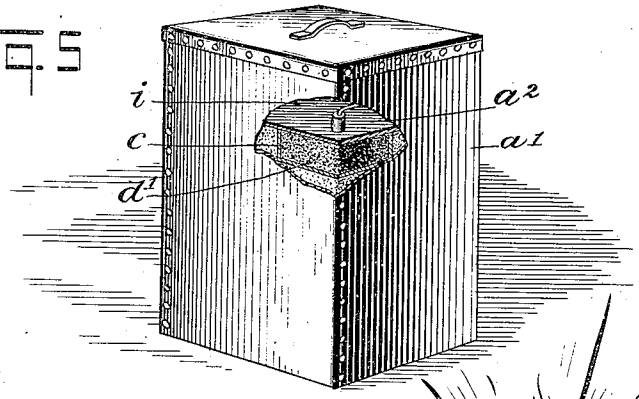


Fig. 6.

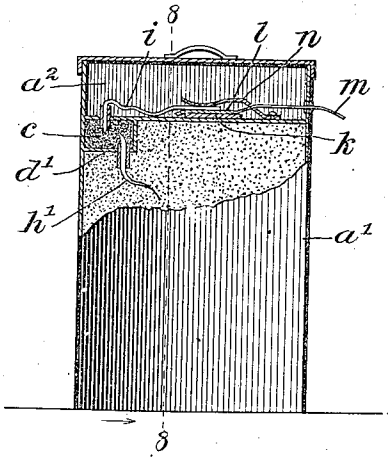


Fig. 7.

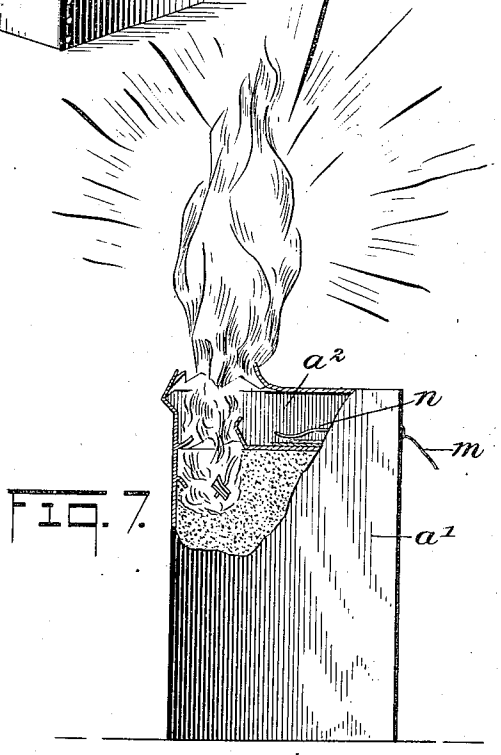
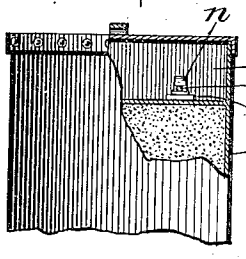


Fig. 8.



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UNITED STATES PATENT OFFICE.

ROBERT STANFORD AND PARKER RAYMOND COLPITT, OF HALIFAX, CANADA.

SIGNAL.

No. 809,029. Specification of Letters Patent. Patented Jan. 2, 1906.

Application filed August 19, 1904. Serial No. 221,391.

To all whom it may concern:

Be it known that we, ROBERT STANFORD and PARKER RAYMOND COLPITT, subjects of the King of Great Britain, and residents of Halifax, Nova Scotia, Canada, have invented a new and Improved Signal, of which the following is a full, clear, and exact description.

The invention relates to a "flare-up" or pyrotechnic signal designed for marine or other uses, and it resides particularly in the special devices for protecting the illuminant and firing the same at the time desired, all of which will be fully set forth hereinafter and pointed out in the claims.

Reference is had to the accompanying drawings, showing as an example two embodiments of our invention, in which drawings like characters of reference indicate like parts in the various views, and in which—

Figure 1 is a perspective view of the signal ready for operation. Fig. 2 is a vertical section thereof. Fig. 3 is a view showing the manner of starting the operation of the signal. Fig. 4 is a section on the line 4 4 of Fig. 2. Fig. 5 is a perspective view of a modified form of the invention with parts broken away. Fig. 6 is a section of said modified form, showing the fire devices. Fig. 7 is a view indicating the manner of operating the signal, and Fig. 8 is a section on the line 8 8 of Fig. 6.

Referring particularly to Figs. 1 to 4, the signal comprises a main case *a*, formed of lead, block-tin, or other material impervious to air and water, but readily combustible. This case *a* is adapted to be filled with any suitable combustible illuminant, (indicated at *b*,) and within the case *a*, in the upper part or top thereof, is a priming-case *c*, adapted to be filled with a suitable explosive—for example, ordinary gunpowder—as indicated at *d*. This priming-case is relatively small, it being intended to contain only sufficient explosive to tear open the top portion of the case *a*, thus causing the ignition of the illuminant *b*, as will be hereinafter fully set forth.

Various means may be employed for firing the priming charge *d*. In Figs. 1 to 4 we have indicated an electric igniter comprising a conductor *e* of high resistance joined to wires *f*, which pass through insulated tubes *g* in the top of the priming-case *c*, said wires *f* forming part of an electrical circuit which in addition to the source *f'* may also include a switch f^2 and various other devices for measuring and controlling the electric fluid. Upon closing the circuit *f* the platinum or other wire *e* will be caused to glow and this will ignite the priming charge *d*, causing the priming charge to be exploded and ignite a suitable fuse *h*, forming a flame communication between the priming charge *d* and the main case *a*, this fuse then transmitting the flame to the illuminant *b*. Simultaneously with this operation the explosion of the priming charge will blow out the bottom of the priming-case *c*, so as to admit atmospheric air to the illuminant to support the combustion thereof. The illuminant will at once flare up, giving the desired signal, the color and intensity of which depend upon the character of the illuminant employed. As the illuminant burns the combustible case *a* will burn down with the illuminant, thus avoiding obscuring or hampering the flame of the latter.

If desired, mechanical instead of electrical devices may be provided for the explosion of the priming charge. Such an arrangement is illustrated in Figs. 5 to 8. In this form of the invention the main case *a'* is formed the same as the case *a*, before described, except that at its upper portion it is provided with a double cover forming a chamber a^2. Below this chamber is located the priming-chamber *d'*, filled with the priming charge *c*, the same as before described. *h'* indicates the fuse for carrying the flame from the priming-chamber to the illuminant-case. The priming charge is exploded by a fuse *i*, which passes into the priming-chamber *d'* from the chamber a^2 of the main case *a'*. Said fuse *i* is adapted to be lighted by means of a strip or plate *k* of suitable material covered with phosphorus or other substance capable of being ignited by friction. Over this plate or strip *k* a friction-supplying member *l* is arranged, this member consisting, for example, of emery-cloth, to which is attached a string *m* or other means for moving the emery-cloth, and said string passing through the walls of the chamber a^2 to the exterior of the case. The fuse *i* lies over the friction device *l*, and the parts *i*, *l*, and *k* are held in snug contact by a suitably-arranged spring *n*. To start the signal, the cord *m* should be drawn out, thus moving the friction device *l* and causing the phosphorus on the strip or plate *k* to flash into flame, thus igniting the fuse *i*. As the fuse burns its flame is propagated in the priming-chamber

d', causing the explosion of the powder therein and bringing about the same operation as that which occurs in connection with the construction shown in Figs. 1 to 4, as above described.

Various changes in the form, proportions, and minor details of our invention may be resorted to at will without departing from the spirit and scope thereof. Hence we consider ourselves entitled to all such variations as may lie within the terms of our claims.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. A signal comprising a fusible case containing an illuminant charge, a destructible case therein containing a priming charge, a fuse leading from the priming to the illuminant charge, and means extending into the destructible case for igniting the priming charge to light the fuse.

2. A signal, comprising a case of lead, containing an illuminant charge, a destructible case therein containing a priming charge, a fuse for the priming charge leading through the bottom of said destructible case and thence to the illuminant charge, and means for igniting the priming charge.

3. A signal comprising a case containing an illuminant charge, another case therein containing a priming charge, a fuse leading from the priming charge to the illuminant charge, an igniter embedded in the priming charge, and an electric circuit of which the said igniter forms a part.

4. A signal comprising a case containing an illuminant charge, and another case therein containing a priming charge, a fuse leading from the priming charge to the illuminant charge, insulating-tubes passing through said first-named case to the interior of the second-named case, an electric igniter embedded in the priming charge, and electric conductors passing through said tubes and having electrical connection with the said igniter, the latter and said conductors forming parts of an electric circuit.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ROBERT STANFORD.
PARKER RAYMOND COLPITT.

Witnesses:
FREDERICK FRANCIS MATHERS,
JAMES EDWARD PARKER.