(No Model.)

G. A. MANNIE.

PYROTECHNIC SIGNAL.

No. 385,562. Patented July 3, 1888.

Fig. 1.

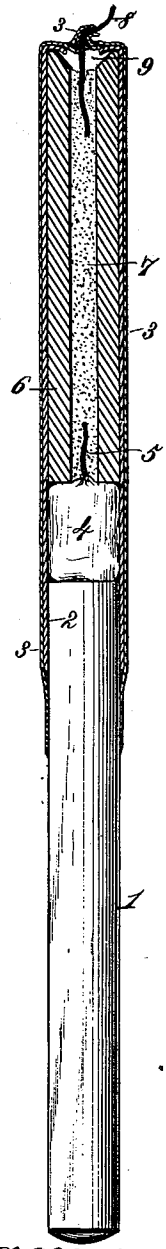


Fig. 2.

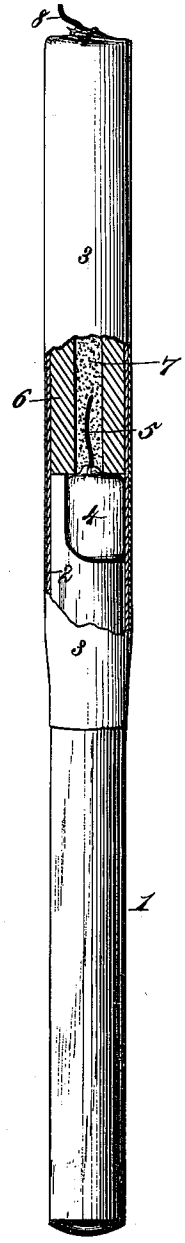
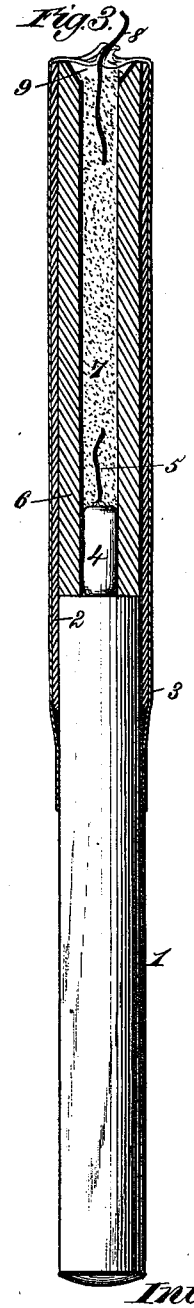


Fig. 3.



Witnesses.
Robt Ewett.
Jo. L. Coombs.

Inventor.
George A. Mannie.
By James L. Norris.
Atty.

UNITED STATES PATENT OFFICE.

GEORGE A. MANNIE, OF PETERSBURG, VIRGINIA.

PYROTECHNIC SIGNAL.

SPECIFICATION forming part of Letters Patent No. 385,562, dated July 3, 1888.

Application filed May 10, 1888. Serial No. 273,402. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. MANNIE, a citizen of the United States, residing at Petersburg, in the county of Dinwiddie and State of Virginia, have invented new and useful Improvements in Pyrotechnics useful as Fire-Works or for Signaling on Land or Water, of which the following is a specification.

The object of my invention is to provide an article of fire-works that when ignited will emit smoke and flame accompanied with a loud and shrill whistle and succeeded by an explosion or detonation, either with or without the ejection of stars, colored balls, or rockets. An article of this character is useful for general pyrotechnic purposes in parades and celebrations, as well as for signaling either on land or water, in fogs, at night, or as a distress-call in various circumstances.

My invention is illustrated in the annexed drawings, in which—

Figure 1 is a partly sectional elevation of a piece of hand fire-works adapted to emit flame and smoke with a loud whistling noise and provided with a bomb. Fig. 2 is a partly sectional view showing a modification in the arrangement of the bomb and handle. Fig. 3 is a partly sectional view of a form of construction that is especially adapted for signal purposes.

The numeral 1 designates a handle composed of wood or other suitable material and made any convenient length. In a cheap form of construction, adapted for pyrotechnic displays, an ordinary pasteboard or paper tube, 2, Figs. 1 and 2, will be attached to the handle 1, so as to surround one end and project beyond the same a suitable distance. I do not confine myself, however, to a tube of pasteboard or paper, as any other suitable material can be used. An outer paper covering, 3, may be placed around the tube 2 and adjacent portion of the handle.

Within the tube 2 and resting on the handle 1, as shown, is a bomb, 4, having an upward-projecting fuse, 5; but it is obvious that instead of an ordinary detonating bomb, or, in connection therewith, one or more fire balls or stars of any desired color and well-known character may be located within the tube in a similar manner.

Above the bomb 4 or other suitable pyrotechnic, as shown in Figs. 1 and 2, or surrounding the same, as in Fig. 3, is a tube, shell, or elongated hollow core, 6, composed of wood, metal, fire-proof paper, or other suitable material—such as asbestus or fire-proof textile material. This tube or hollow core 6 is preferably composed of wood, which may be coated with a suitable fire-proof composition to prevent ignition and avoid accidents by fire when the piece is discharged.

The tube or hollow core 6 is of considerable thickness, as shown, and has a comparatively small central bore which is nearly filled with a fulminating compound or slow-burning pyrotechnic composition, 7, of any suitable or well-known character capable of emitting a large volume of smoke and flame when ignited. The pyrotechnic composition, 7, is closely packed in the tube or hollow core 6 in the usual manner, and at one end it surrounds the fuse 5 of the bomb 4 or other explosive. In the other end of the pyrotechnic composition, at the mouth of the hollow core 6, is inserted a fuse, 8, through which the piece is ignited. The mouth of the hollow core 6 may be reamed or countersunk to afford a funnel-shaped air space or vent, 9, surrounding the igniting-fuse, and the outer covering, 3, of paper or other suitable material, may be extended beyond the end of the tube and be twisted around the fuse, as shown.

The bomb 4 or other explosive device may rest directly on the adjacent end of the handle 1, between said handle and the hollow core 6, as shown in Fig. 1, a side support being furnished wholly by the tube 2, or the handle may be partly cut away to receive the bomb, as shown in Fig. 2. As shown in Fig. 3, the bomb 4 and tubular core 6 may both rest on the end of the handle, the bomb being surrounded by said core.

When especially made for signaling purposes, the entire article should be somewhat larger, as shown in Fig. 3, and more durable than for ordinary display, and metal may enter more largely into its structure, particularly for the tube 2 and hollow core 6, which should be sufficiently strong to withstand the pressure to which the pyrotechnic composition is subjected in the act of charging said tube. The tube may, however, be made of wood with an inner or outer covering of metal.

In using this piece of fire-works, either for signaling or for display purposes, it is grasped by the handle and the fuse 8 ignited. The combustion of the composition 7 in the comparatively small bore causes an emission of smoke and flame with a loud and shrill whistling sound, which renders the device particularly valuable as a signal, especially in fogs. After the piece is ignited it should be waved or rotated steadily in the same manner as a Roman candle. When the combustion of the composition contained in the hollow core 6 has proceeded some time, the fuse 5 will become ignited and explode the bomb 4 or similar device with a loud noise and with sufficient force to eject the core 6 and any fire-balls or star or rocket composition that may have been placed in the piece. It is obvious that this final explosion adds to the effectiveness of the device, especially as a signal. If desired, the location of the bomb 4 and fuse 8 may be reversed and the device used as a rocket.

What I claim is—

1. An article of fire-works comprising a hollow core having a small bore packed with a composition capable of emitting a large volume of smoke and flame with a loud and shrill whistling sound, an igniting-fuse in one end of said hollow core, a bomb or similar device at the other end of said hollow core, and a tube inclosing said core and bomb, substantially as described.

2. In an article of fire-works, the combination of a handle, 1, a tube, 2, attached to said handle, a hollow core, 6, inclosed in said tube and packed with a composition capable of emitting smoke and flame with a loud and shrill whistling sound, a fuse in one end of said core, and a bomb or explosive at the other end of said core, substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses.

GEO. A. MANNIE.

Witnesses:

JOS. L. COOMBS,

J. A. RUTHERFORD.