No. 680,564.

Patented Aug. 13, 1901.

T. F. CLARKE.

SQUIB.

(Application filed Apr. 2, 1900.)

(No Model.)

FIG. 1.



FIG. 2.

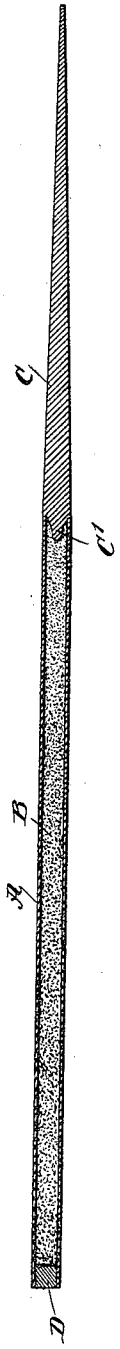
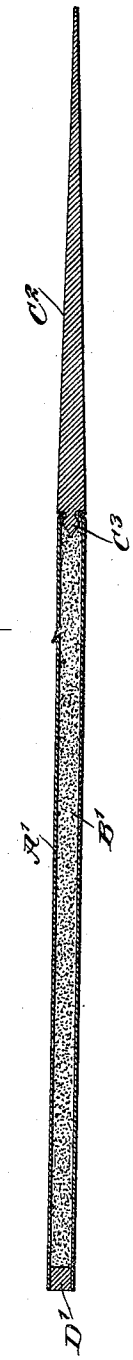


FIG. 3.



WITNESSES:

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SQUIB.

SPECIFICATION forming part of Letters Patent No. 680,564, dated August 13, 1901.

Application filed April 2, 1900. Serial No. 11,174. (No model.)

To all whom it may concern:

Be it known that I, TIMOTHY FRANCIS CLARKE, a citizen of the United States, and a resident of St. Clair, in the county of Schuylkill and State of Pennsylvania, have invented a new and Improved Squib, of which the following is a full, clear, and exact description.

The invention relates to blasting materials; and its object is to provide a new and improved squib which is simple and durable in construction, completely moisture-proof, and provided with a transparent body to permit the user to examine at a glance the condition of the charge to insure perfect safety when using the squib and to guard against possible accident from premature explosion or miss through defective construction of the squib.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the improvement. Fig. 2 is a sectional side elevation of the same, and Fig. 3 is a like view of a modified form of the improvement.

The improved squib illustrated in Figs. 1 and 2 consists of a shell A, adapted to contain a charge B of powder or other explosive material, one end of said shell A terminating in a solid igniter C, the other end of the shell being closed by a stopper D. The shell A and the igniter C are made integral and transparent and preferably of a mixture of gelatin and saltpeter.

In making the body of the squib—that is, the shell A and the igniter C—it is molded in a suitable mold, so as to leave the shell hollow and the igniter solid, and a projection or teat C′ extends into the shell from the solid igniter, as is plainly shown in Fig. 2, so that the charge surrounds said teat, and consequently is readily ignited when the teat is burning.

As illustrated in Fig. 3, the shell A′ and the igniter C^2 are made in separate pieces, the shell A′ being crimped at its outer end upon the neck of a teat C^3, extending into the charge B′, contained in the shell A′. The end of the shell A′ is closed by a stopper D′, the same as above described in reference to Figs. 1 and 2. In this case the shell A′ is preferably made of gelatin, while the igniter C^2 is made of paper-pulp saturated with saltpeter.

From the foregoing it is understood that the squib shown in Figs. 1 and 2 has both the shell and the igniter made of transparent material, while in the squib illustrated in Fig. 3 the shell only is of transparent material, while the igniter C^2 is opaque. In either case, however, the charge and general condition of the squib can be readily viewed at a glance, so that the user is enabled to immediately detect any imperfection of the squib.

The stopper D or D′ is preferably made of soap or glucose and is put into the shell after the latter is filled with the charge.

The igniter C or C^2 extends in the shape of a point from the end of the shell A or A′ and burns or fuses at the rate of about one inch per minute without producing a flame, and consequently the squib can be safely handled, as it is some time after igniting the end of the igniter before the charge is ignited in the shell.

By making the squib of the material described it is pliable besides being transparent and combustible, and hence can be readily applied to the cartridge on which it is to be used.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. As a new article of manufacture, a squib having a transparent and combustible shell and provided with a flameless igniter, as set forth.

2. As a new article of manufacture, a squib having a transparent and combustible shell and provided with a solid flameless igniter, as set forth.

3. As a new article of manufacture, a squib having a transparent and combustible shell and provided with a solid flameless igniter integral with the shell, as set forth.

4. As a new article of manufacture, a squib comprising a shell and a solid integral igniter, the whole being combustible but flameless, as set forth.

5. As a new article of manufacture, a squib having a transparent shell and provided with a solid flameless igniter having a teat projecting into the shell, as set forth.

6. A squib having a shell, an igniter at one end thereof, and a teat extending from the igniter into the shell and surrounded by the charge therein, as set forth.

7. A squib, comprising a transparent shell, and a solid igniter in the form of a point extending integrally from one end of the shell, the shell and igniter being formed of gelatin and saltpeter, as set forth.

8. A squib, comprising a shell of transparent and combustible material, an igniter in the form of a point extending integrally from one end of the shell and made of the same material as the shell, and a teat extending from the inner end of the igniter into the shell, as set forth.

9. As a new article of manufacture, a squib comprising a shell having a solid igniter integral therewith, the igniter having a teat projecting into the shell, the shell and igniter being formed of gelatin and saltpeter, as specified.

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

TIMOTHY FRANCIS CLARKE.

Witnesses:
PATRICK MALIA,
DOMINICK J. MULROY.