

J. DOWD.
CHEMICAL SHOT FIRER.
APPLICATION FILED JUNE 3, 1910.

981,073.

Patented Jan. 10, 1911.

Fig. 1.

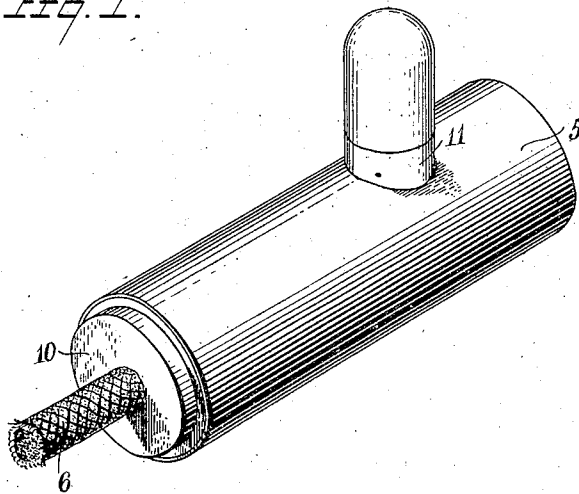
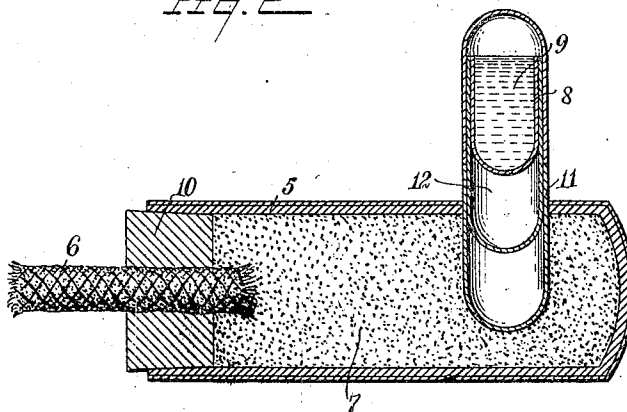


Fig. 2.



WITNESSES:

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CHEMICAL SHOT-FIRER.

981,073.

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To all whom it may concern:

Be it known that I, JOHN DOWD, a citizen of the United States, and a resident of Chicopee, in the county of Crawford and State of Kansas, have invented a new and Improved Chemical Shot-Firer, of which the following is a full, clear, and exact description.

The invention is an improvement in chemical shot firers for setting off blasts and other explosive charges, and has in view a device of this character which will ignite the charge with certainty only after a predetermined length of time, and thus give the operator ample opportunity to move out of range before the explosion occurs.

To this end the invention consists of a shell from which a fuse extends to be connected to the charge, and a container having a liquid, the liquid adapted to pass through the container after a predetermined period, and the container arranged for the liquid to drop into the shell after passing there-through, with the shell having a material therein igniting by the addition of the said liquid.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in both the views.

Figure 1 is a perspective view of a chemical shot firer constructed in accordance with my invention; and Fig. 2 is a longitudinal vertical central section of the same.

The invention as specifically set forth comprises a shell 5, from which a fuse 6 extends, and filled with a material or compound 7, and a container 8 having a liquid 9 which is adapted to pass therethrough after a certain interval of time, the container being arranged so that the liquid will fall into the shell after the liquid passes through the bottom thereof, the compound 7 and liquid 9 being such as to produce a flame when brought together. For this purpose I preferably make the compound 7 of potassium chlorate and sugar, and for the liquid 9 I use sulfuric acid. The shell 5 is ordinarily made of paper heavily paraffined, which makes this part of the shot firer waterproof. The fuse, which, in the use of the firer is passed within the charge to be exploded, ordinarily extends from the compound 7 within the shell through a cork 10, closing the outer end of the shell.

The container 8 is shown to be the innermost of a number of capsules, the outer capsule 11 of which extends through the side of the shell well into the compound 7, and has telescoped therein the lower portion or section of the capsule 12, which in turn likewise receives the container capsule 8, the upper section of the outer or charge capsule 11 fitting over the capsule section 12 and covering it and the container. The capsules are of gelatin or some material through which the acid will eat after a predetermined time, the bottom wall of the several capsules being spaced a substantial distance apart so that the acid will successively pass from one capsule to the next capsule below and finally enter the potassium chlorate and sugar. By multiplying the capsules, the time required for the acid to enter the material 7 may be lengthened as to any suitable period. Ordinarily, however, three capsules or capsule sections will under most circumstances be found sufficient.

In the manufacture of the cartridge, it is preferably made complete, with the exception of the addition of the acid, this being added by a dropper or other device after the cartridge is otherwise in position and readiness for exploding the charge. By the arrangement of the acid at the outside of the shell removed from the potassium chlorate and sugar, there is no danger of the two being brought together prematurely.

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

1. In a chemical shot firer, a shell, a container having a liquid, the liquid adapted to pass through the container after a predetermined period, and the container arranged for the liquid to drop into the shell after passing therethrough, and a material within the shell igniting by the addition of the said liquid.

2. In a chemical shot firer, a shell, a container arranged at the outside of the shell and having a liquid, the liquid adapted to consume the container after a predetermined period, and the container arranged for the liquid to drop into the shell after passing therethrough, and a material within the shell producing a flame by the addition of the said liquid.

3. In a chemical shot firer, a shell containing potassium chlorate and sugar, and a sulfuric acid container, the container of a

material through which the acid is adapted to pass after a predetermined period, and arranged so that the acid will drop into potassium chlorate and sugar after passing through the container.

4. In a chemical shot firer, a shell, a chemical compound within the shell, a fuse extending from the compound to the outside of the shell, and a capsule acid container supported at the outside of the shell, of a material through which the acid is adapted to pass after a predetermined period, and arranged for the acid to drop within the said compound within the shell after passing therethrough.

5. In a chemical shot firer, a shell containing a chemical compound, a fuse leading from the said compound to the outside of the shell, and a container arranged at the outside and above the shell, having a liquid, the said liquid adapted to penetrate the shell after a predetermined time and cause ignition when added to the said compound, with the container arranged for the liquid to drop into the shell after the liquid passes through the container.

6. In a chemical shot firer, a paraffined shell containing potassium chlorate and

sugar, a fuse leading from the potassium chlorate and sugar to the outside of the shell, a capsule extending from the potassium chlorate to the outside and above the shell, a capsule container arranged within the first-named capsule, and an acid within the capsule container, producing ignition when added to the potassium chlorate, and adapted to successively penetrate the said capsules after a predetermined period.

7. In a chemical shot firer, a shell having a compound, a succession of capsules telescoped one within the other, with the bottoms of the capsules arranged substantially apart, with the lower capsule extending upwardly through the shell in a position to discharge into the compound, and the upper capsule containing an acid adapted to successively penetrate the capsules after a predetermined time and cause ignition when added to the said compound.

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

JOHN DOWD.

Witnesses:

C. C. HUDSON,
HILDA BOUDINOT.