

(No Model.)

A. WATSON.

EXPLODER FOR FIRING BLASTS.

No. 253,649.

Patented Feb. 14, 1882.

Fig. 1.

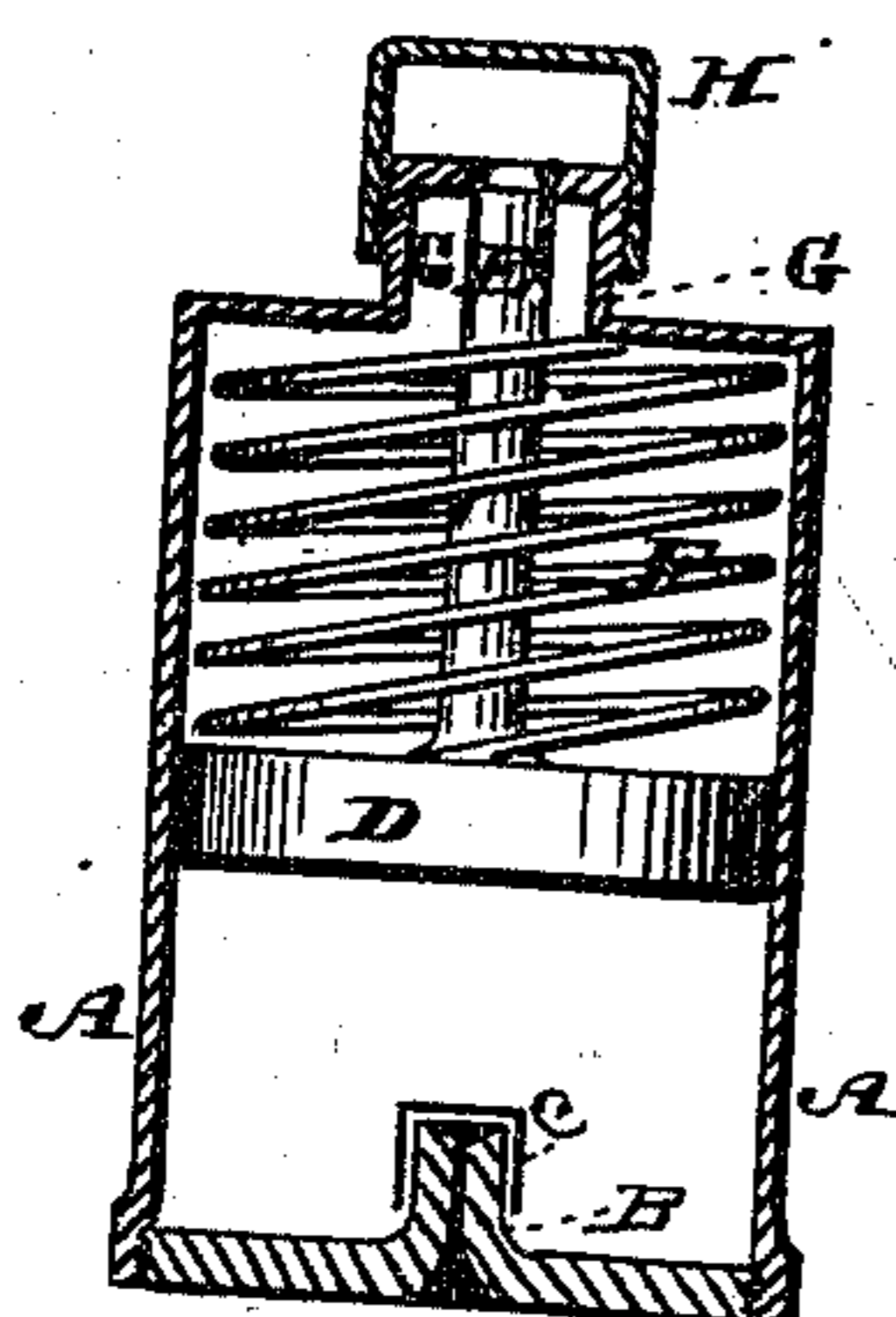
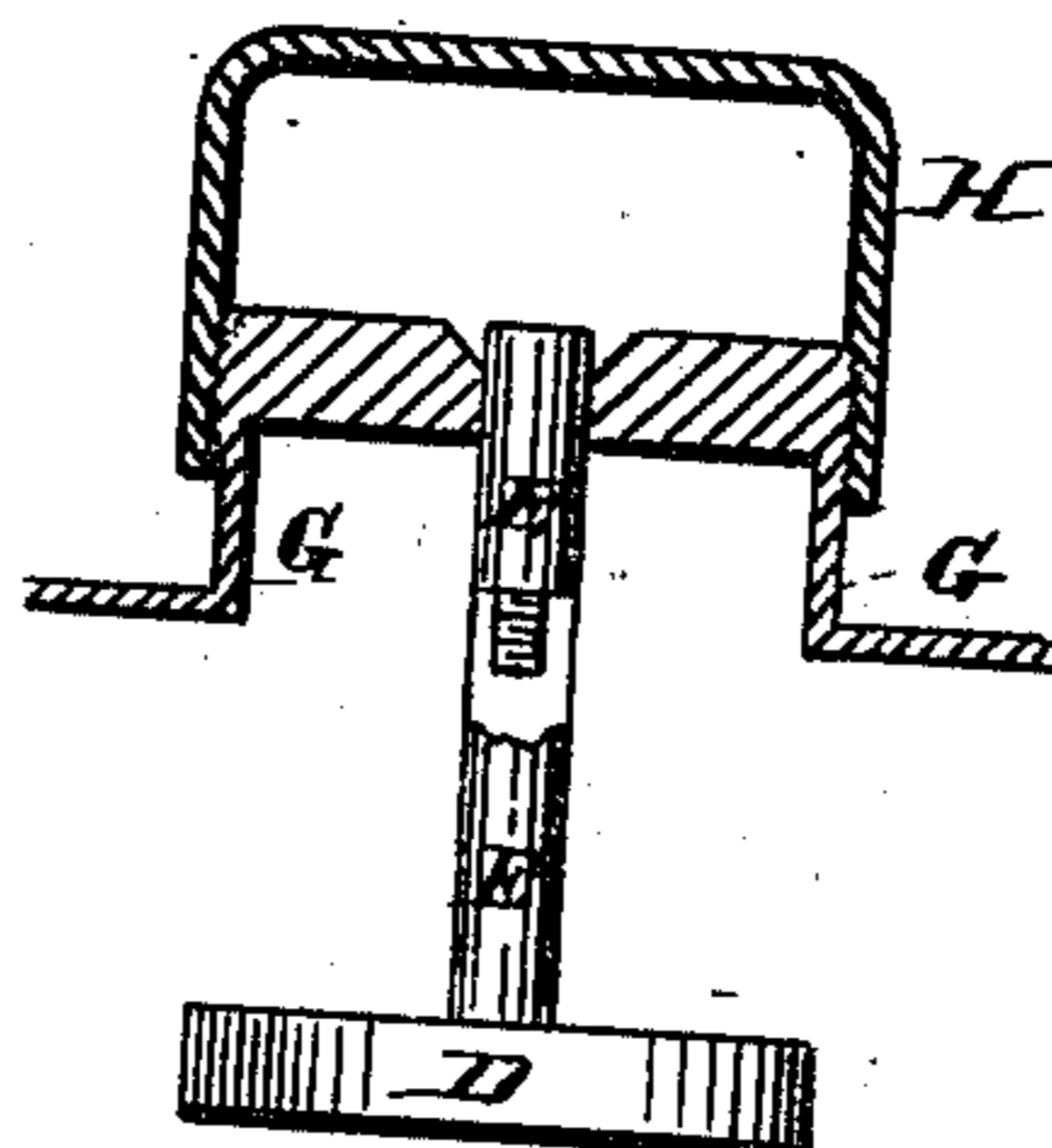


Fig. 2.



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ALEXANDER WATSON, OF SAN FRANCISCO, CALIFORNIA.

EXPLODER FOR FIRING BLASTS.

SPECIFICATION forming part of Letters Patent No. 253,649, dated February 14, 1882.

Application filed November 5, 1881. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER WATSON, of the city and county of San Francisco, State of California, have invented an Improved Method of Firing Nitro-Glycerine and other Explosives; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to a novel method of firing explosives, especially of that class known as "high explosives," of which nitro-glycerine and its compounds are representatives; and it consists in the employment of a metallic cylinder having in its lower part an anvil to receive an explosive cap, while above it a piston or hammer slides within the cylinder, being actuated by a stout spring. The hammer has a stem or spindle, the upper end of which is secured at the upper part of the cylinder, when the hammer is drawn up, by any solder or composition which may be acted upon by quicksilver. A cap screws down over this joint. The cap has a drop of quicksilver placed within it, and the device is kept bottom up until needed, so that the quicksilver may not touch the joint. When it is to be used, the cap being placed on the nipple or anvil, the apparatus is reversed, so that the quicksilver may rest upon the joint, when it will attack it and loosen it, so that the hammer may fall and explode the cap and the charge into which the cylinder is introduced. The time is regulated by the amount of solder or cement, so that it acts like a time fuse or mechanism.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a view of my apparatus. Fig. 2 is a vertical section.

A is a cylinder, which is preferably made of stout sheet-brass or other suitable metal. At the bottom of this cylinder is a nipple or anvil, B, upon which the explosive cap *c* is placed. Within the cylinder the hammer D is fitted to slide. In the present case I have shown it as a piston sliding easily and guided by the sides of the cylinder. A stem, E, extends upward, and is surrounded by a stout spiral spring, F, which, when compressed, serves to actuate the hammer and force it down upon the anvil. The

upper part of the cylinder has a projection, G, into or through which the stem E projects, so as to be secured there, when the hammer is drawn up, by a solder of any metal which is susceptible of being attacked by quicksilver. Over this head a cap, H, is screwed, and this cap has a drop of the metal placed in it, when it is reversed. The head G is then screwed into it, so that the apparatus remains reversed and the quicksilver out of contact with the solder or cement. In this position the device may remain and be transported with safety.

When it is to be used the cylinder is turned over and inserted into the charge of nitro-glycerine or other explosive. The quicksilver will then lie upon and in contact with the solder, and will at once attack it, dissolving it, so that the stem E will be released and the hammer will fall, and, striking the cap, will explode it, and with it the cylinder, so as to produce such a concussion as to explode the charge.

The time of the explosion is determined by the amount of the material used as a solder, and this may be so regulated that the explosion will occur at the exact moment desired.

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

1. In a cartridge-exploder, a soldered firing device, in combination with a cap or receptacle adapted to receive and apply to the solder a body of mercury for the purpose of releasing the firing device, for the purpose set forth.

2. The cylinder A, having within it the anvil B, the hammer D, and the spiral or other spring F, against which the hammer is forced back, and held by a solder or cement, as shown, in combination with a receptacle, H, to contain quicksilver, and by which it may be applied to the solder, so as to release the hammer, substantially as and for the purpose herein described.

In witness whereof I have hereunto set my hand.

ALEX. WATSON.

Witnesses:

S. H. NOURSE,

FRANK A. BROOKS.