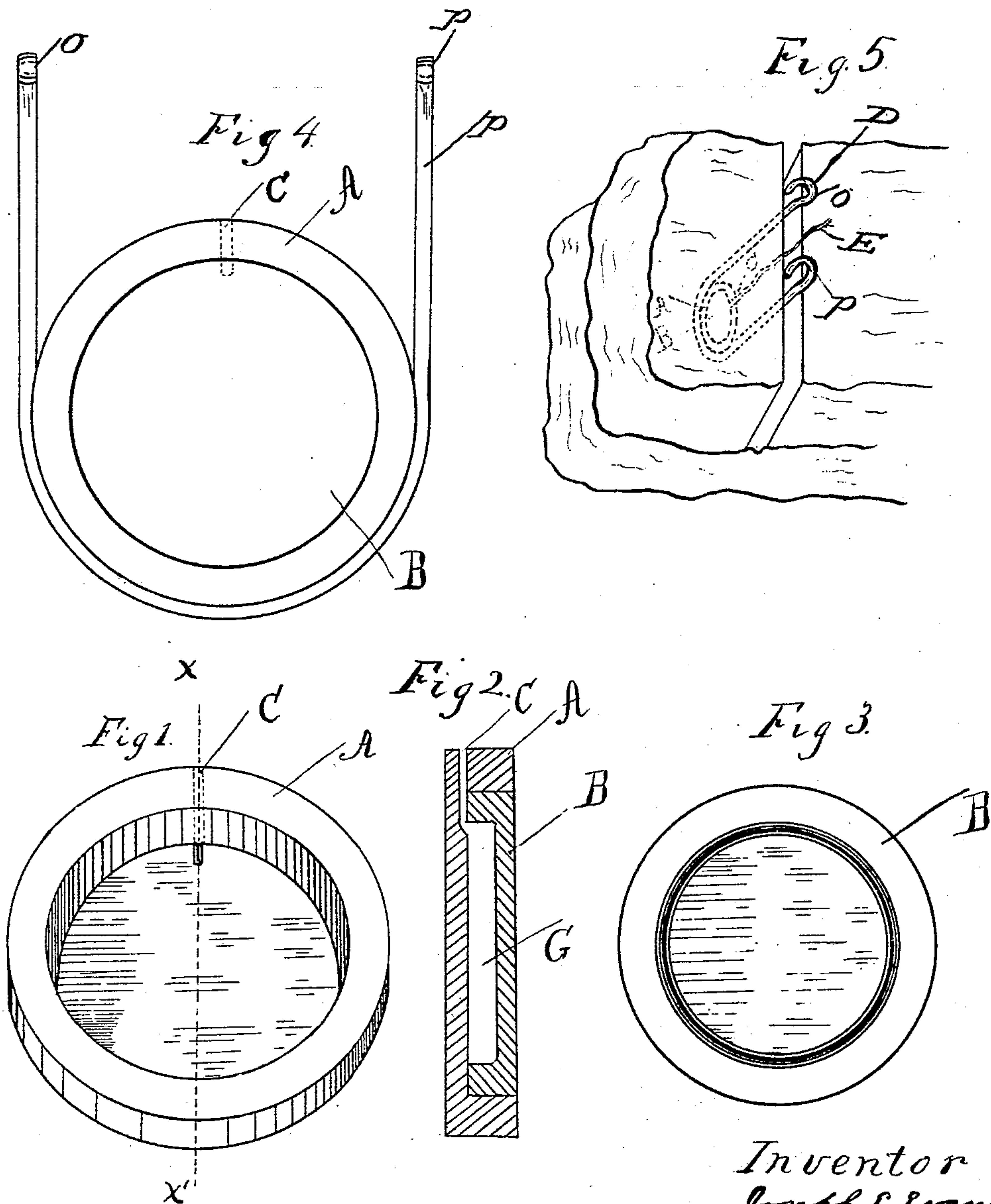


(No Model.)

J. E. EVANS.  
BLASTING CARTRIDGE.

No. 437,646.

Patented Sept. 30, 1890.



Witnesses:  
George B. Cardmill  
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# UNITED STATES PATENT OFFICE.

JOSEPH E. EVANS, OF BEDFORD, INDIANA.

## BLASTING-CARTRIDGE.

SPECIFICATION forming part of Letters Patent No. 437,646, dated September 30, 1890.

Application filed December 16, 1889. Serial No. 333,893. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH E. EVANS, a citizen of the United States, residing at Bedford, in the county of Lawrence and State of Indiana, have invented a new and useful Blasting-Chamber, of which the following is a specification.

My invention consists, essentially, of a chamber and a close-fitting cap, so arranged as to form a confined space between the chamber and cap, the only communication to the outside being by an aperture let into the side of the chamber, the said space adapted to receive a charge of explosive material and the aperture to receive a suitable fuse or wire, the object of my invention being, by the discharge of its explosive contents and the consequent separation of the chamber and cap, to separate solid masses of rock from their native ledges, a channel having been previously constructed to snugly receive one or more of my blasting-chambers. I attain this object by the mechanism illustrated in the accompanying drawings.

Figure 1 is a top view of my invention with the cap removed. Fig. 4 shows the chamber and sling. Fig. 3 is an under view of the cap. Fig. 2 is a vertical section of the invention on the line  $xx'$  of Fig. 1. Fig. 5 shows my invention in position and ready to be discharged.

Similar letters refer to similar parts throughout the several views.

The chamber A is formed out of solid metal, and its cavity is so constructed as to receive snugly the cap B. A hole is formed at any point C, giving access from without to its space within, and yet so near the base as not to be obstructed by the edge of the cap when in position. The cap B, adapted to fit into the chamber A, is so constructed with a chamber in its base that while its upper surface forms a continuous level plane with the top surface of the margin of the chamber A, there is a space G between the cap and the chamber, the only communication to which is through the ignition-hole at C, and this space is intended to contain the charge of explosive material to be used.

The entire blasting-chamber, when in position to be discharged, is suspended in the sling D, which consists of a strip of suitable

material bent at its center into a curve adapted to receive it, and the ends of which are formed into eyes suitable to suspend the sling and chamber in the channel previously prepared for their reception.

In using my mechanism the ledge to be operated upon is first channeled in any suitable manner to any required depth, depending upon the character of the stone and the size of the piece to be detached. One or more of my blasting-chambers, of a thickness corresponding to the width of the channel, is inserted and suspended at the required depth by means of the sling D, which in turn is supported at the edges of the channel by the greater width of the eyes  $o$  and  $p$ . An igniting-fuse, or, if preferred, the wire from an electric battery, is inserted in the hole at C and connected with the explosive charge. (If an electric wire be used, it should be insulated from the metal chamber by any suitable insulating material.) The charge is then exploded. The force of the explosion acting in the direction of least resistance will drive the chamber A and the cap B asunder; but as no space intervenes between the walls of stone and the chamber and cap, respectively, if the force of the explosion be sufficient the weaker part of the rock will give way and be detached, and the use for which my mechanism is designed will be subserved.

It has been found necessary, in detaching pieces of rock in the form of parallelopipeds, after channeling across the upper surface of the ledge to drill a line of holes in the exposed side of the piece to be detached at the required distance from the upper edge of the piece, and then by means of wedges and feathers to split the piece from its native bed, and then by wedging or prying in the channel to detach the piece from its ledge. By using my device the piece need not be first detached from its bed. The channel only is formed, and then my blasting-chamber inserted and discharged. The piece will then be found detached and even removed from its native bed.

In the construction of my blasting-chamber I do not restrict myself to any particular metal. Any strong tenacious metal will serve my purpose. I have found, however, that wrought-iron is most serviceable. Nor do I



confine myself to the circular form for my blasting-chamber. It may be constructed round, square, or in any shape, and still not be at variance with my invention, although  
5 I have found the round or cylindrical shape to be best for the purposes of my invention, and the top and bottom are to be planes, flat and parallel.

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

1. A removable blasting-chamber consisting of a metallic chamber, a hollow metallic cap fitting snugly into the said chamber, and by  
15 means of its hollow structure forming with the inner surface of the chamber a space confined except as to a small aperture near the base of the chamber, all substantially as described.

20 2. The combination, in a blasting-chamber, of the hollow metallic chamber A, provided

with an aperture at C, the cap B, fitting into said chamber and forming by its hollow character a confined space between it and the chamber, the sling D, adapted to support and  
25 carry the chamber upon the inner surface of its curve, all substantially as described.

3. A blasting-chamber consisting of a hollow case and a hollow cap or plug therefor, the lower surface of the case and the upper  
30 surface of the cap being flat and substantially parallel with each other, and an aperture leading through the wall of the chamber, said chamber being adapted to receive an explosive charge, and said aperture adapted to  
35 receive a feed therefor, in combination with a sling for supporting said chamber, all substantially as described.

JOSEPH E. EVANS.

Witnesses:

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