

I. WHITCOMB.
Methods of Blasting Rocks.

No. 141,248.

Patented July 29, 1873.

Fig. 1.

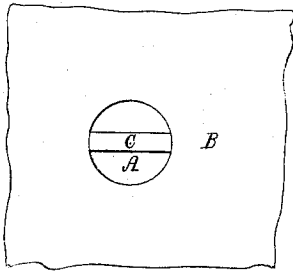


Fig. 4.

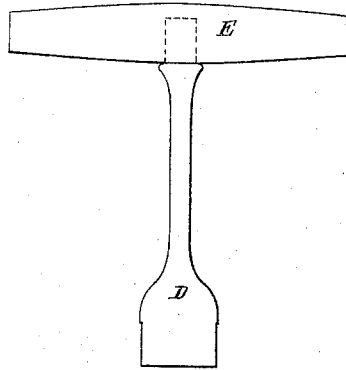


Fig. 5.

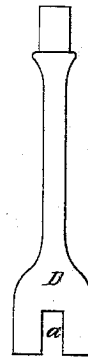


Fig. 2.

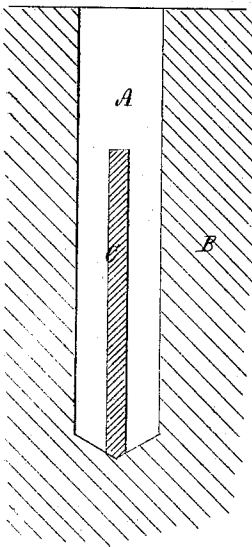


Fig. 3.

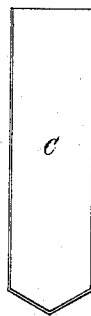
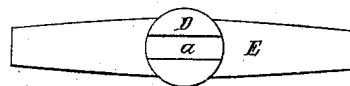


Fig. 6.



Witnesses

S. W. Piper

L. N. Walter

Israel Whitcomb

by his attorney

R. A. L. L.

UNITED STATES PATENT OFFICE.

ISRAEL WHITCOMB, OF HINGHAM, MASSACHUSETTS.

IMPROVEMENT IN THE METHODS OF BLASTING ROCK.

Specification forming part of Letters Patent No. **141,248**, dated July 29, 1873; application filed May 21, 1873.

To all whom it may concern:

Be it known that I, ISRAEL WHITCOMB, of Hingham, of the county of Plymouth, of the State of Massachusetts, have invented a new and useful Improvement in the Art of Blasting Stone; and do hereby declare the same to be fully described, as follows, reference being had to the accompanying drawings, of which—

Figure 1 is a top view of a blast-hole and its diametric partition. Fig. 2 is a vertical and transverse section of it. Fig. 3 is a side view of one of the partitions; and Figs. 4 and 5 are side views, and Fig. 6 an end view, of the implement used for introducing the partition into and properly centering it in a blast-hole.

In carrying out my invention or improvement in the art of blasting, or in the preparation and charging of a hole made in a rock or stone for the purpose of blasting it, I introduce into the hole, so as to extend across it diametrically, and from its bottom upward to or nearly to its top, a partition, generally of wood, a common lath as used by plasterers being what I have mostly employed. The blasting-charge, whether of gunpowder, gun-cotton, or other suitable material, is next to be introduced into the hole, so as to either partially or entirely fill the spaces on opposite sides of the partition. Furthermore, the partition, in order for effecting the best result, should fit closely at its opposite edges to the hole.

In the drawings, A denotes a blast-hole drilled in a stone, B, and having the wooden partition C arranged in it. For introducing the partition into a hole, I generally employ a furcated metallic cylinder or rod, D, provided with a handle, E, all as shown in Figs. 4, 5, and 6, which is an end view of the rod. Such rod has a diameter a little less than that of the blast-hole, and is slotted diametrically from its lower end upward the necessary length, as seen at *a*, to receive the partition, the axis of the handle and the planes of the opposite sides of the slot being in parallel planes. Having placed in the slot one of the partitions, the rod with it is to be introduced into and pushed down within the blast-hole, until the end of the partition may reach the

bottom of the hole. On withdrawal of the rod from the hole, the partition will remain in the hole, and be duly centralized therein.

I have discovered that by the use of the partition, the stone may be blasted or cracked in any direction diametrically of the hole that may be desirable. To insure such, it is only necessary to turn or set the partition in the hole so that the line of greatest width of the partition shall be in the direction in which we may desire the rock or stone to split.

By placing the handle of the partition-adjuster in the prepared direction of fracture, the partition when in the hole and the adjuster will have the proper position for insuring the required line of crack or cleavage.

With a series of blast-holes prepared with partitions and blast-charges, a stone may be split either in a straight or in a curved or irregular line, as may be desirable.

When the partition is used in a blast-hole, the charge of powder will extend much higher in the hole than would be the case without the partition, and as a consequence the force of the explosion will be spread to a greater extent, and be caused to act mostly in opposite directions, or at right angles to the line of rupture, the partition preventing to a great degree, if not entirely, the force of the charge being exerted in range of the partition.

I sometimes put two partitions in a hole, with a powder-space between them, and with such spaces on their outer sides, or I put two wooden partitions or segments of cylinders in the hole, with their cord-planes parallel and apart, so as to have a powder or charge space between them; but such, though advantageous, is not so much so as the single partition arranged diametrically across the hole.

In the preparation of a cartridge for blasting purposes, I place the partition within the case of such cartridge having the powder on opposite sides of such partition. I deem it far better, however, to first drive the partition into the blast-hole by means of the adjuster, as described, and afterward place the powder-charge in the hole.

Instead of the hole being cylindrical it may have the shape in horizontal section of a "Lewis hole," or be longer in width in one direction than it may be in one at right angles,

the partition being placed to extend along the longer diameter of the hole.

By the use of a partition in manner as described, with a blast-hole and its explosive charge, highly important advantages are gained in blasting.

It will be seen that when the charge in opposite sides of the partition is exploded it will compress the wood, whereby the partition will be expanded so as to cause it at its edges to fit closely to the stone.

What, therefore, I claim as my invention or improvement in the art of blasting, is—

The employment of one or more partitions or pieces of wood, with or in a blast-hole, and with its explosive charge, all substantially in manner as specified.

ISRAEL WHITCOMB.

Witnesses:

R. H. EDDY,
J. R. SNOW.