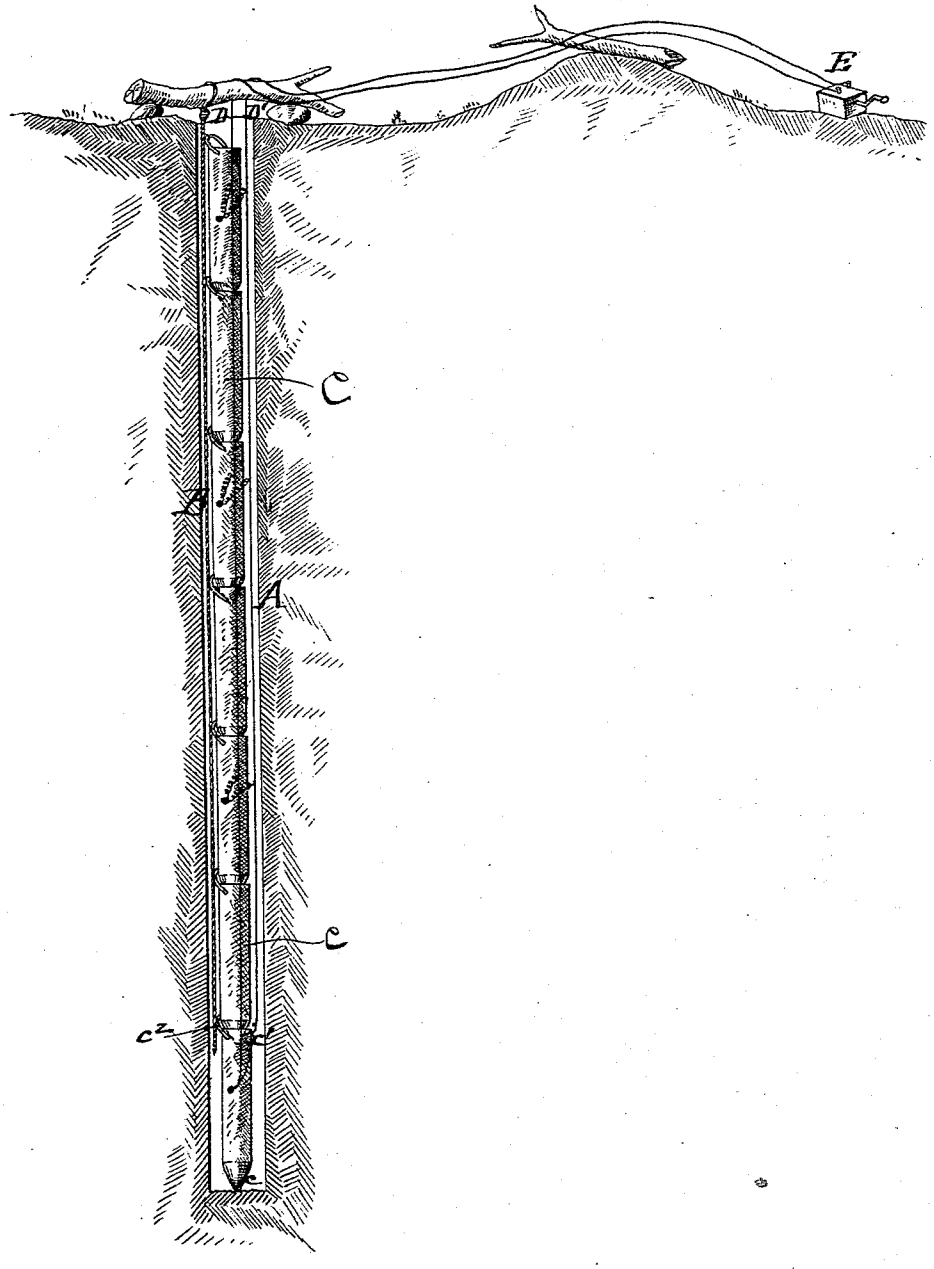
(No Model.)

# A. G. CARTER.

## SINKING SHAFTS IN THE EARTH.

No. 457,770. Patented Aug. 18, 1891.




WITNESSES

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# UNITED STATES PATENT OFFICE.

ALFRED GIPSON CARTER, OF WEBB CITY, MISSOURI.

## SINKING SHAFTS IN THE EARTH.

SPECIFICATION forming part of Letters Patent No. 457,770, dated August 18, 1891.

Application filed April 22, 1891. Serial No. 389,994. (No model.)

*To all whom it may concern:*

Be it known that I, ALFRED GIPSON CARTER, a citizen of the United States, residing at Webb City, in the county of Jasper and State of Missouri, have invented certain new and useful Improvements in Sinking Shafts in the Earth by the Previous Use of High Explosives; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The figure represents a vertical section of ground illustrating the application of the method.

This invention relates to an improved method of sinking shafts for mining purposes.

To carry out this method, a bore or hole A of small diameter—say six inches—is drilled in any suitable manner tc the desired depth of the shaft to be made. Down this bore by means of a rope B are lowered one after another cartridges C of nitro-glycerine or other high explosive. These cartridges are made of any suitable material and have the lower ends *c* pointed and the tops *c'* concave, so that the point *c* of one cartridge will fit into the top *c'* of the one below, holding them snugly in place. Each cartridge has a bail or handle $c^2$, by which it is secured to the rope B. In these cartridges are placed the usual exploders, which are connected to wires D D', running to a battery E at a convenient point on the surface. All of the cartridges need not be connected with the wires, but simply at convenient intervals, as shown. These cartridges are attached to the rope B and lowered one after another until the bore A is filled. By closing the circuit through the wires D D' the cartridges are exploded. Practrice has demonstrated that the explosion of this column of cartridges will disintegrate and loosen the surrounding earth or rock for such a distance that it can be readily removed without drilling.

This method thus enables a shaft to be sunk without any necessity for drilling, except the small bore for receiving the cartridges.

Having thus described my invention, what I claim is—

1. The method of sinking shafts, which consists in making a bore of small diameter to the depth of the shaft to be sunk, lowering cartridges therein, one on top of another, some of said cartridges at intervals containing exploders communicating with an electric battery, and then exploding the column of cartridges, as set forth.

2. As a means for sinking shafts, a column of cartridges, each cartridge having a concave top, a pointed lower end, and a bail, in combination with a rope to which the bails are attached, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ALFRED GIPSON CARTER.

Witnesses:
JOHN N. WILSON,
JOHN BOSTON.