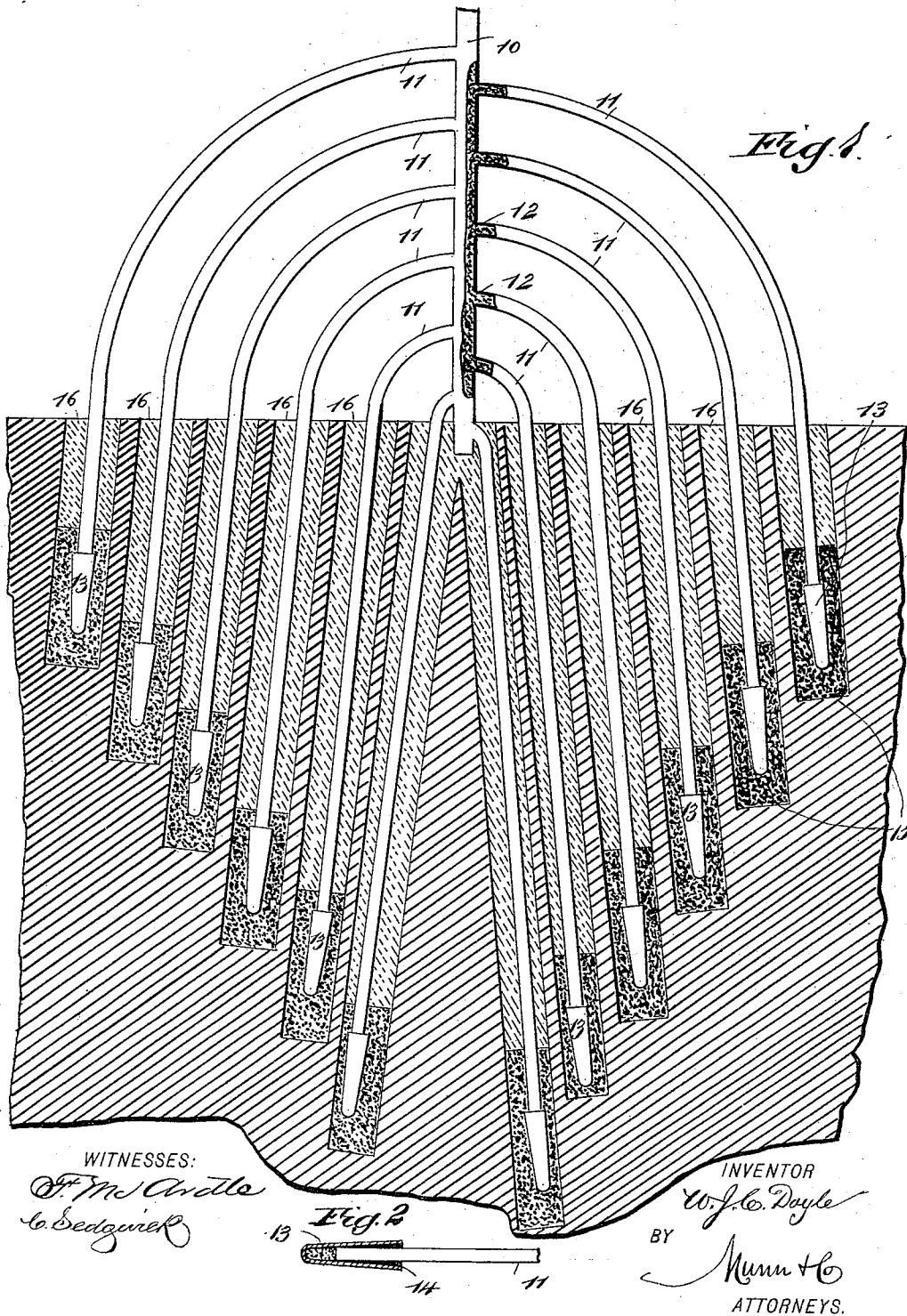


(No Model.)

W. J. C. DOYLE.
MULTIPLE BLASTING FUSE.

No. 530,025.

Patented Nov. 27, 1894.



UNITED STATES PATENT OFFICE.

WILLIAM J. C. DOYLE, OF ASPEN, COLORADO, ASSIGNOR OF ONE-HALF TO
TIMOTHY BECKLEY, OF SAME PLACE.

MULTIPLE BLASTING-FUSE.

SPECIFICATION forming part of Letters Patent No. 530,025, dated November 27, 1894.

Application filed February 13, 1894. Serial No. 500,044. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. C. DOYLE, of Aspen, in the county of Pitkin and State of Colorado, have invented a new and Improved Multiple Blasting-Fuse, of which the following is a full, clear, and exact description.

My invention relates to improvements in fuses such as are used for blasting purposes; and the object of my invention is to produce a safety multiple fuse which is provided with a plurality of waterproof blasting caps and a series of branch fuses, there being a fuse for each cap, and to arrange the fuses and caps in such a manner that all may be discharged by lighting a common fuse, and further to arrange the fuse so that the several branch fuses may be ignited and the caps exploded in desired succession, to the end that any desired number of charges may be exploded with the best possible effect.

To these ends my invention consists of certain features of construction and combinations of parts, which will be hereinafter described and claimed.

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

Figure 1 is a broken sectional elevation of my improved multiple fuse, showing the arrangement of the branch fuses and blasting caps when a series of charges are to be exploded; and Fig. 2 is a detail sectional view, illustrating the manner in which the cap is to be secured to its fuse.

The fuse is provided with a main fuse 10, of common construction, and extending from this near one end is a series of branch fuses 11 of different lengths, these leading from opposite sides of the fuse 10 and leading also from different points one above the other, so that they will be ignited in succession. The branch fuses may be connected with the main fuse by being plaited to it or they may be connected in any convenient manner, and at the point of junction fine black powder is

used, as shown at 12, so as to make it certain that every branch fuse may be ignited from the main or common fuse 10. It will be understood that any desired number of these branch fuses may be used and that their lengths may vary according to circumstances. Each branch fuse 11 terminates at its free end in a blasting cap 13, which is of the usual construction, except that it is of tapering form, its open end being of greater diameter than the closed end, and into this cap the end of a fuse is placed, as shown in Fig. 2, and the space between the fuse and the larger end of the cap is filled with glue 14 which is permitted to dry and the glue holds the cap in place and also makes it waterproof.

When the fuse is to be used, the holes 15 in the rock to be blasted are charged in the usual way, the caps 13 and branch fuses inserted in the holes, the shorter fuses being connected with the holes which are to be first blasted, the tamping 16 is placed around the fuses in the usual way, and the main fuse 10 is ignited. As the fire in the fuse reaches the branch fuses 11, it will successively ignite them and the caps may be successively exploded and the charges fired one after the other.

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

1. As an improved article of manufacture, a multiple blasting fuse, comprising a common or main fuse, and a series of branch fuses leading from different parts of the main fuse, each branch fuse terminating at its free end in a blasting cap, substantially as described.

2. In a blasting fuse comprising the main fuse 10, and a series of branch fuses 11 leading from different parts of the main fuse, substantially as described.

WILLIAM J. C. DOYLE.

Witnesses:

W. J. LANGSTON,
J. H. WILSON.