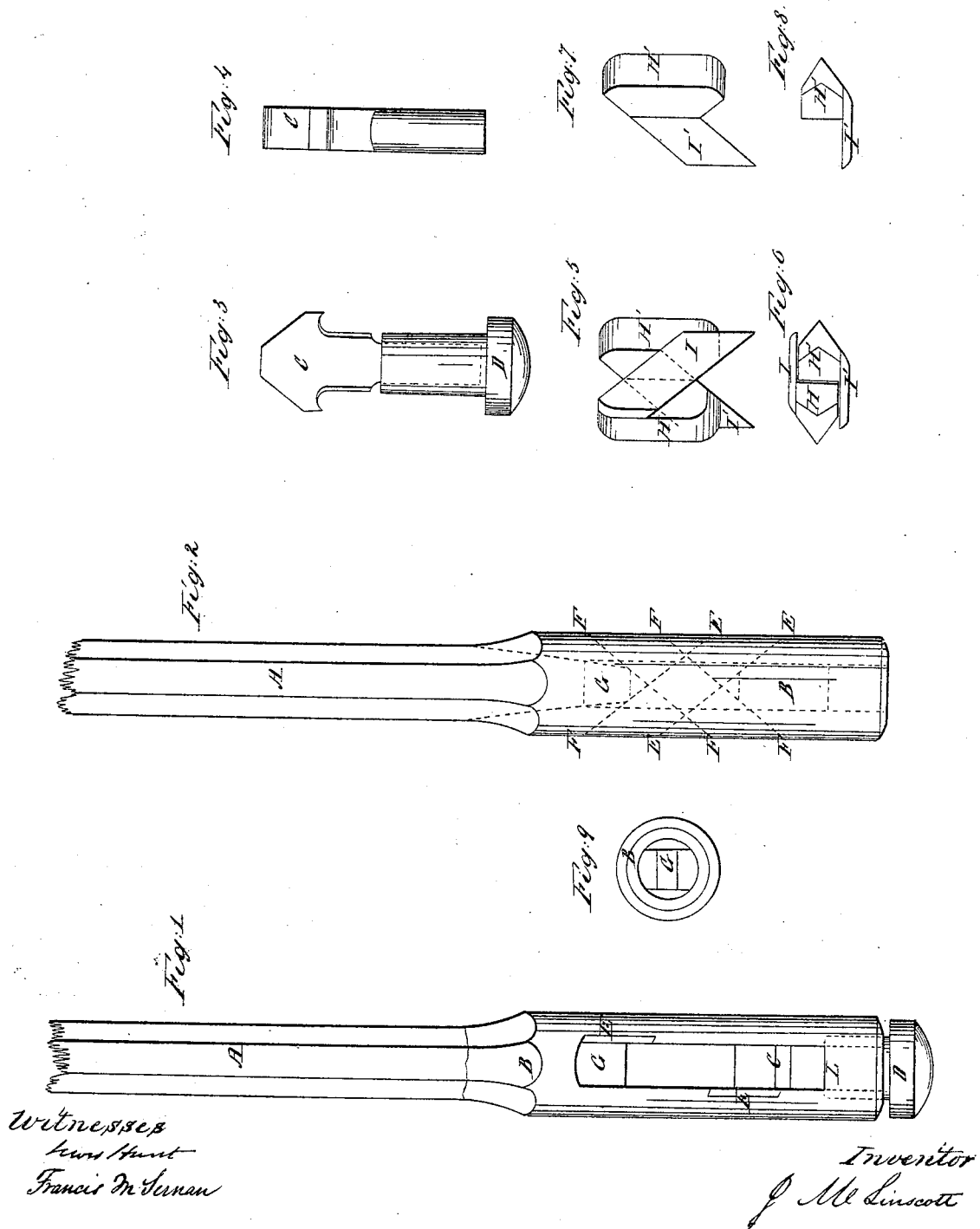


*J. M. Linscott,
Expanding Rock Drill.*

N^o 51,598.

Patented Dec. 19, 1865.



UNITED STATES PATENT OFFICE.

JOHN M. LINSCOTT, OF NEW YORK, N. Y.

IMPROVED ROCK-DRILL.

Specification forming part of Letters Patent No. 51,598, dated December 19, 1865.

To all whom it may concern:

Be it known that I, JOHN M. LINSCOTT, of the city and State of New York, have invented a new and useful Drill for Making Chambers in the Bottom of Holes in Rocks for Blasting Purposes, called "Linscott's Chamber-Drill;" and I do hereby declare that the following specification, with the accompanying drawings, are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use the same without further invention or experiment.

To enable others skilled in the art to make and use my drill, I will proceed to describe its construction and operation, and referring to the drawings, in which the same letters indicate like parts in each of the figures—

Figure 1 represents an elevation. Fig. 2 is also an elevation. Fig. 3 represents the wedge and thimble. Fig. 4 is a wedge. Figs. 5 and 6 are the cutters in position. Figs. 7 and 8 are views of a single cutter. Fig. 9 is an end view of the wedge.

The nature of my invention consists in providing a drill so arranged that when forced down into the hole in the rock it strikes upon an annealed thimble or bolt, in which rests a wedge of hardened or tempered steel, and forces out against the rock two steel cutters, thus forming a chamber or recess near the bottom of the hole in which to place the explosive material.

In the accompanying drawings, A is the shank or spindle of the drill, to which is welded the lower part, of iron, which is afterward case-hardened in such a manner as to let the wedge-shaped steel point G (shown at Fig. 2) project into the cavity, in order to present a hard surface for the wedge G to butt against without breaking to pieces by reason of the concussion or jar consequent upon the force of the blow given by the wedge C, which fits into the thimble or bolt D. Between these two pieces of steel, the C and D, are the sliders I I'. These sliders I construct of iron, (Swedish iron is the best,) to which are welded the steel cutters H H', which are driven out against the sides of the hole into the rock by the force of the blow upon the thimble-bolt D.

I make the thimble-bolt D of annealed steel. I anneal the steel for the purpose of preventing the breaking or cleavage of it. The wedge C, I make of hard or tempered steel.

In the chamber of the drill is a slot with cross-sections or shoulders running across each side diagonally, in which the sliders I I', and to which the cutters H H' are welded, move. These sliders I make of Swedish iron, while the cutters are made of hardened steel highly tempered.

The lower portion of the drill I make of iron, case-hardened, which is welded to the wedge G and extends up the steel spindle A, in order to prevent the effects of the concussion which the blow of the drill would give if made of steel.

The operation of my machine is as follows: When the drill is lifted up the bolt D falls till the shoulder of the wedge C rests on the lower part of the slot at L, Fig. 1, thus allowing the sliders to move down the groove or shoulders, (shown by the dotted lines E E F F, Fig. 2,) which brings the cutters close to the drill-shank. When the drill is dropped to the bottom of the hole the bolt D, with the wedge C, is driven up forcibly and the sliders and attached cutters are moved out suddenly against the sides of the hole as the wedges are brought nearer together, cutting right and left as the drill is operated and revolved.

When the cutters become dull they should be ground on a grindstone, so as to preserve the original temper, as they have the temper of cutlery.

The size of the hole or chamber made by my drill is about three inches in diameter, with a working-model—say four and a half inches in circumference—near the chamber. The explosive material is placed in the hole, completely filling up the chamber, when the fuse is introduced and the hole leading to the chamber filled with earth firmly tamped.

By actual experiment made with my chamber-drill the explosive force of the material has been calculated to be at least four times greater than that produced by blasting with the common drill alone, and the results largely preponderating in favor of my drill.

I believe I have described the construction

of my drill for making chambers in the bottom of holes for blasting rocks so as to enable any person skilled in the art to make and use it.

I will now state what I desire to secure by Letters Patent, to wit:

I claim—

1. The cutters H H' and the sliders I I', constructed and operating substantially as and for the purpose specified.

2. The diagonal slots E E, in the manner and for the purpose substantially as described.

3. The combination of the thimble-bolt D

and the wedge C, constructed and operating as and for the purpose described.

4. The manner of inclosing or surrounding the steel spindle A, wedge G, with iron, substantially in the manner set forth.

In witness whereof I have hereunto set my hand and affixed my seal at the city of New York this 5th day of May, A. D. 1865.

J. M. LINSOTT. [L. S.]

Witnesses:

THOS. HUNT,
FRANCIS J. McTERNAU.