

~~7-57~~*Draftsman.*

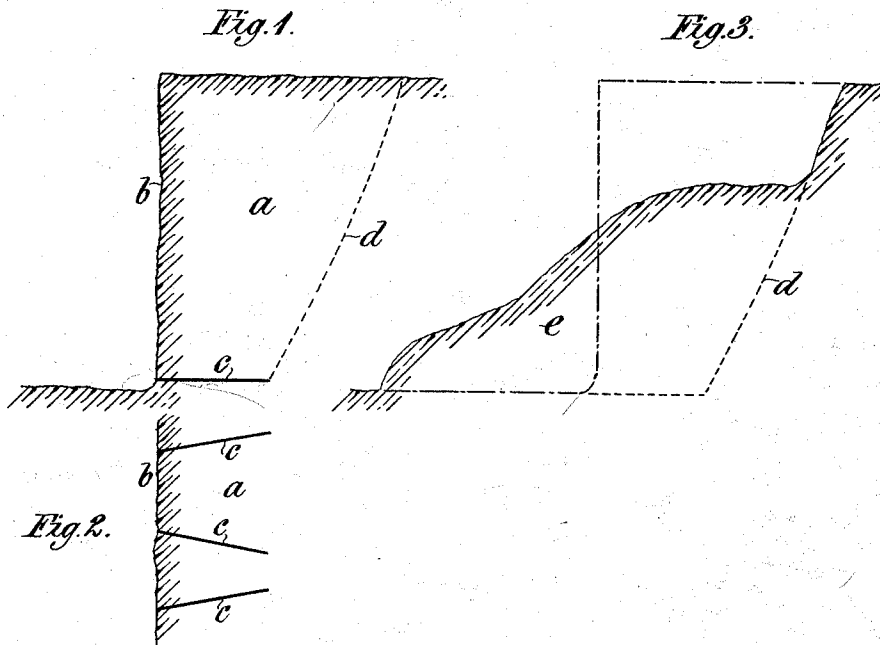
R. B. LUCAS.

METHOD OF GETTING CLAY, CHALK, OR THE LIKE, APPLICABLE ALSO TO THE WORKING OF MINES OR MAKING OF RAILWAY CUTTINGS.

APPLICATION FILED JULY 13, 1912.

1,043,784.

Patented Nov. 5, 1912.

*Witnesses.**C. B. Franzon.*
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UNITED STATES PATENT OFFICE.

ROBERT BEART LUCAS, OF HITCHIN, ENGLAND.

METHOD OF GETTING CLAY, CHALK, OR THE LIKE, APPLICABLE ALSO TO THE WORKING OF MINES OR MAKING OF RAILWAY-CUTTINGS.

1,043,784.

Specification of Letters Patent.

Patented Nov. 5, 1912.

Application filed July 13, 1912. Serial No. 709,238.

To all whom it may concern:

Be it known that I, ROBERT BEART LUCAS, a subject of the King of Great Britain, residing at Shillington Manor, Hitchin, in the county of Hertford, England, have invented an Improved Method of Getting Clay, Chalk, or the Like, Applicable Also to the Working of Mines or Making of Railway-Cuttings, of which the following is a specification.

This invention relates to improvements in getting clay, chalk or like materials, that is materials in which a landslide can be started when they are acted upon by water. The invention is also applicable to the working of open mines or excavating especially railway cuttings or harbors.

Heretofore all attempts to remove clay and the like by blasting have failed as they have resulted in removing the lower part of the clay leaving the upper part unsupported and in such a dangerous condition that men could not work the clay. After many experiments I have discovered that clay and the like may be got in the following way. I first work the material to be removed to a vertical face, and I bore holes of considerable length at intervals at the foot of the material the holes being preferably in a horizontal plane but not parallel to each other. I then charge the holes with gunpowder or like blasting material, tamp them with clay and fire them. It will be found that a crack is made in the top surface of the material without blowing out the foot. Into this crack I run water in sufficient quantities to start a landslide which causes the whole of the face to slide slowly toward the direction required and the material can then be removed by steam diggers or otherwise. The charge of blasting material should be as a rule small to avoid blowing out the foot, and the holes should all be fired simultaneously.

I have found in practice that working on Cambridge gault 40 feet in height good results are obtained by boring horizontal holes

14 feet long and 10 feet apart at the foot charging each of them with 5 to 10 lbs. of gunpowder according to the condition of the gault. After the charges have been fired a crack will be found in the top surface some 30 feet from the edge.

In the drawings Figure 1 is a vertical section of a mass of material, and Fig. 2 is a horizontal section. Fig. 3 is a vertical section of the mass after the landslide has been produced.

a is the mass of material having a face *b*, and *c c* are holes drilled in a horizontal plane at the foot of the face *b*.

In Fig. 1 the crack *d* shown in dotted lines is formed in the material after the charges in the holes *c* have been fired. After water has been run into the crack *d* the mass *e* of material as shown in Fig. 3 is caused to slide down over the face *b* into a position from which it can be easily removed by steam diggers or the like.

It is an essential of this invention that the holes are of considerable length; if only shallow holes are made the foot of the material only is removed. The holes should be of sufficient length and so charged and set that a crack is produced on the top surface of the material to be worked.

What I claim is:—

1. The process of making holes of considerable depth at the base of a mass of material, charging the holes with blasting material, exploding the charges therein, and running water into the crack formed in the top surface of the mass.

2. The process of making holes of considerable depth in a horizontal plane at the base of a mass of material, charging the holes with blasting material, exploding the charges therein, and running water into the crack formed in the top surface of the mass.

3. The process of making holes of considerable depth in a horizontal plane and set at an angle to each other at the base of a mass of material, charging the holes with

blasting material, exploding the charges therein, and running water into the crack formed in the top surface of the mass.

4. The process of making holes of considerable depth at the base of a mass of material, charging the holes with blasting material, simultaneously exploding the charges

therein and running water into the crack formed in the top surface of the mass.

ROBERT BEART LUCAS.

Witnesses:

B. J. WORTH,
TRACY LAY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."