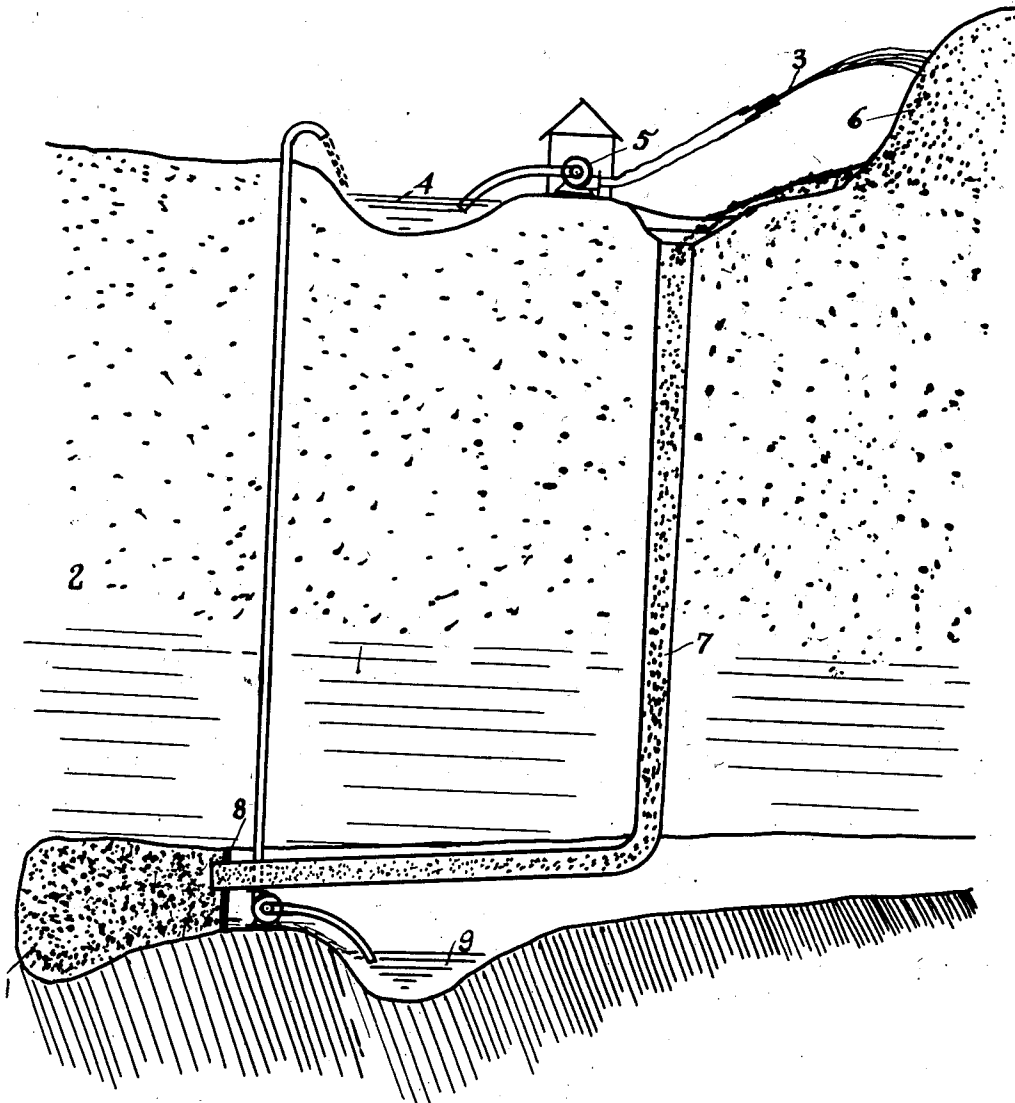


A. GOEBL AND M. A. EIBEN.
METHOD FOR FILLING UP SUBTERRANEAN CAVITIES.
APPLICATION FILED JULY 28, 1921.

1,404,112.

Patented Jan. 17, 1922.



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UNITED STATES PATENT OFFICE.

ADOLPH GOEBL AND MICHAEL A. EIBEN, OF CLEVELAND, OHIO.

METHOD FOR FILLING UP SUBTERRANEAN CAVITIES.

1,404,112.

Specification of Letters Patent. Patented Jan. 17, 1922.

Application filed July 28, 1921. Serial No. 488,113.

To all whom it may concern:

Be it known that we, ADOLPH GOEBL, a subject of the Government of Czecho-Slovakia, and MICHAEL A. EIBEN, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Methods for Filling Up Subterranean Cavities, of which the following is a specification.

This invention relates to a method for filling up subterranean cavities. This is frequently desirable under certain conditions, as where a mine working is to be abandoned, or a portion of a mine is to be filled up. This latter condition is often desirable where gas develops in a mine working, or where there is danger of collapse or caving of the upper layers or roof of a mine.

The object of the present invention is to provide means for filling such cavities in a safe and convenient manner.

The process is illustrated in the accompanying drawing, which is a section illustrating the apparatus. Referring thereto, 1 indicates the filling or the cavity to be filled. This cavity is primarily cut off from the rest of the mine by a temporary wall 8. A suitable shaft is sunk to receive a pipe system 7 extending from the top of the ground down into the mine and through the wall 8. A mixture of earth and water is supplied to this pipe 7 by any suitable means, or for foundations or the like a cement mixture may be supplied. We have shown a mixture of earth and water which is flowed into the pipe as from a bank 6 by means of a water jet 3 which washes the bank and carries with it sufficient earth. This jet may be supplied by a pump 5 from a pool 4, or in any other suitable way.

The mixture of earth and water flows down through the pipe 7 and into the cavity 1. The water will leak out through the temporary wall 8, and the earth will remain in position within the cavity. The water may be collected in a pool 9, from which it may be pumped by a pump 10 and pipe 11 to the surface. By discharging the same into the pool 4 it can be used repeatedly.

By the means described a sufficient amount of earth can be quickly and readily deposited in a subterranean cavity in sufficient quantities to fill the same.

We claim:

1. The process of filling a subterranean cavity comprising forcing surface soil by means of a jet of water from the surface of the ground through a pipe into said cavity, separating the water from the soil in said cavity and permitting the soil to settle therein, and pumping the separated water to the surface of the ground.

2. Apparatus for filling a subterranean cavity comprising a pipe extending from the surface of the ground into said cavity, a porous wall plugging off said cavity and through which the pipe extends, and means to cause a flow of mixed earth and water from the surface of the ground through said pipe and into said cavity, said water leaking through said wall, and means to pump said water from said cavity to the surface of the ground.

In testimony whereof, we do affix our signatures in presence of two witnesses.

ADOLPH GOEBL.
MICHAEL A. EIBEN.

Witnesses:

JOHN A. BOMMARDT,
BESSIE F. POLLAK.