

No. 744,305.

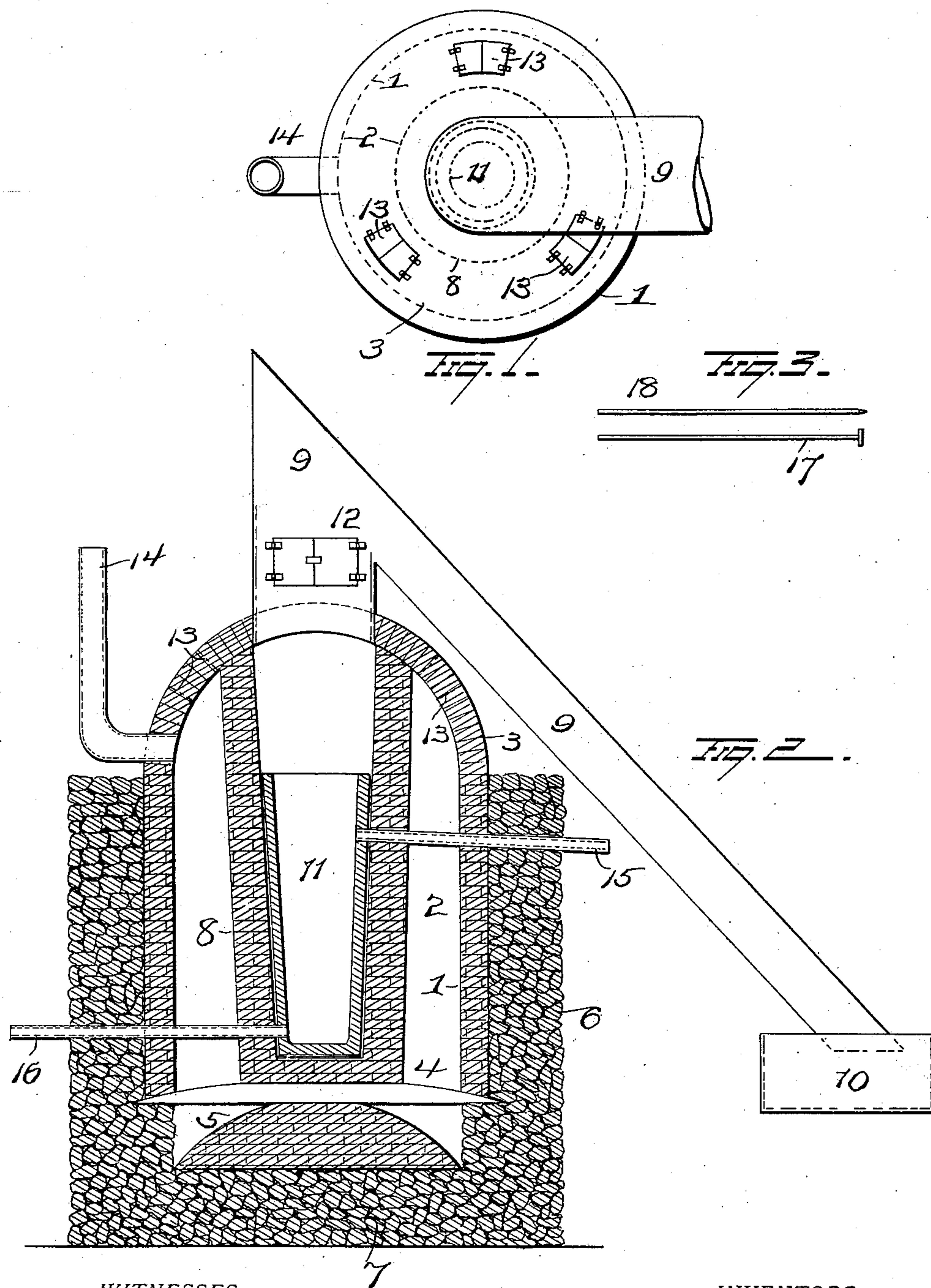
PATENTED NOV. 17, 1903.

B. F. DANIELS & V. W. CLARK.

PROSPECTOR'S SMELTER.

APPLICATION FILED MAR. 31, 1903.

NO MODEL.



WITNESSES

Ed Nottingham
G. J. Downing

INVENTORS

B. F. Daniels and
V. W. Clark
By H. A. Seymour
Attorney

UNITED STATES PATENT OFFICE.

BENJAMIN F. DANIELS AND VINCENT W. CLARK, OF NOGALES, ARIZONA TERRITORY.

PROSPECTOR'S SMELTER.

SPECIFICATION forming part of Letters Patent No. 744,305, dated November 17, 1903.

Application filed March 31, 1903. Serial No. 150,499. (No model.)

To all whom it may concern:

Be it known that we, BENJAMIN F. DANIELS and VINCENT W. CLARK, citizens of the United States, residing at Nogales, in the county of Santa Cruz and Territory of Arizona, have invented a new and useful Prospector's Smelter, of which the following is a specification.

Our invention relates to improvements in smelters, and more particularly to such as are adapted especially for use by prospectors and operators of small mining properties, the object of the invention being to place within reach of such persons small apparatus for reducing their own ore at the mine and to provide means whereby the ore can be treated at the smallest possible cost by saving the expense of freight from the mine to a reduction plant on all surplus slag and waste material contained in the ore.

A further object is to produce a smelter which can be successfully operated without the use of water by one man.

With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as hereinafter set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view. Fig. 2 is a sectional view of the apparatus with the fume-stack 9 and tub 10 shown in elevation. Fig. 3 is a view showing the rods 17 18.

1 represents an annular wall, of fire-brick, inclosing a combustion-chamber 2 and provided with a dome 3. The lower end of the wall 1 of the combustion-chamber rests upon a heavy iron grate 4, and under the latter an ash-pit arch 5, of fire-brick, is located. The wall 1 of the smelter is surrounded by a wall 6, of stone, and the grate and ash-pit are located in the bottom of the pit formed by said stone wall, a stone foundation 7 being provided under the grate and ash-pit. A muffler 8, of fire-brick, is located centrally within the furnace and has a closed bottom resting upon the grate, the upper end of said muffler extending up to and serving to brace the dome 3. The dome 3 is made with a central opening, with which a fume-stack 9 communicates, the other end of said stack being arranged to discharge into the water in a tub

10 for the purpose of saving all valuable products which may escape with the fumes.

A crucible 11 is located within the muffler 8, and access to the latter for charging ore thereinto is had through a door 12 in the fume-stack just above the dome 3. For the purpose of permitting the introduction of fuel into the combustion-chamber doors 13 are provided in the dome, and the products of combustion escape from said combustion-chamber through a stack 14. A slag-pipe 15 communicates with the upper portion of the crucible and outwardly through the wall of the muffler and the walls 1 and 6 for carrying off the slag and waste material, while the metal or valuable matter contained in the crucible is drawn off into molds through a bullion-pipe 16, which communicates with the crucible at or near the bottom thereof. The slag-pipe and the bullion-pipe are stopped by a small button of fire-clay applied at the inner end by means of a long rod 17, and whenever necessary to withdraw either the bullion or the slag the pipe can be opened by cutting out the fire-clay contained therein by means of another rod 18, having a chisel-shaped end.

Our improvements are very simple in construction, but will operate to effectually and economically smelt ore in small quantities, and their use will obviate the necessity and expense of shipping the ore from small mines to a reduction plant.

Slight changes might be made in the details of construction of our invention without departing from the spirit thereof or limiting its scope, and hence we do not wish to limit ourselves to the precise details herein set forth.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a smelter the combination with a wall and a dome inclosing a combustion-chamber, of a muffler located centrally within said chamber, a crucible located within said muffler, a fume-stack communicating with said muffler, a door in said fume-stack and lateral discharge-pipes communicating with the respective ends of said crucible.

2. In a smelter, the combination with a combustion-chamber, a grate in the bottom there-

of and a stone wall inclosing the wall of said combustion-chamber and the grate, of a muffler located within the combustion-chamber, a crucible within said muffler, lateral
5 discharge-pipes communicating with the crucible, a smoke-stack communicating with the combustion-chamber and a fume-stack communicating with the muffler.
3. In a smelter, the combination with a combustion-chamber, a dome thereof and a grate
10 in the bottom of said chamber, of a muffler extending from said grate to the dome, a crucible within said muffler, a fume-stack communicating with the muffler and lateral discharge-pipes communicating with respective
15 ends of the crucible.

In testimony whereof we have signed our names to this specification in presence of two subscribing witnesses.

BENJAMIN F. DANIELS.
VINCENT W. CLARK.

Witnesses:

W. A. O'CONNOR,
S. ASHLEY.