No. 706,163. Patented Aug. 5, 1902.

B. C. COOK.

ORE SEPARATING APPARATUS.

(Application filed Jan. 18, 1901.)

(No Model.)

Fig. 1.

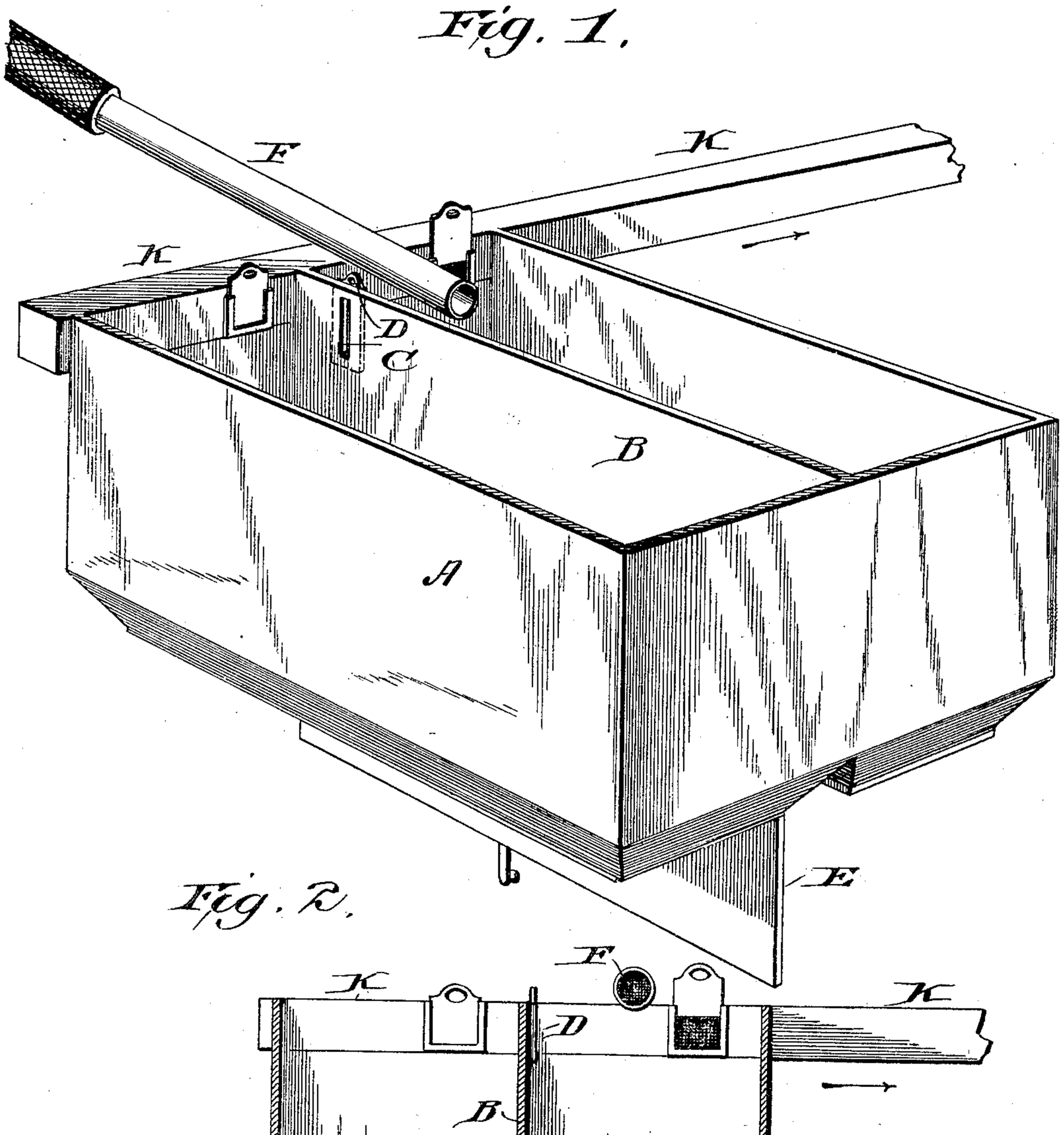
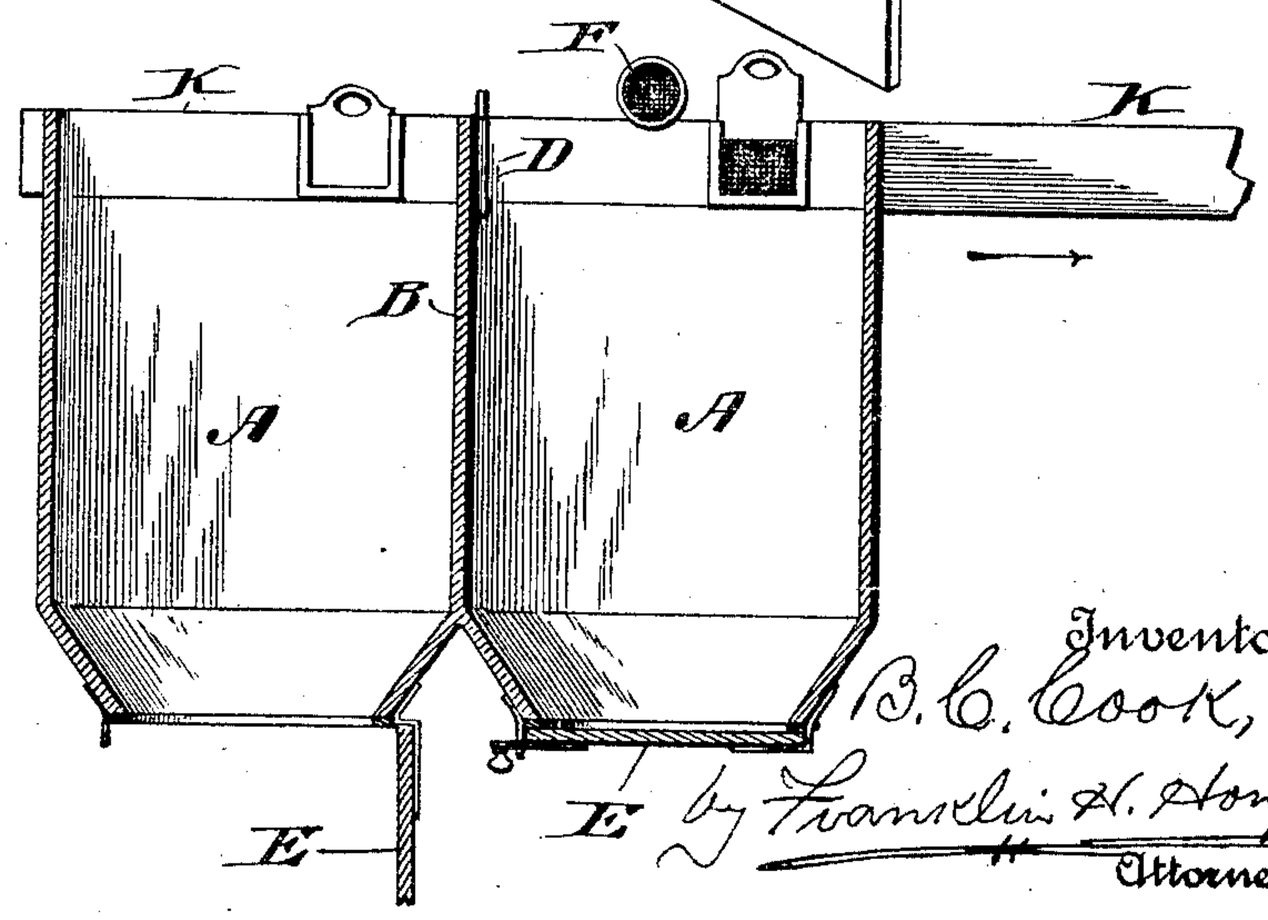


Fig. 2.



Witnesses:
H. L. Sheldon.
A. L. Hough.

Inventor:
B. C. Cook,
by Franklin H. Hough
Attorney.

UNITED STATES PATENT OFFICE.

BEN C. COOK, OF DEADWOOD, SOUTH DAKOTA.

ORE-SEPARATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 706,163, dated August 5, 1902.

Application filed January 18, 1901. Serial No. 43,779. (No model.)

To all whom it may concern:

Be it known that I, BEN C. COOK, a citizen of the United States, residing at Deadwood, in the county of Lawrence and State of South Dakota, have invented certain new and useful Improvements in Ore-Separating Apparatus; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements adapted especially for separating coarse ore from extremely fine ore, so that the coarse ore may be treated by the leaching process in suitable vats, while the fine or slime portion may be conveyed to suitable vats and treated by agitation or stirring.

In carrying out my invention I provide a receptacle having a partition dividing the receptacle into compartments, means being provided to allow the water to drain off from one compartment to another, and the provision of trap-doors, whereby the contents of the receptacle may be emptied therefrom.

My invention will be hereinafter more fully described in detail and then specifically defined in the appended claims and is illustrated in the accompanying drawings, which form part of this application, and in which drawings I have shown in—

Figure 1 a perspective view of my apparatus for separating or sizing crushed ores, and in Fig. 2 a vertical transverse sectional view through the apparatus.

Reference now being had to the details of the drawings by letter, A designates the receptacle, which may be made of any suitable material and of such size as may be found best adapted for the purpose for which it is to be applied. A partition B divides the receptacle into two compartments. Near the upper edge of the partition B is an aperture C, whereby the water from one compartment when the latter has been filled with ore is allowed to drain off into the adjacent compartment, a suitable slide or gate D being provided to close said aperture when not in use. Each compartment has a portion of its bottom hung on hinges, forming a swinging door E, whereby the contents of the receptacle may be emptied by releasing the free edge of the door and allowing the same to swing down. Each trap-door in the bottom of the compartment when closed bears against gaskets, which make water-tight joints.

The wet crushed ore, accompanied by the water which carries the ore, is delivered into the top of the box through the pipe F, said pipe being so mounted as to swing laterally, so that the wet crushed ore may be fed into either compartment. A slime-trough K is placed at a side of the box away from the force and direction of the incoming product, so as to allow the coarse ore to settle without a chance to overflow the box into the slime-trough until the compartment is filled to overflowing. Through said trough it is conveyed away to a slime-tank for subsequent treatment, which tank may be located in any suitable place.

In operation the wet crushed ore passes into one of the compartments of the box, the coarser and heavier ore falling by gravity to the bottom, while the water containing the light slimes runs off over the outer edge of the box into the trough and is conveyed away to the tank for subsequent treatment. When one compartment is full of the coarser or heavier part of the product, the feeding-pipe at the top is swung so that its free end will be on the other side of the partition dividing the box into compartments, and then in order to allow what remaining water there might be on the top of the filled compartment to drain off the valve or gate over the aperture in the partition may be opened. Afterward the trap-door underneath the compartment which is filled with the coarser ore may be loosened and the compartment emptied, and this operation may be alternately repeated in one compartment and the other.

From the foregoing it will be observed that the prime object of this invention is to separate the coarse from the extremely fine ore, so that the coarse may be treated by the leaching process in suitable vats, while the fine or slime portion may be subsequently treated in separate receptacles.

It will be understood that I do not confine myself to the use of a two-compartment re-

ceptacle, as only one compartment or a plurality of them may be employed.

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

1. An apparatus for separating ores comprising a box or receptacle with longitudinal partition-wall therein with the lower portion of each compartment thus formed hopper-shaped with the adjacent inclined walls diverging from and joined to the partition, bottoms hinged to the longitudinal edges of said hopper-shaped portions, a valved outlet from one compartment to the other at the top, and a feed-pipe disposed longitudinally of said box and supported thereon at one end to deliver the incoming material in a direction reverse to the outflow of said material from said box and a flexible connection with the said pipe beyond its point of support whereby the said pipe may be swung laterally while supported on the end of the box, said box having an overflow-discharge passage at the end over which the material is fed, the feed and overflow being opposite in direction, as set forth.

2. The herein-described apparatus for separating ores, consisting of the box or receptacle, a longitudinal partition therein with the lower portion of each compartment inclined downward and outward from the lower edge of said partition, bottoms hinged to the longitudinal edges of the said compartments, valved outlet from one compartment to the other, a slime-trough disposed at the end of the box away from the force and direction of the incoming product and independent valved openings from the compartments to said trough, a feed-pipe resting on the top of the trough and extended at right angles to the length of the same, and a flexible connection with the end of the pipe beyond its support on the trough, said pipe being arranged to deliver the incoming product lengthwise of the box and in an opposite direction to the flow of the same from the box to the slime-trough, all substantially as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

BEN C. COOK.

Witnesses:
MARTIN E. HILTNER,
EVERETT B. SAWYER.