

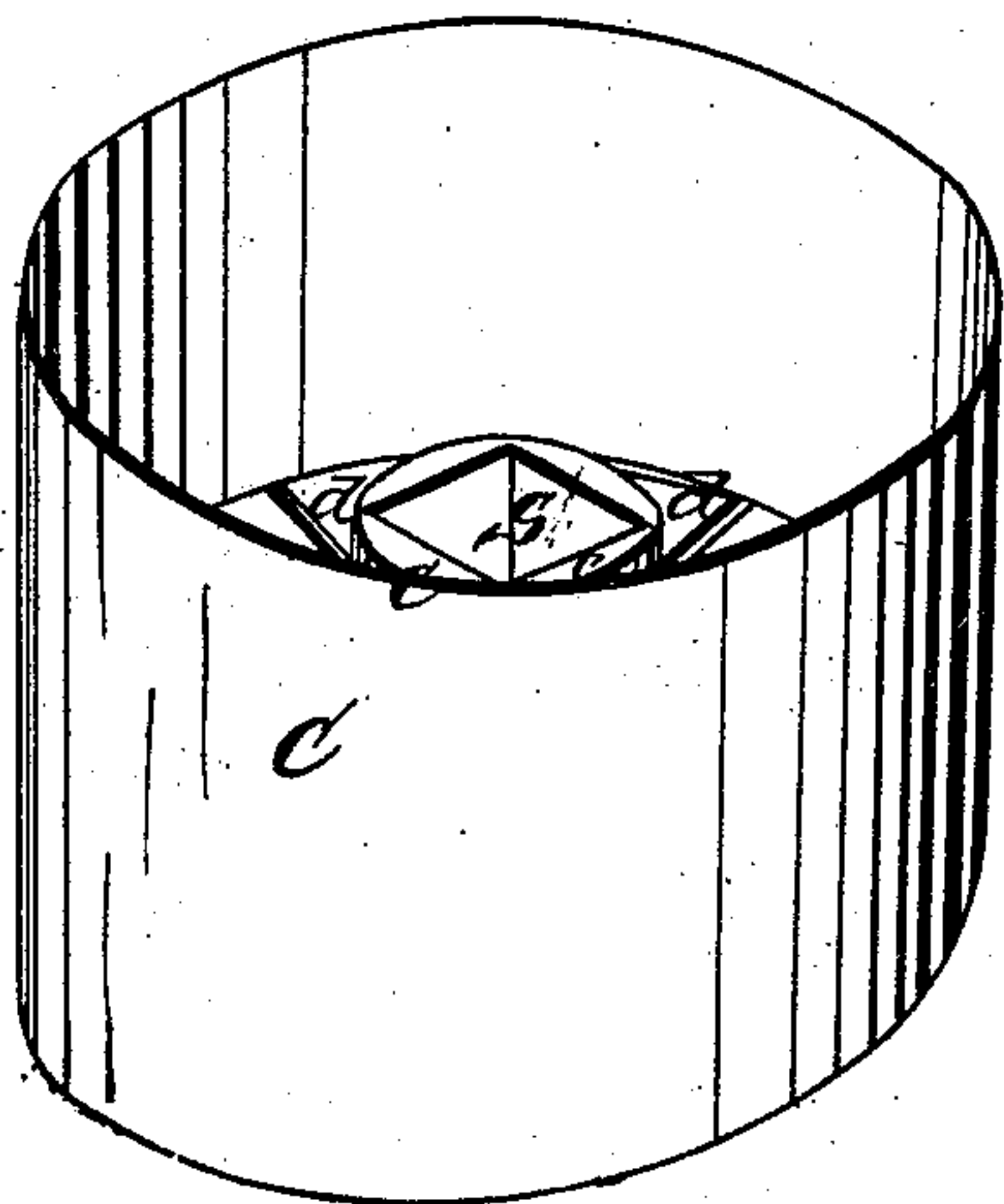
*I. Pierce.*

*The specification in this case is not in order.*

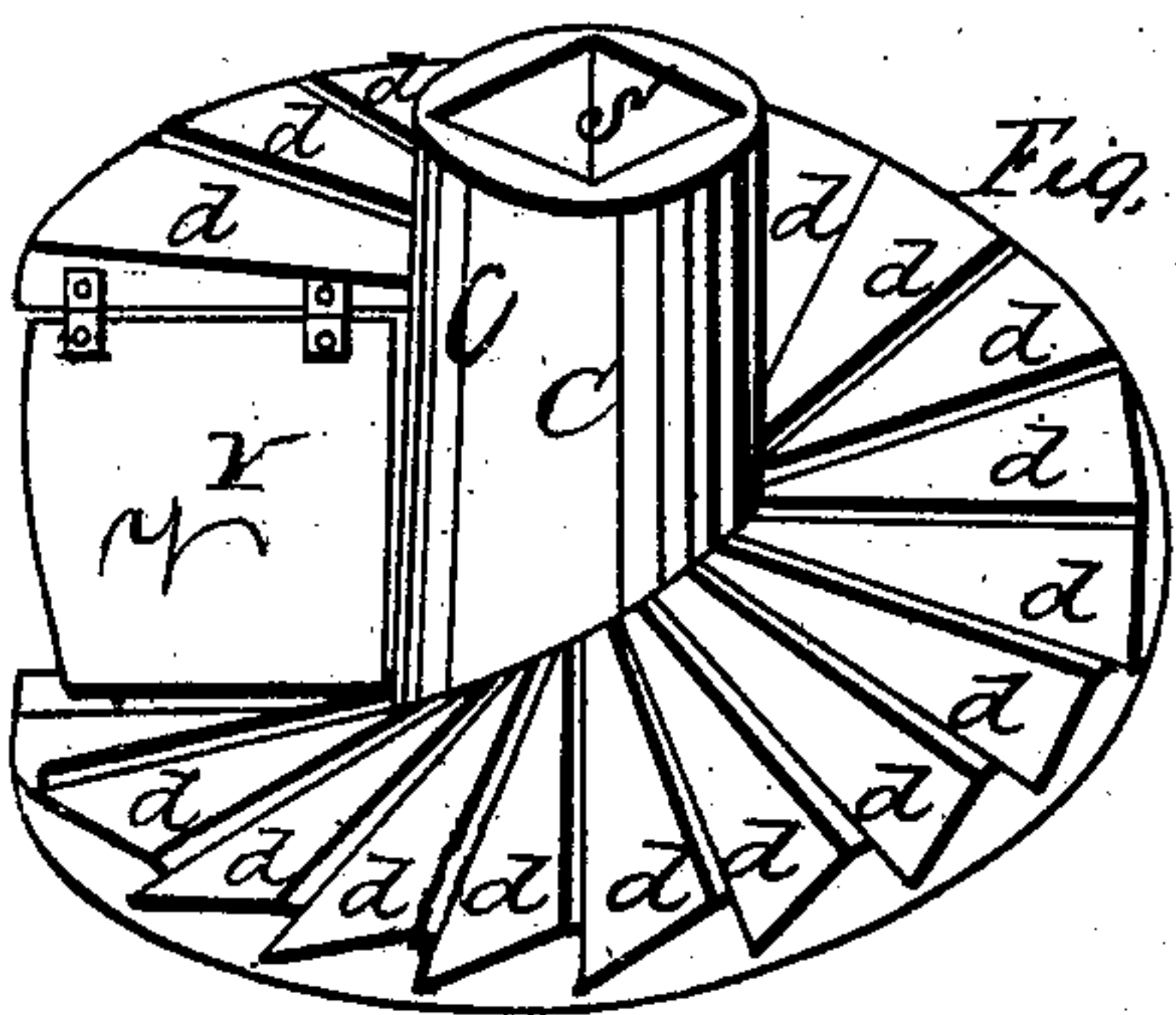
*Ore Amalgamator.*

*N<sup>o</sup> 10,414.*

*Patented Jan. 10, 1854.*

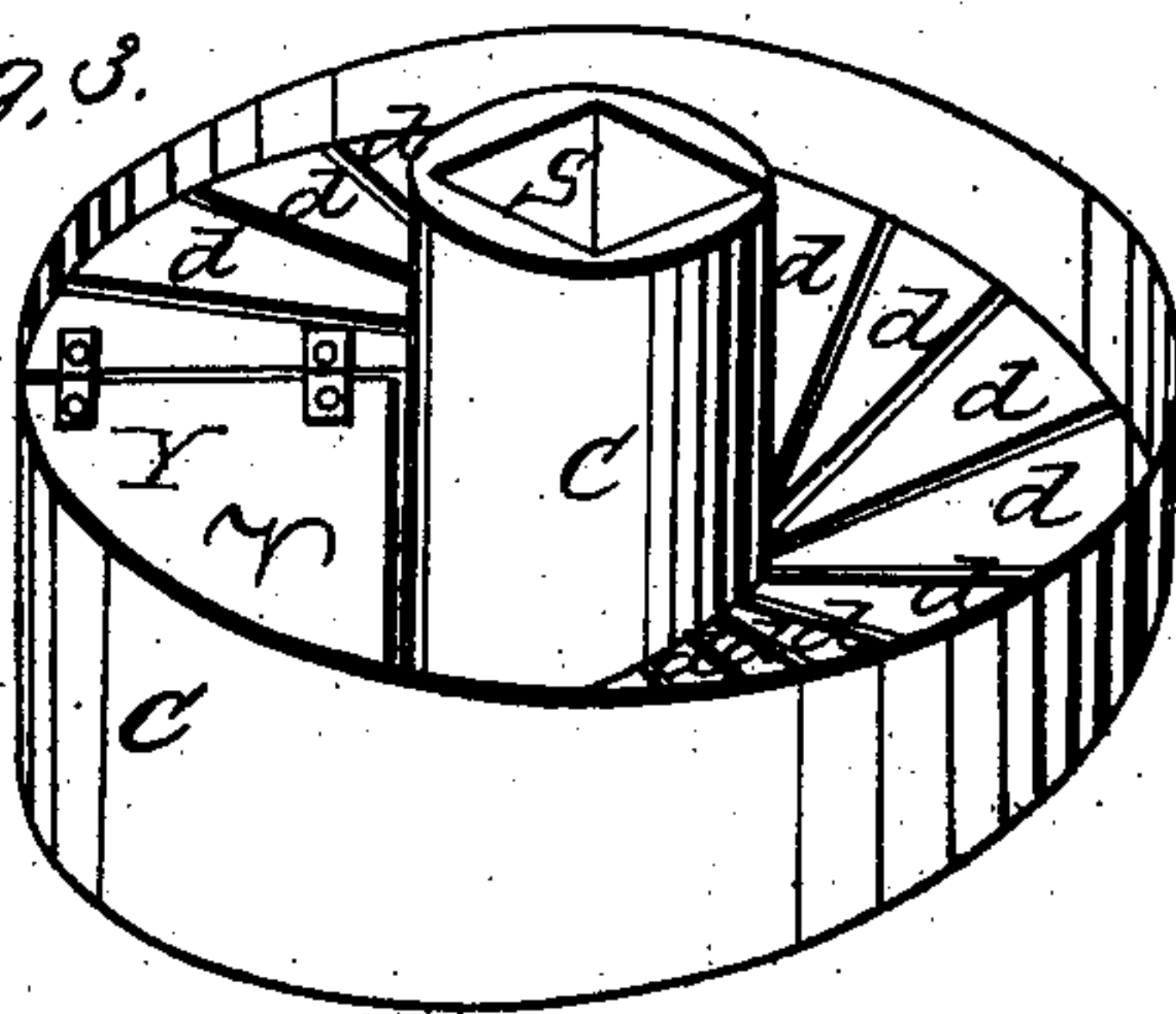


*Fig. 1.*



*Fig. 2.*

*Fig. 3.*





# UNITED STATES PATENT OFFICE.

DAVID PIERCE, OF WOODSTOCK, VERMONT.

## GOLD-SEPARATOR.

Specification of Letters Patent No. 10,414, dated January 10, 1854.

*To all whom it may concern:*

Be it known that I, DAVID PIERCE, of Woodstock, in the county of Windsor and State of Vermont, have invented a new and  
5 useful machine for separating one substance from another of less specific gravity while under water, which I denominate the "gold-separating cylinder;" and I do hereby declare that the following is a full and exact  
10 description thereof, reference being had to the accompanying drawings and to the letters of reference thereto.

The nature of my invention consists in the construction of a cylinder of the following form, to be used as herein described, viz:  
15 Let there be made a cylinder two and a half inches in diameter and three inches long, having a square aperture, to admit a shaft or handle two inches square, passing through  
20 it from end to end, adapted to turn it. This cylinder we will call the concentric cylinder. Beginning at one end of this cylinder, let there be constructed a spiral inclined plane about three-eighths of an inch thick, extending  
25 outward, at right angles with the cylinder two inches; let this inclined plane wind around the cylinder once, by such an ascent as shall raise the last end two inches, above the beginning of the plane. On the  
30 upper surface of this plane, beginning at the lower extremity and corresponding to radius of the cylinder let there be cut twenty steps, or depressions, more or less, according to the diameter of the cylinder, to the depth  
35 of one-fourth of an inch, at the greatest depression, perpendicular with the concentric cylinder; thence ascending about three-fourths of an inch to an edge, in the form of a wedge, on the outer edge of the plane, and  
40 contracting inward to the concentric cylinder. Or if one step be so placed at the beginning of the inclined plane, that the valve, hereafter described, shall when shut rest upon it, this one step may be a substitute for  
45 most of the other steps, though an uneven surface will best promote the separation by agitating the contents of the cylinder, in passing over the plane. Around the extension edge of the inclined plane, construct  
50 a cylinder just large enough to receive it, whose lower edge shall correspond with the underside of the inclined plane, and whose upper edge shall rise two inches more or less, above the highest point in the plane.  
55 The concentric and exterior cylinders and the upper and lower ends of the inclined

plane, now form an opening two inches square, somewhat in the form of the cutting lip of an auger. From the upper end of the inclined plane, suspend a valve on  
60 hinges, adapted to open inward but not outward.

What we have denominated the concentric cylinder is the receptacle of the socket, and may be placed on one side of the exterior  
65 cylinder, while the spiral inclined plane shall occupy the whole interior of the larger cylinder, with proper arrangements for the right action of the valve. Or the plane may wind around a solid center adapted to give  
70 attachment to the handle or shaft. This arrangement favors the construction of small cylinders which may be desirable. The orifice may be so modified as to admit the motion of a square valve; or the first step in the  
75 plane may conform to the valve, having the lower exterior corner rounded to fit the concave surface of the larger cylinder. After the insertion of the handle or shaft, the machine is prepared to be turned, by any power  
80 suited to work it. The purpose of this arrangement and construction of the machine is to force the water, sand and gravel with their contents into the opening, under the valve, over the inclined plane, to secure the  
85 separation of the gold by subsidence into the steps in its passage over them; or to retain it in the cylinder by its greater specific gravity, while substances of less specific gravity pass over the top of the cylinder.  
90

The machine is to be turned with the orifice toward the sand; this opens the valve and the sand and gravel with their contents pass in at the opening and over the inclined  
95 plane; and as the machine is turned the dip or inclination of the plane is such, that a revolution of the cylinder will depress it two inches, and the process may be continued at pleasure and the separation will  
100 go on. Reverse the motion and the valve will close retaining the contents of the cylinder, rising with the same degree of ascent with which it descended, bringing up the contents.

The following are references to the drawings accompanying the specification: Figure  
105 I, a perspective view of the gold separating cylinder in a position to be turned with the sun after inserting the shaft. Fig. II, a perspective view of the stepped inclined  
110 plane winding around the concentric cylinder, exhibiting the steps or depressions; the



valve and hinges and the socket for the shaft. Fig. III, a perspective view of the gold separating cylinder having the exterior cylinder cut down to the highest point of the inclined plane, exhibiting the concentric cylinder, the socket and valve and a portion of the steps or depressions.

S, the socket; C, the exterior cylinder; C, C, the concentric cylinder; V, the valve suspended on hinges; d, d, d, d, d, d, d, d, d, d, d, d, the steps or depressions.

The same letters refer to the same parts in the different figures.

What I claim as my invention and desire to secure by Letters Patent is—

The gold separating cylinder with the stepped inclined interior surface and valve opening, constructed and operating as herein described, or any other substantially the same and which will produce the intended effect.

DAVID PIERCE.

Witnesses:

ELIUKIM JOHNSON,  
ANNA C. ASPINWALL.