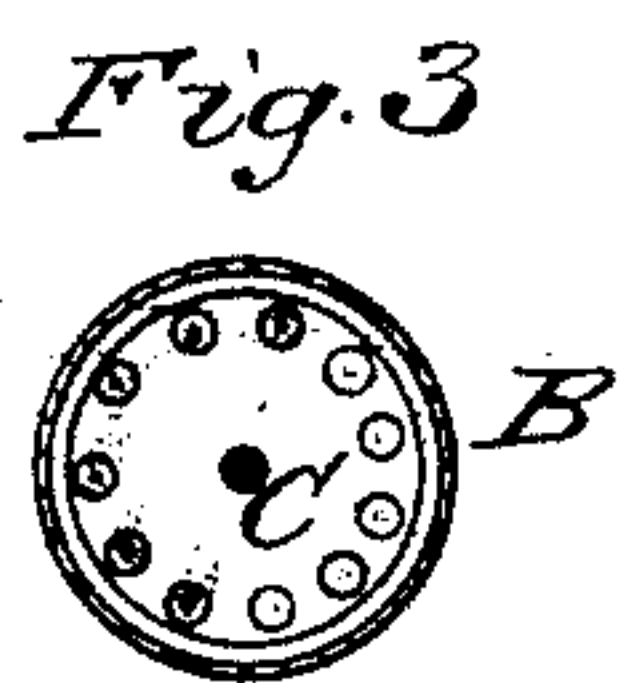
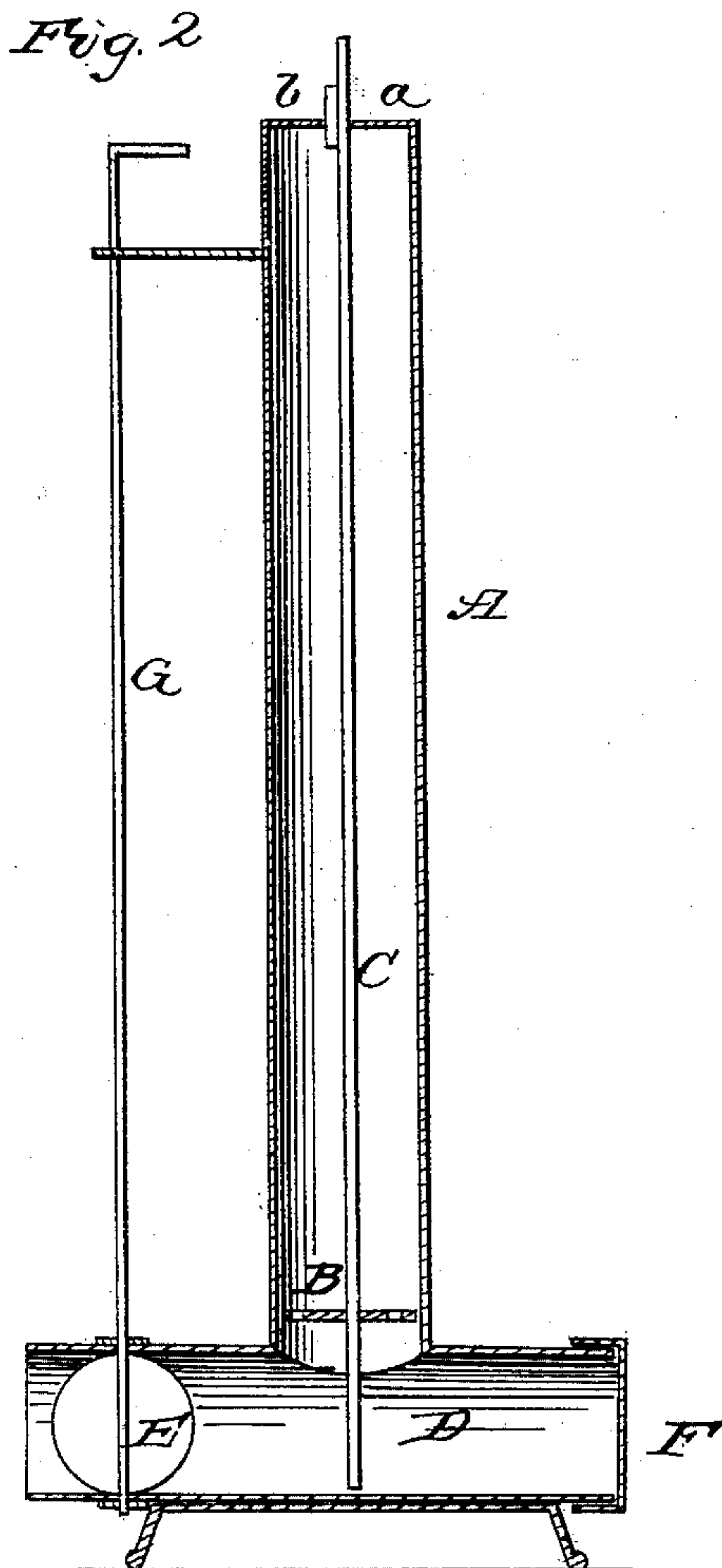
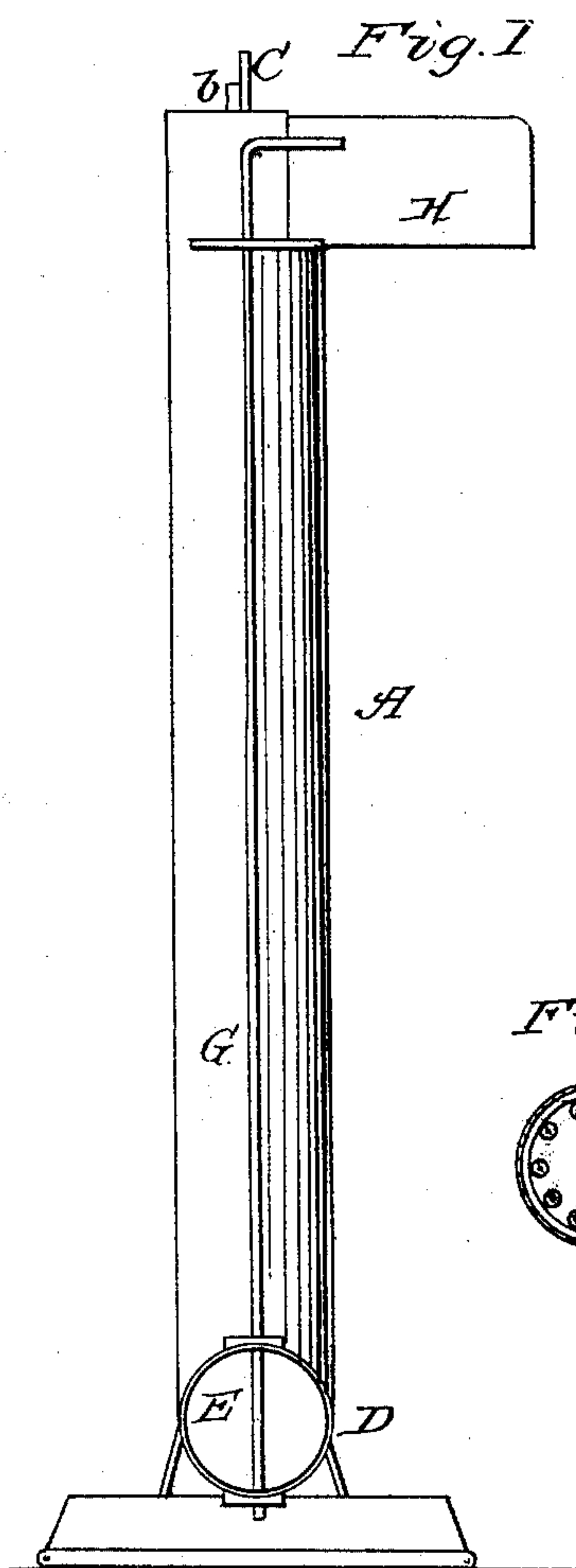


E. LAWSON.

Separating and Sorting Ores.

No. 41,710.

Patented Feb. 23, 1864.



*Witnesses*  
*W. B. Boon*  
*Geo. Reed*

*Inventor*  
*Edu. C. Lawson*  
*per Munn & Co attys.*

# UNITED STATES PATENT OFFICE.

EDWARD LAWSON, OF ISLAND POND, VERMONT.

## IMPROVEMENT IN SEPARATING AND SORTING ORES, &c.

Specification forming part of Letters Patent No. 41,710, dated February 23, 1864.

*To all whom it may concern:*

Be it known that I, EDWARD LAWSON, a native of Scotland, in the United Kingdom of Great Britain and Ireland, and now residing at Island Pond, in the county of Essex and State of Vermont, have invented a new and Improved Mode of Sorting or Separating Ores and other Matter; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is an external view of the means employed for carrying out my invention; Fig. 2, a vertical central section of my invention; Fig. 3, a detached plan or top view of the plunger.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in sorting or separating ores and other matter through the agencies of hydrostatic pressure and specific gravity. In carrying out this invention I employ a cylindrical or other suitable-shaped vessel of proper dimensions, the lower end of which communicates with an elevated reservoir, the induction-pipe being provided with a valve and the vessel provided with a perforated plunger, all being arranged to operate as hereinafter fully set forth.

To enable those skilled in the art to fully understand and practice my invention, I will proceed to describe it.

A is a cylinder, which may be one foot in diameter and about ten feet in height.

B is a perforated piston, fitted within the cylinder A and fastened to a rod, C, which slides in the top *a* of the cylinder A. The piston-rod C can be secured by a key, *b*, when necessary to prevent the piston B from moving up or down. D is a pipe leading from a reservoir ten or twelve feet above the top of the cylinder A. E is a valve in the pipe D, which regulates the supply of water from the reservoir into the cylinder A. F is a port which is opened occasionally to clean out the pipe D. G is a handle by which the valve E is operated. H is a spout at the upper end of the cylinder A.

The operation is as follows: The piston B is secured at the lower end of the cylinder A by inserting the key *b* in the top *a* of the cylinder, and the cylinder is charged to about half its height with the ore or other matter

to be sorted and separated. The valve E is then turned and the water from the reservoir enters the lower end of the cylinder A through the perforated piston B, and forces upward the charge which is allowed to rise to the top of the cylinder A when the valve E is closed, and the charge in A will separate, the heavier and richer portions of the ore settling toward the bottom on account of their superior gravity. This operation is repeated until the whole mass of ore is separated into layers, the lighter portions being at the top. The key *b* is then removed, the valve E opened, and the piston B is forced upward under the pressure of the water, carrying the separated mass of ore up with it in an unbroken column, the layers being preserved in the position they had arranged themselves by their gravity and discharged through the spout H, falling into different receptacles prepared to receive them, so that each quality or layer will be kept separate.

The cylinder A should be of such diameter that the ore or other matter to be operated upon within it will be kept in a mass and not liable to be forced up and broken through by the upward pressure of the water.

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

1. The sorting or separating of ores and other matter by placing the same within a cylindrical or other suitable-shaped vessel of such diameter that the ore or other matter will be kept in a mass while it is elevated by an upward pressure of a column of water, and by reducing or stopping the pressure of said column of water the ore or other matter be allowed to separate and dispose itself in layers, according to their specific gravity, substantially as set forth.

2. The elevating of the sorted or separated ore or other matter within the vessel aforesaid by means of a piston interposed between the ore or other matter and the ascending column of water under pressure, for the purpose of preserving the relative position of the layers or parts of the separated ore or other matter while the same are being discharged from the vessel, as herein described.

EDWD. LAWSON.

Witnesses:

EDW. TENNESSY,  
HIRAM WATERHOUSE.