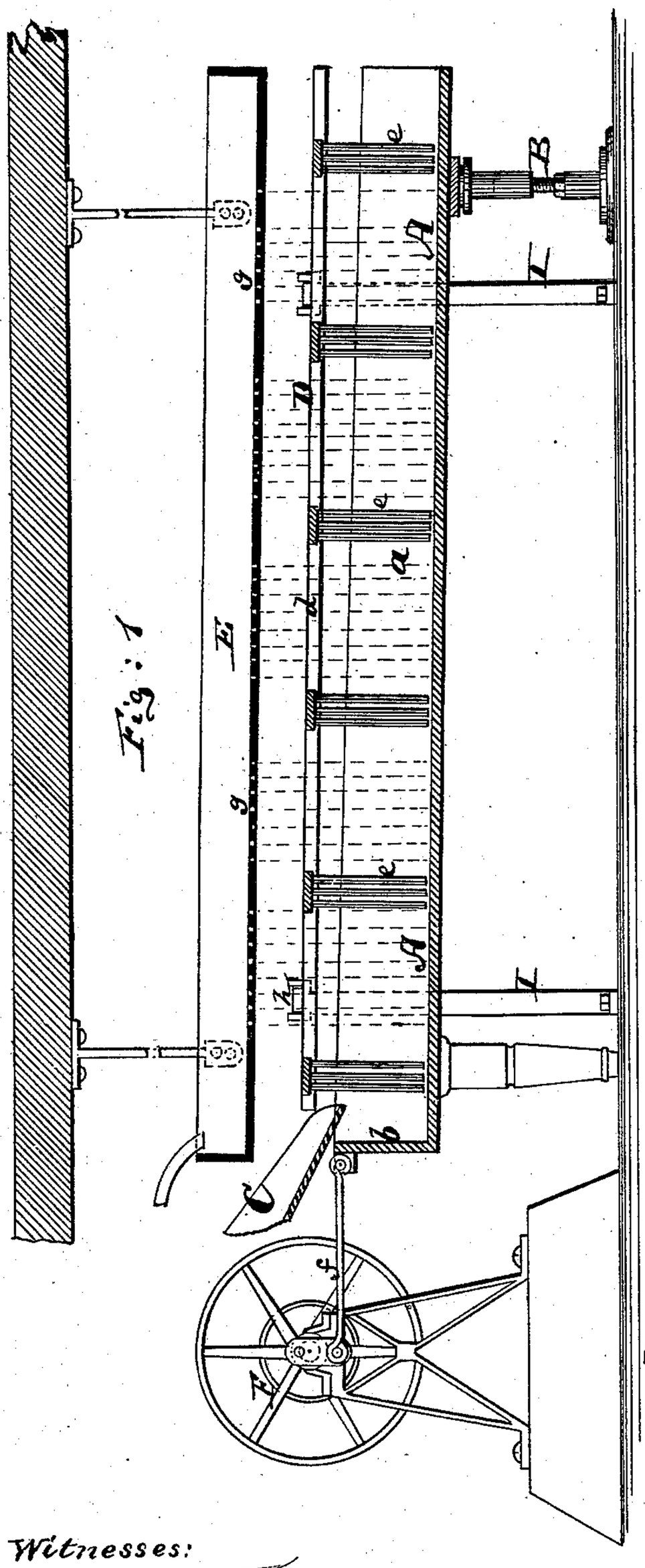
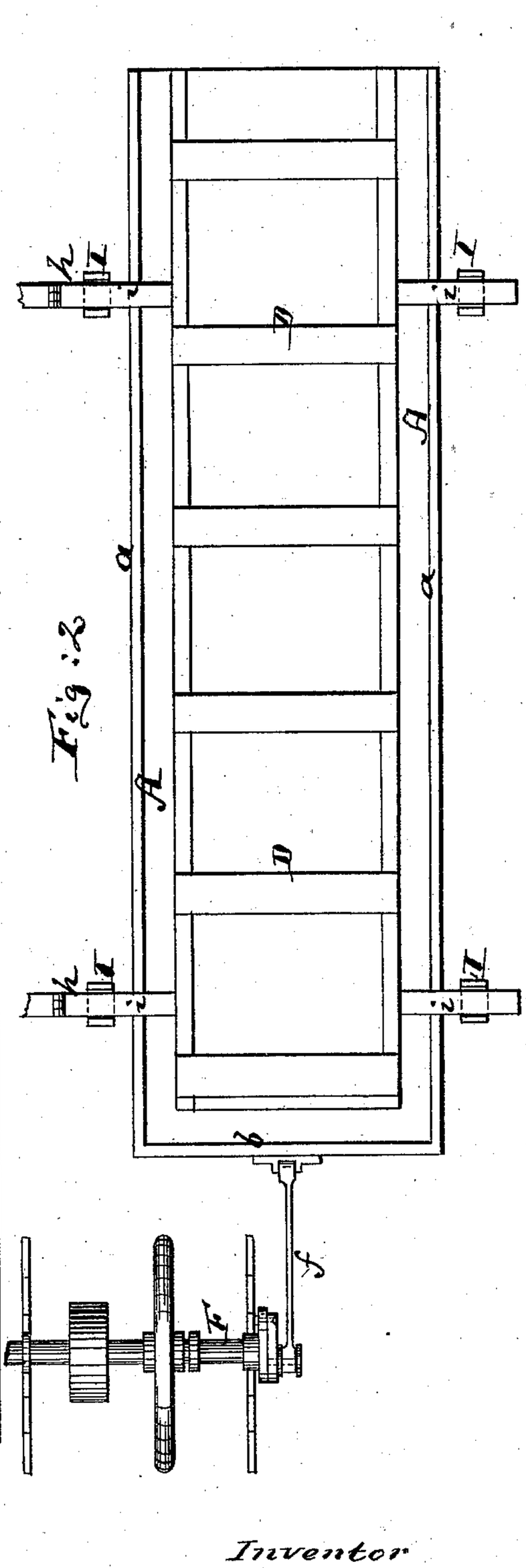
(No Model.) 2 Sheets—Sheet 1.

J. F. SANDERS.

ORE CONCENTRATOR.

No. 258,131. Patented May 16, 1882.





Witnesses:
John C. Tumbridge
John W. Speer

Inventor
John F. Sanders
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(No Model.) 2 Sheets—Sheet 2

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Fig: 3

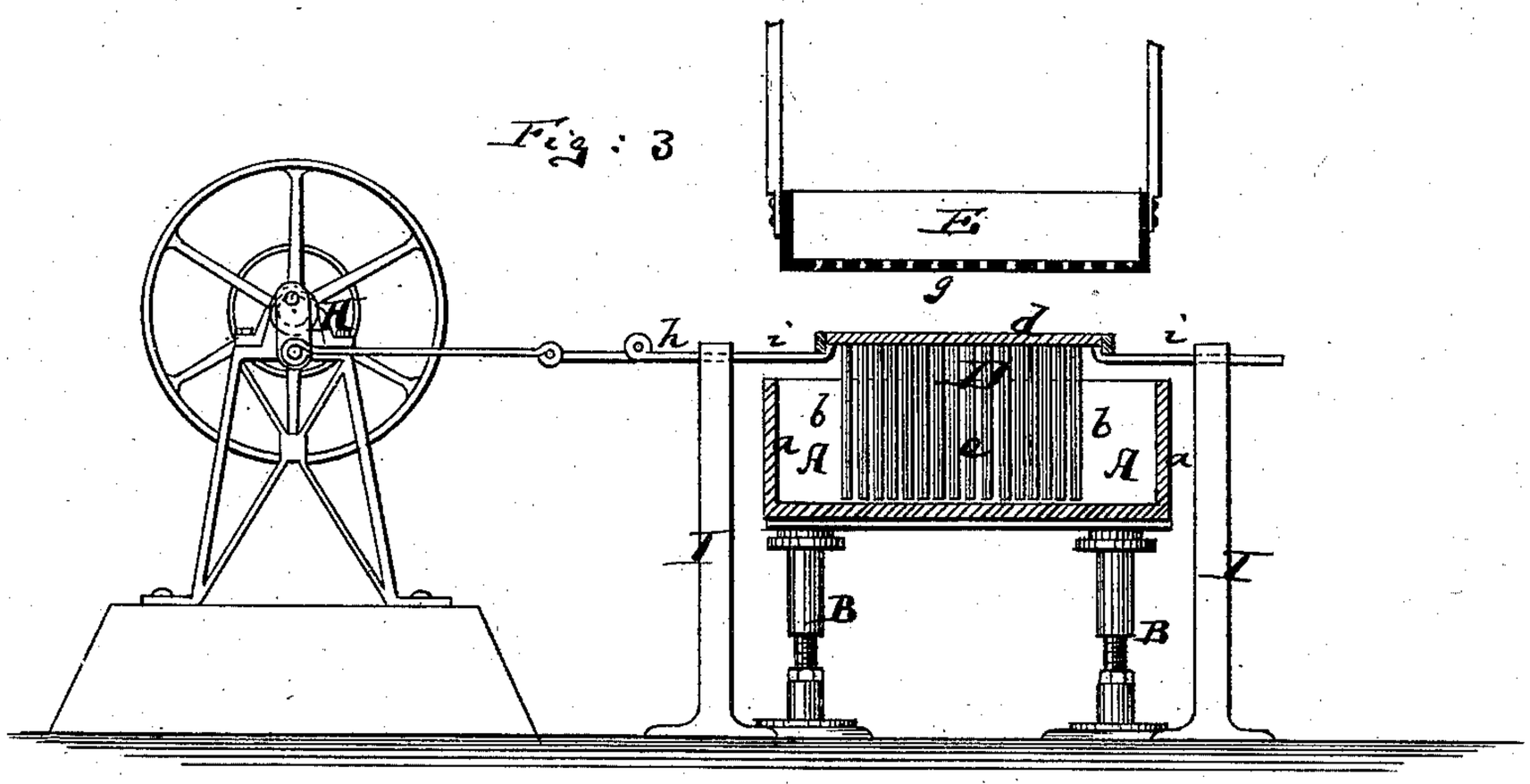
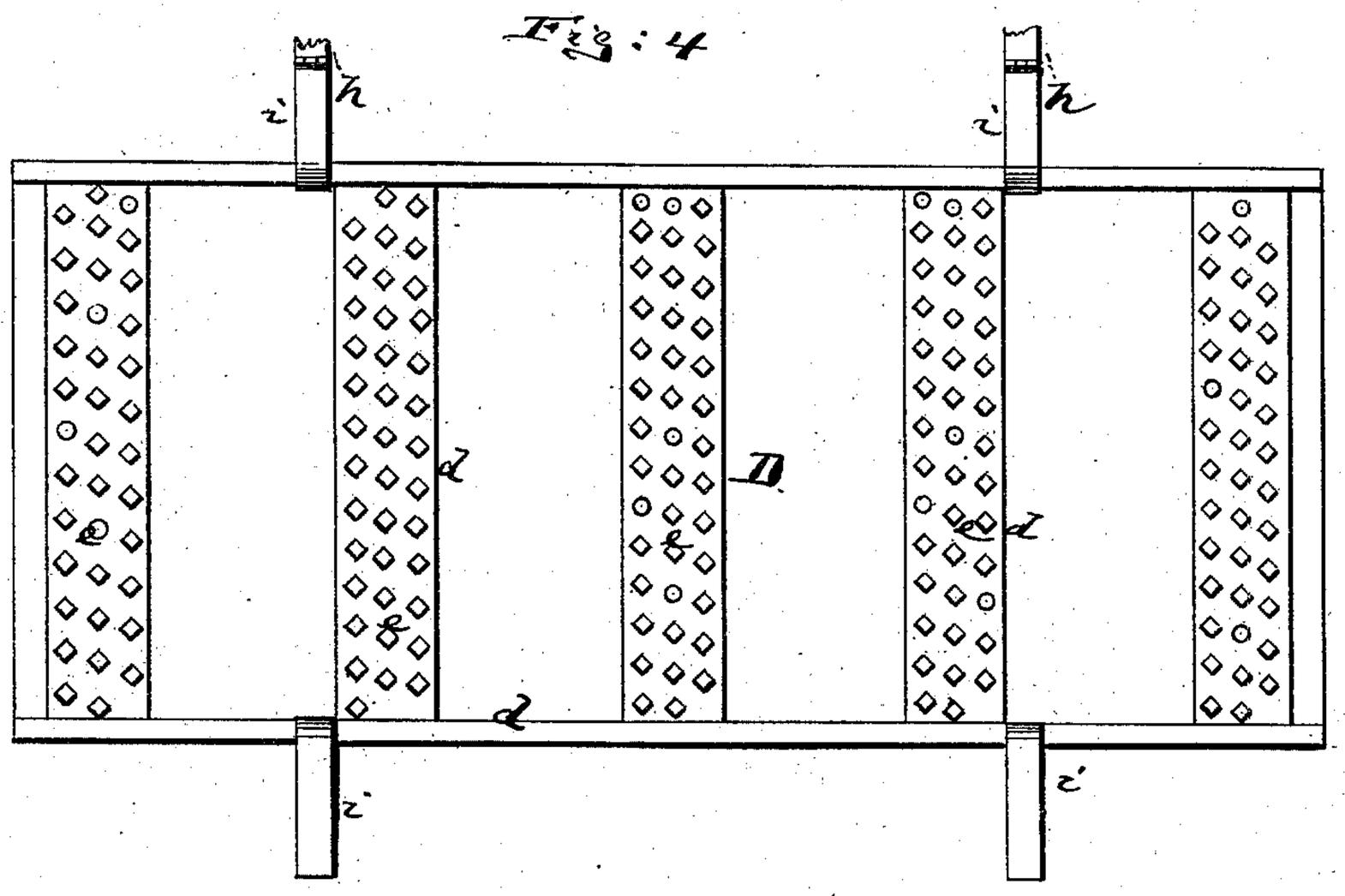


Fig: 4



Witnesses:
John C. Tunbridge.
John W. Speer

Inventor:
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by his attorneys
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UNITED STATES PATENT OFFICE.

JOHN F. SANDERS, OF OGDEN, UTAH TERRITORY.

ORE-CONCENTRATOR.

SPECIFICATION forming part of Letters Patent No. 258,131, dated May 16, 1882.

Application filed November 12, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. SANDERS, of Ogden, in the county of Weber and Territory of Utah, have invented a new and Improved Concentrator for Ore-Separating Apparatus, of which the following is a specification.

This invention relates to an improvement in concentrators; and it consists in combining the table with an upper raking or disturbing device, all as hereinafter more fully described.

In the accompanying drawings, Figure 1 is a vertical longitudinal section of my improved concentrator, and Fig. 2 is a plan view of the concentrator without the upper trough. Fig. 3 is a cross-section of the whole concentrator; Fig. 4, a bottom view of the rake.

A represents a table, which in practice would be from twelve to sixteen feet long, three to four feet wide, with upwardly-projecting sides *a*, about eight to ten inches high, and upwardly-projecting end *b*, of the same height as the sides. This table A has a shaking motion imparted to it in longitudinal direction by a crank-shaft, F, and rod *f*, or by other suitable mechanism. I prefer to place its lower or open end upon a vertically-adjustable support, B, so as thereby to be able to regulate its inclination. The ore to be concentrated is brought to the table near the head thereof, which is that end having the projecting part *b*. The ore should be as near as possible of uniform size.

C represents the chute, over which the ore is passed to the table A. Together with the ore should be supplied to the table, at or near the head thereof, a sufficient quantity of water to move the mass or pulp slowly down on the table toward the open lower end or foot thereof.

D is a rake composed of an upper lattice or other frame, *d*, and of downwardly-projecting teeth *e*, which rake is set over the table A, as indicated in Figs. 1 and 3, and suspended by rods *i i* on a fixed frame, I, so that its teeth will nearly, but not quite, reach the bottom of the table. The teeth are by preference made with blunt points or ends and prismatic in form, with their edges set against the motion of the ore; but they may also be cylindrical, as indicated, with reference to some of them, in Fig. 4, or tapering, or of other equivalent form. The rake D receives by rods *h* and crank-shaft H or other suitable connection a slow oscillating or reciprocating motion in a lateral direction, which motion causes its teeth to move laterally through the pulp that is contained and moved lengthwise on the table. This motion of the rake has, as I found by practical observation, the effect of retarding the movement of the heavier particles of gold and of keeping them on the bottom of the table without preventing the lighter particles of the ore or pulp moving down toward the foot of the table and thence off. In other words, by moving the rake through the upper strata of the pulp I give the heavier particles an opportunity of settling to the bottom of the table and remaining there, so that they may be removed when the lighter particles of the pulp have been discharged from the table. The table should be cleaned about twice a day, or oftener if the pulp is rich in gold or other valuable mineral. The upper framing, *d*, of the rake D being open permits me to introduce thin jets of water from above, which help to retard the moving pulp and give an opportunity to the heavier portions to settle and remain on the bottom. Of course these fine jets of water should be light enough to lose their effect on reaching the lower strata of the pulp, their effect being intended to be exercised simply on the upper strata of lighter material.

In the drawings is shown, above the rake, a pan, E, raised at such a height as to give the jets the requisite degree of force. This pan has perforations in its bottom, as indicated at *g*, for permitting the water to pass downward to the table and effect the purpose mentioned.

I claim—

1. The combination of the concentrator-table with mechanism *f* F, for moving it longitudinally, and with the rake D and mechanism *h* H, for moving said rake laterally, substantially as herein shown and described.

2. The concentrator-table A, combined with rake D, mechanism for moving said rake laterally and said table longitudinally, frame I, and perforated trough E, substantially as herein shown and described.

JOHN F. SANDERS.

Witnesses:

WILLIAM H. C. SMITH,

WILLY G. E. SCHULTZ.