

(No Model.)

2 Sheets—Sheet 1.

W. E. STIRK.
ORE CONCENTRATOR.

No. 286,342.

Patented Oct. 9, 1883.

Fig. 1.

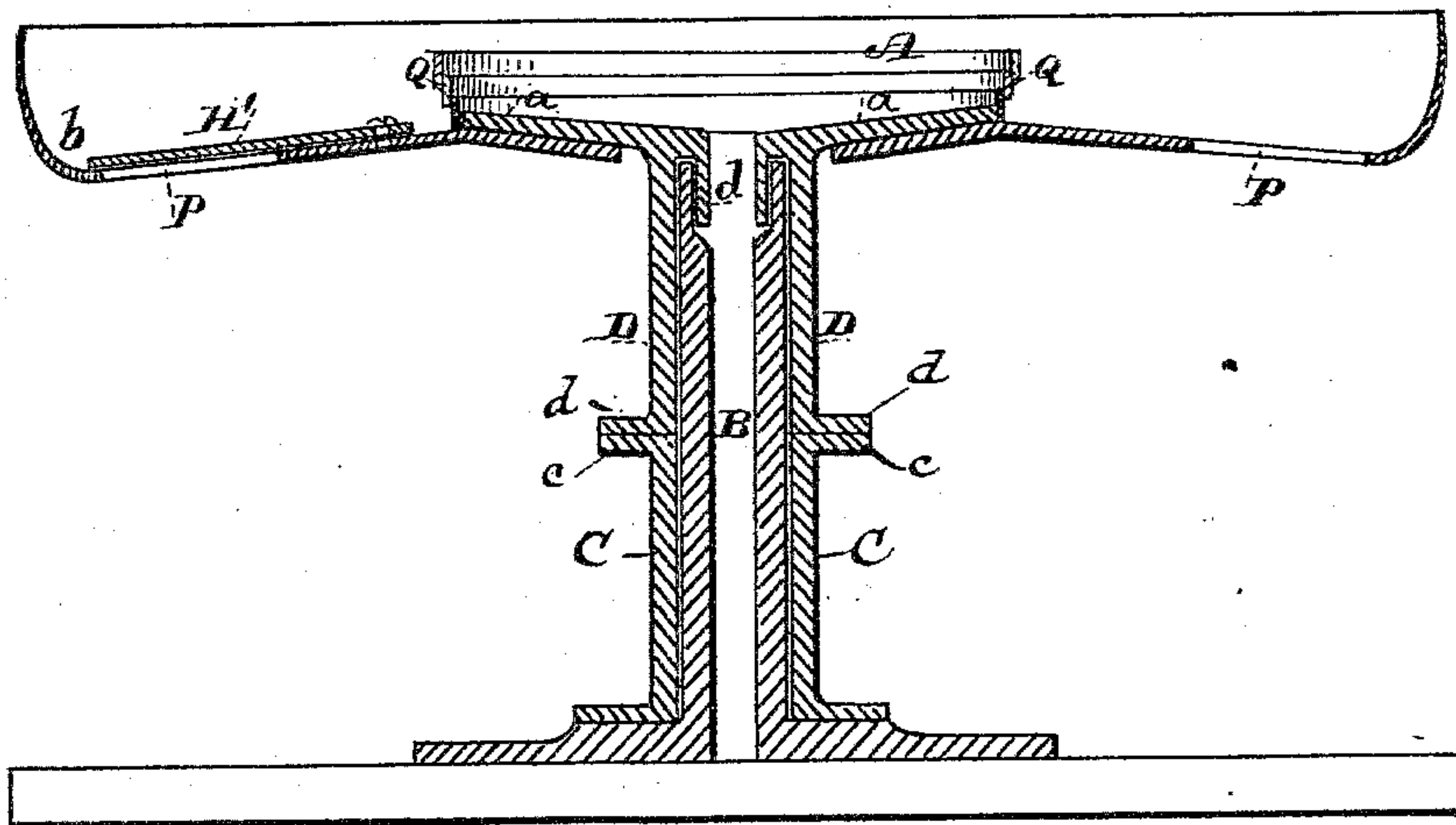
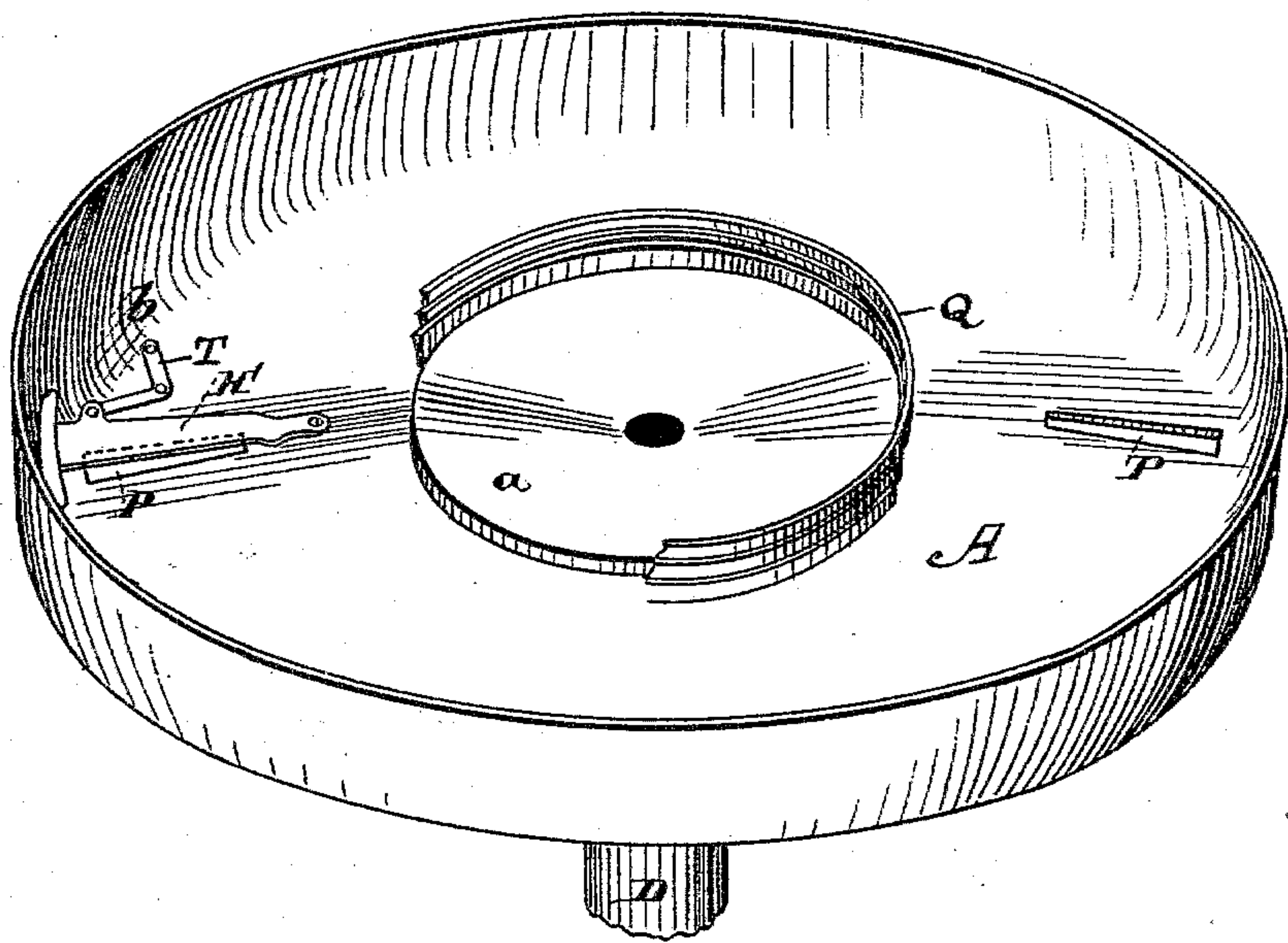


Fig. 2.



Witnesses,
Geo. H. Strong
J. H. House.

Inventor
Wm. E. Stirk
By Dewey & Co.
Attorneys

(No Model.)

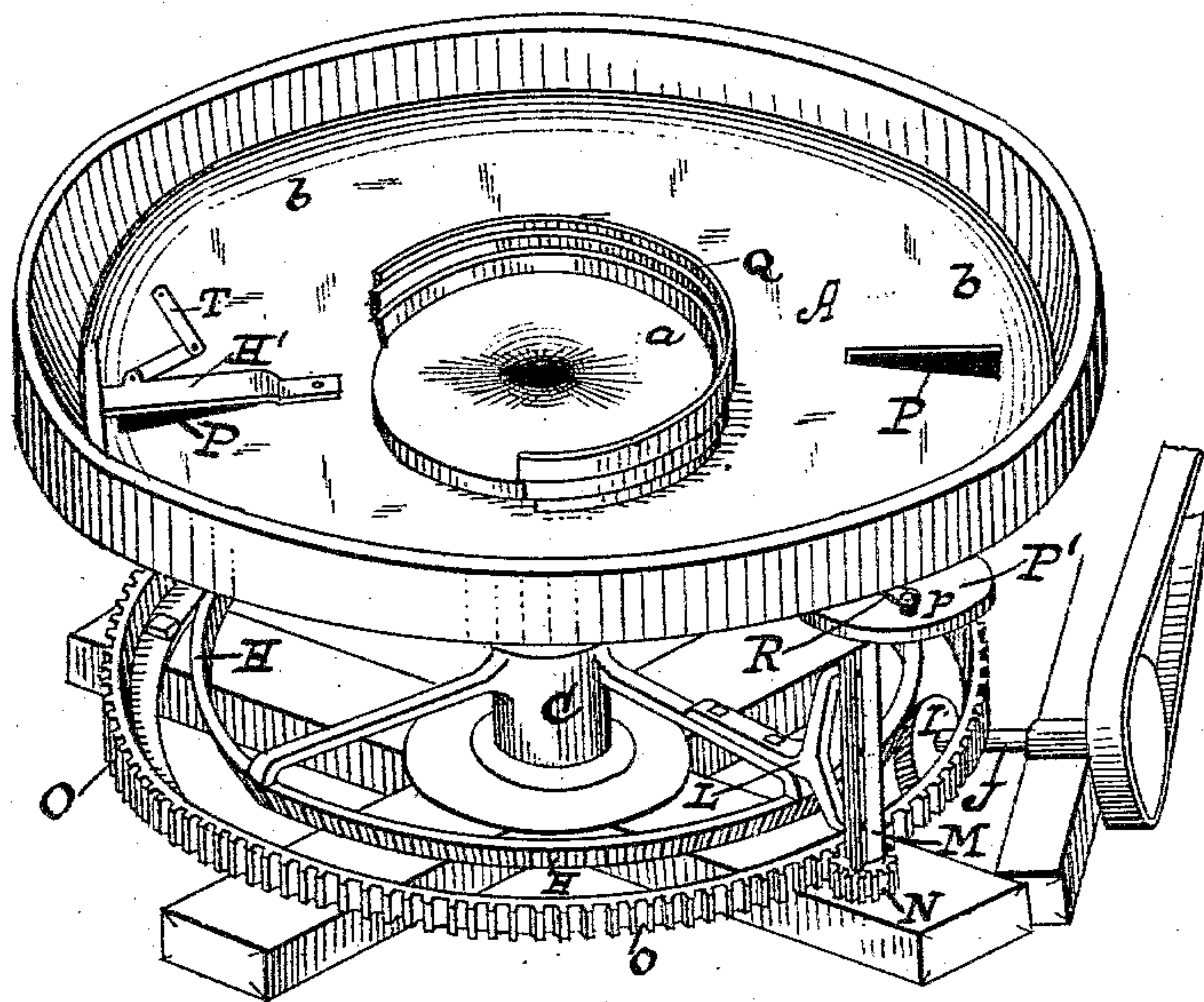
2 Sheets—Sheet 2.

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Fig. 3.



Attest;

Walter Fowler,
R. K. Evans

Inventor;
Wm E. Stirk
by Dewey Geo.
and A. H. Evans & Co.
Atty -

UNITED STATES PATENT OFFICE.

WILLIAM E. STIRK, OF LEADVILLE, COLORADO, ASSIGNOR TO A. P. BRAYTON, OF SAN FRANCISCO, CALIFORNIA.

ORE-CONCENTRATOR.

SPECIFICATION forming part of Letters Patent No. 286,342, dated October 9, 1883.

Application filed September 18, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. STIRK, of Leadville, county of Lake, State of Colorado, have invented an Improved Ore-Concentrator; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to certain improvements in ore-concentrators having a combined rotary and shaking or oscillating movement for the purpose of separating the valuable heavy particles from the worthless lighter debris.

My invention consists in certain combinations of devices, which constitute an improvement on the concentrator patented to Jos. S. Duncan, February 28, 1882, all of which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a vertical section of my improved concentrator. Fig. 2 is a perspective view of the pan, and Fig. 3 is a perspective view of the machine complete.

A is a pan.

B is a central hollow discharge shaft or post, which is fixed to the foundation timbers or support.

D is a sleeve surrounding the upper part of the hollow shaft or post B, and having the short inner flange, *d*, fitting over the top of the post to protect it from grit and wear.

a is a wide flat flange, which extends outward from the sleeve D, forming a part of it, and it forms by its thickness a slight dam to arrest the lower stratum of sand as it flows towards the central opening.

The outer portion of the pan A is usually made of stout sheet-iron riveted to the bottom of the flange *a*, which thus projects above it, as shown.

My improvement consists in providing thin metal rings, Q, of such a size as to fit snugly around the flange *a*, and to project above it. Several of these rings of different depths may be fitted to this flange, so that any depth of sand may be maintained, or they are, preferably, fitted one over another, or telescoped, as shown, so as to produce the desired height, and allow it to be regulated from time to time to suit the work to be done. The bottom of the pan A slopes downward to the periphery,

where it curves up to form the sides, so that a channel, *b*, is formed around the outer edge of the pan, within its periphery, into which the sulphurets and heavy valuable particles, of whatever nature, are caused to settle by the peculiar oscillating rotary motion of the pan. The pan is caused to rotate by means of a bevel-gear wheel, H, which is secured to the sleeve C, surrounding the lower part of the post B, and having a flange, *c*, upon which the bottom flange, *d*, of the sleeve D rests. This gear is engaged and driven by a pinion, I, upon the driving-shaft J. A spur-gear wheel, O, is fixed to the foundation-timbers, and a pinion, N, is fixed to the bottom of a vertical shaft, M, so as to engage with this spur-gear. The shaft M is supported from a bracket, L, which is bolted to the bevel-gear H, so that said shaft is carried around with this gear-wheel, and is at the same time caused to rotate upon its own axis by its pinion N engaging the stationary gear-wheel O. A plate or disk, P', is fixed to the top of the shaft M, and has an eccentric pin, *p*, projecting upward from it. A connecting-rod, R, connects this eccentric pin or crank *p* with the bottom of the pan, so that by the revolution of the shaft M and plate P' upon their own axis the pan is given a secondary shaking motion while revolving about the main central shaft. The two loose sleeves C and D around the central shaft permit this movement, which is very efficient in separating the sulphurets and gold from the lighter debris, and settling the particles to the bottom. In order to regulate and grade the discharge of these particles more completely than could be done by ordinary round holes or openings, I form one or more elongated slots, P, which extend from the outside toward the central flange, *a*, about one-half the distance from the periphery, more or less. These slots are provided with controlling gates or slides, which may open or close them to any desired degree. The gate H' is hinged near the inner end of the slot, and is slightly curved, as shown, so that when the outer end is moved by its lever or handle T the slot will be opened the entire length, and present an opening which is widest at the outer end, and becomes gradually narrower toward the center of the pan.

This allows the sulphurets, which accumulate faster toward the outside, to be discharged evenly along the whole length of the slot.

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

1. The pan A, having peripheral channel *b* and central flange, *a*, and the hollow central discharge-post, B, in combination with the adjustable rings Q, fitting said central flange or projection, *a*, substantially as herein described.

2. The pan A, having the radial slots P, the controlling-gates H', and adjustable rings Q, in combination with the discharge-post B, and

flanged sleeve D *a*, substantially as herein described.

3. The combination, with a concentrating-pan, A, having graduated radial openings P, and controlling-gates H', of an operating mechanism by which the heavier particles are caused to settle in a body, increasing in depth from the center toward the circumference of the pan, substantially as herein described.

In witness whereof I have hereunto set my hand.

WILLIAM E. STIRK.

Witnesses:

GEO. H. STRONG,
S. H. NOURSE.