

(No Model.)

A. C. CAMPBELL.
ORE SEPARATOR.

No. 335,338.

Patented Feb. 2, 1886.

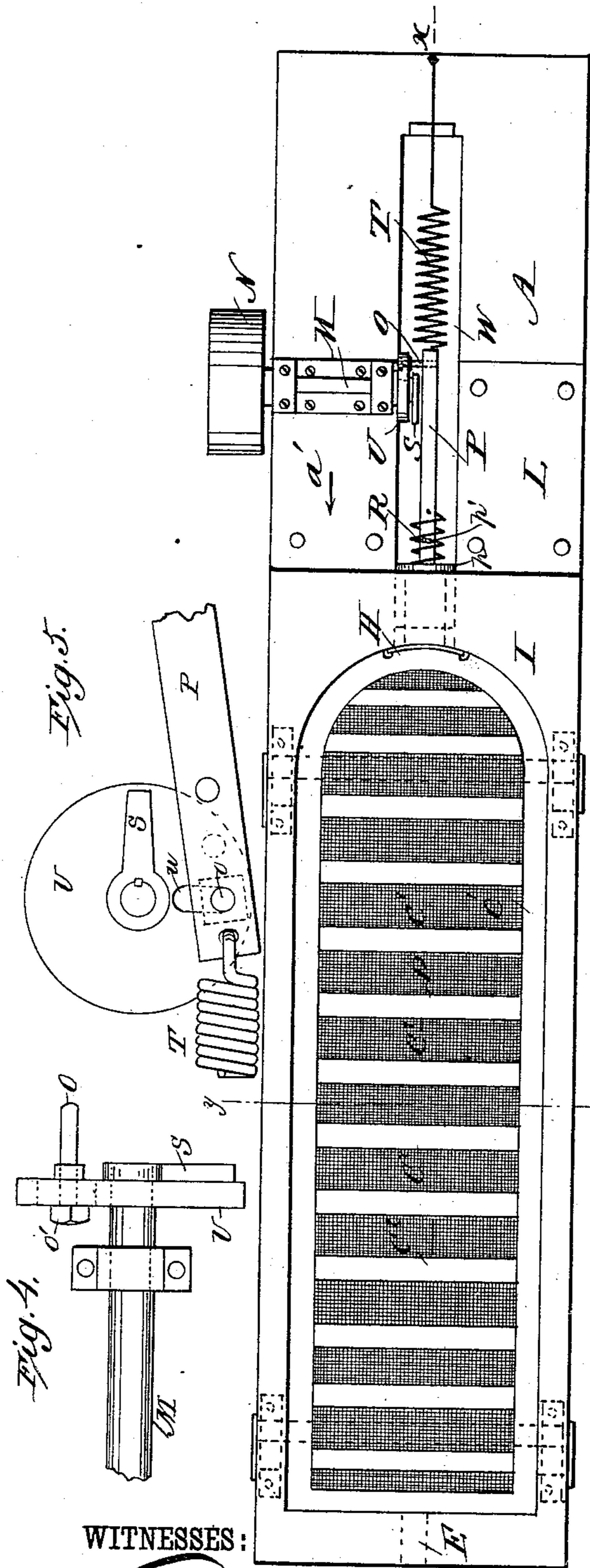


Fig. 1.

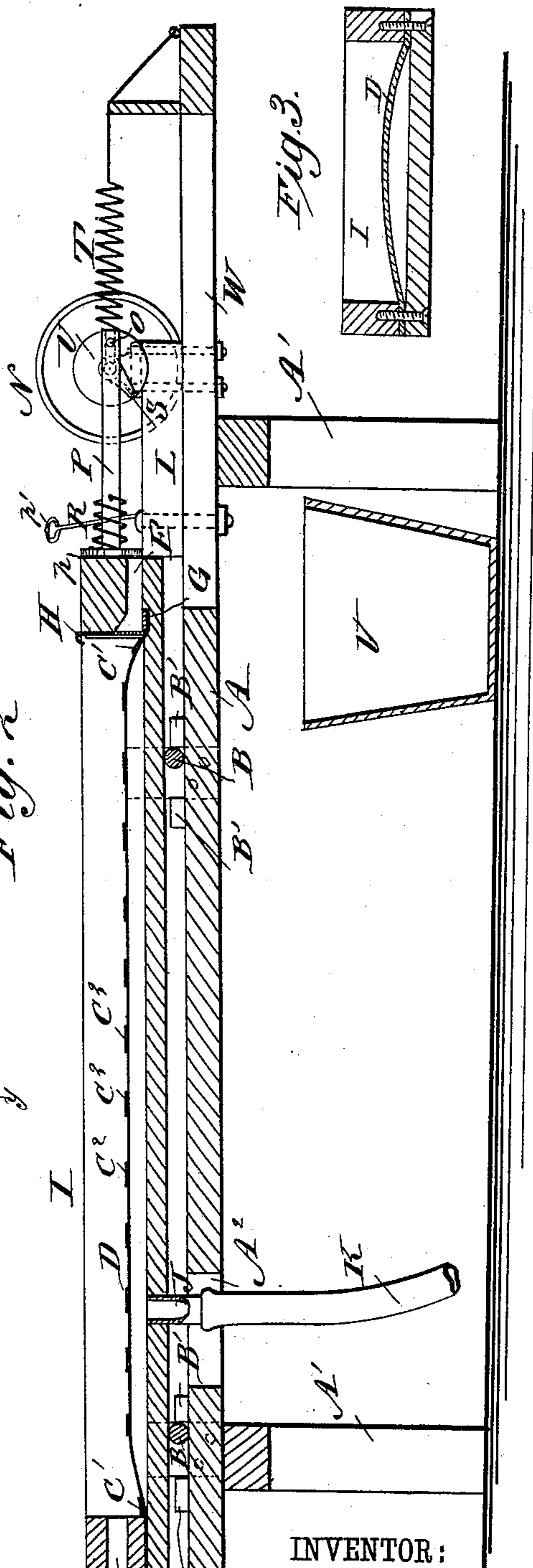


Fig. 2.

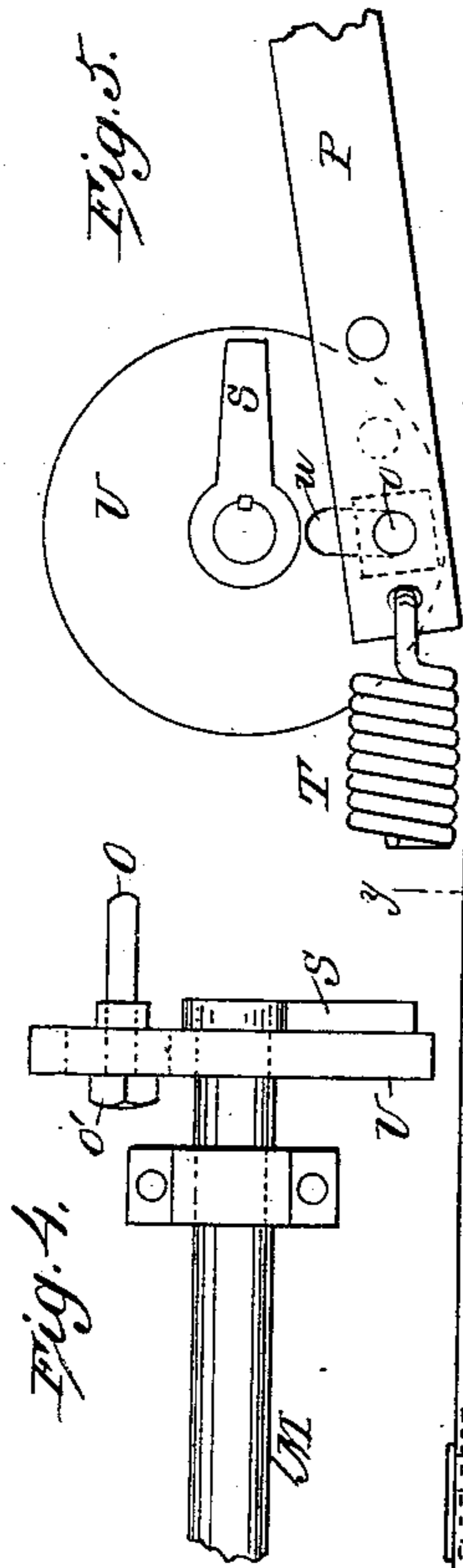


Fig. 3.

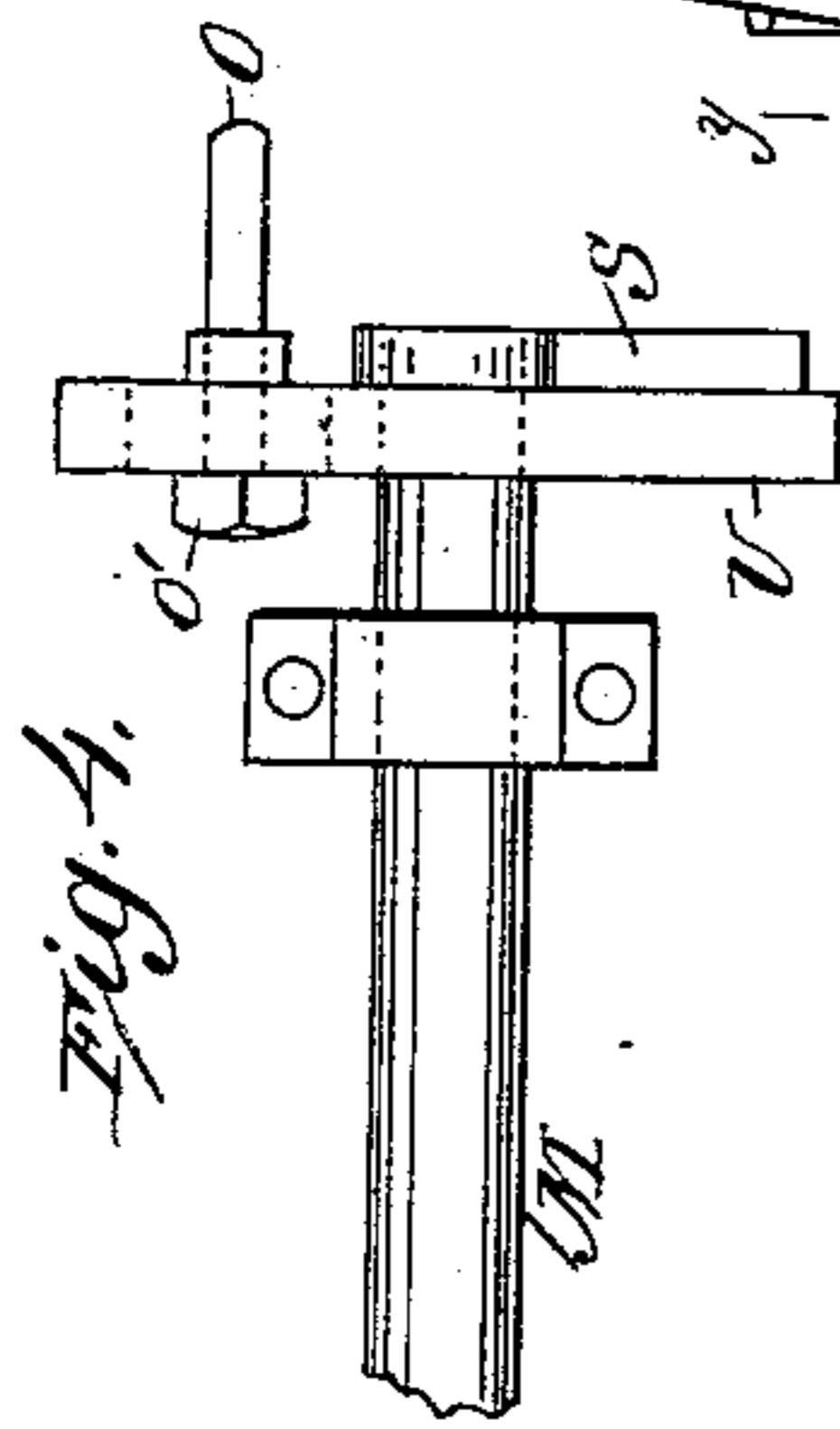


Fig. 4.

Fig. 5.

WITNESSES:

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Fig. 1.

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ALONZO C. CAMPBELL, OF NASHVILLE, TENNESSEE.

ORE-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 335,338, dated February 2, 1886.

Application filed May 20, 1885. Serial No. 166,196. (No model.)

To all whom it may concern:

Be it known that I, ALONZO C. CAMPBELL, of Nashville, in the county of Davidson and State of Tennessee, have invented a new and Improved Ore-Separator, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved machine for separating coarse from fine ore, or for separating ore from sand, or gold and silver ore from sand or base metals.

The invention consists in the peculiar construction and arrangement of parts, as hereinafter fully described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of my improved ore-separator. Fig. 2 is a longitudinal sectional elevation of the same on the line *x x*, Fig. 1. Fig. 3 is a cross-section on line *y y*, Fig. 1. Figs. 4 and 5 are detail views of the mechanism for imparting a reciprocating motion to the pan.

The platform or table A is supported by legs A', and on the said table transverse rollers B rest between transverse cleats B'. On the rollers a flat wooden pan or receptacle, I, rests, the recess of which is rounded at its front end. A piece of duck, D, or any other flexible material of sufficient strength, and provided with meshes forming minute openings, or provided with the openings in any other suitable manner, is secured to the receptacle or pan I at its edges, between the bottom and the side and end portions of the same, as shown in Figs. 2 and 3. The duck covering D is provided along its edges with a stripe, C', of asphaltum or any other suitable material, rendering the covering impervious to air or water where the said material is applied. The covering is also provided with a series of transverse stripes, C², of asphaltum or other material, rendering the covering impervious to air and water, the stripes C² being about two or three inches wide and from two to three inches apart. The receptacle or pan is provided at its rear end with an outlet-opening, E, for the discharge of the tailings, and at the opposite end with an outlet-opening, F, for the

discharge of concentrates. A metal strip, G, is secured across the bottom of the opening F, to hold the covering in place at the said opening. The opening F can be closed by a gate, H, of netting or perforated material, or one of solid metal. The said gate, when perforated or made of wire-netting, can also be used as a screen to let ore of a certain size only pass out of the receptacle or pan I. A tube, J, projects from the bottom of the receptacle or pan I, near the rear end, and through a slot, A², in the platform A, and is connected with a flexible tube, K. A bumper-block, L, is secured on the table A in front of the pan or receptacle I, and in bearings on the said block a shaft, M, is mounted, carrying a belt-pulley, N, on the outer end and a loose disk, U, on the inner end, which disk has a slot, *u*, containing a pin, O, the outer end of which is passed into a rod, P, near its outer end. The inner end of the rod P is connected by a spring, R, with the front end of the pan or receptacle I, the said spring being secured to the pan by a clamp, *p*, and to the rod by a pin, *p'*. The pin O is provided with a shoulder, *o*, and is secured in the slot *u* of the disk U by a nut, *o'*, as shown in Fig. 4. An arm, S, on the end of the shaft M, is adapted to act on the pin O, and a spring, T, is secured to the outer end of the rod P and to the end of the table. The table is provided with a longitudinal slot, W, in front of the pan or receptacle I, and a vessel, V, is placed below the slot at the front end of the pan or receptacle I.

The operation is as follows: The shaft M is revolved, and as the arm S strikes the pin O it moves the receptacle or pan I in the direction of the arrow *a'* and stretches the spring T. After a half-revolution of the shaft M the arm S slides off the pin O, and the spring T pulls the pan in the inverse direction of the arrow *a'* and against the bumper L, thus causing a concussion. In this manner the pan is vibrated during the entire operation. The spring R eases the effect of the bar P on the pan. The pulverized ore is introduced on the covering D at or in the neighborhood of the neck J, and air or water is forced into the pan through the tube K. The air or water raises the covering D at the middle, causing it to assume the curved position shown in Figs. 2 and 3. The current of air or water and the vibra-

tions of the pan cause the heavy particles to slide down the curved covering upon the impervious strip C', where they are no longer acted on by the water or air, and gradually
5 move to the front end of the pan, this movement being due to the concussions. The tailings are discharged at E, and the concentrates are discharged at F into the vessel V.

In case the machine is to be used as an
10 amalgamator, amalgamized copper strips are secured on the covering D in place of the impervious stripes C' C².

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

1. The combination, with a pan or receptacle, of a covering secured over the bottom of the recess or cavity of the pan, and which covering is pervious to air and water, and has
20 parts made impervious, and of a tube for conducting air or water into the pan below the covering, substantially as herein shown and described.

2. The combination, with the reciprocating

pan I, having the outlet F, of the gate H, 25 the pervious covering D, having impervious strips C' C², and a tube for conducting water or air into the pan below the covering, substantially as herein shown and described.

3. The combination, with the pan I, of the 30 bar P, the pin O in the same, the shaft M, the loose disk U on the same, in which disk the pin O is also held, and the arm S on the end of the shaft, substantially as herein shown and described.

4. The combination, with the pan I, of the 35 bar P, the pin O, the shaft M, the arm S, the disk U, and the spring T, substantially as herein shown and described.

5. The combination, with the pan I, of the 40 bumper L, the bar P, the spring T, the shaft M, the disk U, the pin O, and the arm S, substantially as herein shown and described.

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Witnesses:

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S. S. McNinch.