C. P. WATTERSON.

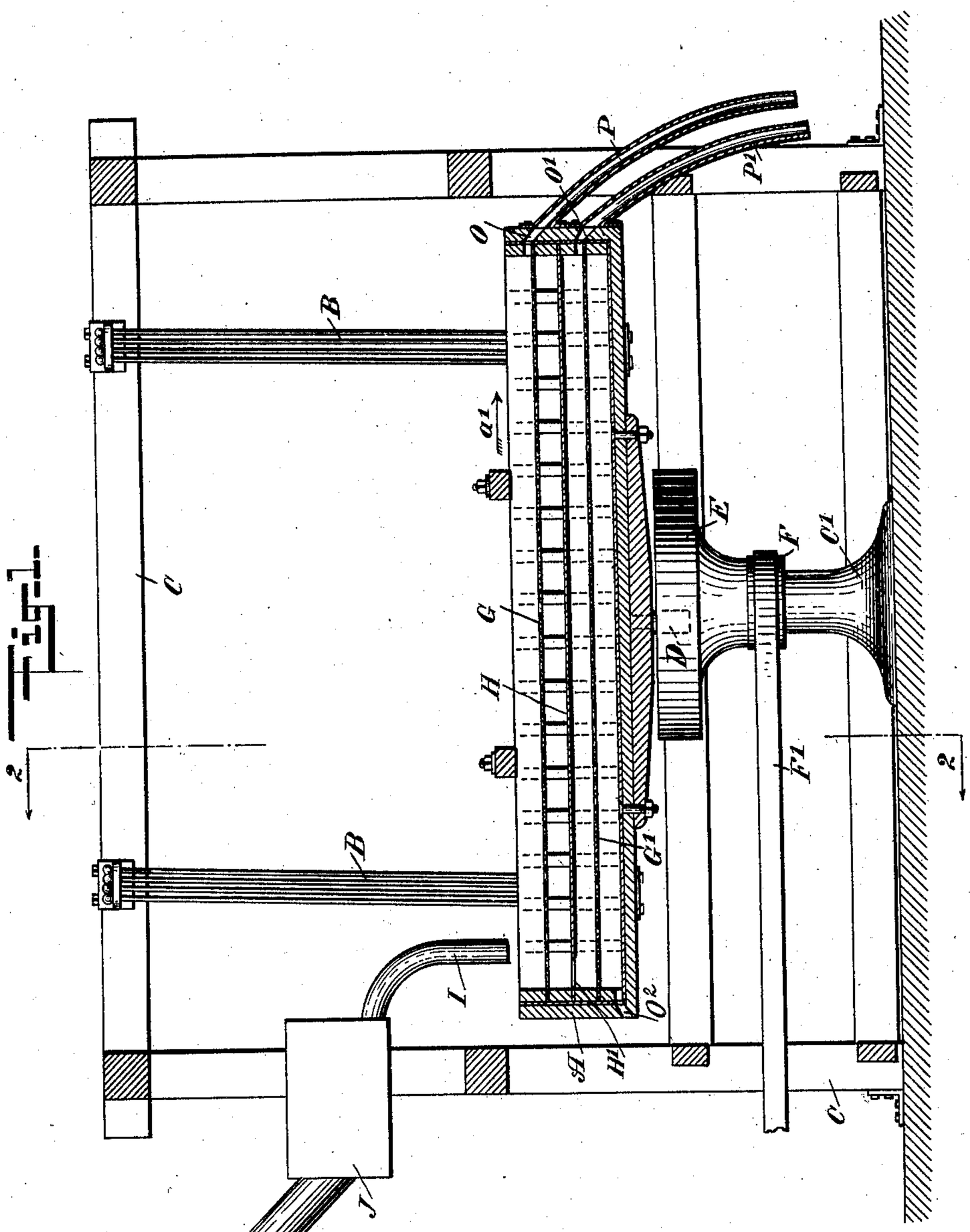
ORE SIZING APPARATUS.

APPLICATION FILED MAY 22, 1909.

963,488.

Patented July 5, 1910.

2 SHEETS—SHEET 1.



WITNESSES

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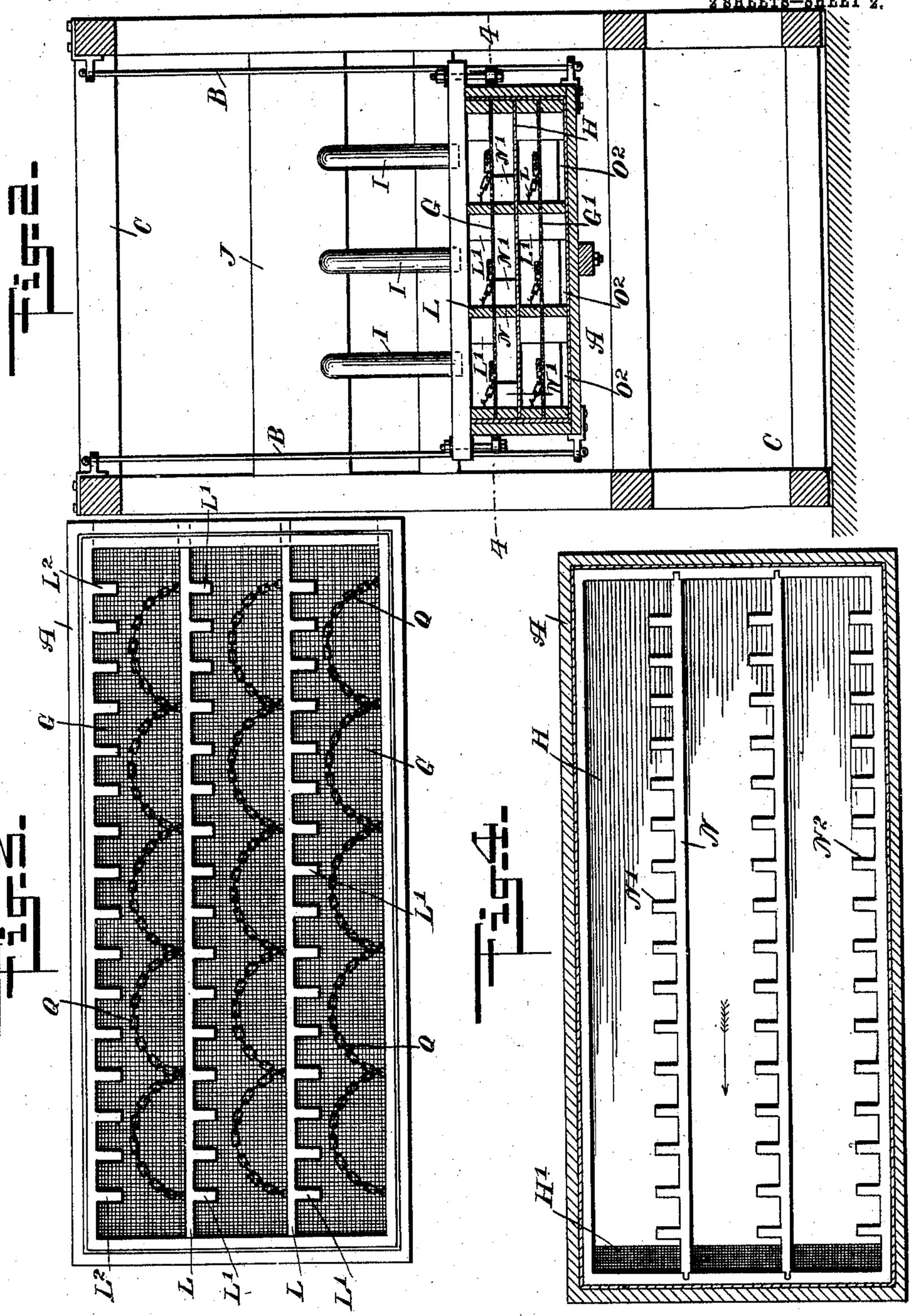

FIG. 2.

FIG. 3.

FIG. 4.

WITNESSES

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UNITED STATES PATENT OFFICE.

CHARLES PIERCE WATTERSON, OF McGILL, NEVADA, ASSIGNOR OF ONE-FOURTH TO HORACE R. GRAHAM, OF McGILL, NEVADA.

ORE-SIZING APPARATUS.

963,488. Specification of Letters Patent. **Patented July 5, 1910.**

Application filed May 22, 1909. Serial No. 497,689.

To all whom it may concern:

Be it known that I, CHARLES P. WATTERSON, a citizen of the United States, and a resident of McGill, in the county of White Pine and State of Nevada, have invented a new and Improved Ore-Sizing Apparatus, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved ore sizing apparatus, arranged to insure a separation of the material into different sizes, and to allow of treating a large amount of material in a given time and at comparatively little running expense.

The invention consists of novel features and parts and combinations of the same, which will be more fully described hereinafter and then pointed out in the claim.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a longitudinal sectional elevation of the improvement; Fig. 2 is a transverse section of the same on the line 2—2 of Fig. 1; Fig. 3 is a plan view of the screen; and Fig. 4 is a sectional plan view of the same on the line 4—4 of Fig. 2.

A gyrating screening box A is suspended by rods B from the overhead beams of a screen frame C, and on the under side of the screening box A is arranged a pin D, engaging eccentrically a horizontally disposed disk E, mounted to turn on a suitable step C′, set on the floor or forming part of the main frame C. On the disk E is secured or formed a pulley F, over which passes a belt F′ connected with other machinery for imparting a rotary motion to the pulley F and the disk E, to cause the suspended screening box A to gyrate. In the screening box A is arranged a horizontally-disposed screen G, a distance below which is located a horizontal partition H, and between the latter and the bottom of the screening box A is arranged another screen G′, of finer mesh than the upper screen G. The ore or other material to be screened is passed onto the upper screen G at the head end of the screening box A, through one or a number of feed hose I, connected with a distributing box J, into which the ore or other material together with water is passed by a suitable pipe, chute or like supply K.

On the top of the screens G, G′ are arranged spaced longitudinal bars L, provided with transverse lugs L′, and similar lugs L^2 are arranged on the rear side rail of the frame of the screen G or G′, so that when the apparatus is in use and a gyrating motion is given to the screening box A, then the material on the screens G and G′ is caused to travel in the direction of the arrow *a′*, that is, from the head end of the screening box A to the foot end thereof. As shown in Fig. 2, each feed hose I discharges into a corresponding compartment formed by the bars L on the top screen G. Longitudinal spaced bars N having transverse lugs N′ are arranged on the top of the partition H, and similar lugs N^2 are arranged on the front rail of the frame of the partition H. By comparison of Figs. 3 and 4, it will be noticed that the lugs N′ and N^2 are reversibly arranged relative to the lugs L′, L^2, and when the apparatus is in use and a gyrating motion is given to the screening box A, then the material dropping through the screen G onto the partition H is moved in the inverse direction of the arrow *a′*, that is, toward the head end of the screening box A and to an opening H′, so that the material finally drops through the opening H′ onto the head end of the screen G′ below, to then travel forward thereon, as before stated.

The screen G connects at the foot end of the screening box A with a discharge opening O, formed in the foot end of the box, and connected with a hose P for directing the over sized material to a suitable place of discharge. The foot end of the screen G′ similarly connects with a discharge opening O′, leading to a hose P′, for directing the second oversized material to a place of discharge, separate from the one of the first over sized material. The bottom of the screening box A leads to a discharge opening O^2 for discharging the slimes to a suitable place of discharge, separate from the ones of the over sized material.

The operation is as follows: When the apparatus is in use and a rotary motion is given to the disk E, then the suspended screening box A is caused to gyrate, and the material to be treated and delivered by the hose I to the head end of the screen G is caused to travel over the screen G in the direction of the arrow *a′*, as previously explained, and the material that passes

through the meshes of the screen G drops onto the partition H, to be carried, in the inverse direction of the arrow a', to finally reach the opening H′, through which the material drops down onto the head end of the screen G′, to be carried along the same in the direction of the arrow a'. The fine materials, slimes and the like, which pass through the meshes of the screen G′, drop onto the bottom of the screening box A, to finally pass out of the discharge opening O^2, while the first and second over sized materials are discharged from the foot ends of the screens G and G′ through the discharge openings O, O′, into the delivery hose P and P′.

In order to keep the screens G and G′ in clean condition, that is, to prevent their meshes from clogging up, use is made of chains Q, overlying the screens and attached at intervals to the bars L and a corresponding side rail of the frame of the screen, it being understood that when the screening box A is gyrating, movement is given to the chains Q, so that the latter wipe over the screens, to keep the meshes thereof free for the passage of under sized material.

The screening apparatus shown and described is very simple and durable in construction, and is continuous in its operation, so that a large quantity of material can be treated in a comparatively short time and at a low running expense.

Although two screens G, G′ with an intervening partition H are shown and described, it is evident that I do not limit myself to this particular arrangement, as only one screen or more than two screens and a corresponding number of partitions may be used. It is also understood that other means besides the chains Q may be utilized to keep the screen clean, and the space between a screen and a partition is reduced to such an extent that the water passing along with the material and agitated by the gyrating motion of the screen box produces a wave or splash effect against the under side of the screens to keep the meshes thereof clean and free of solid or slimy materials.

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

In an ore sizing apparatus, the combination of a rectangular box provided with longitudinal partitions extending from end to end in the box, and the said box having an opening at one end of the same near the bottom, for the discharge of the slimes, horizontally disposed screens in the box dividing the same into vertical longitudinal compartments, chains connected to the said partitions and disposed on the upper surfaces of the said screens, lugs equidistantly spaced on the said partitions and extending transversely in the said compartments with all of the lugs on each partition extending in the same direction, a horizontally disposed partition intermediate the said screens with a transverse opening in the said horizontal partition at one end of the same, with the lugs of the longitudinal partition disposed on the said horizontal partition extending in an opposite direction to the lugs of the partitions disposed on the said screens, feed means disposed over the said box for separately feeding material into each of the longitudinal compartments, discharge means at the other end of the box for separately draining each of the said screens, and means connected with the said box for imparting a gyrating motion to the same.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES PIERCE WATTERSON.

Witnesses:
LAWRENCE BALLARD ROBBINS,
HORACE R. GRAHAM.