

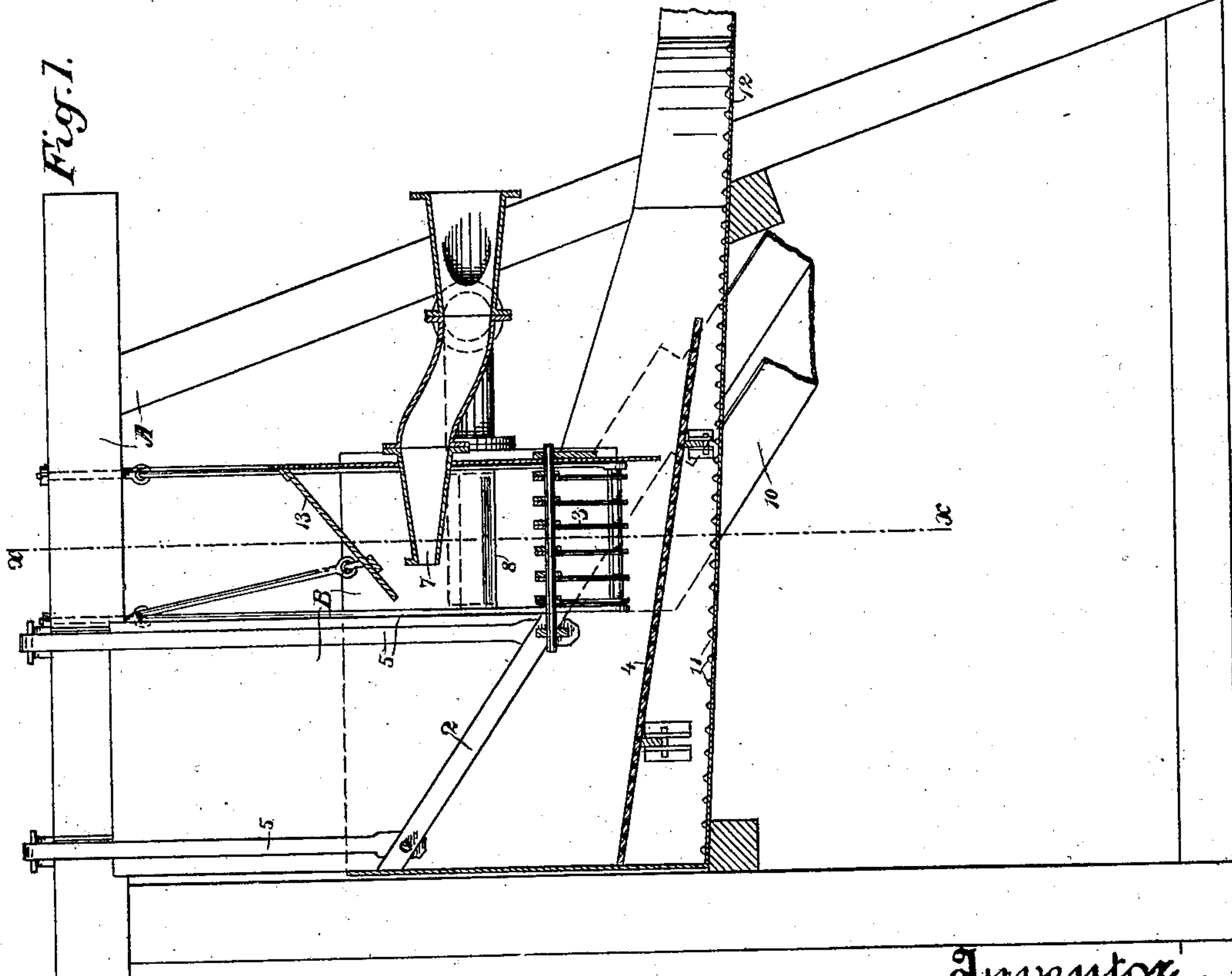
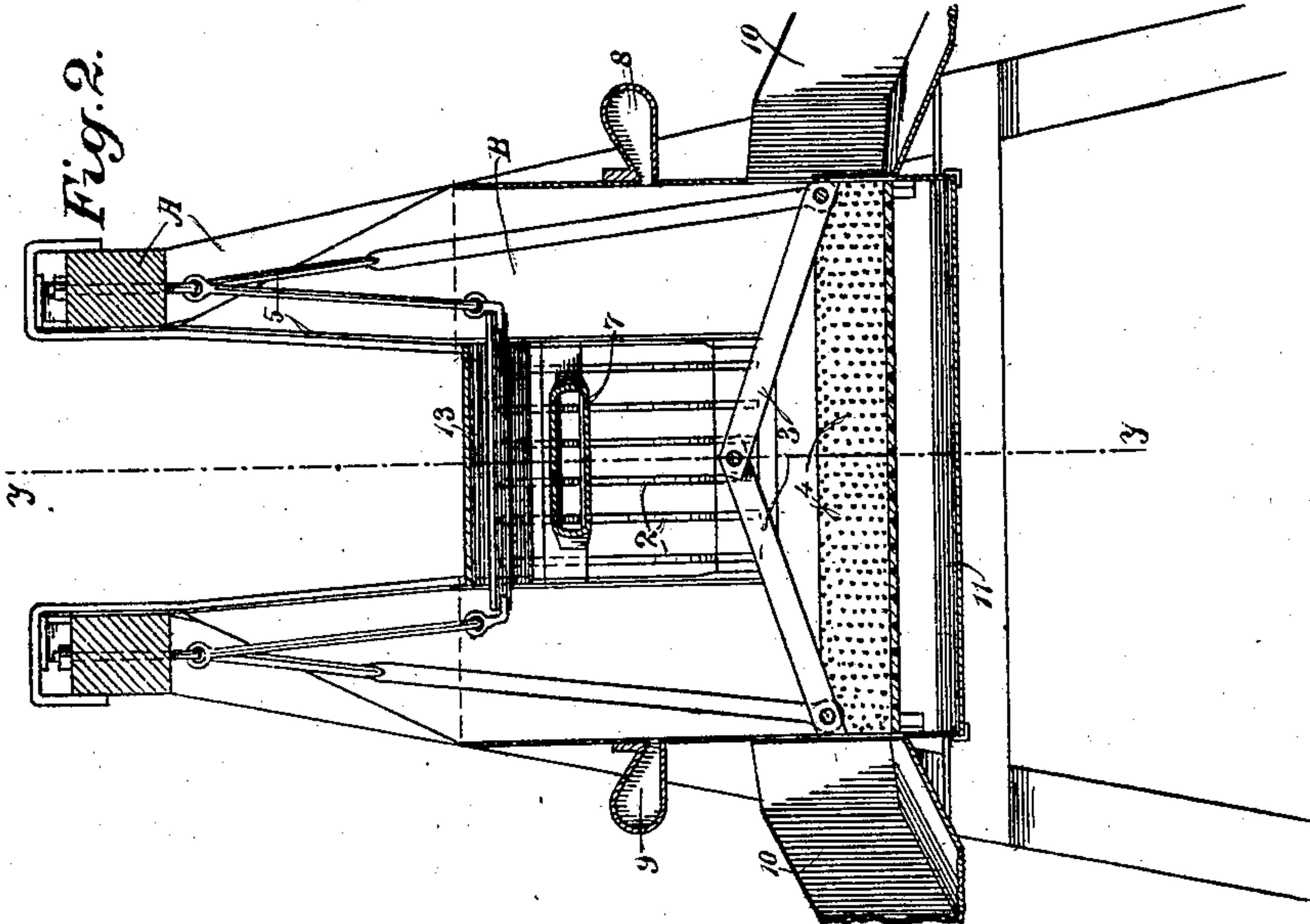
No. 702,643.

Patented June 17, 1902.

C. W. GARDNER.
GOLD SEPARATOR.

(Application filed May 17, 1901.)

(No Model.)



Witnesses,
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UNITED STATES PATENT OFFICE.

CHARLES W. GARDNER, OF PORTLAND, OREGON.

GOLD-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 702,643, dated June 17, 1902.

Application filed May 17, 1901. Serial No. 60,671. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. GARDNER, a citizen of the United States, residing at Portland, county of Multnomah, State of Oregon, have invented an Improvement in Gold-Separators; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to improvements in devices for screening and washing gold-bearing ores and gravels.

It consists of the parts and the constructions and combinations of parts hereinafter described and claimed.

Figure 1 is a vertical section through the separator on line *yy* of Fig. 2. Fig. 2 is a similar section on line *xx* of Fig. 1.

My invention is intended for use in connection with dredgers or excavators or wherever the forms of placer-mining are applicable.

A represents a suitable framework upon which the various parts of my device are supported.

B is a shell or casing, preferably of metal, within which are arranged the screening devices and through which extend the various water-feeds, tailings-discharge passages, &c. This shell may be left open at the top to admit the ore or gravel to the screens. These screens or gratings consist of a grizzly 2, one or more transversely-disposed lower screens 3, and a series of perforated plates 4, extending beneath the screens and grizzly. These screens are hung within the casing and from the frame by means of the links 5. The size of the mesh and inclination of the screens may vary according to the character of the soil being worked. The water-pipes 6 are arranged so as to discharge the water through the nozzles 7 8 9 in the casing directly upon each of the screens 2 and 3. The shape of these nozzles is preferably that shown, having a horizontally flattened or narrowed orifice, though I do not wish to limit myself to that form alone. This shape, however, distributes the water well over the screens and causes a nearly-equal action on all the gravel on the screen. Extending through the casing from the ends of the screens 3 are the discharge or tailings chutes 10. Beneath the

plates 4 are the riffles 11, having a continuing sluice 12, extending out through the casing.

In operation the material is admitted through the top of the casing upon the grating or grizzly 2, where it comes first in contact with the water from nozzle 7. A deflecting-plate 13 serves to prevent the material from striking the nozzle or otherwise interfering with the flow of water and diverts all the gravel onto the grizzly. The finer material and gold drop down between the bars thereof and fall directly upon the perforated plates 4. The coarser material passes from the grizzly onto the transversely-disposed screens 3. As shown, there are two of these screens receiving and dividing the flow from the grating 2. If desired, however, a single transverse screen may be used. Upon these screens the gravel is subjected to the action of water flowing through the nozzles 8 and 9.

The following fact is to be noted—i. e., the water from the nozzles acts upon the gravel and tends to retain the gravel on the screens in opposition to the force of gravity. It is in consequence of this retarding that the gravel is given sufficient time to become thoroughly disintegrated. Ordinarily where gravel and water enter together and act in the same direction the necessary breaking up of the particles does not take place, except where this action is long continued. It is one object of my invention to utilize as limited a space as possible. Upon these screens, therefore, the coarser tailings are thoroughly washed and from thence are conveyed to the dump by means of the chutes 10. The residue of gold-bearing gravel drops through the screens and upon the plates. Here again the gravel received first from the grating and secondly from the screens is subjected to a further washing, screening, and division, the finer particles passing through the perforations and upon the riffles 11, where the gold finds lodgment, the coarser passing as overtail on to other of said riffles, and thence out through the riffled sluice 12. The gold is given a better opportunity to collect in the riffles by reason of the plates 4, which serve to neutralize the violent agitation of the water within the casing.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. The combination in a gold-separator of a shell or casing, a grating or screen upon which the gravel is received said grating or screen being inclined in the direction of the length of the shell or casing, a second screen inclined in the direction of the width of the shell or casing and discharging laterally through the side walls thereof, a chute leading from the side of the shell or casing and a chute in line longitudinally with the shell or casing, a foraminous plate below the second screen and extending longitudinally of the casing, and a water-supply adapted to discharge upon the screens in opposition to the flow of gravel thereon.

2. The combination in a gold-separator of a shell or casing inclosed except at the top, a grating or screen within the casing and inclined in the direction of the length thereof, links suspending said screen, a second screen within the casing and receiving the discharge from the first-named screen, and inclined from substantially the center of the casing toward each side thereof, links suspending the second screen within the framework, a discharge-chute leading outwardly from the sides of the casing and receiving the discharge from the second-named screen, a foraminous plate below the second-named screen, and a water-supply having nozzles discharging upon the gravel on the screens in a direction contrary to the flow of material thereon.

3. In a gold-separator, the combination with a chamber inclosed except at the top, of an inclined grating or screen, a secondary set

of screens disposed transversely to said grating, and inclined toward each side of the chamber, extensions of said secondary screens through the side walls of said chamber, separate water-inlets through said side walls by which a stream of water is adapted to be directed upon each of said screens, deflecting-plates whereby the gravel entering the machine is directed away from said inlets and upon the screens and means including a rifled sluice by which the gold from said screens is collected.

4. A gold-separator consisting in combination of a casing open at the top, screening devices and links by which they are suspended within said casing, said devices consisting of a grating, oppositely-disposed screens arranged transversely to, and receiving and dividing the overtail from said grating, chute extensions of said screens through the side walls of said casing, a perforated plate beneath said grating and screens and inclined substantially in the same direction as the grating, riffles beneath said plates, a sluice extending through said casing in the direction of the length thereof, a water-supply having nozzles entering a plurality of the sides of said casing, each of said nozzles adapted to direct its flow upon a respective grating, and screens and deflecting-plates disposed in relation to each of said nozzles.

In witness whereof I have hereunto set my hand.

CHARLES W. GARDNER.

Witnesses:

ERNEST O. MATTERN,
PAUL BAUMEL.