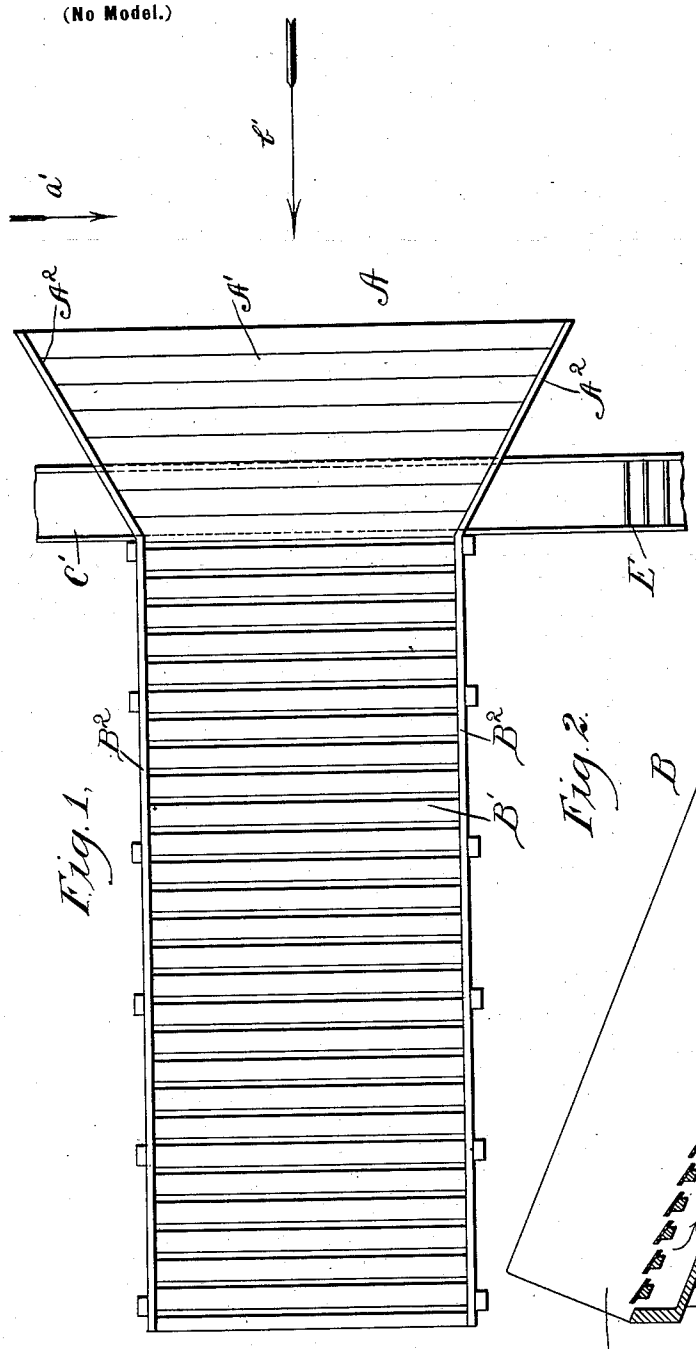
No. 651,725. Patented June 12, 1900.

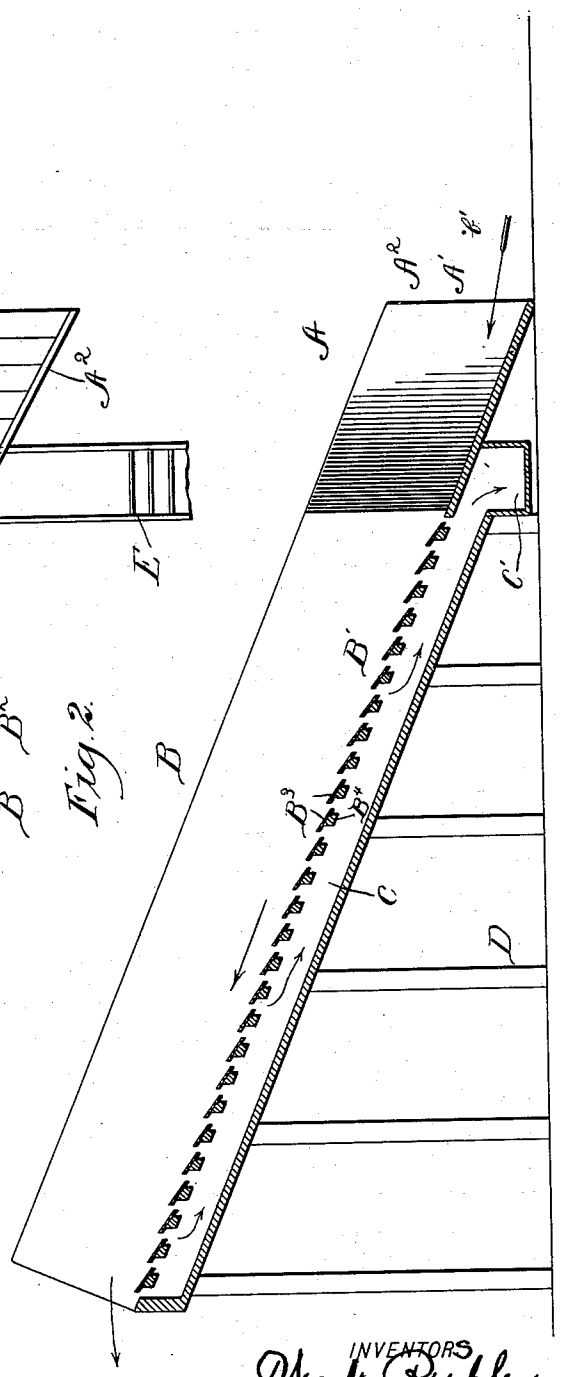
# S. C. & W. N. RUBLE.

## ELEVATOR AND SEPARATOR.

(Application filed July 21, 1899.)

(No Model.) 2 Sheets—Sheet 1.

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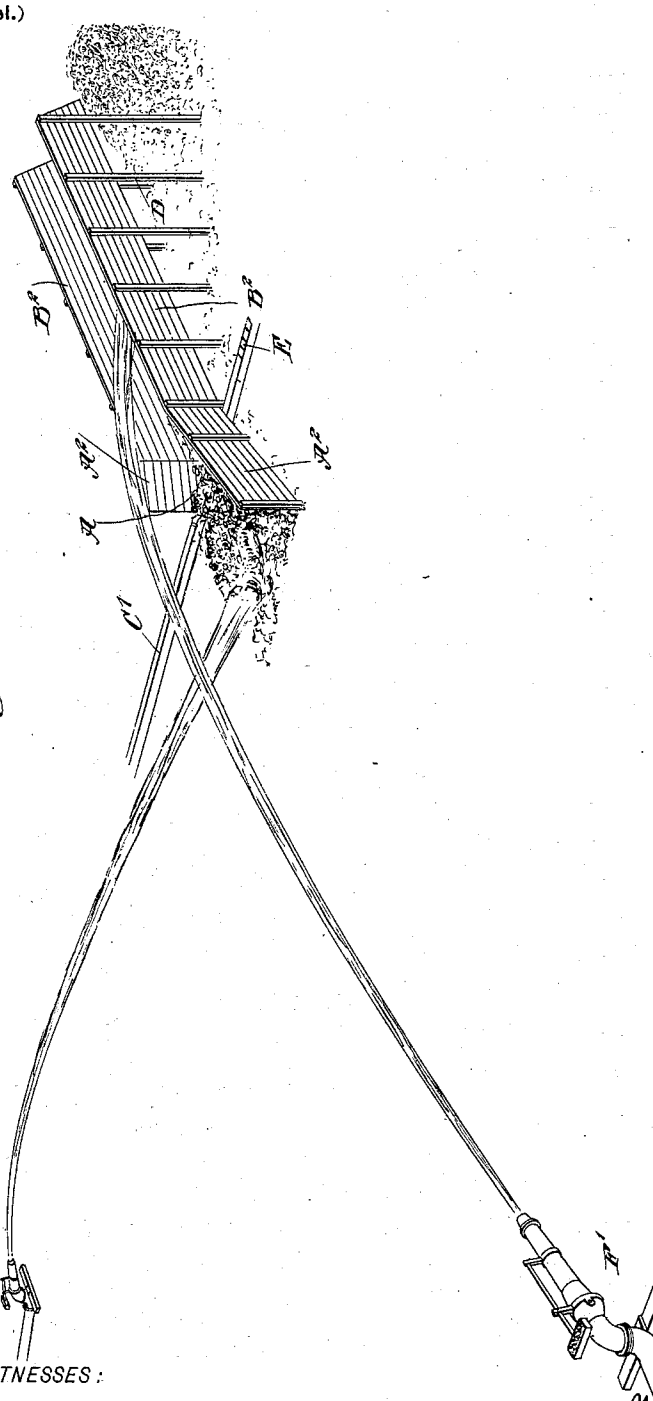


Fig. 3.

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# UNITED STATES PATENT OFFICE.

SCHUYLER C. RUBLE AND WILLIAM N. RUBLE, OF GOLDEN, OREGON.

## ELEVATOR AND SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 651,725, dated June 12, 1900.

Application filed July 21, 1899. Serial No. 724,686. (No model.)

*To all whom it may concern:*

Be it known that we, SCHUYLER C. RUBLE and WILLIAM N. RUBLE, of Golden, in the county of Josephine and State of Oregon, have invented a new and Improved Elevator and Separator, of which the following is a full, clear, and exact description.

The invention relates to placer-mining; and its object is to provide a new and improved elevator and separator arranged to readily separate the fine gold-bearing material from the coarse material—such as gravel, boulders, stumps, and the like—and to elevate and stack such coarse material in a separate pile to avoid filling up streams with debris and at the same time permit a ready treatment of the separated fine material for the separation of the gold from the fine tailings.

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

A practical embodiment of our 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 plan view of the improved apparatus. Fig. 2 is a sectional side elevation of the same, and Fig. 3 is a perspective view showing the improved apparatus in connection with the water-nozzles which form a part of the complete plant.

In carrying out our invention we treat the placer material so as to readily separate the fine gold-bearing material from the gravel, boulders, and other coarse material by subjecting the placer material first to the action of a stream of water under pressure to set the material in motion and then subjecting the moving placer material to the action of a second stream of water under pressure at an angle to the first stream to drive the material up an incline and allow the fine material to separate from the coarse material and to pass by its own gravity and the assistance of the water through openings in the incline, while the coarser material travels farther up the incline to be finally discharged therefrom and piled up. After the separation of the fine material from the coarse material the former is gathered in a flume having riffles to finally separate the gold from the fine tailings. In order to carry this treatment into effect, we provide an apparatus such as shown in the drawings, the apparatus being provided with a gathering or entrance spout A, having an upwardly-inclined solid bottom A′ and diverging sides $A^2$, as is plainly shown in Figs. 1 and 2. The spout A connects at its upper end with a screening device B, having a slatted bottom B′, forming a continuation of the bottom A′ of the spout A. The sides $B^2$ of the screening device are parallel and connect with the inner ends of the sides $A^2$ of the spout, and underneath the bottom B′ is arranged a downflow or passage-way C, supported on a suitable framework D, with its bottom approximately parallel to the bottom B′, the lower end of the passage-way leading to a transverse flume C′, located partly under the bottom A′, and having suitable riffles E for catching the precious metal, said flume being inclined sufficiently to allow the fine tailings to flow down the flume to a suitable place of discharge.

The bottom B′ has its slats $B^3$ preferably made of metal plates slightly inclined upward and extending at an angle to the plane of the bottom and having supporting-bars $B^4$ for each plate and secured to the sides $B^2$ and being of less width than the plates $B^3$, so as to form clear passage-ways between adjacent slats for the convenient passage of the fine material from the top of the bottom B′ into the passage-way C. As the lower edges of each plate $B^3$ stand somewhat lower than the upper edge of the next lower plate $B^3$, it is evident that the fine material is not liable to move down the bottom B′, but passes between adjacent slats into the passage-way C. The upward tip of the steel plates or slats $B^3$ keeps the rock from sliding down and prevents any sharp corners on the rock from catching on the lower edges of the plates. The plates also cause the stream of water to have a better force on the coarse material. As shown in Fig. 2, the upper end of the passage-way C is closed, and said passage-way extends throughout the length of the bottom B′.

In using the apparatus one hydraulic giant F is placed at one side of the apparatus, as shown in Fig. 3, to send a stream of water under pressure upon the placer material to

be treated to loosen said material and to force it toward the front of the spout A in the direction of the arrow $a'$, as indicated in Fig. 1. A second hydraulic giant F′ is placed in front of the apparatus approximately in alinement with the spout and the screening device and at an angle to the first hydraulic giant, so that the placer material coming in contact with the front of the spout A is subjected to this stream of water under pressure from the second hydraulic giant and is thus driven into the spout A and up the inclined bottom B′ of the screening device. By the placer material passing up the screening device the fine material readily separates from the gravel, boulders, or other coarse stuff, and this fine material passes between the slats down into the passage-way C and flows down the same, assisted by the water, which also passes between the slats into the passage-way, so that finally the fine material and the water flow into the flume E and down the same, the gold collecting behind the riffles in said flume. The coarse material travels up over the slats $B^3$ to be finally discharged at the upper end of the screening device to form a pile. By this arrangement there is no need of filling up the stream with debris, as nearly all the placer-material work can usually be placed in the immediate neighborhood of the ground worked. It is also especially adapted for working flat places where there is inadequate dump. When water is abundant, then the two hydraulic giants are used at the same time to facilitate the work; but if water is scarce then the first hydraulic giant is used for driving the rock in front of the apparatus, and then the water is shut off from this giant and turned on in the second giant to drive the rock through the apparatus to effect the desired separation, as described.

In locating the apparatus the spout A is preferably placed on bed-rock to permit of easily washing the placer material from the stream from the first hydraulic giant to the spout and by the stream from the second hydraulic giant up and over the screening device.

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent—

A separator provided with an inclined gathering-spout flaring toward its lower end, an inclined screening device extending upwardly from the upper narrow end of the spout and located in substantially the same plane therewith, said screening device consisting of a series of individually-supported transverse slats each of which has its lower edge at a lower level than the upper edge of the next slat below, a downward longitudinal flume or channel extending below said screening device, and a discharge-flume extending crosswise at the lower end of said channel, directly under the bottom of the gathering-spout and means for forcing the material upwardly through the separator.

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