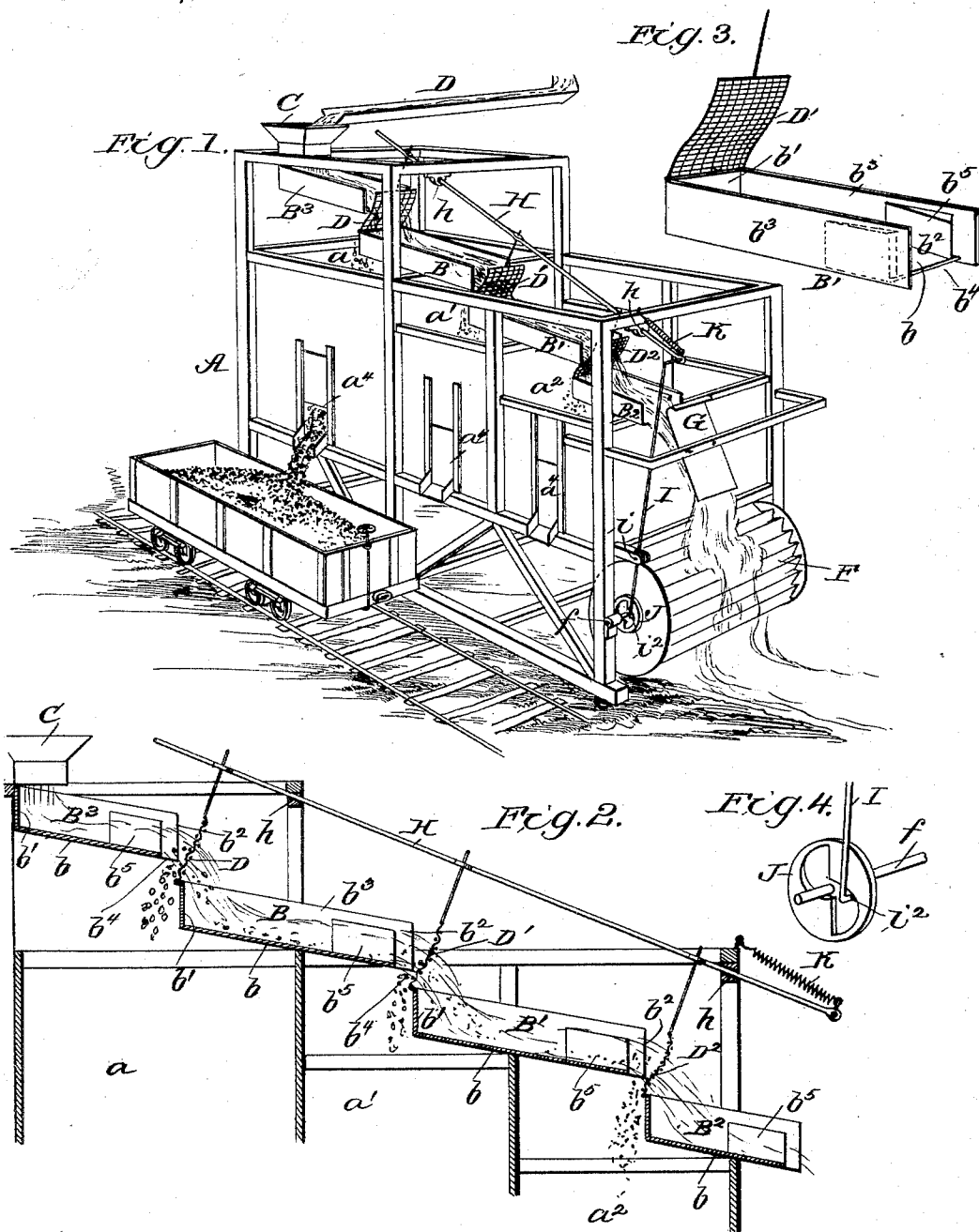


(No Model.)

F. T. GILBERT.
GRAVEL SCREENING MACHINE.

No. 468,197.

Patented Feb. 2, 1892.



WITNESSES:

Witnesses:
Fred J. Dreterich
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UNITED STATES PATENT OFFICE.

FRANKLIN T. GILBERT, OF WALLA WALLA, ASSIGNOR TO SUSIE M. RUSSELL,
OF SEATTLE, WASHINGTON.

GRAVEL-SCREENING MACHINE.

SPECIFICATION forming part of Letters Patent No. 468,197, dated February 2, 1892.

Application filed September 25, 1891. Serial No. 406,875. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN T. GILBERT, residing at Walla Walla, in the county of Walla Walla and State of Washington, have invented certain new and useful Improvements in Gravel-Screening Machines, of which the following is a specification.

My invention has for its object to provide a gravel-washer in which a continuous treatment of the gravel is obtained, whereby a number of separations of the coarser from the finer grades of gravel will take place; and it consists in the peculiar combination and novel arrangement of parts, all of which will hereinafter be fully described in the annexed specification, and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved gravel screener or separator. Fig. 2 is a longitudinal section of the same. Fig. 3 is a detail perspective view of one of the screens and its attached trough or chute, and Fig. 4 is a detail perspective view of the cam-disk hereinafter referred to.

In the practical construction of my gravel-screening apparatus I provide a support or frame A, which is divided into a series of bins a a' a'' , which are arranged to receive the different grades of gravel in the manner presently described, each of such bins being provided with a discharge-opening and cut-off slide a^4 , whereby the contents of each bin may be readily discharged into a car, as shown in Fig. 1 of the drawings. It will also be noticed by reference to the drawings that the tops of the several bins are stepped, and such bins are of different sizes, the rear one a being arranged to receive the coarser gravel, the center one a' the intermediate size of gravel, and the front one a'' the finer particles of gravel, the purpose of stepping the upper portions of the bins being to accommodate the several screening devices, the construction and arrangement of which forms the essential part of this invention.

B B' B² indicate the screening-troughs, one of which is shown in detail in Fig. 3, each of which consists of a rectangular frame, having a closed bottom b , a closed forward end b' , and an open rear end b^2 , the bottom b end-

ing at a point in advance of the rear end of the side walls b^3 , whereby a discharge-opening b^4 is provided for a purpose presently explained, wedge-like converging blocks b^5 being secured upon the inner faces of the ends of the walls b^3 , which serve as directors for the flowing water to concentrate its precipitation into the next underlying trough to thereby prevent any of the water flowing outside.

By reference to Fig. 2 it will be seen that the mixed water and gravel after it enters the hopper C from the flume D enters a trough B³, constructed similar to the troughs B B' B², which lead the water and gravel to discharge against a separator-screen D, hinged at its lower end to the closed end of the trough B, the upper end of such screen projecting above the discharge end of the trough B³. By providing the opening b^4 in the bottom of the troughs an opportunity is given for such gravel or sand as will not pass through the screen to drop into the bin a below it.

It should be stated that the screen D is of a coarse mesh and allows of the passage through it of the intermediate sizes of gravel, which, with the water, are then carried into the next trough B', from whence they are discharged against a screen D', which separates the intermediate-sized particles from the finer gravel and discharges it into the bin a' . The finer particles and water then enter the trough B², from which they are discharged against a third but very fine screen D², which separates the finer gravel and sand particles from the water, which particles fall into the bin a'' . The water then passes into a trough or chute E, which discharges it onto a water-wheel F, a deflector-plate G being provided to cause the water to fall onto the wheel F in an effective manner.

By arranging the screening devices as described the separated gravel will drop into the bins through the openings b^4 , and to prevent clogging at these points I hinge the screens, as shown, and connect the upper ends thereof with a shaker-bar H, held to be longitudinally reciprocated in guides h h on the frame. The lower end of the bar H is connected with the long arm of a rocking lever I, pivoted to the main frame at i , the short arm

of which lever has a member i^2 , which engages a cam-disk J on the shaft f of the wheel F. By this construction it will be observed that as the wheel F is operated by the waste water reciprocating motion is imparted to the bar H and the screens D D' D² constantly agitated, and to provide for sudden jars to such screens I employ a spiral spring K, which serves to quickly retract the bar H after it has been drawn out and the member i^2 passes the vertical sections of the cam-grooves.

While I prefer to employ the waste water as a motive power for agitating the screws, I do not desire to limit myself thereto, as other means might be readily employed for reciprocating the bar H.

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

20 1. A gravel-screening machine comprising a main frame formed with a series of bins, a series of receiving-troughs mounted over such bins and arranged step by step, each trough having a closed receiving and an open discharge end, the discharge end of one trough being disposed over the receiving end of the next succeeding one, and a series of screens of different mesh interposed between the meeting ends of the several troughs and arranged substantially as shown and described, whereby to successively separate the larger particles of gravel from the water and to deflect them to discharge into their respective receiving-bins, as and for the purpose stated.

35 2. The combination, with the main frame formed with a series of bins a a' a^2 , of the

troughs B³ B B' B², having open discharge ends, the screens D D' D², held to vibrate in front of such discharge ends and to separate the different grades of gravel, the water-wheel, and devices intermediate of said wheel and the screens whereby the screens are vibrated as the wheel operates, substantially as and for the purpose described.

3. The combination, with the bins a a' a^2 , of the troughs having open ends, and a discharge-opening b^4 in the bottom of the screens H, secured to the closed ends of the troughs and projected over the open ends of the adjacent troughs, substantially as and for the purpose described.

4. The combination, with the troughs B B' B², the screens D D' D², hinged at the forward ends thereof, as shown, and the water-wheel F, of the reciprocating rod H, connected with the screens D D' D², the pivoted lever I, and the cam J, operated by the water-wheel, all arranged as and for the purpose described.

5. In a gravel-screening machine, a screening and separating device consisting of two or more troughs having an open end and a screen on one of said troughs extending over the open end of the other trough and arranged to receive the material therefrom, said troughs having converging ends formed with an opening b^4 in their base, all arranged as and for the purpose described.

FRANKLIN T. GILBERT.

Witnesses:

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