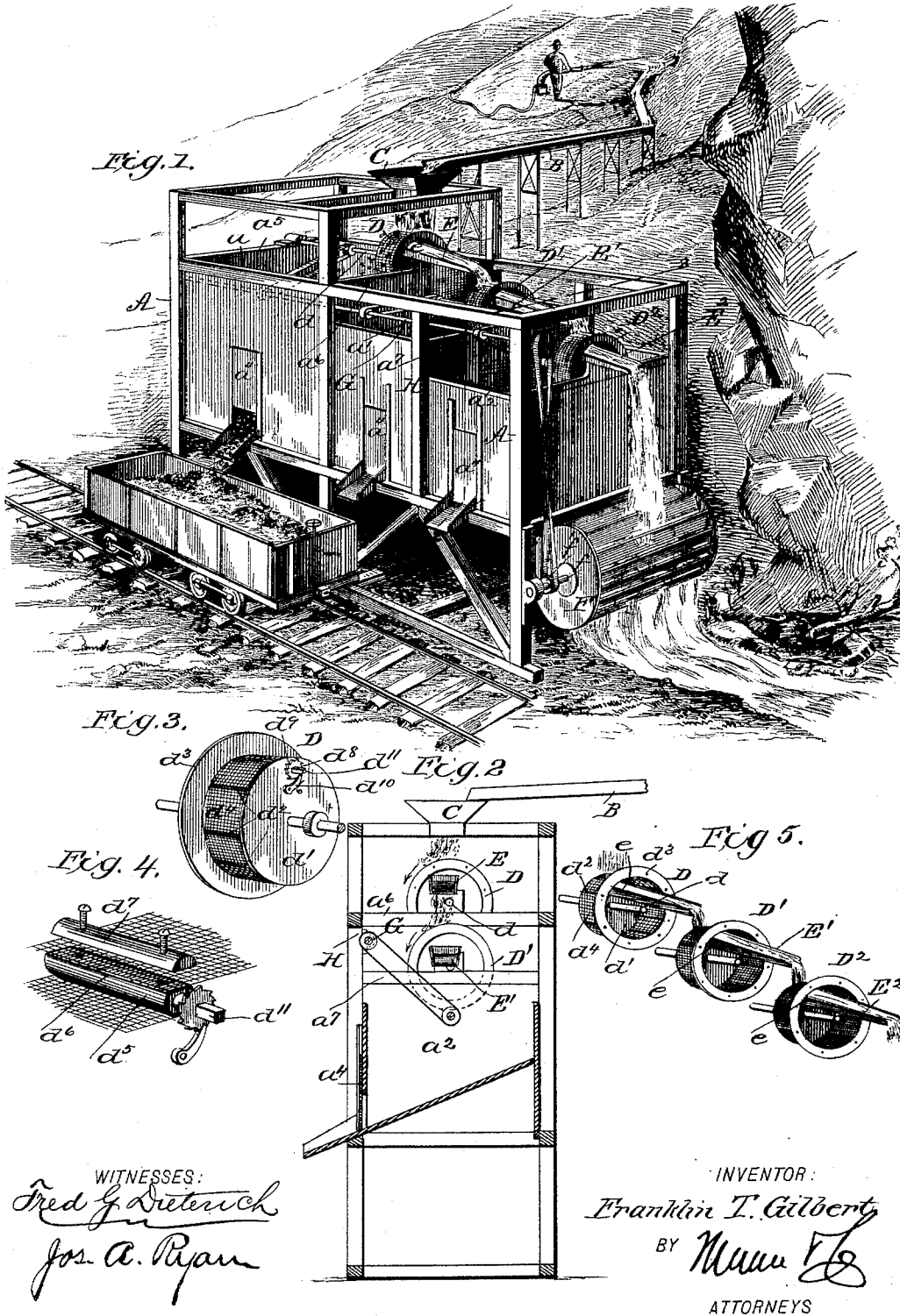


(No Model.)

F. T. GILBERT.
GRAVEL SCREENING MACHINE.

No. 468,134.

Patented Feb. 2, 1892.



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GRAVEL-SCREENING MACHINE.

SPECIFICATION forming part of Letters Patent No. 468,134, dated February 2, 1892.

Application filed August 21, 1891. Serial No. 403,362. (No model.)

To all whom it may concern:

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

My invention relates to gravel-washers; and it has for its object to provide a machine by which a continuous treatment of the gravel can be obtained, whereby a number of separations of the coarser from the finer grades of the gravel will take place.

My invention consists in a series of rotary screens of different mesh, the coarsest of which is arranged to receive the water and gravel direct from the flume or hopper, which serves to throw aside the coarsest gravel, but allows of the passage through it of the water and finer grade of gravel, which is led to the next finer screen, where the same operation is repeated, and so on with the remaining screens.

It also consists in utilizing the waste water as a means for driving the screen-operating shafts and in the peculiar combination and novel arrangement of the several 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 transverse section of the same on the line 2 2, Fig. 1. Fig. 3 is a detail view of one of the revolving screens. Fig. 4 is a detail view illustrating the manner of tightening and fastening the screen-body, and Fig. 5 is a detail perspective view showing the relative arrangement of the several revolving screens.

In the accompanying drawings, A indicates a support or frame, which is divided into a number of bins a a' a^2 , which are arranged to receive the different grades of gravel in the manner presently described, each of such bins being provided with a suitably-arranged discharge-opening and cut-off a^4 , whereby the contents of each bin may be readily discharged into a car, as clearly shown in Fig. 1.

B indicates the flume which leads the mixed water and gravel to a hopper C, mounted above the first or end bin a , and

under the said hopper is located the first or coarse screen or separator D, which is connected to and revolves with a shaft d , journaled in the cross-beams a^5 a^6 , such screen consisting of the end disk d' , the transverse strips d^2 , the annular ring or flange d^3 , and the screen proper d^4 , which is secured to the screen-frame in a manner most clearly shown in Fig. 4 of the drawings, by reference to 60 which it will be seen that one of the transverse strips is formed into a revolving shaft d^5 , having a flattened portion d^6 , on which is arranged to fit a movable clamping-section d^7 , which securely holds the ends of the screen 65 in a manner clearly understood from the drawings, and to provide for tightening the screen one end of the journal of the shaft d^5 is extended through the disk d' , as at d^8 , such end being provided with a ratchet-wheel d^9 , 70 which engages a pawl d^{10} in the disk and has its end squared, as at d^{11} , to receive a key or wrench.

E indicates an inclined chute or trough, which is mounted on the transverse beam a^6 , 75 the upper end e of which chute extends up into the hollow screen D and is arranged to receive the water and finer particles of gravel which pass through the screen D and discharges the same to a screen D', which is 80 constructed in precisely the same manner as the screen D, except that the screen is of a finer mesh, such screen serving to throw aside the finer particles of gravel, but allowing for passage of the finest particles of gravel 85 through it onto a chute or trough E', secured to the cross-beam a^7 , which leads the water and finest gravel onto another screen D², which separates the finest gravel from the water and allows the water to pass through it 90 into a trough E², which discharges the waste water onto a water-wheel F, journaled transversely over the front wall of the frame A, the shaft f of which has a belt-pulley f' , which is belted with a longitudinal shaft G, jour- 95 naled on the frame H, and which in turn is belted with the several screen-shafts in a manner clearly shown in the drawings. By this construction it will be observed I utilize the waste water as a means for revolving the sev- 100 eral screens, and to materially aid the water-wheel in its operation of turning the said

5 screens I locate them under the several troughs and the hopper in such a manner that the current of water containing the gravel will be precipitated upon the several screens to one side of their center. (See Fig. 2.)

10 While I prefer to employ the waste water as a means for turning the screens, I do not desire to limit myself to such means, as any other means might be employed to operate the shaft G, as in some instances it may be desired to feed the gravel dry to the several screens.

15 By reference to Fig. 1 the operation of my gravel-screening machine will be readily understood. The man shown in said figure is represented as washing down a hill of gravel with a hose. At the start a sufficient quantity of water free from gravel passes into the flume through the several screens and their
20 connecting-troughs onto the wheels F and imparts motion thereto. As the gravel is washed out of the hill it passes with the water down the flume to the hopper thence upon the three screens successively, where it is separated
25 into three grades or sizes, suitable for roofing, for paving, and for plastering, the several grades being respectively gathered in the bins a a' a^2 .

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

1. The combination, with the main frame, the screens D D' D^2 , held to revolve on said frame, the water-wheel F, and the drive-shafts
35 intermediate the shaft of the water-wheel and the screen-shafts, of the gravel and water supply flume and the troughs E E' , said flume and troughs arranged to discharge the mixed gravel and water onto the tops of the several
40 screens at one side of their centers, all arranged as and for the purpose described.

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

5 screens D D' D^2 , held to revolve over the said bins, the chutes or troughs E E' , connecting the screens, and the hopper or flume arranged to discharge the gravel onto the screen D , said screens D D' D^2 arranged to successively separate the finer from the coarser particles of gravel, and means for revolving the screens,
50 substantially as and for the purpose described.

3. In a revolving-screen gravel-separating machine, a screen held to revolve on the main frame, formed of an end disk d , an annular flange d^2 , the transverse bars d' , and the
55 screen d^4 , all arranged as shown, and for the purpose described.

4. In a revolving-screen gravel-cleaning machine, the screen D , formed of the disk d , the annular ring or flange member d' , the
60 transverse strips d^2 , the shaft d^5 , the screen-body proper, the ends of which are made fast to the shaft d^5 , the clamp-plate d^6 , said shaft having a key projection, and the pawl and ratchet, all arranged substantially as shown,
65 and for the purpose described.

5. An improved gravel-screening machine comprising a main frame formed into a series of bins, the revoluble screens D D' D^2 , mounted on the frame over the bins, the troughs E E' , connecting the said screens, a water-wheel
70 F, operated by the waste water discharged from the screens, drive-shafting intermediate the water-wheel shaft and the screen-shafts, and a source of water and gravel supply arranged to precipitate the mixed water and
75 gravel onto the screen D , said screens arranged to successively separate the coarser from the finer particles of gravel and throw them into their respective bins and to discharge the water
80 on the water-wheel, all arranged substantially as shown, and for the purpose described.

FRANKLIN T. GILBERT.

Witnesses:

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