

(No Model.)

N. JEWETT.

MACHINE FOR WASHING AND GRADING GRAVEL.

No. 468,247.

Patented Feb. 2, 1892.

Fig. 1.
on line 1-1.

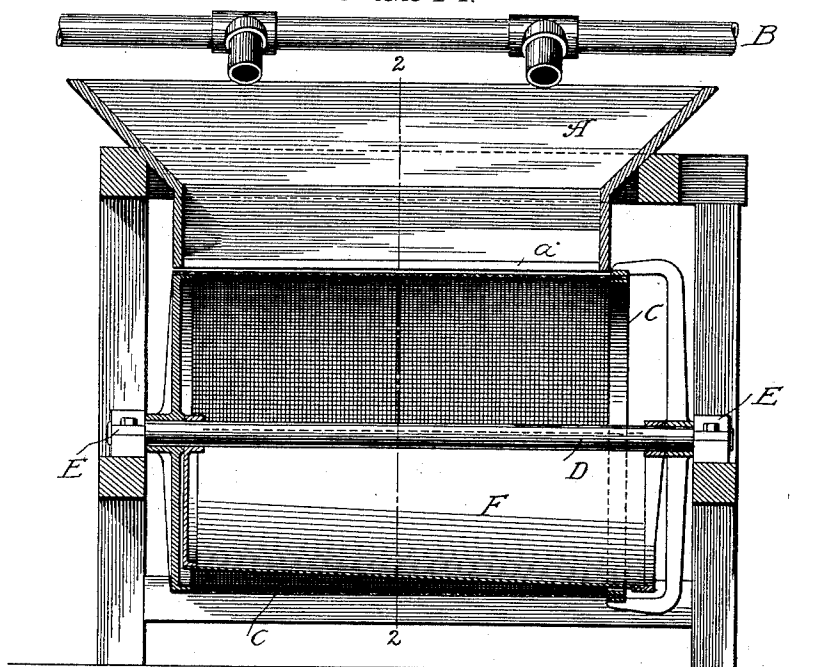
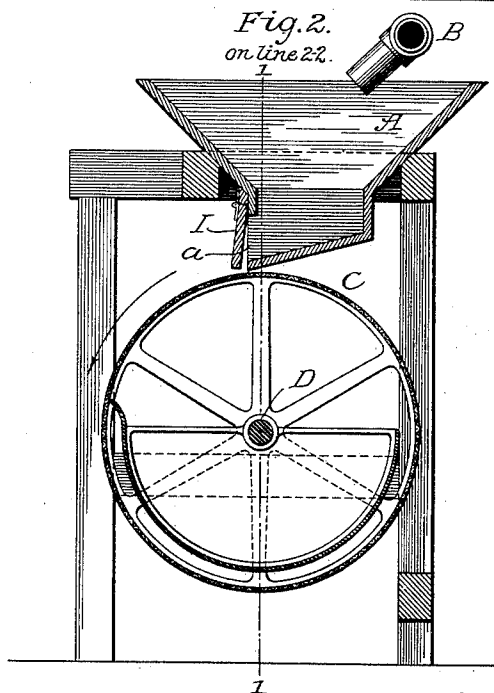


Fig. 2.
on line 2-2.



Witnesses
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UNITED STATES PATENT OFFICE.

NATHAN JEWETT, OF CHICAGO, ILLINOIS.

MACHINE FOR WASHING AND GRADING GRAVEL.

SPECIFICATION forming part of Letters Patent No. 468,247, dated February 2, 1892.

Application filed September 4, 1891. Serial No. 404,738. (No model.)

To all whom it may concern:

Be it known that I, NATHAN JEWETT, of Chicago, county of Cook, and State of Illinois, have invented a new and useful Improvement in Machines for Washing and Grading Gravel, &c., of which the following is a specification.

My invention relates to an automatic machine for washing and grading gravel, sand, ores, &c., wherein provision is made for the continuous separation of the materials and for the clearing of the screen solely by the force of the washing-water employed.

My machine embraces as its essential features a hollow screen of cylindrical or analogous form mounted to turn on a horizontal or approximately horizontal axis; a chute arranged to deliver the gravel upon the top of the screen, that the coarse material may pass thereover and the fine material pass through into the interior; means for delivering a current of water into the chute and thence to the screen for the purpose of advancing, washing, and assisting in the separation of the material and for the further purpose of impinging upon the screen to effect its rotation in order to insure the delivery of coarse material lodging thereon, and finally a chute or conductor arranged within the rotary screen to receive the fine material falling through the top and deliver it from the machine.

It will be evident that the details may be modified in form and in arrangement without essentially changing the mode of action or passing beyond the scope of my invention.

I have represented in the drawings a form of machine which I find well adapted for general use.

In the accompanying drawings, Figure 1 represents a longitudinal vertical section of a machine on the line 1 1 of Fig. 2. Fig. 2 is a vertical section on the line 2 2, Fig. 1.

Referring to the drawings, A represents a hopper or receptacle, which may be of any suitable form adapted to receive the gravel or other material to be treated. In the form shown it is provided with an outlet-opening *a* in its side, through which the material flows to the screen below.

B represents a pipe or other conductor connected with a pump, reservoir, or other source of supply and adapted to deliver a large volume of water into the hopper for the purpose

of washing and loosening the material and causing the same to flow through the outlet *a*. I prefer to project the water in the form of one or more streams or jets forcibly into and against the mass of material in order to maintain a thorough agitation of the same; but this is not in all cases necessary.

C is a hollow screen of circular cross-section. It is represented in the drawings of cylindrical form, and this form is preferred; but it is to be understood that it may be of conical form or any other appropriate form, provided only it is of circular or substantially circular cross-section, so that it will present a continuous screening-surface on the upper side as it is revolved.

D is a horizontal or substantially horizontal shaft mounted in standards or supports E of any suitable character and supporting the screen with its upper surface immediately under the outlet of the hopper so that the gravel and water pouring from the hopper are received on the upper surface of the screen and projected outward and downward thereon, thereby causing the screen to revolve in the direction indicated by the arrow. That portion of the material which is too coarse to pass through the meshes of the screen will lodge thereon and slide downward thereover or be carried down thereon, while the finer material and the greater portion of the water will flow through the top of the screen into its interior.

F is a spout or chute, preferably of semi-circular cross-section, arranged within the screen to receive the water and fine material from above and deliver them through the end of the screen. I preferably mount this delivery spout or chute in an inclined position to facilitate the delivery therefrom; but when a very large volume of water is employed the chute may be arranged in a substantially horizontal position, though this is not recommended. It is of course to be understood that the screen and the internal chute may be supported in any suitable manner, the only requirements being that the chute shall be sustained in operative position and that the screen shall rotate freely.

In order to secure a spreading of the water and gravel with uniformity over the surface of the screen, I commonly apply to the front

of the hopper a hinged gravitating board or deflector I, against which the outgoing current impinges.

I do not claim herein, broadly, the combination of a chute arranged to deliver gravel and water into a second chute through an intermediate stationary screen inclined so as to arrest and discharge the coarse material, as this combination, broadly considered, is the subject-matter of a prior application, Serial No. 381,153. Neither do I claim herein the combination of a chute, a stationary screen, and an intermediate gravitating deflector, as this combination is also covered in my prior application before referred to.

I am of course aware that power-driven cylindrical screens have been combined with spouts for delivering meal and similar drying materials thereon, the apparatus being used without the application of water and the arrangement being such that the employment of a motor to drive the screens was necessary. My invention is designed to dispense with the employment of the motor or other driving mechanism and to effect the rotation of the screen by the delivery of the water and materials to be treated upon its downgoing side.

Having thus described my invention, what I claim is—

1. In an automatic machine for washing and grading gravel, &c., the combination of a hopper, means for delivering water thereto, and a hollow rotary screen upon the downgoing side of which the hopper discharges.

2. In combination with a hopper, means for delivering water thereto, a hollow rotary screen upon one side of which the hopper discharges, and a chute within the screen to receive and discharge the fine material falling through the top.

3. In combination with the horizontal rotary cylindrical screen, the hopper discharging thereon, the intermediate deflector, and means for supplying water upon the screen.

4. In combination with a hollow rotative screen, means for projecting a current of gravel and water upon the upper surface to effect the rotation.

In testimony whereof I hereunto set my hand, this 18th day of July, 1891, in the presence of two attesting witnesses.

NATHAN JEWETT.

Witnesses:

W. R. KENNEDY,
PHILIP T. DODGE.