May 31, 1938. A. G. BLANCHARD 2,119,414

GRAVEL WASHER

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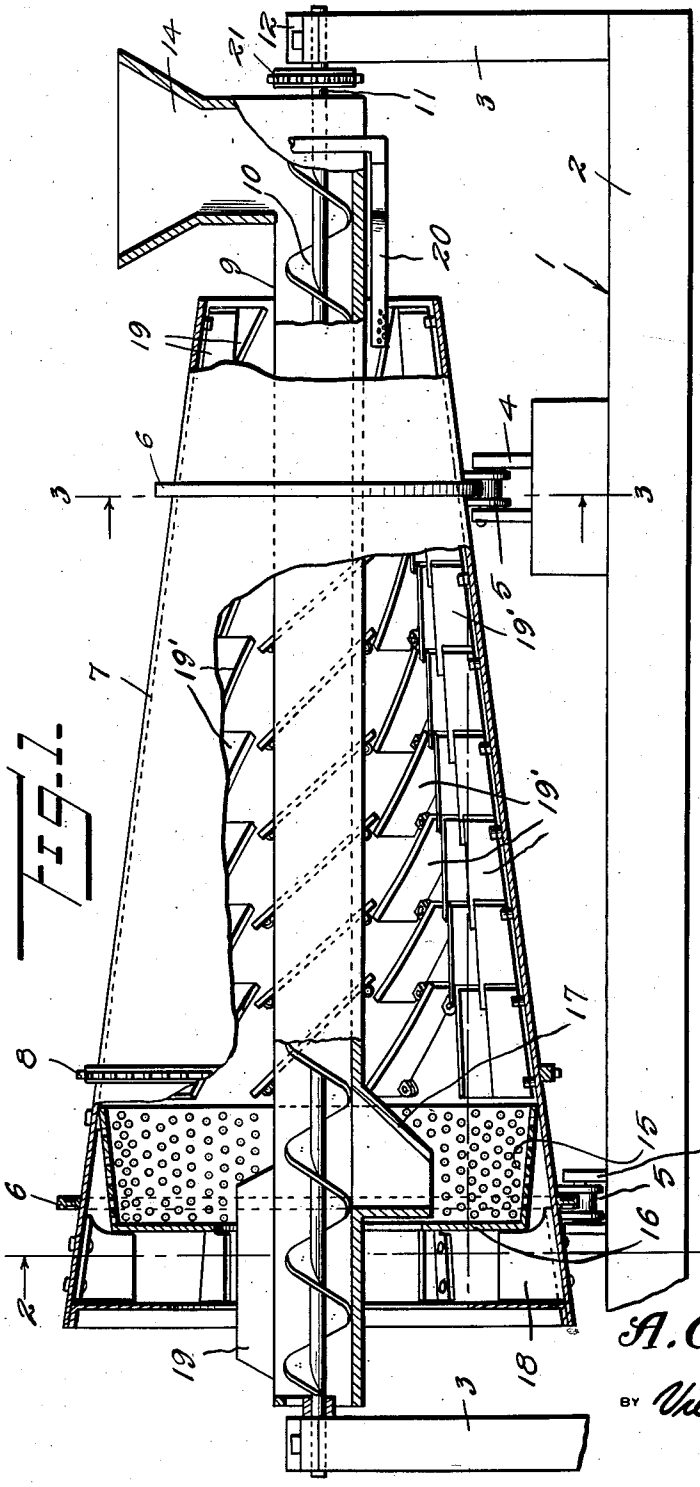

FIG. 1.

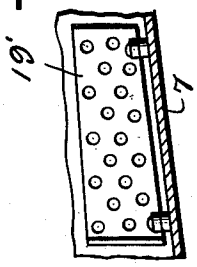

FIG. 5.

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Fig. 2.

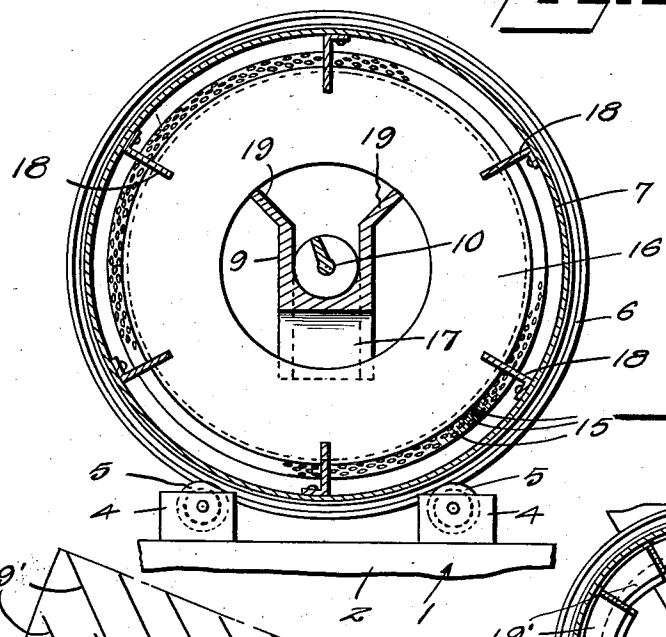


Fig. 3.

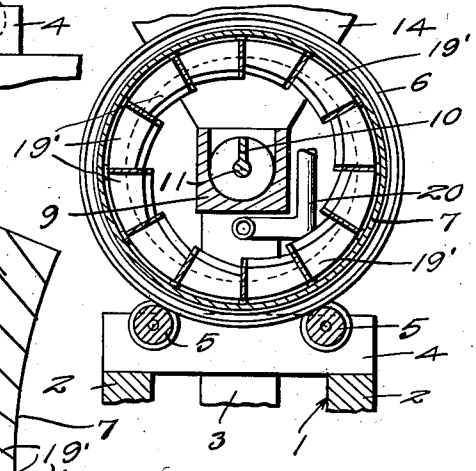
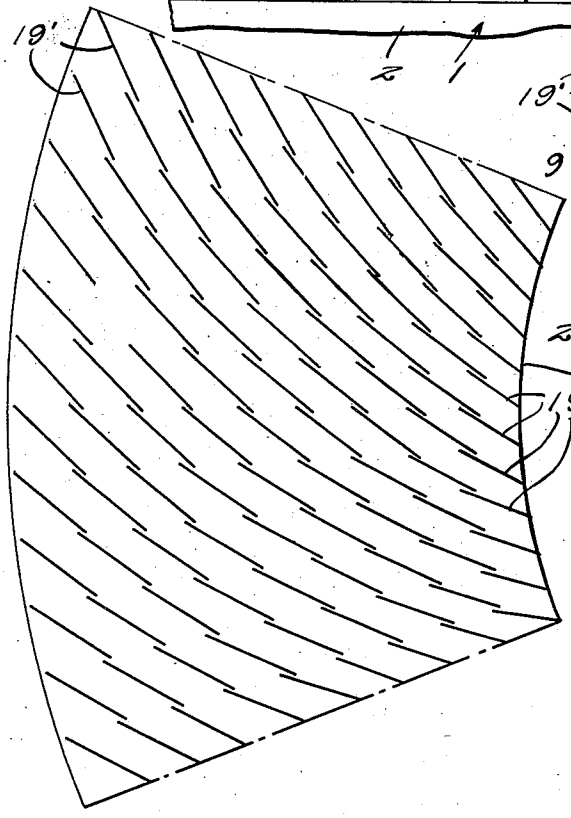


Fig. 4.



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UNITED STATES PATENT OFFICE

2,119,414

GRAVEL WASHER

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Application March 31, 1937, Serial No. 134,174

1 Claim. (Cl. 209—452)

This invention relates to gravel and sand washing and separating devices and has for the primary object the provision of a device of this character which will be inexpensive to construct and maintain in operation and which will be efficient, durable and only require a minimum amount of power for its operation and a minimum consumption of water for the thorough washing of the sand and gravel.

With these and other objects in view, this invention consists in certain novel features of construction, combination and arrangement of parts to be hereinafter more fully described and claimed.

For a complete understanding of my invention, reference is to be had to the following description and accompanying drawings, in which

Figure 1 is a side elevation partly in section illustrating sand and gravel washing and separating device constructed in accordance with my invention.

Figure 2 is a transverse sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a transverse sectional view taken on the line 3—3 of Figure 1.

Figure 4 is a fragmentary diagrammatical view showing the pitch and relative arrangement of the feed plates in the drum of the device.

Figure 5 is a detail sectional view illustrating a portion of the screen and drum and showing the connection between these parts.

Referring in detail to the drawings, the numeral 1 indicates a supporting structure including a base 2, uprights 3 and journals 4 for rotatably supporting rollers 5. The rollers 5 are engaged by annular tracks 6 carried by a substantially conical-shaped drum 7. The drum 7 is supported horizontally by the rollers 5 and has secured thereto a sprocket gear 8 providing means for connecting a power source to the drum for imparting rotation thereto.

A conveyor trough 9 extends through the drum and is arranged axially thereof in which operates a worm conveyor 10, the shaft 11 of which is journaled in bearings 12 carried by the uprights 3. The trough 9 has at one end thereof a hopper 14 for directing into the trough and into engagement with the conveyor sand and gravel. A substantially conical-shaped screen 15 is mounted in the drum 7 adjacent the large end thereof and one end is fully open while the opposite end is partially closed by a worm 16. A discharge chute 17 is formed on the trough for delivering into the screen 15 sand and gravel fed from the hopper 14 by the worm conveyor. The worm conveyor extends beyond the chute 17 for conveying out of one end of the trough sand which has been separated from the gravel, also has been washed and which will be hereinafter more fully described. The sand and gravel deposited in the screen is thoroughly agitated due to the rotation of the drum 7 and the screen and the sand passes through the screen and gravitates towards the large end of the drum. This end of the drum has secured thereto a plurality of spaced plates 18 which pick the sand up and elevates the sand to a point above the trough. As the sand reaches a point above the trough it gravitates into said trough and is carried by the worm conveyor through the trough and discharged at one end of the latter. A portion of the conveyor trough is flared to form a hopper 19 for the purpose of directing into the trough sand gravitating from the plates 18. The largest end of the screen 15 is disposed towards the smallest end of the drum. Consequently, the gravel separated from the sand will gravitate into the drum and is taken up and conveyed towards the small end of the drum and discharged therefrom by a spiral feed consisting of spirally arranged rows of plates 19'. The plates of each row are separate from each other and each positioned slightly laterally of the other providing a limited space between each plate. Also the plates are slightly spaced from the walls of the drum 7 so as to permit a flow of water through the drum from the small end towards the large end. This flow of water cleans the gravel as well as the sand and is introduced into the small end of the drum 7 by a perforated pipe 20 connected to a water supply (not shown). A sprocket gear 21 is secured to the shaft 11 of the conveyor for the purpose of connecting the shaft to a power source (not shown).

A device of the character described and shown in the drawings will efficiently separate sand and gravel and thoroughly wash both and discharge the sand at one end of said device while the gravel is discharged at the opposite end. Due to the construction, the device can be operated with a minimum amount of horse power and will be durable and economical in operation.

The large end of the drum is partially closed by a partition the latter having an opening through which the conveyor trough extends and also through which the water in the drum may flow out of the latter.

What is claimed is:

A sand and gravel separating and washing device comprising a horizontally arranged drum of

substantially conical shape, a conveyor mechanism extending through the drum and having a discharge opening at one end and a trough located within the drum adjacent the large end thereof, a substantially conical-shaped screen secured in the drum and having one end partially closed to receive sand and gravel from the conveyor mechanism by way of the discharge trough for separating the sand from the gravel, a plurality of plates secured on said drum for elevating the separated sand and depositing said sand into the conveyor mechanism for discharge at the open end thereof, and spirally arranged rows of plates secured on the drum between the screen and the small end of said drum for conveying gravel from the screen through the drum and discharging it at the small end of the drum, and means for introducing water into the small end of the drum.

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