March 9, 1926. 1,575,719

C. SANDBERG

GRAVEL SCREENING APPARATUS

Filed Oct. 6, 1924 2 Sheets-Sheet 1

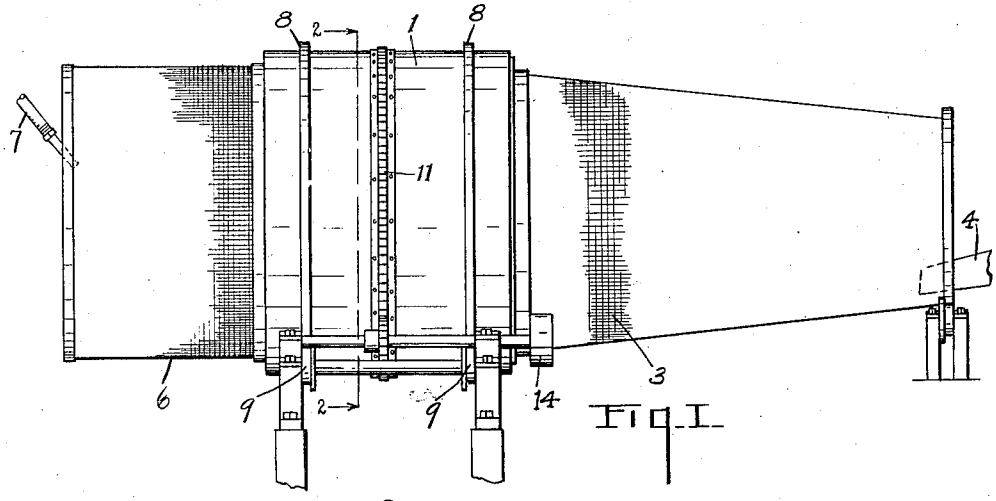


Fig. I.

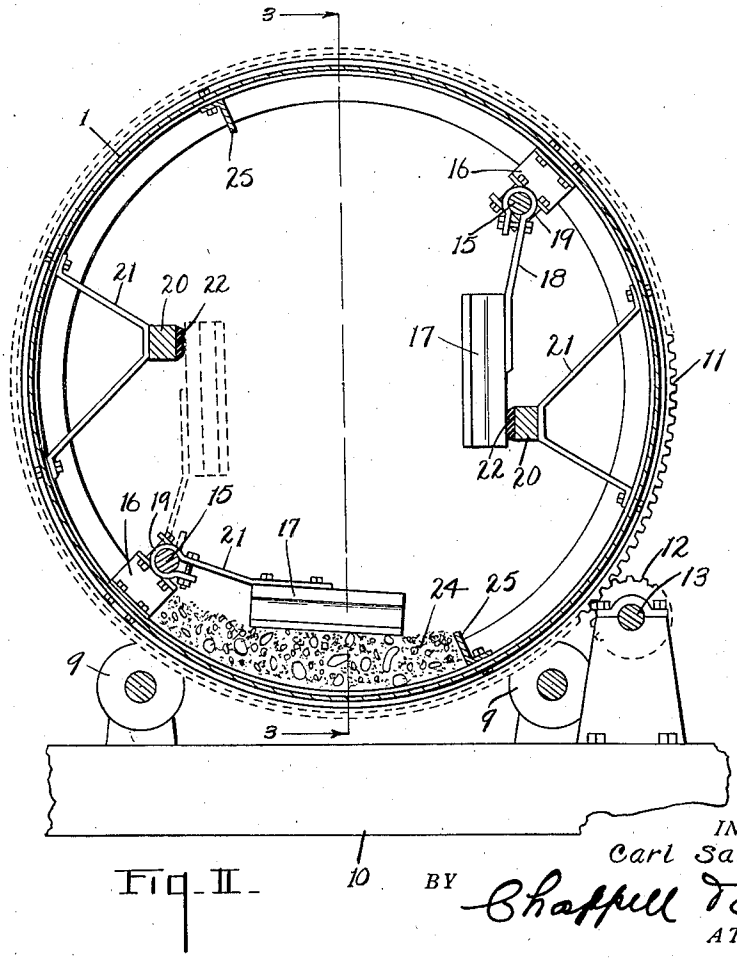


Fig. II.

INVENTOR
Carl Sandberg
BY Chappell Teal
ATTORNEYS

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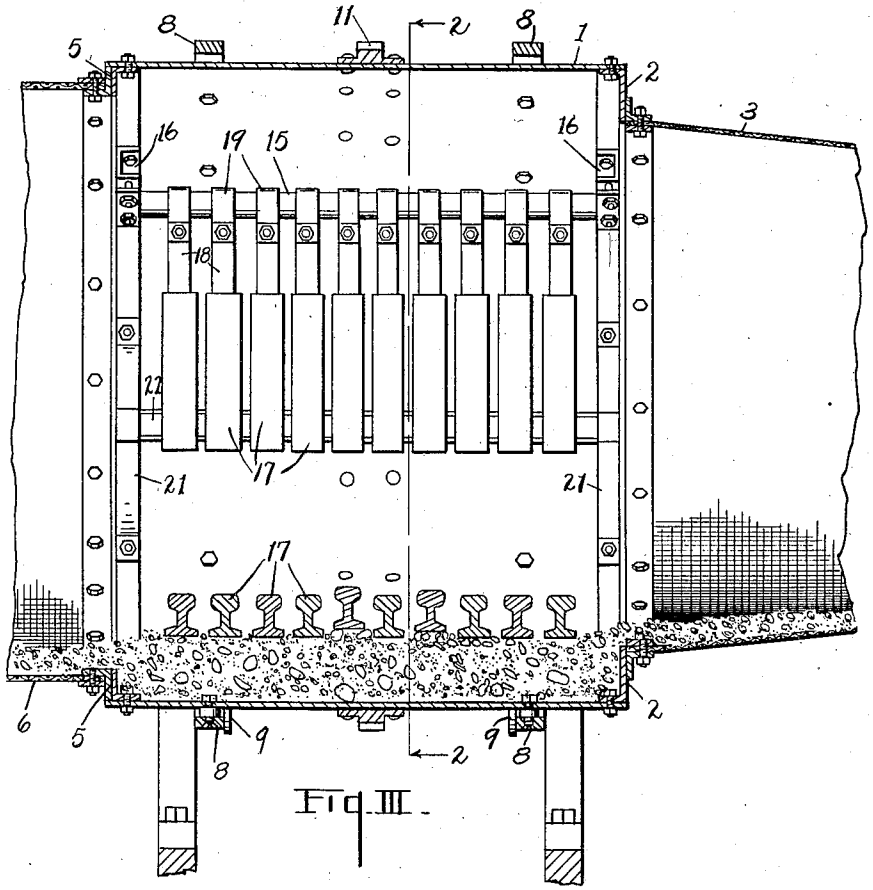


Fig. III.

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Patented Mar. 9, 1926. 1,575,719

UNITED STATES PATENT OFFICE.

CARL SANDBERG, OF BATTLE CREEK, MICHIGAN.

GRAVEL-SCREENING APPARATUS.

Application filed October 6, 1924. Serial No. 741,954.

To all whom it may concern:

Be it known that I, CARL SANDBERG, a citizen of the United States, residing at Battle Creek, county of Calhoun, State of Michigan, have invented certain new and useful Improvements in Gravel-Screening Apparatus, of which the following is a specification.

This invention relates to improvements in gravel screening apparatus.

The main objects of this invention are:

First, to provide an improved gravel screening apparatus which is very efficient in the cleaning of the gravel and is of large capacity.

Second, to provide an improved gravel screening apparatus which results in the saving of labor in that clods of material and softer stones are broken up, thereby not only bringing the same into condition for use but avoiding hand labor in removing.

Objects pertaining to details and economies of construction and operation of my improvements will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification. The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawing forming a part of this application, in which:

Fig. I is a side view of my improved screening device, a portion of the supporting frame and of the feed spout being broken away.

Fig. II is a detail transverse section on a line corresponding to line 2—2 of Figs. I and III.

Fig. III is a detail longitudinal section on a line corresponding to line 3—3 of Fig. II.

In the drawing the sectional views are taken looking in the direction of the little arrows at the ends of the section lines and similar numerals of reference indicate similar parts in all of the views.

Referring to the drawing, I provide a drum 1 which is open at both ends and has an inwardly projecting flange 2 at its forward end to which the tapered feed screen 3 is connected. The material to be screened is delivered to this feed screen by means of the feed chute indicated at 4. At its other end the drum is provided with an inwardly projecting flange 5 to which the cylindrical discharge screen 6 is secured. The flange 5 is narrower than the flange 2 so that as the drum revolves the material is discharged therefrom into the discharge screen.

In the structure illustrated a water nozzle 7 is provided to discharge into the screen so that the material is washed as it is discharged.

The drum 1 is provided with annular ways or tracks 8 traveling on the supporting rollers 9 mounted on the frame 10 of the machine. An annular gear 11 is mounted centrally on the drum, being driven from the pinion 12 on the shaft 13, the shaft having a pulley 14 by means of which it is connected to a suitable source of power.

Within the drum are shafts 15, these shafts being mounted on the brackets 16 disposed at the ends of the drum. On each shaft is a plurality or set of hammers 17, the hammers having pivot arms 18 on the bearings 19 at the ends thereof embracing the shafts. The hammers in the embodiment illustrated are formed of pieces of railroad rail. Each set of hammers is provided with a supporting bar 20 disposed in front of the shafts 15, that is, relative to the direction of rotation, so that the hammers are supported by the bars as they are carried through the lower arc of their travel, the bars being carried by the A-shaped brackets 21 disposed at the ends of the drum. The bars are provided with rubber facings 22 in the embodiment illustrated.

These supporting bars are so disposed that they support the hammers until they are carried to a substantially vertical position; as they are carried past their centers of gravity they fall by gravity to a substantially horizontal position, striking the material indicated at 24 within the drum.

To gather and support the material I provide supporting plates 25 disposed longitudinally within the drum in a relatively rearward relation to the shafts, and they serve to carry the material to and support it in position to receive the impact of the hammers.

With the parts thus arranged, the material is fed into the feed or sand screen which removes the loose fine material. While passing through the drum it is subjected to the blows of the hammers which serve to break up any clods or aggregates of material and also the softer stones; thus not only rendering the same available for use but avoiding

the necessity of their being removed by hand or passing over another screen.

The discharge screen 6 is designed to permit the escape of fine material and also if desired the gravel may be washed while passing through this screen and is discharged in condition for use.

My improved screening apparatus is of very large capacity and is very efficient in cleaning the material. As stated, it saves labor and material in that certain portions of it are rendered available for use which could not otherwise be used without special treatment.

I have illustrated and described my improvements in an embodiment which I have found very satisfactory. I have not attempted to illustrate or describe certain embodiments or adaptations which I contemplate as I believe the disclosure made will enable the embodiment or adaptation of my improvements as may be desired.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a screening apparatus, the combination of a drum open at its ends, means for rotatably supporting and driving said drum, hammer shafts mounted longitudinally within said drum in opposed relation, a plurality of hammers pivotally mounted on each of said shafts to be actuated by gravity as the drum revolves, hammer supporting bars disposed in relatively forward relation to said shafts to support the sets of hammers as they are carried through the lower arc of their travel and so that they fall by gravity from substantially vertical to substantially horizontal positions, and supporting plates disposed longitudinally within the drum in relatively rearward relation to said shafts to gather and support the material while it is subjected to the impact of said hammers.

2. In a screening apparatus, the combination of a drum open at its ends, means for rotatably supporting and driving said drum, hammer shafts mounted longitudinally within said drum in opposed relation, a plurality of hammers pivotally mounted on each of said shafts to be actuated by gravity as the drum revolves, and hammer supporting bars disposed in relatively forward relation to said shafts to support the sets of hammers as they are carried through the lower arc of their travel and so that they fall by gravity from substantially vertical to substantially horizontal positions.

3. In a screening apparatus, the combination of a drum open at its ends, means for rotatably supporting and driving said drum, hammer shafts mounted longitudinally within said drum in opposed relation, a plurality of hammers pivotally mounted on each of said shafts to be actuated by gravity as the drum revolves, and supporting plates disposed longitudinally within the drum in relatively rearward relation to said shafts to gather and support the material while it is subjected to the impact of said hammers.

4. In a screening apparatus, the combination of a rotatable drum, a shaft mounted longitudinally within said drum, hammers pivotally mounted on said shaft to be actuated by gravity as the drum revolves, a hammer supporting bar disposed in a relatively forward relation to said shaft to support the hammers as they are carried through the lower arc of their travel and so that they will fall by gravity from a substantially vertical to a substantially horizontal position, and a supporting plate disposed longitudinally within the drum in relatively rearward relation to said shaft to gather and support the material while it is subjected to the impact of said hammers.

5. In a screening apparatus, the combination of a rotatable drum, a shaft mounted longitudinally within said drum, hammers pivotally mounted on said shaft to be actuated by gravity as the drum revolves, and a hammer supporting bar disposed in a relatively forward relation to said shaft to support the hammers as they are carried through the lower arc of their travel and so that they will fall by gravity from a substantially vertical to a substantially horizontal position.

6. In a screening apparatus, the combination of a rotatable drum, a shaft mounted longitudinally within said drum, hammers pivotally mounted on said shaft to be actuated by gravity as the drum revolves, and a supporting plate disposed longitudinally within the drum in relatively rearward relation to said shaft to gather and support the material while it is subjected to the impact of said hammers.

7. In a screening apparatus, the combination of a rotatable drum, feed and discharge screens therefor, hammers pivotally mounted within said drum to be actuated by gravity as the drum revolves, a hammer support disposed to support the hammers as they are carried through the lower arc of their travel and so that they will fall by gravity from a substantially vertical to a substantially horizontal position, and a supporting plate disposed longitudinally within the drum in relatively rearward relation to said hammers to gather and support the material while it is subjected to the impact of said hammers.

8. In a screening apparatus, the combination of a rotatable drum, feed and discharge screens therefor, hammers pivotally mounted within said drum to be actuated by gravity as the drum revolves, and a hammer support disposed to support the hammers as they are carried through the lower arc of their travel and so that they will fall by

gravity from a substantially vertical to a substantially horizontal position.

9. In a screening apparatus, the combination of a rotatable drum, feed and discharge screens therefor, hammers pivotally mounted within said drum to be actuated by gravity as the drum revolves, and a supporting plate disposed longitudinally within the drum in relatively rearward relation to said hammers to gather and support the material while it is subjected to the impact of said hammers.

In witness whereof I have hereunto set my hand and seal.

CARL SANDBERG. [L. S.]