Dec. 8, 1925. 1,564,570

F. HENKEL

RIDDLE

Filed Aug. 4. 1924

Fig. 1.

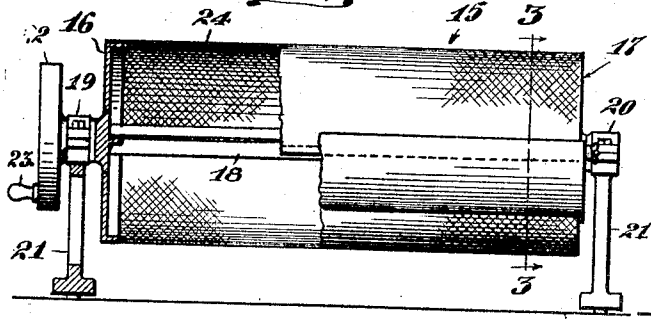


Fig. 2.

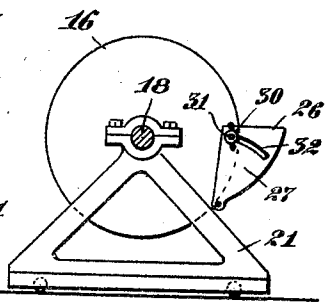


Fig. 3.

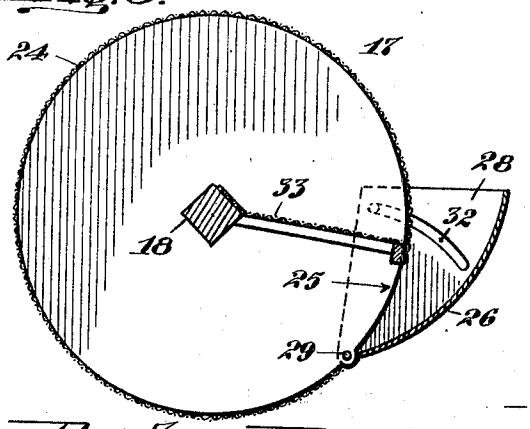


Fig. 4.

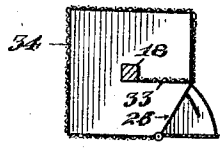


Fig. 5.

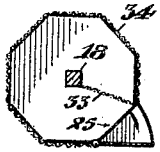


Fig. 6.

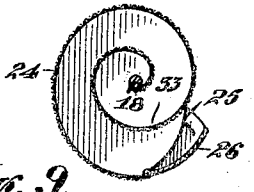


Fig. 7.

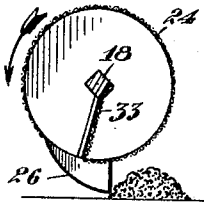


Fig. 8.

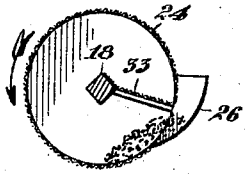


Fig. 9.

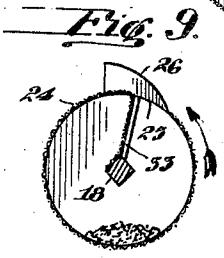


Fig. 10.

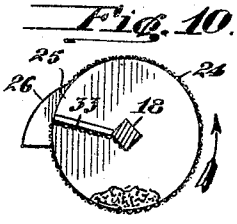


Fig. 11.

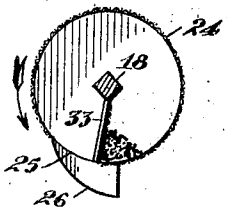
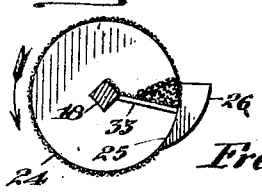


Fig. 12.



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Patented Dec. 8, 1925. 1,564,570

UNITED STATES PATENT OFFICE.

FREDERICK HENKEL, OF LONG BEACH, CALIFORNIA.

RIDDLE.

Application filed August 4, 1924. Serial No. 730,105.

To all whom it may concern:

Be it known that I, FREDERICK HENKEL, a citizen of the United States, residing at Long Beach, in the county of Los Angeles and State of California, have invented new and useful Improvements in Riddles, of which the following is a specification.

This invention particularly pertains to a riddle of the rotary cylindrical type, and especially relates to a device which is applicable for use in screening or sifting various granular or comminuted materials such as sand, gravel, soil and the like to effect separation of fine particles from coarse or gross substances.

An object of the invention is to provide a riddle which is adapted to be employed as an element in various machines designed for sifting purposes in which the use of rotary cylindrical screens is feasible.

Another object is to provide a rotary riddle in which the screening or sifting action is effected by rotation of the riddle in one direction and evacuation of coarse residuum accomplished by rotation of the riddle in a reverse direction.

Another object is to provide a rotary cylindrical riddle which is so constructed that the coarse particles of the materials under treatment may accumulate within the riddle so as to be collected and retained therein during the screening operation, and then be readily ejected in a mass as desired by reversing rotation of the riddle.

With the foregoing objects in view together with such other objects and advantages as may subsequently appear, the invention resides in the parts, and in the combination, construction and arrangement of parts hereinafter described and claimed, and illustrated by way of example in the accompanying drawing, in which:

Figure 1 is a view of the riddle as seen in front elevation with portions broken away;

Figure 2 is an end view;

Figure 3 is a view in section as seen on the line 3—3 of Figure 1.

Figures 4, 5 and 6 are details illustrating various modified cross-sectional forms of the riddle that may be employed.

Figures 7, 8, 9, 10, and 11 and 12, are diagrams illustrating the mode of operation of the riddle.

More specifically 15 indicates the body of the riddle which is of general tubular form and is provided with end plates 16 and 17 carried on a shaft 18 which extends longitudinally of the riddle body and projecting beyond the ends thereof is journaled in bearings 19 and 20 on a suitable structure 21.

The shaft 18 is designed to be revolved to effect rotation of the riddle which may be accomplished in any desired manner; the shaft being here shown as equipped with a wheel 22 having a handle 23 thereon whereby it may be operated either manually or by means of a belt.

The tubular riddle body may be formed of various cross-sections as occasion may require; it being formed of circular cross-section as shown in Figures 1, 2, and 3, or it may be square, octagonal or spiral in cross-section as shown in Figures 4, 5, and 6, respectively. In any event the peripheral wall of the riddle body is formed of screen wire 24 of suitable mesh and has an elongated opening 25 that extends longitudinally between the end plates 16 and 17, from the lower margin of which projects an outwardly extending panel 26 that may serve as a scoop or hopper to direct the delivery of the materials to be treated into the riddle.

The panel 26 is preferably formed of sheet metal and has end walls 27 and 28 that extend alongside the outer faces of the end plates of the riddle and may be pivotally connected at their lower ends to the latter as indicated at 29 whereby the panel 26 may be swung to a position to extend over the opening to close the latter, or be disposed with its outer edge spaced from the peripheral wall of the riddle as shown in Figure 3, in which position the panel will act, on rotation of the riddle and advancing the latter to a mound of materials, to scoop the materials into the riddle.

Means are provided for fastening the panel 26 against movement relative to the riddle body, which means is here shown as comprising wing-nuts 30 screwed on threaded studs 31 carried by the end plates 16 and 17, and which studs extend through arcuate slots 32 formed in the end walls 27 and 28 of the panel 26 concentric with the pivots 29; the wing nuts on being tightened on the studs serving to clamp the end walls 27 and 28 against the end plates 16 and 17 to hold the panel 26 in a fixed position.

Extending inwardly from the upper margin of the opening 25 as viewed in Fig. 3 is a wall 33, that spans the space between the screen wall 24 and the shaft 18 throughout

the length of the riddle body, which wall is preferably formed of screen wire of a mesh corresponding to that of which the screen wall 24 is formed, and which wall serves as a barrier to trap coarse materials in the riddle on rotation of the latter in a forward direction.

In the operation of the invention, the materials to be sifted are delivered to the interior of the riddle either by depositing them in the hopper formed by the panel 26 when the riddle is positioned as shown in Figure 3, or by advancing the riddle into a mound of materials and at the same time rotating the riddle so that the plate 26 will scoop a quantity of materials from the mound as indicated in Figures 7 and 8. On continued rotation of the riddle in a forward direction, the materials will be caused to progress over the screen 24 as shown in Figures 9. 10, and 11, and will thereby be subjected to a sifting action, the finer particles passing through the screen 24 and the coarser particles remaining in the riddle; the mass in the riddle being confined therein and subjected to such agitation as to effect thorough sifting thereof. When the riddle has made a complete rotation in a forward direction, the coarse particles of the mass remaining in the riddle will be brought against the barrier 33 as shown in Figures 11 and 12 and will thereby be inhibited from exiting through the opening 25. Charges of materials to be sifted may be thus repeatedly delivered to and acted on by the riddle, if desired, and the operation continued until a quantity of the coarse material has accumulated in the riddle, as the riddle may be rotated any desired number of revolutions in a forward direction without ejecting the retained coarse materials.

When it is desired to evacuate the coarse materials from the riddle the latter is rotated in a reverse direction whereupon the coarse particles will progress back over the peripheral wall 24 of the riddle as indicated in Figures 12 to 7 inclusive, and will be discharged through the opening 25. One retrograde rotation of the riddle will thus effect evacuation of its contents.

Where it is desirable to cause the materials to fall or drop during their progress through the riddle, the latter is formed with flat, angularly disposed, peripheral wall surfaces 34 indicated in Figures 4 and 5, and where it is desired to increase the length of the screening surface relative to the diameter of the riddle, the latter is formed with a general spiral cross-section, as shown in Figure 6.

While I have shown and described a specific embodiment of my invention, I do not limit myself to the exact details of construction and arrangement shown, but may employ such changes and modifications as come within the scope of the appended claims.

I claim—

1. A riddle comprising a rotary tubular body closed at its ends and having a peripheral wall formed of screening, and provided with a longitudinally extending feed discharge opening, a barrier wall within said tubular body extending part way thereacross between the ends thereof adapted to trap coarse materials in the riddle and inhibit their discharge on rotating the riddle in one direction, and a panel projecting outwardly from the lower margin of said feed and discharge opening, said panel being adapted to scoop up material and deliver it to the interior of the riddle.

2. A riddle comprising a tubular body having an outer peripheral wall formed of screen wire and closed at its ends, a shaft extending longitudinally through said tubular body, a barrier wall extending between said shaft and the outer wall, said outer wall being formed with a feed and discharge opening extending longitudinally thereof between the ends of the tubular body to one side of the barrier wall, a mounting for said tubular body whereby the latter may turn on a longitudinal axis and a panel extending outwardly from the lower margin of said opening, said panel being adjustable to a position wherein it constitutes a scoop exterior to the periphery of the riddle proper.

3. In a riddle, a rotary tubular body closed at its ends and having a peripheral wall formed of screen wire, said wall being formed with a feed and discharge opening extending longitudinally thereof, a barrier wall extending from said wall inwardly to the axis of the tubular body, a panel pivotally carried by said tubular body and extending from the lower margin of the feed and discharge opening, and means for holding said panel in various positions.

FREDERICK HENKEL.