

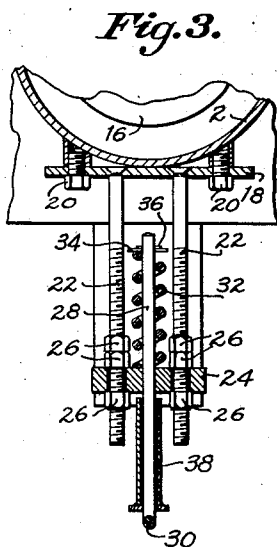
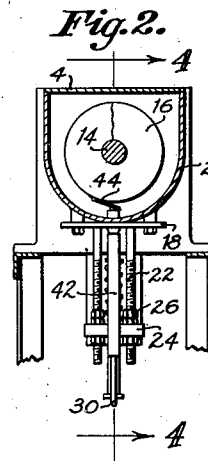
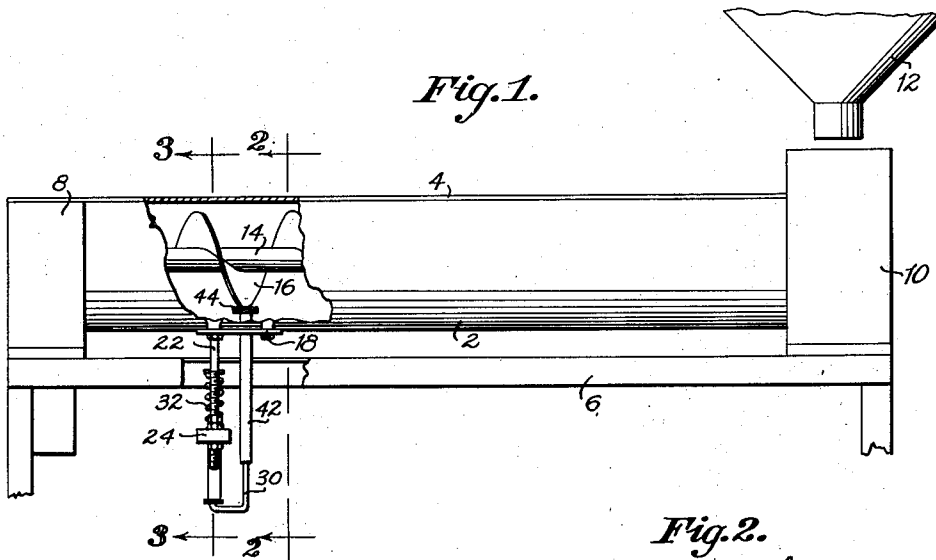
Nov. 29, 1949

W. C. SHAFFER
SAMPLING APPARATUS

2,489,592

Filed April 16, 1947

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 4.

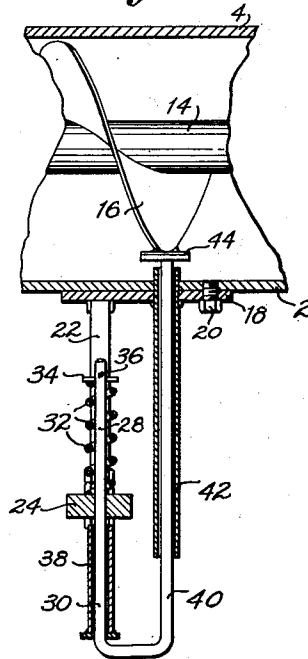


Fig. 5.

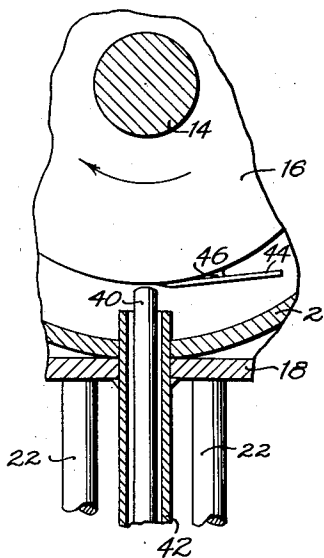
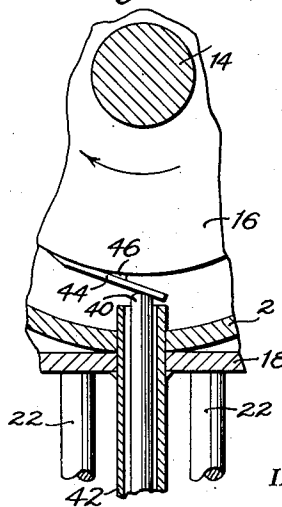


Fig. 6.



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UNITED STATES PATENT OFFICE

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SAMPLING APPARATUS

Wade C. Shaffer, Humboldt, Kans.

Application April 16, 1947, Serial No. 741,734

7 Claims. (Cl. 73-421)

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My present invention relates to an improved sampling apparatus of the type designed especially for use in providing continual samples of dry material such as finely ground cement limestone, and the like as it is fed through a continuous conveyor.

The device of my invention comprises generally a discharge tube connected to the conveyor tube and actuating means on the edge of the flight of the screw conveyor for a rod in the discharge tube so that each revolution of the screw will eject a sample of the material being conveyed into a suitable container.

In the accompanying drawings I have illustrated one complete example of the physical embodiment of my invention according to the best mode I have thus far devised, but it will be understood that various changes and alterations may be made in the exemplified structure within the scope of the appended claims.

In the drawings:

Fig. 1 is an elevational view of the conveyor and the sampler of my invention.

Fig. 2 is a transverse sectional view at line 2-2 of Fig. 1.

Fig. 3 is a transverse sectional view at line 3-3 of Fig. 1.

Fig. 4 is an enlarged detail view of the actuator and the discharge apparatus.

Figs. 5 and 6 are detail sequence views of the actuating mechanism.

Referring now to the drawings wherein I have illustrated the present preferred embodiment of my invention I employ a semi-cylindrical housing 2 having a flat cover 4 and located above the base 6 in the end housings 8 and 10. A feed hopper 12 is located above the housing 10.

A conventional screw conveyor is positioned within the housing 2 and on the central shaft 14 of the conveyor is affixed the helical blade 16.

On the under side of the housing 2 I provide a bracket 18 secured by bolts 20 and supporting the rods 22 which carry the cross arm 24 by nuts 26, and the position of the cross arm may be adjusted vertically of the rods by movement of the nuts.

One leg 28 of a U-shaped rod 30 is extended through the cross arm and secured by coil spring 32 and washer 34 with pin 36.

A tube 38 on the leg below the plate prevents undesired upward movement of the rod 30.

The other leg 40 of the rod 30 is enclosed in tube 42 and spaced therewithin the upper ends of the leg 40 and the tube 42 extending into the housing 2.

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As best seen in Figs. 5 and 6 there is secured to the edge of the helical blade 16 a flat plate 44 and a web 46 serves to secure the plate in its welded or otherwise secured position. This plate is affixed tangentially of the edge of the blade 16 and angularly of the radius of the blade in such position as to have a wiping contact with the upper end of the leg 40 as the conveyor revolves in its operation.

As the blades of the conveyor move material therethrough, some of the material will be forced into the upper end of the tube 42. Since the material is in powdered form and not a liquid, no continuous flow of the same through the tube 42 is possible. However, each revolution of the conveyor will depress the leg 40 to agitate and discharge a quantity of material through the tube into a suitable container, the spring 32 acting to return the apparatus to normal position when the blade 44 is out of contact with the agitator rod 40.

As the plate passes over the end of rod 40 the spring will snap up the rod and return it to position to be depressed by the plate as the conveyor blade continues.

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

1. The combination with a screw conveyor and its housing, of a discharge tube connected to the interior of the housing, an agitator rod in the tube and spaced therefrom, spring means urging the rod upwards, and means on the conveyor intermittently engaging and depressing the rod to discharge a sample of material through the tube.

2. The combination with a screw conveyor and its housing, of a discharge tube connected to the interior of the housing, an agitator rod in the tube and spaced therefrom, spring means urging the rod upwards and means limiting the upward movement, and means on the conveyor intermittently engaging and depressing the rod to discharge a sample of material through the tube.

3. The combination with a screw conveyor and its housing, of a discharge tube connected to the interior of the housing, an agitator rod in the tube and spaced therefrom, spring means urging the rod upwards, and a plate on the conveyor intermittently engaging and depressing the rod to discharge a sample of material through the tube.

4. The combination with a screw conveyor and its housing, of a discharge tube connected to the interior of the housing, an agitator rod in the tube and spaced therefrom, spring means urging the rod upwards, and a plate on the edge of the conveyor intermittently engaging and depressing

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the rod to discharge a sample of material through the tube.

5. The combination with a screw conveyor and its housing, of a discharge tube connected to the interior of the housing, an agitator rod in the tube and spaced therefrom, spring means urging the rod upwards, and a tangential plate on the edge of the conveyor intermittently engaging and depressing the rod to discharge a sample of material through the tube.

6. The combination with a screw conveyor and its housing, of a discharge tube connected to the interior of the housing, an agitator rod in the tube and spaced therefrom, spring means urging the rod upwards and means limiting the upward movement, and a tangential plate on the edge of the conveyor intermittently engaging and depressing the rod to discharge a sample of material through the tube.

7. The combination with a screw conveyor and

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its housing, of a discharge tube connected to the interior of the housing, an agitator rod in the tube and spaced therefrom, spring means urging the rod upwards, and a tangential plate on the edge of the conveyor disposed at right angles to the radius of the conveyor intermittently engaging and depressing the rod to discharge a sample of material through the tube.

WADE C. SHAFFER.

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