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MEANS FOR EMPTYING A REVOLVING OPEN TOP CENTRIFUGAL SEPARATOR

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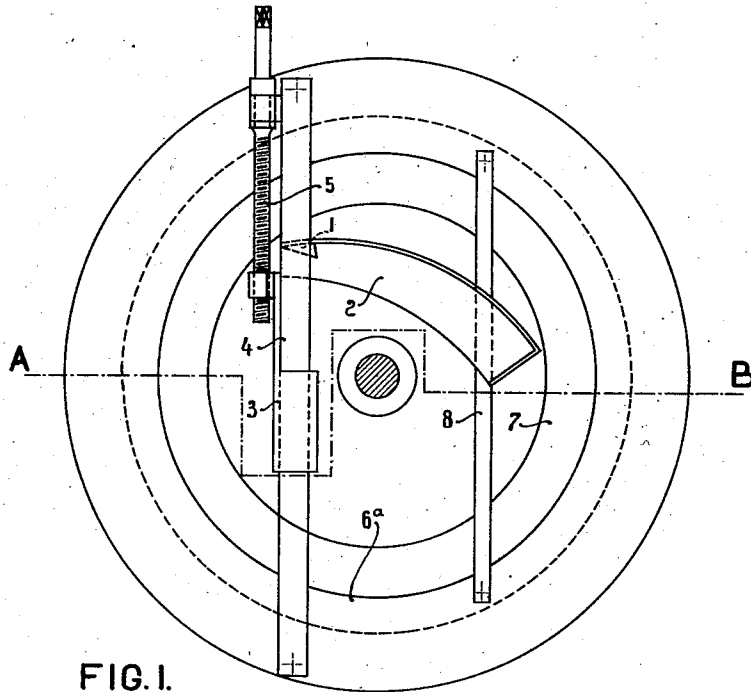


FIG. 1.

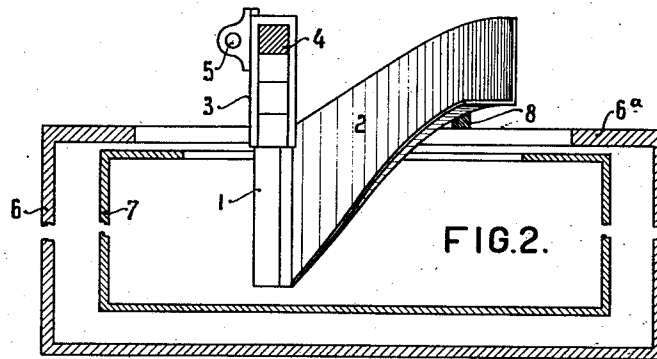


FIG.2.

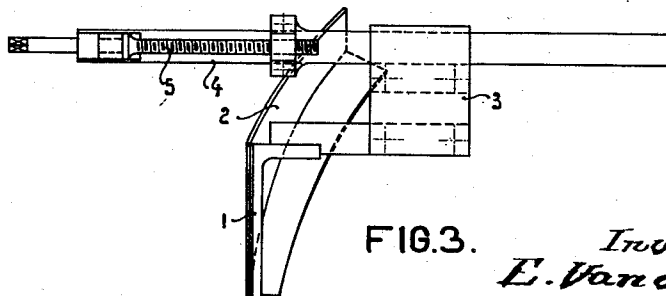


FIG.3.

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MEANS FOR EMPTYING A REVOLVING OPEN-TOP CENTRIFUGAL SEPARATOR.

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To all whom it may concern:

Be it known that I, EVERT VAN DER MOLEN, a subject of the Queen of Holland, residing at Groningen, Netherlands, have invented certain new and useful Improvements in and Relating to Means for Emptying a Revolving Open-Top Centrifugal Separator, of which the following is a specification.

The object of my present invention is a method and means for quickly emptying a revolving open top centrifugal separator.

I am aware that it has been proposed to employ a scraper or stripper adapted to be pressed into the solid material collected on the inner wall of the drum of a centrifugal separator in such a manner that the loosened material moves by its own velocity into a chute and thence into a funnel-shaped tube placed inside the drum, through which tube it is forced upwards by means of a current of air and discharged over the top edge of the drum. It has also been suggested to provide a movable knife or scraper within the drum of a horizontal centrifugal separator, so that the solid material scraped off by the knife is discharged by gravity.

In accordance with my present invention the removal of the solid material from the drum of an open top centrifugal separator is effected by pressing a knife into the material collected on the inner wall of the revolving drum and placing a chute associated with said knife under such an inclination and causing the drum to rotate and the knife to move towards said inner wall at such speeds as to force the loosened material against the action of gravity and by the action of its own speed upwards along the chute and discharge it over the top edge of the drum.

Suitable means for carrying this method into effect substantially comprise a guide member such as a curved chute having an angular cross section, said member being provided with a suitable knife or scraper and adapted to be moved along a guide way, which crosses the shaft of the separator at some vertical distance above the drum. Said knife is adapted to be pressed into the solid material collected on the inner wall of the drum, whereby the loosened material revolving at high speed is caused to move upwards along the curved guide member and to be discharged over the top edge of the

drum by moving exclusively over a bottom wall and an upstanding wall of the chute. Stated in other language, the material removed by the knife from the wall of the drum receives both a centripetal movement and an upward movement.

The annexed more or less diagrammatic drawing serves to illustrate the invention, Fig. 1 being a plan view of the drum of a vertical open top centrifugal separator provided with my novel means, Fig. 2 a cross-sectional elevation along the line A—A in Fig. 1 and Fig. 3 an elevational view of the chute with its actuating means.

The chute 2 is secured to the knife or scraper 1, the latter being suspended from a slide 3 adapted to be moved along a guide bar 4 by means of a screw spindle 5. The guide bar 4 is supported by and firmly secured to the horizontal top flange 6^a of the stationary housing 6 of the centrifugal separator. It will thus be understood that during rotation of the separator drum 7 the knife 1 can be moved towards and from the inner wall of drum 7. As it is essential for the knife 1 and for the chute 2 to be prevented from oscillatory movement, a horizontal bar or rod 8 secured to the flange 6^a is provided underneath the chute 2 so as to exert a certain upward pressure thereon and to steady both the knife and the chute.

From the drawing it follows that the chute is curved and that it has an angular cross sectional form. As will be understood, a bottom wall and a vertical side wall are all that is required for guiding the solid material on its way from the inner wall of the drum to the discharge.

Although the chute 2 is of such formation as to cause the loosened material to fly out of the drum exclusively under the influence of its own speed, I wish it to be understood that a current of air may be employed as an auxiliary means for blowing the material upwards along the said chute.

What I claim is:—

1. In an open top centrifugal separator including a drum, a blade within said drum for scraping accumulated material from the wall thereof, means for drawing said blade gradually into said accumulated material, and means associated with said blade for directing the material scraped by it gradually upwardly, across said drum and over the wall opposite said blade including an in-

clined runway and guide extending from a point within said drum adjacent said blade gradually upwardly, across said drum to a point above and outside of the wall opposite
5 said blade.

2. In an open top centrifugal separator including a drum, a blade within said drum extending substantially throughout the full height of the wall of the drum for scraping
10 accumulated material from the wall thereof, means for drawing said blade gradually into said accumulated material, and means associated with said blade for directing the material scraped by it gradually upwardly, across said drum and outwardly over the
15 wall thereof opposite said blade, said last-named means including an inclined plane runway and guide extending from a point within said drum adjacent the bottom of said blade gradually upwardly, across said
20 drum to a point above and outside of the wall opposite said blade.

In testimony whereof I affix my signature.

EVERT VAN DER MOLEN.