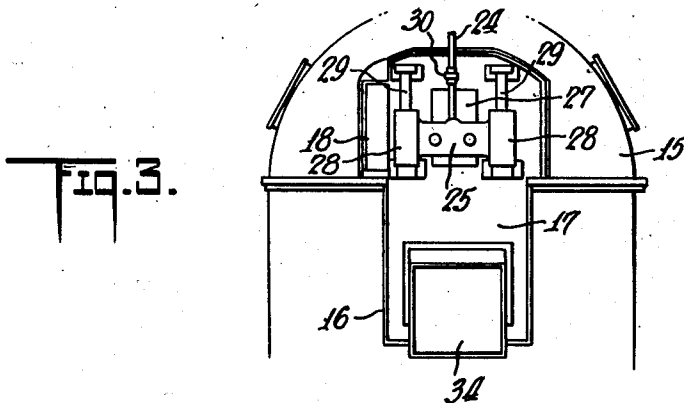
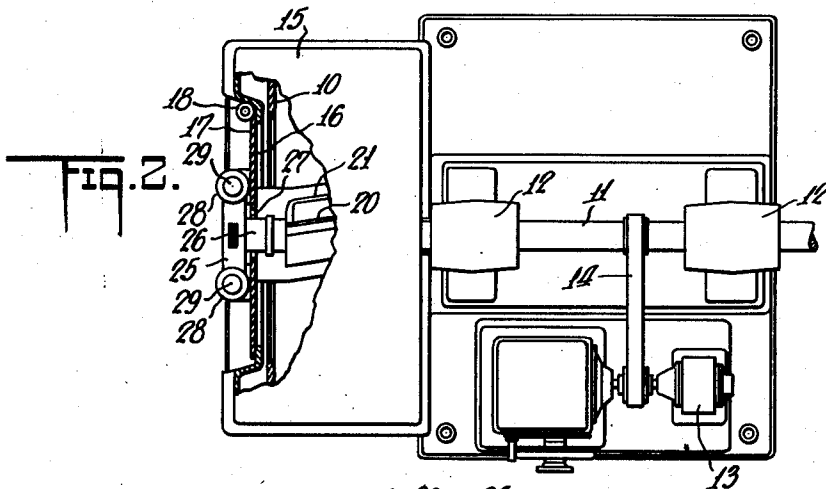
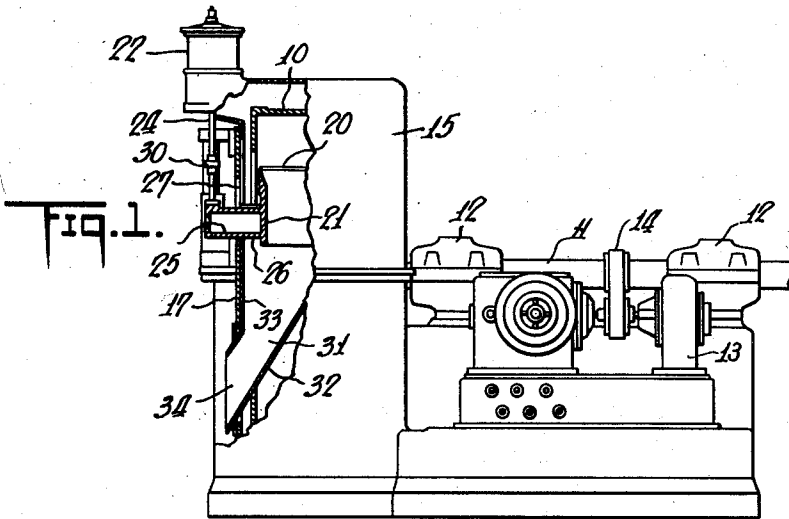


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CENTRIFUGAL MACHINE
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CENTRIFUGAL MACHINE

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4 Claims. (Cl. 233-46)

The invention relates to centrifugal machines and especially to that type of centrifugal machine having in the inside thereof such auxiliary devices as a feed pipe, scraping knife or the like.

Hitherto, in centrifugal machines of this type accessibility to the interior of the separating drum and to the auxiliary devices disposed therein for the purpose of making repairs and the like, has been difficult. This is especially true in centrifugal machines of the small type mounted on horizontal shafts, and having the end openings of the drums very small. Furthermore, these auxiliary devices take up a substantial amount of space in the interior of the drum so that it is very difficult to service or repair any of these members while they are disposed in the drum. Under these conditions, it is necessary that the auxiliary devices be removed from the interior of the drum to permit their servicing or replacement. In very many cases the removal of these auxiliary devices requires the dismantling of the whole centrifugal machine. This is very cumbersome and takes a great deal of time, so that the operation of the centrifugal machine is unduly interrupted.

In order to remedy this condition, it has been proposed to mount the end wall of the centrifugal machine carrying the auxiliary devices, on rails and to provide toothed members and the like for moving this wall along the rails and away from the centrifugal machine. Such an arrangement is complicated and expensive, and in view of the necessity of having rails, takes up a great deal of space.

One object of the present invention is to eliminate such a disadvantage and to provide means by which the end wall carrying the auxiliary devices may be simply and expeditiously moved to remove the auxiliary devices from the interior of the drum.

As an important feature of the present invention, the end wall carrying the auxiliary devices is in the form of a hinged door so that these devices may be removed from the interior of the drum by simply swinging the door open about its hinge support.

In the accompanying drawing, there is shown for the purpose of illustration, one form of device embodying my invention. In the drawing Fig. 1 is a side elevation, partly in section, of a centrifugal machine having a horizontal axis of rotation.

Fig. 2 is a top plan view, partly in section, and

Fig. 3 is a front view of a portion of the machine.

In the construction illustrated, there is provided a centrifuge separating drum 10 mounted on a horizontal shaft 11 supported on a pair of spaced bearings 12. The shaft is driven from a suitable source of power such as a motor 13 through the agency of a belt 14 or the like. The separating drum 10 is mounted in overhanging relationship on the shaft 11, so that the front end of the drum is free from the shaft or the support.

The centrifuge drum 10 is open at its front end and is enclosed in a suitable housing 15 also having an opening 16 at its front end. As an important feature of the present invention, this end opening is normally closed by a door 17 pivoted on one side of the housing 15 by means of any suitable form of hinge or pivotal support 18, so that the door may swing about said pivotal support.

The auxiliary devices in the interior of the drum 10 may be of the form shown in the ter Meer Patent No. 1,925,121 issued September 5, 1933, and includes a scraper 20 connected to the upper end of a chute 21. This scraper 20 is adapted to be moved into scraping position with the separated solid material collected in the inner periphery of the drum 10. For that purpose, the scraper 20 and the chute 21 are advantageously operated by a fluid actuated motor similar to that shown in said patent, and including a cylinder 22 fixed to the outside of the housing 15 and having therein a piston (not shown) controlled by a suitable fluid medium such as compressed air, steam, liquid or the like.

The connecting means between the piston and the chute 21 includes a rod 24 connected at its upper end to the piston in the cylinder 22, and at its lower end to a hollow cross bar 25. This cross bar 25 is connected to the chute 21 by a coupler 26 passing through an opening 27 in the door 17. This opening 27 is long enough to permit the vertical movement of the scraper 20 and the chute 21 within their operating range.

In order to guide the cross bar 25 in its vertical movement, the ends thereof terminate in sleeve members 28 which embrace a pair of guide rods or rails 29 connected to the outside of the door 17.

The piston rod 24 is suitably arranged to permit the door 17 to swing without interference from said rod. For that purpose, the

piston rod 24 may be made in two sections connected together by a separable coupling 30. When it is desired to open the door 17, the two piston rod sections are uncoupled at the coupling 30 and the upper piston rod section raised out of the way of the door 17.

The auxiliary devices in the interior of the drum 10 also include a discharge trough 31 disposed underneath the chute 21 and having an inclined wall 32 for conveying the solids scraped from the inner periphery of said drum. This trough has a wall member 33 suitably connected to the inner side of the door 17, and terminates at its discharge end in a spout 34 passing through said door.

When it is desired to have access to the interior of the drum 10 or to the auxiliary devices therein, the piston rod sections are uncoupled as already set forth, the upper piston rod section raised, and the door 17 swung open about its hinge support to move the auxiliary devices out from the interior of the drum.

Any other suitable means may be provided to permit the door to swing in respect to the stationary cylinder 22. The door need not serve as a closure but may be a mere skeleton frame for carrying the operating parts. When this door or pivoted member is in closed position, it may be locked or otherwise rigidly secured at its free edge to make a rigid support for the scraper when the latter is in operative position.

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

1. A centrifugal machine for separating solids from liquids, including a horizontal shaft, a separating drum mounted in overhanging relationship at one end of said shaft and open at the end thereof furthest from said shaft, a scraper in the interior of said drum for removing separated solids collected in the inner periphery of said drum, a member pivoted to swing about an axis at one side of said opening and serving to support said scraper, a motor for moving said scraper into scraping relationship with the solids collected in the inner periphery of said drum, and means for uncoupling said motor from operative connection with said scraper to permit said scraper to be moved out from the interior of the drum when said member is swung about its pivotal support.

2. A centrifugal machine for separating solids from liquids, including a horizontal shaft, a separating drum mounted in overhanging relationship at one end of said shaft and open at the end thereof furthest from said shaft, a housing for said separating drum, and having an opening adjacent to the open end of said drum, a hinged door for said opening, a chute extending into the interior of said drum, a scraper connected to the upper end of said chute, a fluid actuated motor, a pair of vertically extending guide rods disposed on opposite sides of said shaft and connected to said door, a cross bar extending between said rods and guided for vertical movement therealong, connecting means between said motor and said cross bar, and means connecting said cross bar and said chute.

3. A centrifugal machine for separating solids from liquids, including a horizontal shaft, a separating drum mounted in overhanging relationship at one end of said shaft and open at the end thereof furthest from said shaft, a housing for said separating drum, and having an opening adjacent to the open end of said drum, a hinged door for said opening, a chute extending into the interior of said drum, a scraper connected to the upper end of said chute, guides connected to said door and along which said chute may move vertically, a fluid actuated motor, and connections between said motor and said chute for reciprocating said chute.

4. A centrifugal machine for separating solids from liquids, including a horizontal shaft, a separating drum mounted in overhanging relationship at one end of said shaft and open at the end thereof furthest from said shaft, a housing for said separating drum, and having an opening adjacent to the open end of said drum, a hinged door for said opening, a chute extending into the interior of said drum, a scraper connected to the upper end of said chute, a discharge trough rigidly secured to said door below said chute, guides connected to said door and along which said chute may move vertically, a fluid actuated motor, and connections between said motor and said chute for reciprocating said chute.

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