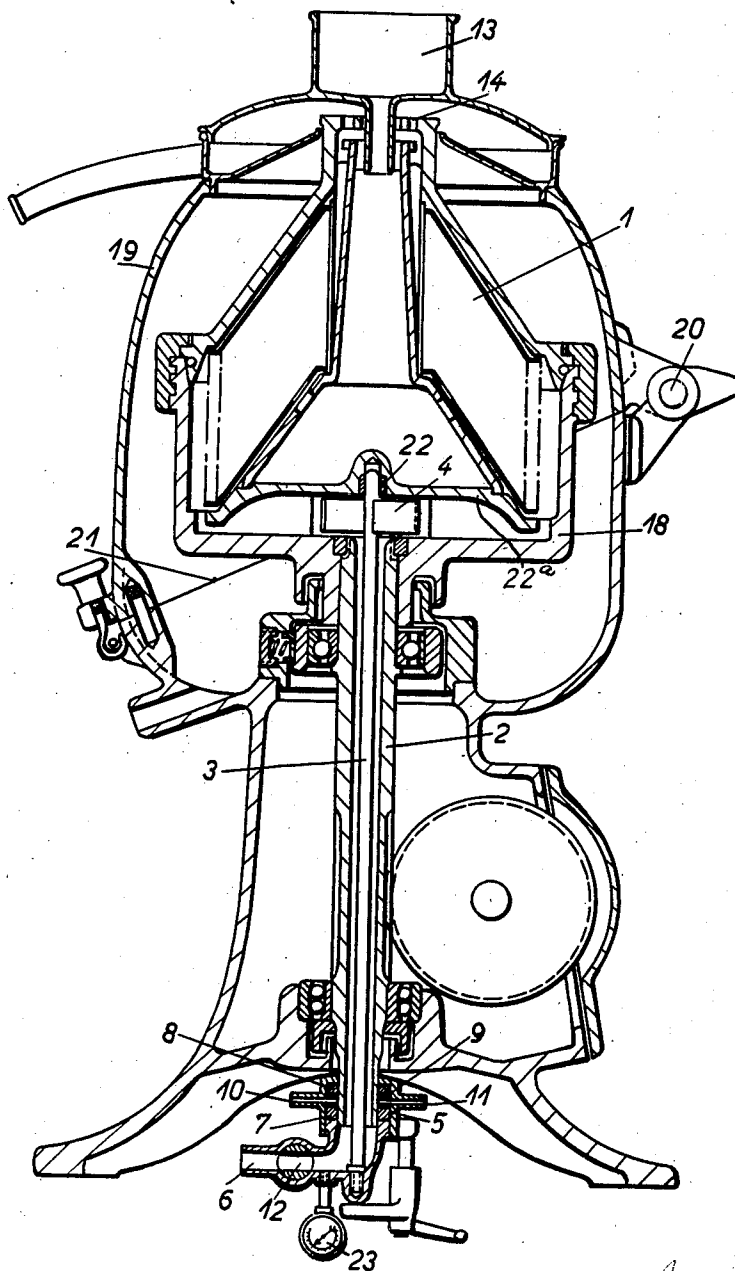


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SEPARATOR WITH DISCHARGE OF THE CENTRIFUGED
SUBSTANCE THROUGH A HOLLOW SPINDLE
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SEPARATOR WITH DISCHARGE OF THE
CENTRIFUGED SUBSTANCE THROUGH A
HOLLOW SPINDLE

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1 Claim. (Cl. 233—46)

This invention relates generally to a device for counteracting the formation of froth of the substance to be treated in separators. In such machines the centrifuged substance, for example milk, froths very considerably on leaving the drum, so that, apart from the losses, the treatment thereof is often accompanied by difficulties in the following apparatuses.

The invention consists in the combination, construction and arrangement of the parts illustrated in the accompanying drawing. Although only the preferred form of construction is illustrated, the invention is not restricted thereto.

The only figure of the accompanying drawing illustrates by way of example a separator in longitudinal section.

The separator drum 1 comprises a known hollow spindle 2, through which a rod 3 fixed below the hollow spindle extends. The rod 3 carries on its upper end projecting into the separator drum 1 strippers 4. The drum 1 has a bottom wall 18 with a substantially flat inner surface having a central aperture therein for the passage of the hollow spindle 2. Within the rotating separator drum the boundary wall for the liquid forms a section from a paraboloid which, owing to the great height of the parabola, may practically be described as a cylinder. The ends of the stripper 4 dip into the liquid cylinder and strip or brake the same, so that the centrifugal force acting towards the periphery is eliminated or strongly reduced for the portion bordered by the stripper 4. The liquid flows inwards and is lead off through the hollow spindle 2. The hollow spindle 2 is connected with a tube 6 by means of stuffing boxes or equivalent packings 5. A cock 12 in the tube 6 serves for throttling the centrifuged substance. In this manner the quantity of cream discharged through the holes 14 at the upper end of the drum 1 is regulated in the case of uniform feed through the vessel 13. In order to facilitate the adjustment, a manometer 23 is provided. As the quantity of cream is in a certain proportion to the pressure in the discharge conduit, it is possible, with the aid of the manometer 23, to read the desired adjustment. The stuffing box 5 has two compartments 7 and 8 with a bored ring 9 having connections 10 and 11 for passage of lubricating and packing substances. The stationary rod 3 is mounted at its upper end in a bearing 22 in the underside of an inverted dish-shaped partition plate 22a spaced above the bottom wall 18 of the drum and substantially co-extensive with said bottom wall. One or several strippers 4 may also be provided.

In the form of construction illustrated the drum spindle 2 is hollow. It is evidently likewise possible to provide the same arrangement on the inlet side of the drum opposite the driving spindle. To enable the drum, which, in the example illustrated, is connected with the lower spindle by its tight seat, to be easily cleaned without being removed from the frame, the bottom is made flat or inclined towards the spindle, so that the flowing off of the remainder of the charge can take place through the hollow spindle. To facilitate the cleaning of the outer drum wall, the hood 19 surrounding the same is removable. It is oscillatable about a hinge 20 and has an oblique joint 21 to enable it to be swung over the drum head. It is evident, that the invention may also be employed for substances which are only to be purified. The feed of the liquid and also the discharge of the separated liquid components may be effected through packed connections with the drum. In the case of a feed tightly-closed against the drum a suction effect is exerted by the construction of the separator according to the invention on the substance being fed so that a separate feed pump, such as is necessary usually in the case of closed feed, can be dispensed with.

I claim:—

In a centrifugal separator of the type adapted to continuously discharge two separated components of a liquid mixture to be separated, a drum disposed for rotation about a vertical axis and having a bottom provided with a substantially flat horizontally disposed inner surface and an axial aperture, means for rotating the drum including a hollow spindle secured to the bottom of the drum within said aperture, an inverted dish-shaped partition plate superposed on said inner bottom surface of the drum and substantially co-extensive therewith and dividing the drum into an upper separating space and a lower air-tight liquid receiving chamber communicating with said hollow spindle, channels extending between the heavy component zone of said separating space and said receiving chamber, a stripper axially fixed in said receiving chamber for withdrawing the heavy component from said chamber and operative to deflect said component into said hollow spindle, channels leading from the separating space for the discharge of the light component and means for regulating the quantity of the light component discharged comprising a conduit secured to the discharge end of said hollow spindle and provided with a regulating valve.

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