

[54] **APPARATUS, SUCH AS A DRAWING UNIT OR A CALENDER DRYER**

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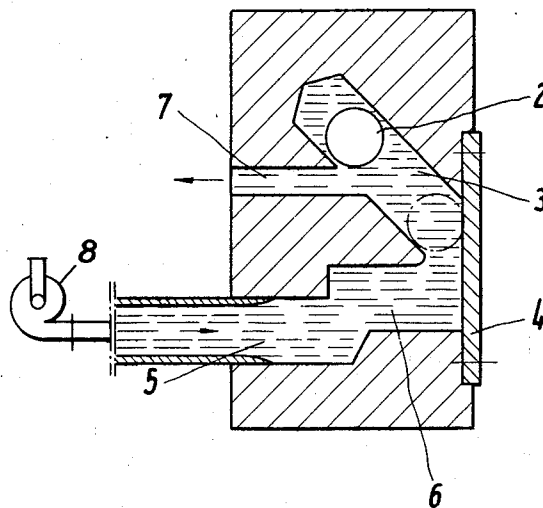
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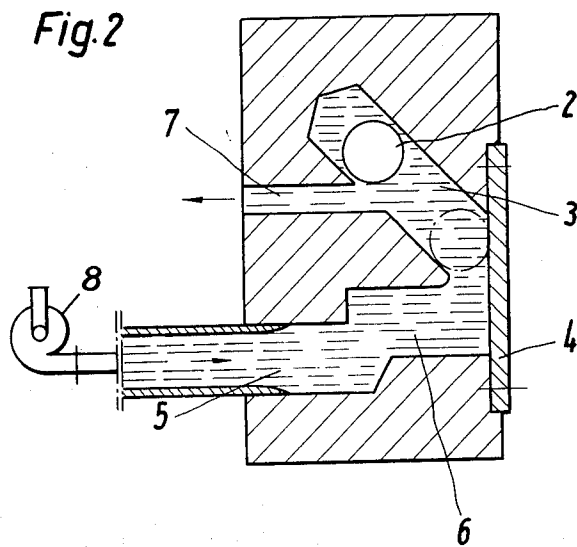
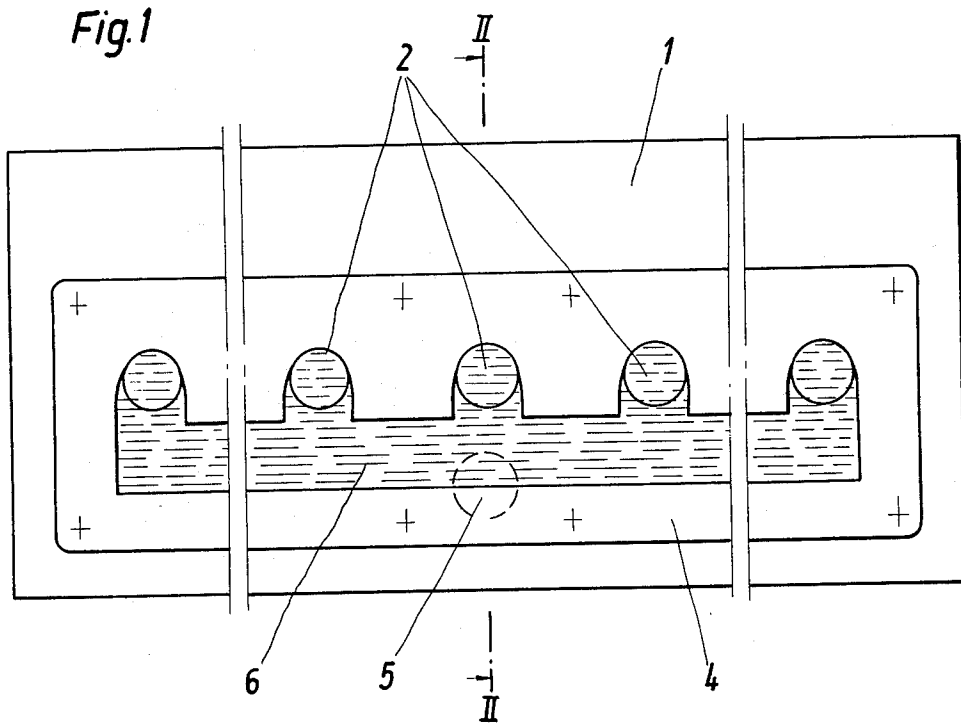
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[57] **ABSTRACT**

The present disclosure relates to an oil circulation indicating instruments which comprise a housing, a plurality of boreholes angularly disposed within said housing in an upwardly-downwardly direction, said boreholes communicating at their lower end with a common channel disposed in said housing, additional boreholes communicating with each of said angularly disposed boreholes and with the elements to be lubricated, a movable float means disposed in each of said angularly disposed boreholes and adapted to be raised to a point above said additional boreholes or lowered to a point below said additional boreholes, and a central lubricant supply pipe communicating with said common channel for the introduction of the lubricant thereto.

7 Claims, 2 Drawing Figures





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APPARATUS, SUCH AS A DRAWING UNIT OR A CALENDER DRYER

BACKGROUND OF THE INVENTION

The present invention relates to an apparatus, such as a drawing unit, a calender dryer or the like, which is part of a continuously operating processing line, for example, a synthetic fiber production line. The individual bearings of the line are connected with each other by lubricating boreholes and are constantly oiled by means of a circulating forced lubrication.

The constancy of performance of a machine with this kind of lubrication depends on the reliability of each individual lubricating assembly. It is a well known method to control the forced lubrication by controlling the oil pressure which is indicative of the correct functioning of the lubricating system and which can be read on the pressure indicators of the lubricating assemblies. However, this method does not permit the detection of a failure of the circulating lubrication at one specific bearing which may possibly entail the stoppage of the entire machine.

SUMMARY OF THE INVENTION

An object of the present invention is to avoid the prior art disadvantages in providing a reliable lubricating assembly.

Another object of the present invention is to provide a means for closely watching each individual point of lubrication of, for example, a drawing unit, a calender dryer or any type of apparatus which relies upon lubrication for its operation.

Other objects and further scope of applicability of the present invention will become apparent from the detailed description given hereinafter; it should be understood, however, that the detailed description and specific examples, while indicating preferred embodiments of the invention, are given by way of illustration only, since various changes and modifications within the spirit and scope of the invention will become apparent to those skilled in the art from this detailed description.

According to the present invention it is suggested to equip each individual point of lubrication with an indicating instrument. This approach is taken to ensure that not only all points of lubrication together, but each individual bearing, can be provided with a sufficient supply of oil.

The indicating instrument can be, for example, an upwardly inclined tube through which the lubricant is conveyed in an upward direction and which contains a float body which is visible from the outside of the apparatus and which moves in dependence upon the circulating lubricant.

According to the present invention this device is simplified in such a way that the tube is a borehole in a solid box, the bottom section of said borehole being provided with an inspection window.

According to the present invention it is advantageous if the borehole in the solid box is inclined in the upward direction with its lower part penetrating the front side of the box. The thus created opening in the wall of the box is then covered by a transparent plate. The present invention also contemplates providing each individual point of lubrication of the machine with a borehole. The boreholes are connected with each other by a channel. The main lubricant supply pipe terminates in said channel.

It is another feature of the present invention to design the float body in the borehole as a ball. This form of construction has proven to be especially advantageous.

Apart from the spacial distinction of the individual points of lubrication, it is also possible to use different colors for the lower sections of the boreholes and for the float bodies of the individual points of lubrication. This will enable the operating personnel to immediately detect any possibly occurring failure of the lubricating system.

The indicating instrument according to the present invention is extremely advantageous because it is simple and reliable

and permits the close supervision of each individual bearing of the machine.

DESCRIPTION OF THE DRAWINGS

The present invention will become more fully understood from the detailed description given hereinbelow and the accompanying drawings which are given by way of illustration only and thus are not limitative of the present invention and wherein,

FIG. 1 shows the indicating instrument with the lubricant being stagnant, and

FIG. 2 is a section along the line II—II, through the instrument according to FIG. 1, with the lubricant flowing.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In the above figures, the cipher 1 marks a solid box in which upwards and downwards movable balls 2 are at rest in the lower sections of boreholes 3. The boreholes are adjoined to the individual points of lubrication of the machine. The boreholes 3 penetrate the front wall of the box 1. The openings, which are provided in the front wall, are covered by a transparent plate 4 which is fastened to the front wall of the box, absolutely oil-tight. A central lubricant supply pipe 5 ends in a common channel 6. This channel extends over the whole length of the box so that all boreholes are supplied with the lubricant which is conveyed through the boreholes 3 and 7 to the individual points of lubrication by means of a pump 8.

The lubricant which is conveyed by the pump flows through the central supply pipe 5 into the channel 6. The lubricant pressure causes the float ball 2 to rise (see FIG. 2: the dash-and-dot circle marks the initial position of the ball and the full-drawn circle marks the final position of the ball) and the lubricant flows through the boreholes 3 and 7 to the points of lubrication.

In the case where one of the points of lubrication is not supplied with a sufficient amount of lubricant, e.g. because a pipe is clogged, the lubricant does not flow through the respective borehole 3, and thus the ball 2 drops down (dash-and-dot circle) and appears behind the inspection window.

The invention being thus described, it will be obvious that the same may be varied in many ways. Such variations are not to be regarded as a departure from the spirit and scope of the invention, and all such modifications as would be apparent to one skilled in the art are intended to be included.

What is claimed is:

1. An oil circulation indicating instrument which comprises a housing, a plurality of bore holes angularly disposed within said housing in an upwardly-downwardly direction, said boreholes communicating at their lower end with a common channel disposed in said housing, additional boreholes communicating with each of said angularly disposed boreholes at substantially the center thereof and with the elements to be lubricated, a movable float means disposed in each of said angularly disposed boreholes and adapted to be raised to a point above said additional boreholes or lowered to a point below said additional boreholes, a central lubricant supply pipe communicating with said common channel for the introduction of the lubricant thereto and means to indicate movement of said float means.

2. The oil circulation indicating instrument of claim 1, wherein the downwardly extending portion of the angularly disposed boreholes penetrate the front wall of the housing forming openings therein.

3. The oil circulation indicating instrument of claim 2, wherein said openings are covered by an oil-tight transparent plate.

4. The oil circulation indicating instrument of claim 1, wherein the central lubricant supply pipe is provided with a pump means.

5. The oil circulation indicating instrument of claim 1, wherein the housing is provided with said additional boreholes for each individual point of lubrication to be controlled.

6. The oil circulation indicating instrument of claim 1, wherein the movable float means is a ball.

7. The oil circulation indicating instrument of claim 1, wherein the lower portions of the angularly inclined boreholes and the movable float means are painted with contrasting colors.

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