SPARGING LUBRICATION MECHANISM COMPRISING A DRIVE GEAR

The present invention relates to the field of sparging-lubricated mechanisms, comprising a drive gear or transmission gearing that possesses two toothed gear wheels intermeshing with one another for the driving of one toothed gear wheel (“driven” gear wheel) by the other ("drive" gear wheel).

In order to minimise the wear on gearing, it is necessary to lubricate the gearing. In particular it is possible to immerse the gearing at least partially in a lubricant bath. This is referred to as sparging lubrication.

Embodiments of the invention seek to improve lubrication by sparging in a mechanism comprising a drive or transmission gearing.

According to an aspect of the present invention, there is provided a sparging-lubricated mechanism, comprising a housing and a drive or transmission gearing disposed within the housing, the gearing possessing two toothed gear wheels provided with respective toothings intermeshing within a meshing zone, each toothing having a first lateral surface and a second lateral surface opposite thereto, the mechanism further also comprising a channel member distinct from the housing, stationary with respect to the housing, delimiting a channel and disposed to be facing the first lateral surfaces to the right of the meshing zone in order to channel the lubricant expelled from the meshing zone from the first lateral surfaces circumferentially in the meshing zone.

The sparging lubricated mechanism includes on an optional basis, one or more of the following characteristic features, taken into consideration in isolation or in accordance with all technically possible combinations :

- the channel member cooperates in a sealing manner with a sealing surface provided on at least one toothed gear wheel ;
- the channel member cooperates in a sealing manner with a sealing surface of each toothed gear wheel ;
- at least one toothed gear wheel possesses a sealing surface that is perpendicular to the axis of rotation of this toothed gear wheel ;
- at least one toothed gear wheel possesses a sealing surface of revolution about the axis of rotation of the toothed gear wheel and having an extension along the said axis of rotation ;
- at least one toothed gear wheel possesses a cylindrical sealing surface that is centered on the axis of rotation of the toothed gear wheel ;
- the channel member is configured so as to scrape a sealing surface of a toothed gear wheel ;

- the channel member cooperates in a sealing manner with a sealing surface of at least one toothed gear wheel by means of a labyrinth sealing system; and

- it comprises a deflector disposed in the space delimited between the toothings of two toothed gear wheels immediately downstream of the meshing zone when considering the direction of rotation of the toothed gear wheels about their axes of rotation, the deflector extending over the entire width of the teeth of the toothed gear wheels of the gearing and being configured so as to divert the lubricant flowing circumferentially around a toothed gear wheel away from the latter and/or to direct this lubricant circumferentially around the other toothed gear wheel.

The invention and its advantages will be better understood upon reading the description which follows, provided purely by way of example, and with reference being made to the accompanying drawings, in which:

- Figure 1 is a cross-sectional view of a mechanism comprising a transmission gearing that possesses two toothed gear wheels intermeshing with each other;
- Figure 2 is a view from the top of the transmission gearing;
- Figure 3 is a cross-sectional view along III-III in Figure 2, illustrating a channel member of the mechanism;
- Figures 4 and 5 are views that are analogous to that shown in Figure 1 illustrating some variants.

The sparging lubricated mechanism 2 illustrated in Figures 1 and 2 comprises a housing 4 intended for receiving a lubricant and a drive or transmission gearing 6 disposed within the interior of the housing 4.

The housing 4 delimits an internal volume 8. The internal volume 8 is intended to receive the mechanical transmission components including the gearing 6. In particular the internal volume 8 is provided in order to contain other mechanical transmission components in addition to the gearing 6.

The housing 4 is represented partially, with only one housing wall 10 being visible in Figure 1. The housing wall 10 is for example a lower wall of the housing 10.

The housing 4 is sealed tight and configured in order to contain a lubricant for the lubrication of the mechanical members of the mechanism accommodated in the housing 4, and in particular of the gearing 6.

The gearing 6 comprises toothed gear wheels 12, 14, each toothed gear wheel 12, 14 possessing a toothing 16, 18 that extends over the circumference of the toothed gear wheel 12, 14, the respective toothings 16, 18 of the toothed gear wheels 12, 14

CLAIMS

1.- A sparging-lubricated mechanism, comprising a housing and a drive or transmission gearing disposed within the housing, the gearing possessing two toothed gear wheels provided with respective toothings intermeshing within a meshing zone, each toothing having a first lateral surface and a second lateral surface opposite thereto, the mechanism further also comprising a channel member distinct from the housing, stationary with respect to the housing, delimiting a channel and disposed to be facing the first lateral surfaces to the right of the meshing zone in order to channel the lubricant expelled from the meshing zone from the first lateral surfaces circumferentially in the meshing zone.

2.- A mechanism according to claim 1, in which the channel member cooperates in a sealing manner with a sealing surface provided on at least one toothed gear wheel.

3.- A mechanism according to claim 2, in which the channel member cooperates in a sealing manner with a sealing surface of each toothed gear wheel.

4.- A mechanism according to claim 2 or claim 3, in which at least one toothed gear wheel possesses a sealing surface that is perpendicular to an axis of rotation of the toothed gear wheel.

5.- A mechanism according to claim 4, in which at least one toothed gear wheel possesses a sealing surface of revolution about the axis of rotation of the toothed gear wheel and having an extension along the said axis of rotation.

6.- A mechanism according to claim 4 or 5, in which at least one toothed gear wheel possesses a cylindrical sealing surface that is centered on the axis of rotation of the toothed gear wheel.

7.- A mechanism according to any one of claims 2 to 6, in which the channel member is configured so as to scrape a sealing surface of a toothed gear wheel.

8.- A mechanism according to any one of claims 2 to 7, in which the channel member cooperates in a sealing manner with a sealing surface of at least one toothed gear wheel by means of a labyrinth sealing system.

9.- A mechanism according to any one of the preceding claims, comprising a deflector disposed in a space delimited between the toothings of two toothed gear wheels immediately downstream of the meshing zone when considering a direction of

rotation of the toothed gear wheels about their axes of rotation, the deflector extending over an entire width of the teeth of the toothed gear wheels of the gearing and being configured so as to divert the lubricant flowing circumferentially around a toothed gear wheel away from the latter and/or to direct the lubricant circumferentially around the other toothed gear wheel.

10.- A mechanism according to any one of claims 4 o 6, in which the channel member extends circumferentially in a limited angular range about the axis of rotation of one of the toothed gear wheels.