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LUBRICATING ARRANGEMENTS FOR SPINNING RINGS

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Fig.1

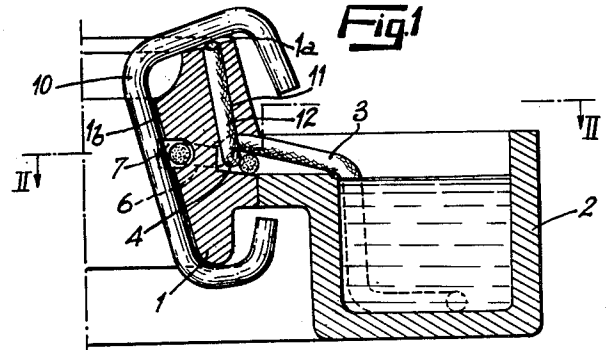


Fig.2

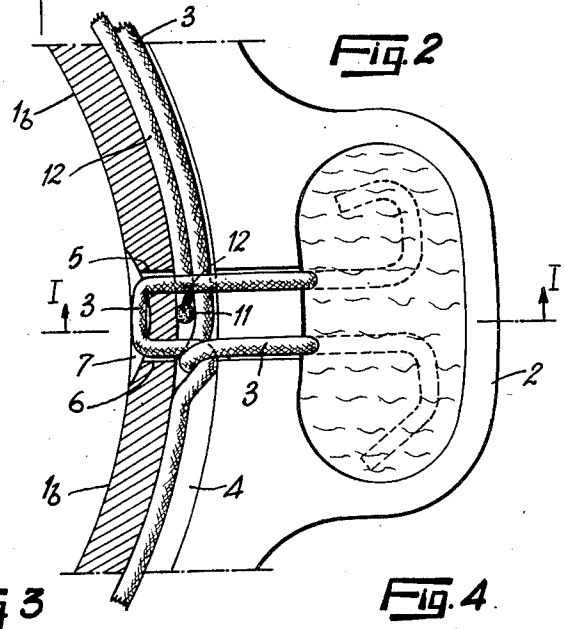


Fig.3

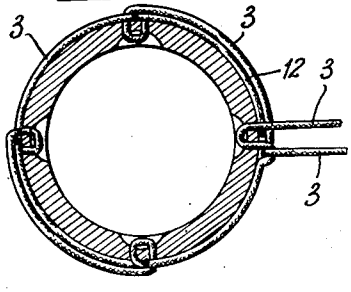
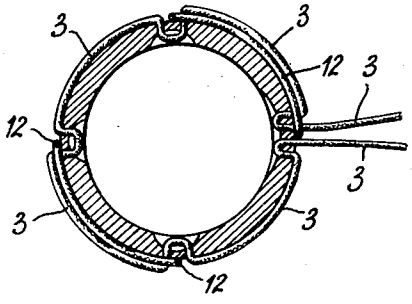


Fig.4



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Fig. 5

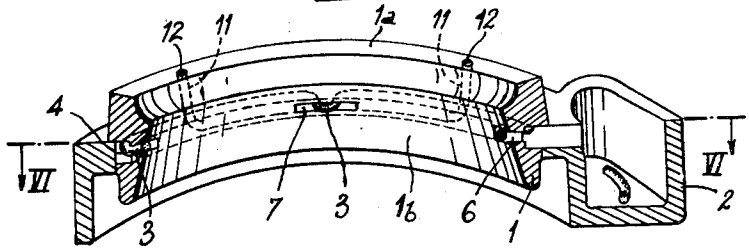


Fig. 6

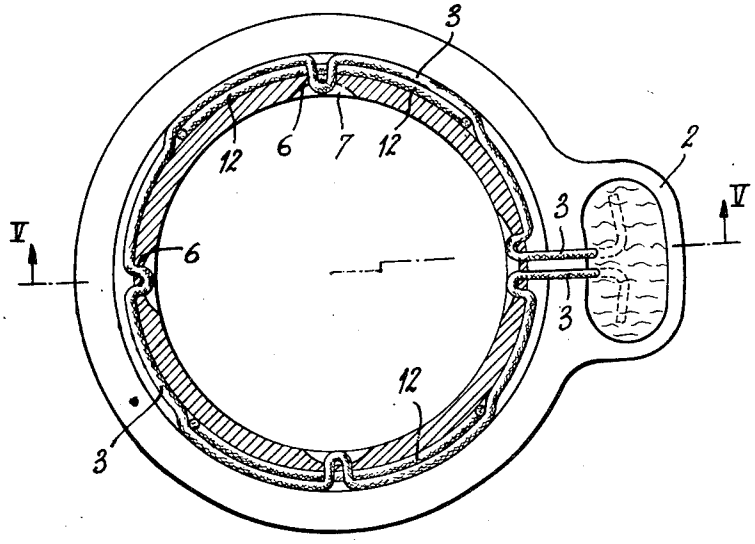
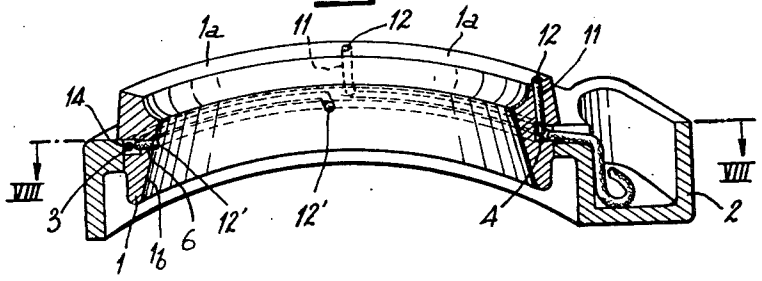


Fig. 7



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Fig. 8

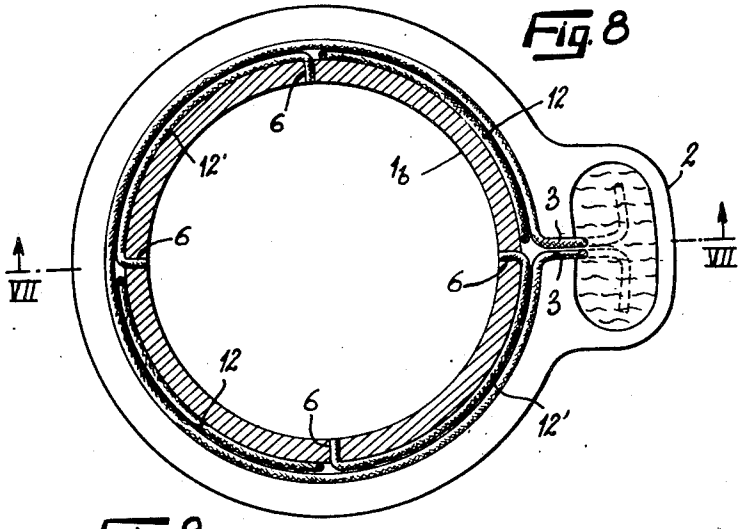


Fig. 9

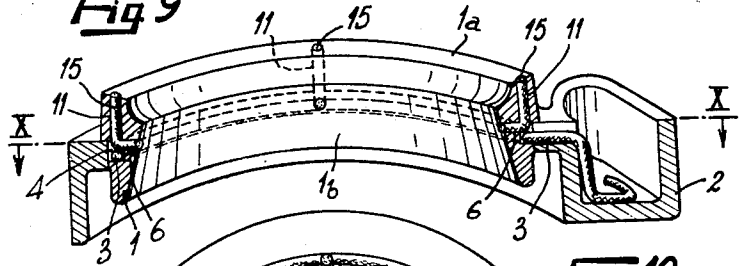
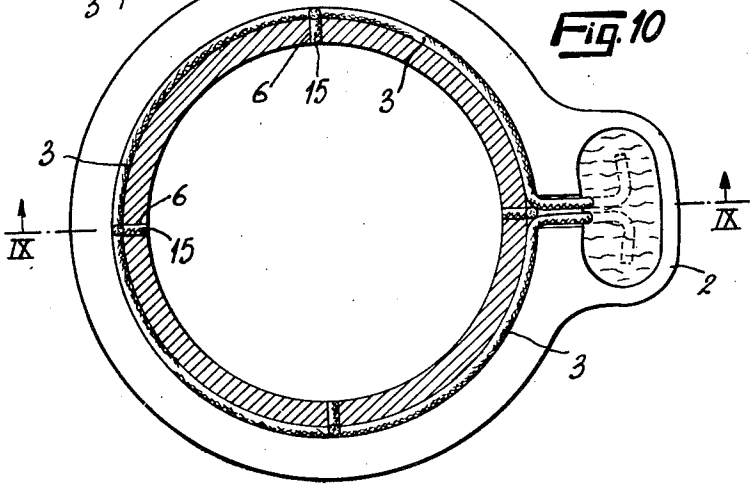


Fig. 10



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Fig. 11

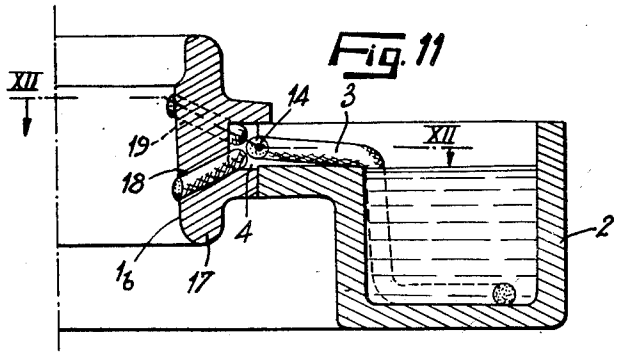


Fig. 12

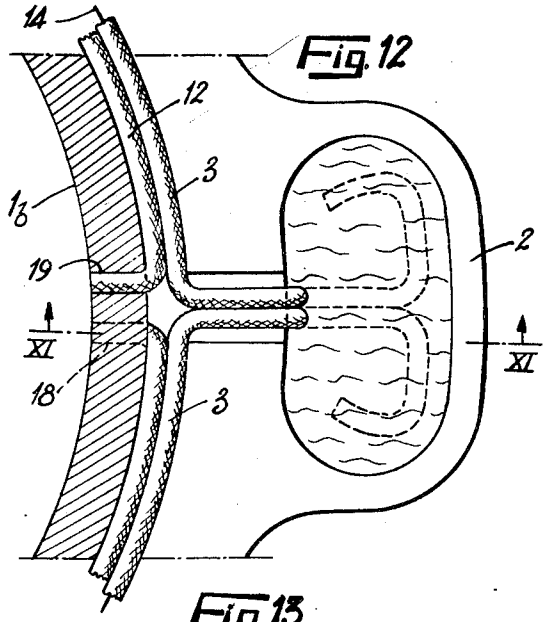
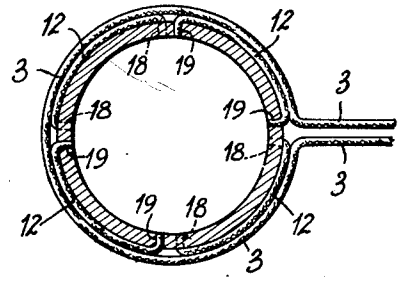


Fig. 13



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LUBRICATING ARRANGEMENTS FOR SPINNING RINGS

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Application March 7, 1955, Serial No. 492,672

Claims priority, application France March 15, 1954

6 Claims. (Cl. 57—120)

The present invention is concerned with the lubrication of the rings in spinning machines, twisting mills, and the like of the type with rings and travellers.

The object of the invention is to provide means for affording, with a single lubricant receiving well, the permanent distribution of said lubricant at several points or locations on each of the traveller-engaging bearing faces of the ring.

More particularly the invention relates to an arrangement for lubricating the traveller-engaging bearing faces of spinning rings or the like of the type having holes opening onto such faces and fitted with wicks in lubricant conducting relation with a lubricant-receiving well applied to the ring.

According to the main feature of the invention, the arrangement comprises a supply wick arranged in an annular groove of the ring and having at least one end thereof dipping into said lubricant well, the holes above-mentioned opening also into said annular groove and containing distributing wicks which extend throughout said holes and have a portion thereof in mutual engagement with said supply wick in said annular groove.

Other and further objects and advantages of the invention will be apparent to those skilled in the art, from a consideration of the following description of some embodiments of the invention, shown by way of examples, in the accompanying drawings, in which:

Fig. 1 is a fragmental axial section taken on the line I—I of Fig. 2, of a lubricating arrangement embodying the invention,

Fig. 2 is a corresponding horizontal section taken on the line II—II of Fig. 1,

Fig. 3 is a horizontal section similar to that of Fig. 2, however on a smaller scale and showing the arrangement of the wicks around the entire periphery of the spinning ring,

Fig. 4 is a horizontal section similar to that of Fig. 3, showing a modification,

Fig. 5 is a fragmentary perspective view of another modification of the embodiment of Figs. 1 to 3, the sections thereof being taken along the line V—V of Fig. 6,

Fig. 6 is a horizontal section taken substantially along the line VI—VI of Fig. 5,

Fig. 7 is a fragmentary perspective view of another embodiment of the invention, the sections thereof being taken along the line VII—VII of Fig. 8,

Fig. 8 is a horizontal section taken substantially along the line VIII—VIII of Fig. 7,

Fig. 9 is a fragmentary perspective view similar to that of Fig. 7, showing a modification and taken along the line IX—IX of Fig. 10,

Fig. 10 is a horizontal section taken substantially along the line X—X of Fig. 9,

Fig. 11 is a fragmental axial section taken on the line XI—XI of Fig. 12, of a third embodiment of the invention,

Fig. 12 is a corresponding horizontal section taken on the line XII—XII of Fig. 11, and

Fig. 13 is a horizontal section similar to that of Fig. 12, however on a smaller scale and showing the arrangement of the wicks around the entire periphery of the spinning ring.

Referring first to Figs. 1 to 3, one embodiment of the invention will be seen in which 1 is a spinning ring with a conventional conical outline and comprising an upper bearing face 1*a* and an inner bearing face 1*b* against which the traveller 10 (shown in chain dotted lines in Fig. 1 only) is in bearing engagement as it revolves on the ring.

The ring 1 is formed with a lubricant-receiving well 2 containing felt impregnated with lubricant and in which dips a wick 3 which will be called hereinafter "supply wick." Said supply wick 3 is arranged encircling the ring 1 in an annular groove 4 and extending through a number of substantially radial holes such as the two holes 5 and 6 which, at one of their ends, open into the bottom of the groove 4 and, at their opposite end, into the bore of the ring 1. Both holes 5 and 6 are positioned close to each other and, in fact, they open into the bore of the ring at a countersunk portion 7 thereof in which the corresponding loop of the supply wick 3 may be nested.

As it will be seen in Fig. 3, four countersunk portions such as at 7, may be, for instance, provided at opposite ends of two perpendicular diameters of the ring. In each of said countersunk portions open two holes such as the holes 5 and 6. Furthermore, between the two holes 5 and 6 is provided a substantially vertical hole 11 which opens, by one of its ends, into the groove 4 and, by its opposite end, onto the upper bearing face 1*a*. Four holes such as 11 are, thus, distributed over the periphery of the ring. Within the holes 11 are arranged wicks 12 which will be called hereinunder "distributing wicks" and which are in engagement with the supply wick 3 along their common path over at least a portion of the groove 4. As it will be seen from Fig. 2, and still better from Fig. 3, the supply wick 3 is arranged in winding formation in the groove 4 and in the holes 5, 6 and countersunk portions 7 while both its ends are dipping into the lubricant well. Now, two distributing wicks 12 respectively occupy two quadrants of the groove 4 along which they are in lubricant conducting relation with the supply wick 3. This results into the lubricant contained in the well 2 ascending by capillarity through the supply wick 3. Part of the lubricant lubricates the inner bearing face 1*b*, and part of it passes into and through the distributing wicks 12 and lubricates the upper bearing face 1*a*. In this embodiment, the upper bearing face 1*a* as well as the inner bearing face 1*b* are each lubricated at four points thereof, but this number could be different from four.

Fig. 4 illustrates a modification in which the number and disposition of the holes are the same as in the embodiment of Fig. 3, but wherein the supply wick 3 is threaded in a somewhat different manner through the holes 6, as this clearly appears from the examination of the drawing.

In the embodiment of Fig. 3 as well as in the modification of Fig. 4, it should be noted that the holes 11 extend in radial planes passing between the two holes 6 in each pair of holes. In contradistinction to this arrangement, the holes 11 in a further modification shown in Figs. 5 and 6 are positioned in radial planes intermediate two pairs of holes 6. Under such conditions the planes containing the lubrication points of the upper bearing surface and the planes containing the lubrication points of the inner bearing surface are alternate. This results into an additional advantage, namely: the distributing wicks 12 form a bridge or bracing lubricant conducting portion across the two branches of each loop of the supply wick 3. Should the supply wick happen to become hard or dried-up in the countersunk portion 7 owing to ventilation

effects inside the ring, the lubricant supply, however, is continued through said bridges.

In a second aspect of the invention, the supply wick does not directly effect the lubrication of a bearing face. This feature is embodied in the arrangement shown in Figs. 7 and 8 and in the modification of Figs. 9 and 10.

Referring now more particularly to Figs. 7 and 8, substantially at the ends of two perpendicular diameters of the ring 1 is provided, on one hand, a hole such as 11 establishing a communication between the annular groove 4 and the upper bearing surface 1*a*, and, on the other hand, a hole such as 6 establishing a communication between said groove and the inner bearing surface 1*b*. In each quadrant, a distributing wick 12, 12' connects two holes 90° apart opening onto the same bearing face, namely: the wicks 12 are each intended to lubricate two points of the upper bearing face 1*a*, while the wicks 12' are each intended to lubricate two points of the inner bearing face 1*b*. Of course, each of the distributing wicks could have one end thereof engaged in a hole 11 opening onto the upper bearing face and the other end thereof engaged in a hole 6 opening onto the upper bearing face without departing from the gist of the invention. Anyhow, the supply wick 3 is in engagement with all the distributing wicks along at least the major part of the length of the annular groove 4 and has both its ends dipping into the lubricant-receiving well 2.

Figs. 9 and 10 illustrate a modification of the embodiment of Figs. 7 and 8. This modification differs from the former in that the distributing wicks each have one end thereof engaged in a hole 11 opening onto the upper bearing face 1*a* and the opposite end thereof engaged in a hole 6 opening onto the inner bearing face 1*b* and located in the same radial plane as said hole 11. In the example illustrated in these Figs. 9 and 10 the holes 11 and 6 have been positioned strictly in the same geometrical plane, whereas, in the embodiment shown in Figs. 7 and 8, the holes 11 and 6 were said to be substantially at the ends of a diameter and, actually, they were located in two distinct radial planes very close to each other.

In other words, the distributing wicks 15, in the modification of Figs. 9 and 10, are L-shaped and the supply wick 3 is in engagement with the elbow portion of each distributing wick so as to supply lubricant thereto. In the example illustrated, the supply wick engages the outer portion of the elbows of the distributing wicks but it could also be arranged so as to be in engagement with the inner portion of said elbows.

The two embodiments and modifications thereof above described are concerned with spinning rings having two traveller engaging bearing surfaces, and namely conical bearing faces.

Now, description will be given of a third embodiment with a cylindrical inner bearing face, of the type having a so-called ear traveller.

As illustrated in Figs. 9 to 11, near the ends of two perpendicular diameters of the ring 17, provision is made of two holes such as 18 which establish a communication between the groove 4 and the lower portion of the bearing face 1*b* and such as 19 which establish a communication between said groove and the upper portion of said bearing face 1*b*. Distributing wicks 12 extending along a quadrant against the bottom of the groove 4 each connect two holes 90° apart from each other. In the example illustrated, two of said distributing wicks 12 extend in holes opening onto the upper portion of the bearing surface 1*b*, while the other two extend in holes opening onto the lower portion of said bearing face. Of course, each distributing wick might have one end thereof located in a hole opening onto the upper portion of the bearing face and the other end thereof located in a hole opening onto the lower portion of said bearing face. In any instance, the supply wick surrounds the assembly of the distributing wicks in the annular groove 4.

In any embodiment and/or modification thereof, the number of lubrication points, i. e. the number of the wick-receiving holes may be varied at will according to the size of the ring and/or the lubrication requirements.

Furthermore, the supply wick may have a tubular structure and contain a reinforcing wire, e. g. a spring wire as indicated as at 14, for instance, in Fig. 12. This affords an efficient means for holding the supply wick and, therefore, the distributing wicks firmly in position in the annular groove 4.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope of the claims, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

What I claim is:

1. A spinning ring for a traveller, having at least one traveller-engaging bearing face, an annular groove in the outer peripheral face of said ring, holes extending through said ring from said annular groove onto said bearing face, a lubricant well applied to the ring, a single supply wick arranged entirely around said ring in said annular groove thereof and having at least one end thereof dipping into said lubricant well, and lubricant distributing wicks also positioned in said groove in close lubricant conducting relation with said supply wick and having their end portions extending through said holes to said traveller-engaging face of said ring.

2. A spinning ring according to claim 1, with at least one pair of adjacent holes extending from said annular groove onto said bearing surface at a countersunk portion thereof, said supply wick being threaded in said pair of holes in order to distribute lubricant at said countersunk portion.

3. A spinning ring according to claim 1, with two distinct bearing faces, the holes opening onto a given one of said bearing faces being positioned respectively substantially in the same radial planes as the holes opening onto the other of said bearing faces, each distributing wick being threaded at both ends thereof in holes which open onto the same bearing face and which are positioned in two successive radial planes, said individual distributing wicks being successively engaged in holes opening onto one and the other of said bearing faces.

4. A spinning ring according to claim 1, having two traveller-engaging bearing faces, further comprising at least one pair of adjacent holes extending from said annular groove onto one of said two bearing faces at a countersunk portion thereof, said supply wick being threaded in said pair of holes in order to distribute lubricant at said countersunk portion, said holes which accommodate the distributing wicks opening onto the other of said bearing faces.

5. A spinning ring according to claim 1, having two traveller-engaging bearing faces, further comprising at least one pair of adjacent holes extending from said annular groove onto one of said two bearing faces at a countersunk portion thereof, said supply wick being threaded in said pair of holes in order to distribute lubricant at said countersunk portion, said holes which accommodate the distributing wicks opening onto the other of said bearing faces in the middle radial planes extending between said adjacent holes which open onto said given bearing face.

6. A spinning ring according to claim 1, having two traveller-engaging bearing faces, further comprising at least two pairs of adjacent holes extending from said annular groove onto one of said two bearing faces at a countersunk portion thereof, said supply wick being threaded in said pairs of holes in order to distribute lubricant at said countersunk portion, said holes which accommodate the distributing wicks opening onto the

other of said bearing faces in radial planes which extend intermediate two pairs of adjacent holes which open onto said given bearing face.

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