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TOP ROLL ASSEMBLY

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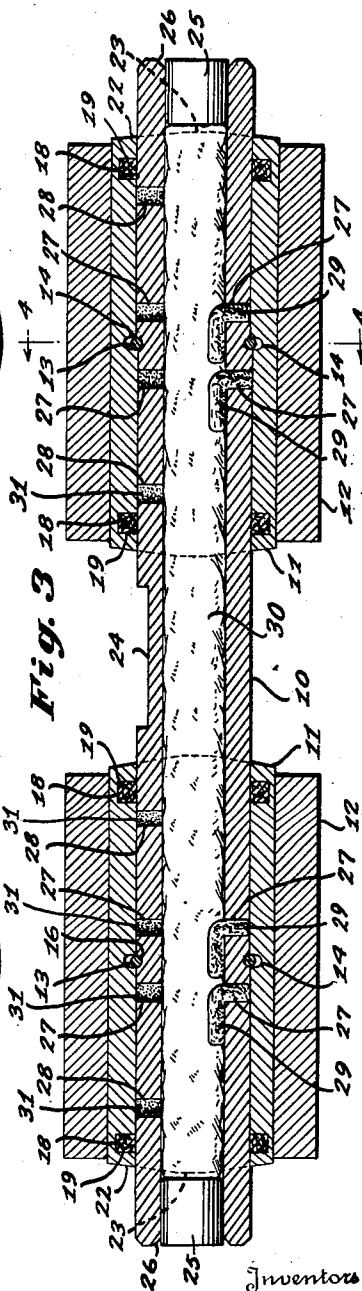
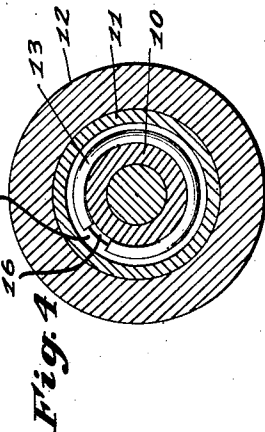
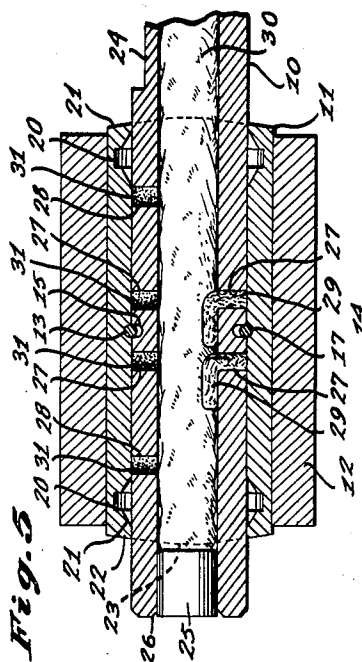
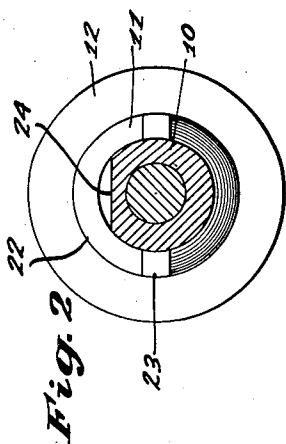
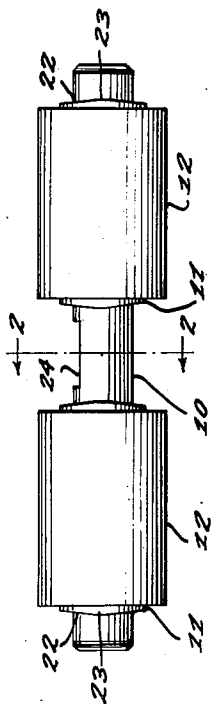


Fig. 1



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TOP ROLL ASSEMBLY

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This invention relates to top rolls for spinning frames and the like, and more particularly to a self-lubricating top roll assembly.

Spinning frames and the like are used extensively in the textile industry to draft and work the fibres of slivers, rovings, and other forms of partially formed yarn in the process of yarn manufacture. These spinning frames are commonly arranged with pairs of drawing rolls disposed in spaced relation so that the slivers or rovings may pass successively between fibre-working surfaces provided on the rolls, the pairs of rolls being driven at progressively increasing speeds which results in a drafting action as the slivers or rovings pass through the rolls.

The pairs of drawing rolls conventionally comprise a lower roll usually formed of steel and having a transversely fluted fibre-working surface, and an upper or top roll having a yielding or resilient fibre-working surface. The fibre-working surface of the top rolls is presented by a body of some material especially adapted for the purpose, such as, leather or cork, or more recently synthetic rubber. This body of material is mounted on a steel or cast iron mandrel or the like to dispose it in roll form, and is commonly referred to as a spinning cot. Usually, two cots are mounted in spaced relation on a common mandrel for operating association with a bottom roll. Also, according to the usual arrangement, the lower rolls are carried in fixed mountings and are driven, while the mandrel of the top rolls is supported at each end in pocket bearings and is held in place by a saddle. This saddle rides the mandrel at its longitudinal center and is weighted to maintain the top rolls in proper operating relation with the bottom rolls so that the top rolls are driven by frictional contact with the lower rolls.

The lubrication of top rolls arranged in this manner has characteristically presented a troublesome maintenance problem. With this arrangement, frequent lubrication is required both at the pocket bearings and at the point at which the saddle is supported. Because this lubrication is required frequently, it has been standard practice to arrange open lubrication points at the pocket bearings and the saddle to reduce the time consumed in maintaining proper lubrication for the top rolls. These open lubrication points, however, have the serious disadvantage of exposing the lubricant so that it accumulates the lint or "fly" formed during the spinning operation which not only impairs the effectiveness of the lubricant, but which also results in deposits

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of lubricant-contaminated material that may work into the yarn being processed and foul it. Also, with an arrangement of this sort, there is a tendency to lubricate the top rolls excessively which increases the above noted possibility of fouling the yarn being processed. Furthermore, the frequent lubrication required as noted above adds substantial labor costs to the operation of spinning frames.

Numerous efforts have heretofore been made to overcome the above noted difficulties by providing self-lubricating top rolls suitable for replacing the conventional top rolls now in use. Most prior efforts have been characterized by an arrangement of rotating cots on a fixed mandrel. So far as we are aware, however, none of these efforts have provided a practical solution, usually because external means were employed for lubricating the rotating cots which not only still required frequent attendance and substantial labor costs, but were easily subject to stopping up through collection of lint, and caused a messy condition if the lubrication supplied was at all excessive.

In those cases where internal means of lubrication was provided for the rotating cots, the means provided was either not adequate for effective lubrication of the cots over long periods, or, if adequate, no provision was made to throttle or regulate the lubricant feed to the rotating cots so as to prevent leakage at the ends of the cots. Another common deficiency in the prior proposals was the absence of any means for excluding lint from the lubricated bearing surface of the rotating cots, which not only allowed lint to contaminate the lubricant, but would result in actual seizure of the rotating cots when the lint built up sufficiently. Where efforts have been made in prior top rolls arranged for self-lubrication to avoid the above noted difficulties, the resulting construction has characteristically been so complicated as to prohibit commercial production and use.

According to the present invention these difficulties and disadvantages are obviated in a top roll assembly arranged for self-lubrication. The top roll assembly of the present invention follows the usual arrangement of spinning cots on a supporting mandrel so that it is adapted to replace the conventional form of top roll without any further change in existing equipment. This assembly differs over the usual form of top roll only in that the spinning cots are mounted for rotation on the mandrel, and the mandrel is constructed to contain internally a supply of

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lubricant and feed this lubricant to the rotating spinning cots. This arrangement makes it possible to eliminate entirely all manual lubrication of the top rolls during operation, since the top rolls have to be removed to regrind the fibre-working surfaces of the spinning cots as often as two or three times a year, and lubrication for the spinning cots can easily be maintained for corresponding periods according to the present invention. Also, the arrangement of the present invention eliminates all open deposits of lubricant on the top rolls so that all danger of fouling the yarn with lubricant is precluded.

Another important feature of the present invention is the manner in which provision is made for excluding lint from the lubricated surfaces of the mandrel on which the spinning cots rotate.

The top roll assembly of the present invention is described more in detail below in connection with the accompanying drawing in which:

Fig. 1 is a side elevation of a top roll assembly constructed in accordance with the present invention;

Fig. 2 is a transverse section taken on the line 2—2 in Fig. 1;

Fig. 3 is a central longitudinal section;

Fig. 4 is a transverse section taken on the line 4—4 in Fig. 3; and,

Fig. 5 is a fragmentary longitudinal section illustrating a modified embodiment of the invention.

As shown in the drawing, the top roll assembly of the present invention comprises a tubular shaft member 10 forming a mandrel, and sleeves 11 carrying spinning cots 12 disposed for rotation on the shaft member 10. As mentioned above, the spinning cots 12 are spaced on the shaft member 10 in the usual arrangement, and the shaft member 10 forms a mandrel of usual dimension so that the top roll assembly of the present invention is interchangeable with top rolls of conventional form and design.

The spinning cots 12 may consist of any of the materials suitable for this purpose, and may be mounted on the sleeves 11 in the same manner in which they are mounted on the mandrels in conventional top rolls. It is preferable in the usual case to form the sleeves 11 of cast iron and the shaft member 10 of steel because these materials are generally available and relatively inexpensive, and lubrication of the top rolls is facilitated when they are used in the above noted combination. However, other materials may be selected as indicated or desired under particular circumstances. The sleeves 11, for example, might be formed of bronze, brass, wood, plastic, or other bearing materials if desired.

The sleeves 11 carrying the spinning cots 12 are positioned longitudinally on the shaft member 10 by retaining means comprising a resilient ring member 13 carried in a circumferential groove 14 formed in the central portion of the interior surface of the sleeves 11 (see Fig. 3) or as at 15 on the exterior surface of shaft member 10 (compare Fig. 5), and adapted to engage yieldingly complementary grooves 16 or 17 formed as the case may be on the exterior surface of shaft member 10 or in the central portion of the interior surface of the sleeves 11, so as to keep the sleeves 11 laterally in place on shaft member 10. The grooves 14 and 15 are formed with sufficient depth to accommodate displacement of the resilient rings 13 to a po-

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sition flush with the interior surface of the sleeves 11 or the exterior surface of shaft member 10, while the grooves 16 and 17 are formed with a depth somewhat less than half the cross-sectional diameter of the ring members 13. Accordingly, by applying lateral pressure the ring members 13 may be readily slipped in and out of engagement to install the sleeves 11 on or remove them from the shaft member 10 as required.

The sleeves 11 are further formed with circumferential grooves adjacent the end portions of the interior surfaces thereof. According to one embodiment of the invention these grooves take the form shown at 18 in Fig. 3 of the drawing and are fitted with felt washers 19 extending from the grooves 18 in contact with the tubular shaft member 10. However, the felt washers 19 may be omitted if desired, in which case the grooves will provide accumulating chambers to collect the lint in the general form of a washer to act as a shield, and they can be formed as shown at 20 in Fig. 5 with flared lip portions 21 so as to allow easy assembly of the sleeves 11 when the retaining ring 13 is carried on the mandrel 10. Also, the end faces of the sleeves 11 are partially relieved on a bias as indicated at 22 so as to provide at least one extending flat portion 23. The purpose and function of this arrangement of the end portions of the sleeves 11 is described further in detail below.

As previously mentioned, the shaft member 10 is tubular in form and of uniform diameter and contour throughout its length, except for a central flat portion 24 (compare Fig. 2) provided to receive a saddle (not shown) so that shaft member 10 is prevented from rotating when the saddle is in place. The shaft member 10 is further provided with end closures adapting it as a reservoir for lubricant. These end closures 25 may take a variety of forms and any form providing an effective closure for the end of shaft member 10 may be used as desired. A convenient and perhaps the most satisfactory form is that of a plug formed of rubber or the like, and fitted in the ends of shaft member 10 in the nature of a stopper, as shown at 25 in Figs. 3 and 5. When this form of end closure 25 is used it is desirable to chamfer the inside edges at the ends of shaft member 10, as indicated at 26, to facilitate insertion and removal of the end closures 25.

The tubular shaft member 10 is formed with lateral openings extending through its walls as shown at 27 and 28 in Figs. 3 and 5. All of these lateral openings 27 and 28 are covered by the sleeves 11 when assembled in operating relation on the shaft member 10. Certain of these lateral openings, as indicated by the reference numeral 27, are positioned adjacent the longitudinal center of the sleeves 11 for feeding lubricant between the interior surface of the sleeves 11 and the shaft member 10, while other of these lateral openings, as indicated by the reference numeral 28, are located adjacent the end portions of the sleeves 11 for returning excess lubricant to the reservoir formed by the tubular shaft member 10.

The lateral openings 27 provided for feeding lubricant to the sleeves 11 and positioned longitudinally in shaft member 10 adjacent the central portions of the sleeve 11, are also preferably positioned as closely adjacent the grooves 14 or 15 as practical to insure adequate lubrication at the retaining ring member 13. Also, ac-

according to the preferred arrangement shown in the drawing, the lateral openings 27 are arranged to extend through the top and bottom walls of the mandrel 10 on the normal axis at the point of operating contact of the spinning cots 12. The bottom lateral openings 27 may, however, be shifted as much as 90° from this position if desired, although it is usually advantageous to arrange them inclined or oriented downwardly. These bottom lateral openings 27 are fitted with wick material 29 to provide a properly regulated flow of lubricant from the tubular shaft member 10.

In addition, it is advantageous to provide a packing of absorbent material, as represented at 30 in the tubular shaft member 10 for storing a supply of lubricant. The packing material 30 may be felt or the like, and should be selected for high absorbent properties so that it will absorb and store a maximum quantity of lubricant. The wick material 29 may also be felt if desired, but should be a relatively denser material which will provide a positive but relatively slow flow of lubricant from the tubular shaft member 10. The wick material 29 is held in place by the packing material 30 which angles the wick material 29 over the inner edges of the lateral openings 27 when it is inserted in the tubular shaft member 10. This arrangement also maintains the wick material 29 in intimate contact with the packing material 30 so that while the flow of lubricant is throttled in the downwardly oriented lateral openings 27 by the wick material 29, a ready supply of lubricant is still maintained in these openings at all times.

The shaft member 10 should be further conditioned by roughening or minutely pitting the interior surfaces of the shaft member and the lateral openings 27 and 28 as indicated at 31, to enhance the lubricant transfer characteristics of these surfaces. This roughening may be provided by sandblasting the interior of shaft member 10 intensively, or by acid etching, or by investing the shaft member 10 with a crystalline phosphate coating or the like such as is applied by the process commonly identified by the name "Bonderizing." A phosphate coating treatment provides surface characteristics which are particularly well suited to the needs of the present invention. However accomplished, the above described roughening or minute pitting has a pronounced effect in fostering lubricant "creepage" over the interior surfaces of the shaft member 10 and lateral openings 27 and 28. We have found that, with the shaft member 10 conditioned in this manner, sufficient creepage of lubricant through the upwardly extending lateral openings 27 in shaft member 10 is obtained to lubricate the sleeves 11 even if the downwardly oriented openings containing the wicks 29 become stopped up.

In preparing the top roll assembly for use, the packing material 30 contained in the shaft member 10 is first saturated with lubricant. For this purpose, the end closures 25, or at least one of them, are removed and the shaft member 10 is immersed in a supply of lubricant. It will be appreciated that the lubricant might also be applied in various other ways, but the method of immersing the shaft member 10 in lubricant, as described above, has the advantage of bringing the packing material 30 more surely to its full state of saturation, while at the same time avoiding excessive application of lubricant, for the packing material 30 will reach a condition

of equilibrium at full saturation when allowed to stand in the supply of lubricant. This procedure may also be followed without removing the end closures 25, although saturation of the packing material 30 with lubricant takes place more slowly if this is not done. Any suitable oil or the like adapted for lubricating machinery may be applied as a lubricant to the packing material 30 as described above.

After the shaft member 10 has been allowed to stand in the supply of lubricant for a sufficient period to saturate the packing material 30, it is removed and wiped clean of lubricant on its exterior surfaces, and the end closures 25 are fitted in place. The sleeves 11 carrying the spinning cots 12 may then be slipped on the shaft member 10 to the point where retaining engagement of ring members 13 is obtained and the top roll assembly is ready for use.

In operation, lubricant is fed from the packing material 30 through the lateral openings 27 and between the interior surface of the sleeves 11 and the shaft member 10. Initially, as the interior surface of the sleeves 11 and the interior surface of the shaft 10 will be relatively dry, lubricant will flow by capillary action from the packing material 30 to these surfaces relatively rapidly. When sufficient lubricant has been delivered to these bearing surfaces, however, to form an adequate lubricant film, a state of equilibrium is reached at which the capillary action inducing the flow of lubricant is balanced by the cohesion of the lubricant film formed at the bearing surfaces, so that further flow of lubricant from the packing material is stopped. After this condition is reached, flow of additional lubricant will occur only as the equilibrium becomes unbalanced.

The only possible point of loss of lubricant from this system is obviously at the ends of the sleeves 11. This loss is limited, according to the present invention, so that it is unnoticeable and does not affect the satisfactory operation of the top rolls, by locating the lateral openings 28 in mandrel 10 adjacent the end portions of the sleeves 11. As lubricant works outwardly toward the ends of the sleeves 11, it is carried around the shaft by the rotation of the sleeves 11 and is thus presented to the lateral openings 28 which provide a creepage path for return of the lubricant to the packing material 30, the return of lubricant being induced until the equilibrium conditions mentioned above are satisfied. The treatment of the internal surfaces of the lateral openings 28 so that they are pitted and roughened as previously described facilitates the return flow or creepage of the lubricant. The top lateral openings 27 may likewise serve to return lubricant as it is delivered to the sleeves 11, although these openings constitute primarily equilibrium paths between the lubricant reservoir and the bearing surfaces.

The top roll assembly of the present invention may thus be made self-lubricating for an extended period of time. Actual tests have shown that adequate lubrication for top rolls arranged in this manner can easily be maintained for periods in excess of six months. The spinning cots 12 must be removed more frequently than this for regrinding, and while the spinning cots 12 are being reground the packing material 30 may be resaturated with lubricant, so that all lubrication of the top rolls can be serviced conveniently and without loss of time while the top rolls are removed from operation.

As previously mentioned, a further important

feature of the top roll assembly of the present invention is the arrangement of the end portions of the sleeves 11 for excluding lint from between the lubricated interior surface of the sleeves 11 and the tubular shaft member 10. For this purpose, the sleeves 11 are formed with circumferential grooves adjacent the end portions of the interior surfaces thereof as described above. In the embodiment of the invention shown in Fig. 3 of the drawing, these circumferential grooves 18 are fitted with felt washers 19 which extend in contact with the tubular shaft member 10.

The washers 19 may also be formed if desired of any other suitable packing material having sufficient flexibility for fitting in the circumferential grooves 18 and sufficient resilience or pliability for maintaining effective contact with the shaft member 10 during rotation of the sleeves 11. Rubber might be used for the washers 19, for example, or a rubber-backed felt material could be used. Simple felt washers, however, are perhaps best adapted for use according to the present invention because they are not deteriorated, such as rubber would be, by contact with the lubricant supplied to the sleeves 11. As a matter of fact, the felt washers 19 have the particular advantage of absorbing any lubricant which may work past the lateral drain openings 28, and thus providing further means for preventing leakage of lubricant at the ends of the sleeves 11, and affording a further reservoir point for assisting in the maintenance of equilibrium conditions in the system.

The principal function of the felt washers 19, however, is for excluding lint from between the lubricated interior surface of the sleeves 11 and the tubular shaft member 10. The lint or "fly" formed during the spinning operation accumulates in substantial quantities adjacent the top rolls and will work between the sleeves 11 and the shaft member 10 unless some provision is made to preclude this result. When this lint reaches the lubricated interior surface of the sleeves 11 it contaminates the lubricant there and produces a particularly harsh abrasive action on the shaft member 10. This abrasive action may be so pronounced in certain circumstances as to cause the top roll assembly to break down or seize long before relubrication should be necessary.

The felt washers 19 preclude this result by forming a barrier having a great affinity for the lint so that it retains and excludes the lint from between the lubricated interior surface of the sleeves 11 and the shaft member 10. The arrangement of the felt washers 19 in the circumferential grooves 18 provides for effective disposition of these washers as a lint barrier in relation to shaft member 10, while at the same time maintaining the washers 19 as a composite element of the sleeves 11 so that they create no assembly problem.

We have found that the exclusion of lint at the ends of the sleeves 11 may be further aided by relieving the end faces of the sleeves 11 on a bias as previously mentioned above, and as shown in the drawing at 22. This biased portion 22 should be arranged to leave at least one extending flat or protruding portion 23 on the end faces of the sleeves 11. A very satisfactory arrangement, as shown in the drawing, is to bias the end faces of the sleeves 11 in opposite directions so as to leave two extending flat portions 23. The number of protruding portions 23 may be still further increased, if desired, so that a toothed configuration in the end faces of the sleeves 11

results, but the arrangement with only two flat portions 23 as shown in the drawing has the advantage of allowing a less acute degree or angle of relief in forming the biased portions 22, so that the extent of the end faces of the sleeves 11 can be limited closely adjacent the edges of the spinning cots 12, which is desirable, and also so that a more gradual bias or taper is presented to the lint accumulation.

The function of the biased portions 22 on the end faces of the sleeves 11 is to displace lint on the shaft member 10 from the sleeves 11 and keep it pushed back from complete circumferential rubbing contact against the end faces of the sleeves 11, so that the lint is not presented for entrance between the sleeves 11 and the shaft member 10. The biased portions 22 act in the nature of a plow or wedge for this purpose during rotation of the spinning cots 12, with the result that the lint builds up as a collar on the shaft member 10 adjacent the protruding portions 23 on the end faces of the sleeves 11 rather than entering the end of the sleeves 11. The extending flat portions 23 are provided to space this displaced lint in a collar on the shaft 10, the portions 23 purposely being made to protrude with a flat or rounded configuration, and preferably being polished smooth, so that they are adapted to rub this collar of lint without disintegrating it. A further result of the reduced circumferential contact of the lint collar against the end faces of the sleeves 11 is to reduce the possibility of absorption of lubricant by the lint collar from the end of the sleeves 11.

When the end faces of the sleeves 11 are arranged in this manner, use of the felt washers 19 may in many circumstances be eliminated if desired. If the felt washers 19 are eliminated, the circumferential grooves may be formed as shown at 20 in Fig. 5 with flared lip portions 21 so that the retaining rings 15 may be carried on the mandrel 10 and compressed by these flared lip portions 21 for assembly of the sleeves 11 on the mandrel 10.

The circumferential grooves 20 then become accumulating chambers for any lint which may enter the ends of the sleeves 11 and the lint that deposits in the grooves 20 in this manner tends to build up in the form of a washer which then acts as a shield against further passage of lint.

In addition to the substantial operating advantages of the top roll assembly of this invention as pointed out in the foregoing description, this assembly has the further advantage of a simple and sturdy construction. The arrangement of the assembly is such that standard tubular stock may be used for the shaft member 10, and as the shaft member 10 is of uniform diameter throughout its entire length, except for the saddle positioning flat 18, it is easily machined for incorporation in the assembly. Also, as previously noted, conventional spinning cots 12 may be used with the assembly, and the assembly is interchangeable in spinning frames and the like with conventional top rolls, without any modification of the spinning frames on which they are installed.

We claim:

1. A top roll assembly for spinning frames and the like comprising a tubular shaft member forming a mandrel and adapted as a reservoir for lubricant, sleeves carrying spinning cots disposed for rotation on said tubular shaft member, said shaft member being formed with lateral openings allowing transfer of lubricant between the reser-

voir formed by said shaft member and the interior surface of said sleeves, certain of said lateral openings being positioned adjacent the longitudinal center of said sleeves for feeding lubricant between the interior surface of said sleeves and the exterior surface of said shaft member, and other of said lateral openings being located adjacent both of the end portions of said sleeves for returning excess lubricants to the reservoir formed by said shaft member, said last mentioned openings extending upwardly from said reservoir and being unobstructed.

2. A top roll assembly for spinning frames and the like, comprising a tubular shaft member forming a mandrel and adapted as a reservoir for lubricant, sleeves carrying spinning cots disposed for rotation on said tubular shaft member, and lateral openings extending through the walls of said tubular shaft member for transfer of lubricant between the reservoir formed by said shaft member and the interior surface of said sleeves, all of said lateral openings being covered by said sleeves, certain of said lateral openings being positioned adjacent the longitudinal center of said sleeves for feeding lubricant between the interior surface of said sleeves and the exterior surface of said shaft member, and other of said lateral openings being located adjacent both of the end portions of said sleeves for returning excess lubricant to the reservoir formed by said shaft member, said last mentioned openings extending upwardly from said reservoir and being unobstructed.

3. A top roll assembly for spinning frames and the like comprising a tubular shaft member forming a mandrel and adapted as a reservoir for lubricant, sleeves carrying spinning cots disposed for rotation on said tubular shaft member, and lateral openings extending through the walls of said tubular shaft member adjacent the longitudinal center of said sleeves as well as adjacent both of the end portions thereof for feeding and return of lubricant between the reservoir formed by said tubular shaft member and the interior surface of said sleeves, the openings adjacent said sleeve end portions extending upwardly from said reservoir and being unobstructed.

4. A top roll assembly for spinning frames and the like comprising a tubular shaft member forming a mandrel and adapted as a reservoir for lubricant, sleeves carrying spinning cots disposed for rotation on said tubular shaft member, and lateral openings extending through the walls of said tubular shaft member for transfer of lubricant between the reservoir formed by said tubular shaft member and the interior surface of said sleeves, the interior surfaces of said tubular shaft member and said lateral openings being invested with a crystalline phosphate coating for enhancing the lubricant transfer characteristics of said surfaces.

5. A top roll assembly for spinning frames and the like comprising a tubular shaft member forming a mandrel, sleeves carrying spinning cots disposed for rotation on said tubular shaft member, end closures adapting said tubular shaft member as a reservoir for lubricant, and lateral openings extending through the walls of said tubular shaft member adjacent the longitudinal center of said sleeves as well as adjacent both of the end portions thereof for feeding and return of lubricant between the reservoir formed by said tubular shaft member and the interior surface of said sleeves, certain of said lateral openings adjacent the longitudinal center of said sleeves

being oriented downwardly and the lateral openings adjacent said sleeve end portions extending upwardly from said reservoir, the interior surfaces of said tubular shaft member and said lateral openings being minutely pitted for enhancing the lubricant transfer characteristics of said surfaces, said upwardly extending lateral openings being unobstructed, and wick material being disposed in said downwardly oriented lateral openings.

6. A top roll assembly for spinning frames and the like, comprising a tubular shaft member forming a mandrel, sleeves carrying spinning cots disposed for rotation on said tubular shaft member, and means for lubricating said sleeves for rotation on said shaft member comprising end closures adapting said tubular shaft member as a reservoir for lubricant, a packing of absorbent material in said tubular shaft member for storing a supply of lubricant, and lateral openings extending through the walls of said tubular shaft member for transfer of lubricant between said packing material and the interior surface of said sleeves, all of said lateral openings being covered by said sleeves, certain of said lateral openings being positioned adjacent the longitudinal center of said sleeves for feeding lubricant between the interior surface of said sleeves and the exterior surface of said shaft member, and other of said openings being located adjacent both of the end portions of said sleeves for returning excess lubricant to the reservoir formed by said shaft member, said last mentioned openings extending upwardly from said reservoir and being unobstructed.

7. A top roll assembly for spinning frames and the like comprising a tubular shaft member forming a mandrel and adapted as a reservoir for lubricant, sleeves carrying spinning cots disposed for rotation on said tubular shaft member, and lateral openings extending through the walls of said tubular shaft member adjacent the longitudinal center of said sleeves as well as adjacent both of the end portions thereof for transfer of lubricant between the reservoir formed by said tubular shaft member and the interior surface of said sleeves, the lateral openings adjacent said sleeve end portions extending upwardly from said reservoir and being unobstructed, the interior surface of said sleeves being circumferentially grooved adjacent both of the end portions thereof beyond said last mentioned lateral openings, and said grooves being fitted with felt washers extending in contact with said tubular shaft member for preventing entrance of lint between the lubricated interior surface of said sleeve and said tubular shaft member.

8. A top roll assembly for spinning frames and the like comprising a tubular shaft member forming a mandrel and adapted as a reservoir for lubricant, sleeves carrying spinning cots disposed for rotation on said tubular shaft member, and lateral openings extending through the walls of said tubular shaft member adjacent the longitudinal center of said sleeves as well as adjacent both of the end portions thereof for transfer of lubricant between the reservoir formed by said shaft member and the interior surface of said sleeves, the lateral openings adjacent said sleeve end portions extending upwardly from said reservoir and being unobstructed, said sleeves being formed with a circumferential groove adjacent the central portion of the interior surface thereof and carrying a resilient ring member in said groove for yieldingly engaging a complementary

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groove formed in said tubular shaft member, and the interior surface of said sleeves being formed with further circumferential grooves adjacent both of the end portions thereof beyond said last mentioned lateral openings, and said grooves being fitted with felt washers extending in contact with said tubular shaft member for preventing entrance of lint between the lubricated interior surface of said sleeves and said tubular shaft member.

9. A top roll assembly for spinning frames and the like comprising a tubular shaft member forming a mandrel and adapted as a reservoir for lubricant, sleeves carrying spinning cots disposed for rotation on said tubular shaft member, and lateral openings extending through the walls of said tubular shaft member for transfer of lubricant between the reservoir formed by said shaft member and the interior surface of said sleeves, the end faces of said sleeves being relieved on a bias whereby said end faces act in the nature of a plow to displace lint on said tubular shaft member from said sleeves during rotation of said spinning cots, and the interior surface of said sleeves being circumferentially grooved adjacent the end portions thereof, said grooves providing accumulating chambers for lint entering between said tubular shaft member and said sleeves.

10. A top roll assembly for spinning cots and the like as defined in claim 9 and further characterized in that said grooves in the interior surface of said sleeves adjacent the end portions thereof are fitted with felt washers extending in contact with said tubular shaft member for preventing entrance of lint between the lubricated interior surface of said sleeves and said tubular shaft member.

11. A top roll assembly for spinning frames and the like comprising a tubular shaft member forming a mandrel and adapted as a reservoir for lubricant, sleeves carrying spinning cots disposed for rotation on said tubular shaft member,

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and lateral openings extending through the walls of said tubular shaft member for transfer of lubricant between the reservoir formed by said shaft member and the interior surface of said sleeves, the end faces of said sleeves being partially relieved on a bias providing at least one protruding portion whereby the biased portion of said end faces acts in the nature of a plow to displace lint on said tubular shaft member from said sleeves and said protruding portion tends to space the displaced lint in a collar on said tubular shaft member during rotation of said spinning cots.

12. A top roll assembly for spinning cots and the like as defined in claim 11 and further characterized in that the interior surfaces of said sleeves are circumferentially grooved adjacent the end portions thereof, said grooves being formed with flared lip portions and providing accumulating chambers for lint entering between said tubular shaft member and said sleeves.

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