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(54) **Lubricant composition and its use.**

(57) A lubricant composition comprising resin, oil or fat, preferably of vegetable or animal origin, and, optionally, wax is described. Furthermore, the use of the composition as a lubricant in drilling or tapping operations in metal, especially steel and aluminium, is described.

LUBRICANT COMPOSITION AND ITS USE

The present invention relates to a composition having a lubricating effect and to the use of said composition as a lubricant in metal drilling or tapping operations.

5       The lubricants hitherto used in drilling or tapping operations in metal, especially steel and aluminium, suffer from the disadvantage that they wholly or partly lose their lubricating effect already after a short period of operation. Fresh lubricant must constantly  
10 be supplied to the hole. Furthermore, no lubricant has so far been conceived which produces smooth surfaces directly upon drilling or tapping, and to obtain the desired smoothness some type of subsequent treatment of the hole has been necessary.

15       Some of the lubricants employed incorporate components which, upon drilling or tapping, give off substances which tend to produce irritation in persons standing close to the drilling operation and, furthermore, may be injurious when inhaled or getting into  
20 contact with the skin. A great deal of money must thus be invested in preventive measures to protect employees, for instance by providing exhaust ventilation over the work place and cleaning the exhaust air from the factory premises.

25       The present invention provides a lubricant composition which is effective over a long period of time and, furthermore, is harmless to the environment.

      The composition according to the present invention comprises resin, an oil or a grease and, optionally,  
30 wax. The invention also comprises the use of the composition as a lubricant in metal drilling or tapping operations, especially in steel or aluminium.

      By using the composition according to the present invention as a lubricant in drilling or tapping opera-

tions in metals, especially steel and aluminium, a much longer effect is obtained than has so far been possible. The composition stays on the drill or the tap in the form of a lubricating layer during drilling or tapping, simultaneously as a very smooth surface in the hole is obtained. In most cases, no subsequent treatment is required. This is especially surprising in connection with drilling or tapping operations in aluminium which is generally recognised as a material extremely difficult to machine.

The reason why the oil or grease retains its lubricating effect on the drill or the tap apparently is that the resin and the wax, if any, forms a film on the drill or tap, which film retains the oil or the grease which thus can exercise its lubricating effect over a long period of time.

The oil or grease may be of animal, vegetable or mineral origin, but best is an animal or vegetable oil or fat to avoid injurious effects upon the user. Thus, it is possible to use conventional vegetable or animal oils which are used as cooking oil, and also butter or lard.

Wax is added to the composition if a more paste-like consistency is desired. The more wax is added, the more paste-like will be the consistency of the composition. The preferred wax is beeswax which is harmless to human beings. If no wax is added, a cutting oil, i.e. a liquid composition, is obtained.

The composition is prepared by melting together the different ingredients. Resin normally has a melting point of about  $135^{\circ}\text{C}$ , but in admixture to the remaining ingredients of the composition, the resin melts already at about  $90^{\circ}\text{C}$ .

It is, therefore, a further advantage of the present invention that no other solvents are required in the preparation, whereby a further hazard of prior art lubricant compositions is avoided.

The proportion of the different ingredients of the composition may vary within rather wide limits, depending upon the consistency one requires for the finished composition. A proposed composition is as fol-

5 lows:

3-6 parts by weight of fat or oil

3-5 parts by weight of resin

optionally, 1-3 parts by weight of beeswax.

10 The composition may also contain minor amounts of other components, such as different types of fillers, or other additives which do not affect the above-mentioned effect of the composition.

The resin employed is a natural resin, such as rosin which is a vegetable sap product from conifers.

15 Also other natural resins may be used.

## CLAIMS

1. A lubricant composition, c h a r a c t e r i s -  
e d in that it comprises resin, oil or fat and, op-  
tionally, wax.

2. Composition as claimed in claim 1, c h a r a c -  
5 t e r i s e d in that the oil or fat is of vegetable  
or animal origin.

3. Composition as claimed in claim 1 or 2, c h a -  
r a c t e r i s e d in that the wax is beeswax.

4. Composition as claimed in one or more of claims  
10 1-3, c h a r a c t e r i s e d in that the resin is  
a rosin.

5. Composition as claimed in one or more of claims  
1-4, c h a r a c t e r i s e d in that it comprises  
3-5 parts by weight of resin, 3-6 parts by weight of  
15 oil or fat and, optionally, 1-3 parts by weight of wax.

6. Use of a composition comprising resin, oil or  
fat and, optionally, wax, as a lubricant in drilling  
or tapping operations in metal, especially steel or  
aluminium.



| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                             |                                                |                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|------------------------------------------------|
| Category                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Citation of document with indication, where appropriate, of relevant passages                                                                                                                                                               | Relevant to claim                              | CLASSIFICATION OF THE APPLICATION (Int. Cl. 3) |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | GB-A- 462 556 (CELLULOID CORP.)<br>* Page 1, lines 48-62; page 2, lines 8-41 *                                                                                                                                                              | 1-6                                            | C 10 M 1/02                                    |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ---<br>GB-A- 461 715 (BRITISH CELANESE LTD.)<br>* Page 1, line 71 - page 2, line 25 *                                                                                                                                                       | 1-6                                            |                                                |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ---<br>CHEMICAL ABSTRACTS, vol. 77, no. 20, 13th November 1972, page 88, no. 128254t, Columbus, Ohio, USA; & SU - A - 329 813 (ALL-UNION SCIENTIFIC-RESEARCH INSTITUTE OF FILM MATERIALS AND ARTIFICIAL LEATHER) 04-03-1972<br>* Abstract * | 1-5                                            |                                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                             |                                                | TECHNICAL FIELDS SEARCHED (Int. Cl. 3)         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                             |                                                | C 10 M                                         |
| The present search report has been drawn up for all claims                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                             |                                                |                                                |
| Place of search<br>THE HAGUE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                             | Date of completion of the search<br>21-08-1984 | Examiner<br>ROTTSAERT L.D.C.                   |
| <p><b>CATEGORY OF CITED DOCUMENTS</b></p> <p>X : particularly relevant if taken alone<br/>Y : particularly relevant if combined with another document of the same category<br/>A : technological background<br/>O : non-written disclosure<br/>P : intermediate document</p> <p>T : theory or principle underlying the invention<br/>E : earlier patent document, but published on, or after the filing date<br/>D : document cited in the application<br/>L : document cited for other reasons<br/>&amp; : member of the same patent family, corresponding document</p> |                                                                                                                                                                                                                                             |                                                |                                                |