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# UNITED STATES PATENT OFFICE

GEORG WILHELM BURKHARDT, OF DUSSELDORF-ON-THE-RHINE, GERMANY, ASSIGNOR TO I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT, OF FRANKFORT-A-MAIN, GERMANY

## PROCESS OF LUBRICATING STEAM TURBINES

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The invention relates to a process of lubricating steam turbines. It especially consists in using as lubricants, in opposition to the current opinions, oils capable of forming stable emulsions with water.

Hitherto in steam turbines the use of oils not emulsifying with water has been expressly prescribed supposing that the formation of emulsions in the turbine would give rise to considerable damages in the engine. That proves correct only for unstable emulsions re-separating easily into oil and water. By using, however, oils absorbing water in the form of difficultly separable water-in-oil emulsions which are rendered stable by the admixture with the oil of a neutral emulsifying agent consisting of hydrophile high-molecular alcohols the lubricating effect of the oil is not deteriorated but increased by the absorbed water.

There may be, for instance, employed as oils with a high emulsifying power for water those containing an admixture of high molecular alcohols e. g. alcohols of wool grease. Good results are obtained by using an oil mixture consisting of 97 parts of a refined mineral oil distillate (sp. grav. 0,890, viscosity 2–3° Engler at 50° C) and 3 parts of wool grease alcohols. But the invention is in no manner limited to this special mode of performing it, other oils with or without addition of emulsifying agents being likewise suitable, if they are apt to form stable emulsions of the above-mentioned qualities.

In order to cleanse and to use again such oils they are passed through a high speed centrifuge, both water and impurities absorbed by the oil such as metallic particles being separated.

I claim:

A process of lubricating steam turbines which consists in using a lubricating oil containing an admixture of high molecular alcohols of wool grease.

In testimony whereof I have hereunto set my hand.

GEORG WILHELM BURKHARDT.