

UNITED STATES PATENT OFFICE.

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METHOD OF LUBRICATING BEARING SURFACES.

No Drawing.

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My invention has for its object an efficient way of producing a smooth bearing surface of maximum supporting area and low coefficient of friction. This I accomplish by first forming a backing or supporting element of the bearing surface of rigid material as metal and in the form of any well known bearing, bushing or block, the said surface having the inequalities incident to manufacture.

The said surface will support a journal or other surface at a number of points or small areas of contact and will be supported from the said surface by any hollows or inequalities between the two. My invention consists of treating such a surface or pair of surfaces with an amalgam if the said surface is formed of a non-amalgamable substance or with metallic mercury if the said surface is such as will amalgamate with mercury. In either case I secure a film of amalgam on the said surface with results in the high spots being dissolved and flowed away and into the valleys or depressions of the surface which upon being filled become supporting areas to equalize with the reduced high spots. In this way a bearing surface of maximum supporting area is formed and I prefer to employ an excess of mercury in the said treatment whereby the bearing surface retains liquid mercury thereon in finely divided state which forms a perfect lubricant for a journal or other surface rubbing thereon.

In the treatment of amalgamable surfaces

it is necessary to thoroughly clean the metal before it can be successfully amalgamated, as by ether, cyanide solution, or in any other well known way, and the application thereon of metallic mercury will then form the necessary coating which will flow in minute degree from the high spots establishing the surface of maximum bearing area or in place of the metallic mercury a salt of mercury may be substituted therefor, such that the chemical action which takes place between the bearing surface and the salt will result in the deposit of metallic mercury thereon. Bi-chloride of mercury or nitrate of mercury and other salts may be employed in this way. Where the bearing surface to be treated is of a non-amalgamable metal an amalgam may be applied thereon, as of copper and mercury or sodium and mercury, the amalgam in such cases filling the interstices or depressions in the metal and building the depressions up to the high spots, thus providing the bearing surface of maximum area and the amalgam now carries liquid mercury which acts as a lubricant thereon for any other surface contacting therewith.

I claim:—

The method of lubricating metallic bearing surfaces which comprises maintaining a film of liquid mercury therebetween adapted to take the pressure of the load.

In testimony whereof, I have hereunto set my hand at San Francisco, California, this 12th day of March, 1921.

CHARLES FREDERIC SHERWOOD.