

UNITED STATES PATENT OFFICE.

FRED A. ALLEN, OF CEDAR RAPIDS, IOWA.

LUBRICANT.

SPECIFICATION forming part of Letters Patent No. 549,223, dated November 5, 1895.

Application filed August 5, 1895. Serial No. 558,306. (No specimens.)

To all whom it may concern:

Be it known that I, FRED A. ALLEN, a citizen of the United States, residing at Cedar Rapids, in the county of Linn and State of Iowa, have invented certain new and useful Improvements in Graphite Lubricants; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of this invention is to produce a lubricant for bicycle-chains and analogous purposes possessing good antifrictional qualities adapted to thoroughly penetrate to all parts of the chain and being of such a nature as not to cause dust to stick thereto.

The invention consists of a composition of graphite, a small quantity of fatty oil, and a much larger quantity of a volatile oil, as hereinafter more fully set forth.

The common objections to the lubricants used on bicycle-chains and other analogous mechanism exposed to grit and dust is that the oil used in the preparation of them tends to gather dust and thus defeats the very end for which it is applied. In the case of graphite lubricants in common use it is practically impossible to get the graphite into the joints of the chain, and the mere external application of it is of little practical value. This invention is designed to remove these objections by providing a liquid graphite lubricant adapted to penetrate to all the joints, the most of the liquid soon evaporating after such saturation, leaving a film of practically pure graphite in all the bearings as a permanent lubricant.

A composition well adapted to the ends in view is the following, in about the proportions stated: benzine, one gallon; lard-oil,

one pint; powdered graphite, three pounds. These are intimately mixed by stirring or shaking. The tendency is, of course, for the graphite to settle to the bottom, so the composition should be well shaken before applying.

In applying the composition to bicycle-chains, the chain is first cleaned by soaking a few minutes in benzine. When freed from grease and dirt, it is immersed in the lubricating composition, the same having first been well mixed by shaking. After immersion the chain is manipulated to cause the liquid to penetrate to the joints, as by holding one end of it in each hand and moving the hands alternately up and down. In a short time the benzine evaporates, leaving a film of graphite over the entire chain. This is easily brushed off the upper and outer sides of the chain, leaving the residue to lubricate it.

The amount of oily matter remaining after the evaporation of the benzine is so insignificant that grit will not stick to the chain, and while some will of course collect thereon, as on any other part of the machine, it may be brushed or blown off in a moment. The effect of the lubrication is also much more permanent than in the case of oil, and is in the highest degree effective in rendering the chain smooth and flexible.

Having thus described my invention, I claim—

A lubricant composed of powdered graphite, a fatty oil, as lard oil, and benzine, in substantially the proportions stated.

In testimony whereof I affix my signature in presence of two witnesses.

FRED A. ALLEN.

Witnesses:

J. F. GROAT,

J. M. ST. JOHN.