

UNITED STATES PATENT OFFICE.

NATHAN KING AND SYLVESTER J. HILL, OF FRANKLIN, PENNSYLVANIA.

IMPROVEMENT IN LUBRICATING COMPOUNDS.

Specification forming part of Letters Patent No. **148,568**, dated March 17, 1874; application filed February 23, 1874.

To all whom it may concern:

Be it known that we, NATHAN KING and SYLVESTER J. HILL, of Franklin, in the county of Venango and State of Pennsylvania, have jointly invented certain new and useful Improvements in Lubricants and Process for Making the Same; and we 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 pertains to make and use it.

Our invention relates to an improvement in lubricants, and the process for preparing, manufacturing, and compounding the same; and consists, essentially, of the elements, proportions, and preparations as will hereinafter appear.

We are aware of the English patent of J. H. Johnson, No. 228 of 1854, wherein is employed a mixture of bog-oil, talc, plumbago, and lamp-black, combined by the influence of heat. We are also aware of the patent granted to B. Battle, No. 60,989, January 8, 1867, wherein is claimed a lubricator "composed of animal grease or 'residuum,' plumbago, sulphur, steatite, carburet of magnesia, glue, resin, and hydrate of lime, with or without molasses." These elements are combined under the influence of heat. We disclaim what might be covered by the inventions referred to, although it is apparent that crude petroleum did not enter into, and was not contemplated in, the patent to Battle, and was not generally known as a lubricant at the time of the patent to J. H. Johnson. Neither was it mentioned in said patent. We are therefore not aware of any lubricant like unto our within-described article.

Our lubricant consists, essentially, of a mechanical mixture of crude petroleum or rock-oil and plumbago or graphite, whereby two results are accomplished, first, a lubricant capable of resisting low degrees of temperature without congealing; second, a superior article as a lubricant.

We prepare and compound our invention as follows: Take, say, forty gallons of crude petroleum or rock-oil at a gravity of 32°, and for every degree of specific gravity to which it is

desired to reduce this oil is added, say, four pounds of commercial graphite.

The *modus operandi* of preparing and compounding the oil and graphite is as follows: Commercial graphite is reduced to an impalpable powder by any suitable process of grinding or pulverizing. A suitable proportion of this, as above set forth, is mechanically mixed by a similar grinding process that may be employed in reducing commercial graphite to powder.

We employ no heat in the combination of our invention, but simply mingle the compounds in the mechanical manner referred to until they become so intimately mixed that the graphite is held in suspension without undergoing any sensible chemical change, which would impair its lubricating properties. Neither is the oil deteriorated by heat, as is the case where heat is employed in uniting the ingredients.

When desirable, we propose to add lard-oil to the compound of petroleum and plumbago in suitable proportions to improve the body of the lubricant. We may add castor-oil for the same purpose, or we may add lard and tallow, also, for the purpose of improving the body of the lubricant.

The object of increasing the body of the lubricant is to accommodate the use of it to heavier machinery, and may be employed in suitable proportions to render it sufficiently dense for the use intended.

What we claim as our invention is—

The combination of graphite or plumbago with mineral and animal oils, or either of the latter, in the proportions and the manner of compounding, substantially as described.

In testimony that we claim the foregoing we have hereunto set our hands this 20th day of February, 1874.

NATHAN KING.
SYLVESTER J. HILL.

Witnesses:

S. P. MCCALMONT,
J. W. OSBORN.