

UNITED STATES PATENT OFFICE.

BRIDGET FRENCH, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN LUBRICATING COMPOUNDS.

Specification forming part of Letters Patent No. 126,282, dated April 30, 1872.

Specification describing a certain Improvement in Lubricating Compounds, invented by Mrs. BRIDGET FRENCH, of the city of Rochester, in the county of Monroe and State of New York.

My invention consists in the combination of petroleum or other oil, plumbago, and bees-wax, either with or without other adjuncts, the object being to hold the plumbago in suspension and prevent its precipitating to the bottom, as hereinafter described.

The proportions of the elements may be varied as necessity may require, but I prefer about the following: Petroleum or other oil, one gallon; plumbago, fourteen ounces; bees-wax, five ounces. I prefer, also, to use with the above the following elements; but, if desired, they may be dispensed with, as those first named will form a composition that holds the plumbago in suspension, and answers every practical purpose: Mutton tallow, one and one-half ounces; soda, one-half ounce. In case of the use of these additional parts, a less quantity of bees-wax may be used—say, about one and one-half ounce, more or less.

The elements of the compound are mixed together at once, and thoroughly stirred or agitated while being raised to a boiling heat. The mass is then cooled and subsequently stirred, which is essential as the finishing step of the process.

Many attempts have been made to hold plumbago in suspension in oil for the purpose of producing a lubricant, but, so far as I am aware, have failed. It has been proposed to combine glue, asbestos, glycerine, caoutchouc, and other materials, but they have not been effective for the purpose. By practical test I find I can hold the plumbago in suspension by the use of bees-wax alone. This material, when melted in the petroleum or other oil, diffuses through and unites thoroughly with it, and when cold forms a combination that will not separate, and the particles of lead uniting with the particles of wax, are held by adhesion and cannot precipitate. In this manner the suspension becomes effective, and the lead at all times is equalized through the oil. I have tested this by weeks of standing, and find the suspension as perfect at last as it was at first. The effect, I believe, is owing to the adhesion of the minute particles of lead and

wax, and their thorough incorporation through the body of oil. The peculiar qualities of the wax are such as to render it a good lubricant when dissolved in oil, differing in this respect from tarry or pitchy materials, which would have a tendency to adhere to and clog journals or other bearings of machinery. The tendency of the wax is to hold the lead to the journal so as to form a proper lubricating film without sticking or clogging it. A greater or less proportion of the wax will be required, according to the weight or size of the machinery, or winter or summer use, and a lighter or heavier quality of the oil may also be desirable under the same circumstances. Hence I do not desire to confine myself to exact proportions, nor to a particular grade of oil. The compound above described constitutes a very effective and useful lubricant, and may be used to great advantage without the addition of other parts; but from experiment I have ascertained that a less quantity of the bees-wax may be used by the addition of the alkali and tallow; hence the cost is greatly reduced by the employment of these constituents. Instead of soda, as before stated, any alkali may be employed, and instead of alkali and tallow being employed as separate elements, soap, either hard or soft, (which is a compound of the two,) may be applied. Different proportions of the alkali and tallow, as well as the wax, may be used. The effect of the alkali and unctuous oil or grease is to saponify the mass by which it is solidified to the proper extent, or brought to the proper semi-fluid state to form a lubricant. It also has the effect to combine with the wax and plumbago, effecting thereby a chemical change to a certain extent that is beneficial to the compound. This I have found from experiment to be the case.

The artifice by which the plumbago is kept in permanent suspension in the oil seems to have no effect on the useful properties of either. Oil and plumbago are chemically neutral to each other, and there is nothing in or about the compound which can induce any injurious change in any of the constituents. There can be no corrosive or other injurious effect upon the metal surfaces on which it is used. The value of the oil as a lubricant is not lessened, and to this are added the well-known desirable properties of plumbago. I have contem-

plated the use, in this connection, of paraffine and the dead oils of petroleum, but do not think them so effective as bees-wax for holding plumbago in suspension in oil.

I do not claim, broadly, the use of plumbago in oil as a lubricant, as I am aware it is not new; but

What I claim, and desire to secure by Letters Patent, is—

The combination of bees-wax, (either with or without alkali and tallow,) with petroleum or other oil and plumbago, for holding the plumbago in suspension, as herein described.

2. I also claim, in combination with an oil having plumbago and bees-wax in solution, the use of alkali and unctuous oil or tallow, (or soap,) for the purpose of saponifying and solidifying the mass, as herein described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

BRIDGET FRENCH.

Witnesses:

R. F. OSGOOD,
ARCHIE BAINE.