

# UNITED STATES PATENT OFFICE.

IRA G. BETTS, OF DETROIT, ASSIGNOR OF TWO-THIRDS HIS RIGHT TO  
GEORGE B. PETERS, OF MARSHALL, MICHIGAN.

## IMPROVEMENT IN LUBRICATING COMPOUNDS.

Specification forming part of Letters Patent No. **161,469**, dated March 30, 1875; application filed  
February 18, 1875.

### CASE B.

*To all whom it may concern:*

Be it known that I, IRA G. BETTS, of Detroit, in the county of Wayne and State of Michigan, have invented a new and Improved Lubricating Compound adapted for Cups; and I do hereby declare that the following is a full and exact description of the same.

The object I have in view is the production of a lubricating compound which is sufficiently fluid to be used in cups, and which will have the qualities of durability in wear, convenience in use, and will not change in changes of temperature, or be impaired in efficiency by being kept on hand a long time; and my invention therein consists in combining, with a peculiar base, asbestos, paper-pulp, or other equivalents, to hold the greasy parts of the mixture mechanically, and a certain quantity of some essential oil to give the compound mobility, and enable it to resist changes in temperature.

The base above referred to is particularly described in an application for a patent which I have filed, and is made in the following manner:

I dissolve one pound of potash in three gallons of soft water. I melt forty pounds of lard in a proper vessel, preferably of copper or brass. I pour into the melted lard the water in which the potash has been melted, and boil the same from one-half hour to one hour, frequently stirring it, until the mixture will fall from the stirring-stick, held horizontally, in a thin film-like glue. To this base, when cool, I add five gallons of cold lard-oil, in which has been previously intimately mixed, preferably by grinding in a suitable mill, forty-eight ounces of asbestos, or forty-eight ounces of dried paper-pulp, or twenty-four ounces of each. This oil, thus intimately mixed with the asbestos or paper-pulp, or both, I mix intimately with the base before named, preferably by grinding.

To the compound thus produced I add about eight ounces of the oil of sassafras, and stir it thoroughly into the mass. The oil of sassafras may, however, be added when the lard-oil and the asbestos or paper-pulp, or both,

are mixed with the base before named; but I prefer adding it afterward.

In the base thus prepared the water is nearly or quite evaporated, and the lard-oil is held mechanically, so that upon pressure of the journal it is forced in small quantities to the surface, and the whole mass is continually kept in the same condition as to moisture.

By this addition of the asbestos alone, all the other materials being used, I have a lubricating compound very suitable for journals of heavy machinery.

By the addition of paper-pulp alone, all the other materials being used, I have a lubricating compound offering very little resistance to friction, and especially adapted to light machinery.

By using both the asbestos and paper-pulp, all the other materials being used, I have a lubricating compound suitable for all purposes.

The office of the oil of sassafras is to granulate the mass, by reason of which it assumes the texture of sugar, and the particles have a mobility which enables them to feed automatically in a cup upon the journal. Besides this, it has the effect of preventing the mass from congealing in cold weather.

This compound, thus prepared, has the appearance and about the density of lard at a temperature of about 60° of Fahrenheit, except that it is granulated, and exhibits the fiber of asbestos and paper-pulp, which, in the process of grinding before named, have been reduced to separate fibers, and will not change materially by exposure to the air, or by exposure to heat or cold. It can, moreover, be packed for transportation in metal, glass, or other proper vessels, and will not be changed by such transportation.

While I prefer the formula which I have named for my compound, I am aware that alkalies other than potash, and animal fats other than lard, may be used in the base with good results. I am also aware that, instead of lard-oil, other animal oils, or heavy mineral oils, may be used with good effect; and, instead of asbestos or paper-pulp, or both, other vege-

table fiber or leather may be used in the same way; and, instead of the oil of sassafras, other essential oils may be used with good results; also, that the proportions of the several ingredients may be changed somewhat; but all of these changes I regard as embraced in the scope of my invention.

Having thus described my lubricating compound, what I claim as new therein, and my invention, is—

A lubricating compound adapted to be used in cups, wherein to a base made of alkali, water, and fat partially saponified, to which a

certain quantity of cold oil has been added and a vehicle of asbestos and paper-pulp, or either, to take up and mechanically hold the greasy or oily substances, there is added an essential oil, substantially as and for the purposes set forth.

This specification signed and witnessed this 18th day of February, 1875.

IRA G. BETTS.

Witnesses:

CHARLES THURMAN,  
GEORGE L. DYER.