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COOLING COMPOUND AND LUBRICANT AND PROCESS OF MANUFACTURING SAME

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My invention relates to cooling compounds for the journals of railway car wheels, and particularly to a novel type of cooling compound which also serves as a lubricant.

In the art there have been a number of different types of cooling compounds the purpose of which has been to prevent hot boxes on railway cars. Most of these products have a decided disadvantage due to the fact that if they are compounded for their cooling action they fail as lubricants, and if they are compounded for their lubricating action they fail as cooling compounds.

It is the object of my invention to provide a cooling compound and lubricant which will have a small amount of lubricant in it which is not of the type which will readily separate. A further object is the incorporation in the compound of materials which will tend to keep the material in a completely emulsified condition. I further incorporate enough water in the compound so that as the axles of the car wheels rotate there is adequate water to keep the journals cool.

The above and other objects to which reference will be made in the ensuing disclosure I accomplish by that novel combination and process for compounding same of which I will cite a specific example.

For a base for my compound I prefer to use a potash soft soap which may be made with semi-drying oils of the type of corn oil, linseed oil, soya bean oil, or cotton seed oil. Where a perfume is added to the compound, fish oils may be used or partially hydrogenated oils, although the titer of partially hydrogenated oils is so high that compounds made with this product will be somewhat hard for winter use.

In order to facilitate emulsification I prefer to add some saponifiable oil such as neat's foot oil. To give the compound body I may use cocoanut oil or palm kernel oil, or any of the other oils which, although readily melted at fairly low temperatures, will, when solidified, have some body. Further, to assist in the emulsification I prefer to use some stearic acid or its equivalent, such as hydrogenated fatty acid of high titer, which is preferably saponified with sodium carbonate. I may also incorporate in the compound some finely divided carbon such as flaked graphite.

As a specific example of the ingredients which are ordinarily used in a batch of my cooling compound, to make 148 lbs. of the mixture, I proceed to manufacture one hundred pounds of soft soap, for example from corn oil. The finished soap will test about 40% anhydrous soap so that there will be contributed from the soft soap about sixty pounds of water. To the soft soap thirty pounds of water is added. Then about five and one-half pounds of stearic acid is added with enough sodium carbonate to saponify the stearic acid. I may use caustic soda for saponifying the stearic acid, but I find it preferable to use sodium carbonate as the gas evolved from the saponification assists in the proper emulsification of the product.

After the aforenoted ingredients have been thoroughly mixed together I add three pounds of flaked graphite and three pounds of cocoanut oil. Three pounds of neat's foot oil is also added which makes up the one hundred and forty-eight pound batch of finished product.

While a straight mineral lubricating oil might be used instead of the neat's foot oil and cocoanut oil as lubricants, it would tend to separate in either hot or cold weather which would be extremely undesirable as any separation tends to allow the compound to break, in which condition the water would not exert a proper cooling function.

While my product is made with ingredients which may be varied at different times in accordance with the market price, I use in my compound about sixty per cent of water, thirty per cent of potash vegetable oil soap, figured on an anhydrous basis, two per cent of a saponifiable lubricating oil, such as neat's foot, two per cent of a vegetable oil of the cocoanut group characterized by a low melting point with a firm congealing structure, two per cent of finely divided graphite, and about four per cent of a saponified fat or fatty acid of high titer. The percentages may, of course, be varied a reasonable amount. The reaction of the batch, after all the ingredients are in, is neutral.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

A cooling compound and lubricant consisting substantially of the following ingredients:—100 lbs. of potash vegetable oil soap containing sixty per cent of water, 30 lbs. of water, 3 lbs. of neat's foot oil, 3 lbs. of graphite mixed with three pounds of cocoanut oil and six and one quarter pounds of stearic acid soap.

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