March 18, 1952 P. STRUGHOLD ET AL 2,589,582

LUBRICANT STICK

Filed Aug. 12, 1949 2 SHEETS—SHEET 1

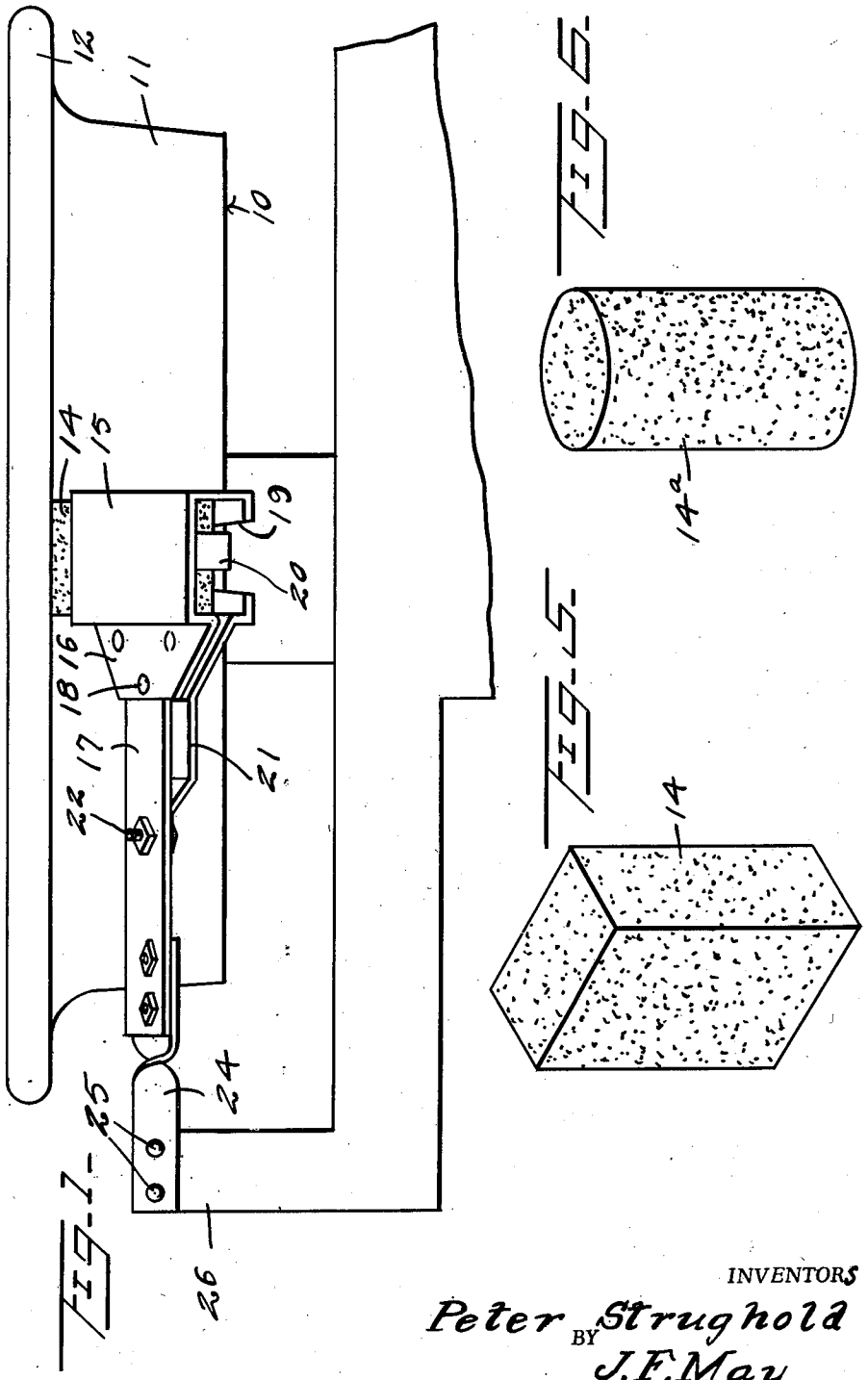


FIG. 1.

FIG. 5.

FIG. 6.

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Fig. 2.

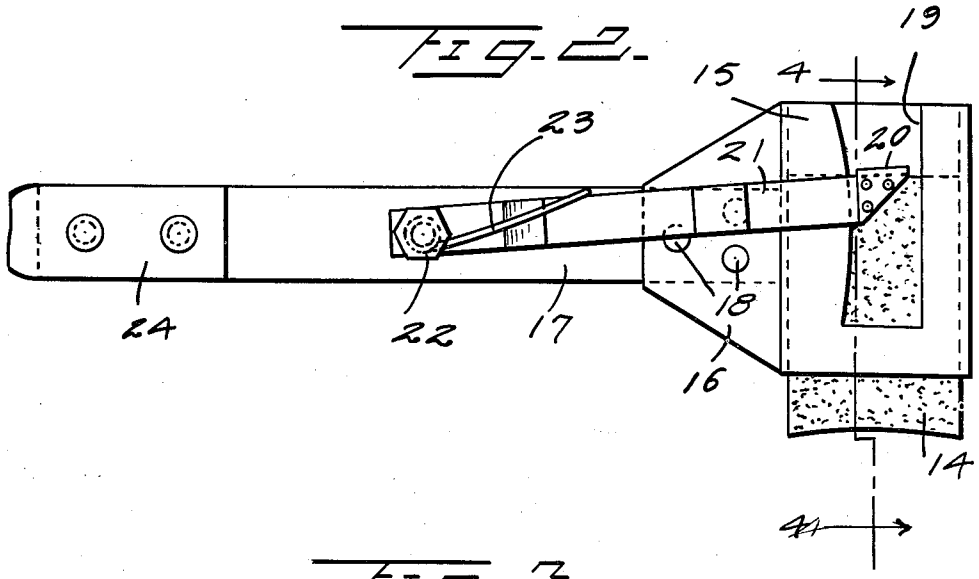


Fig. 3.

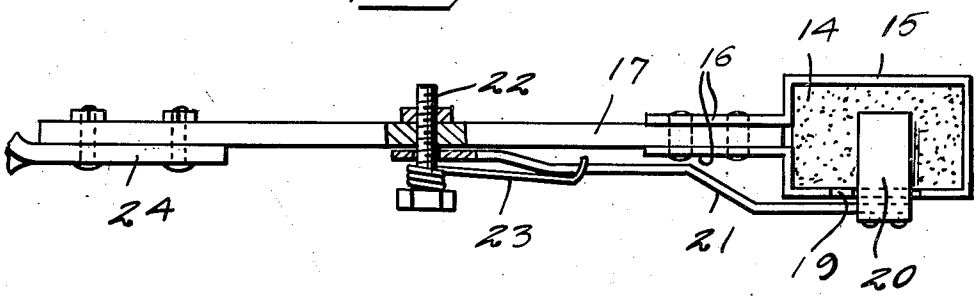
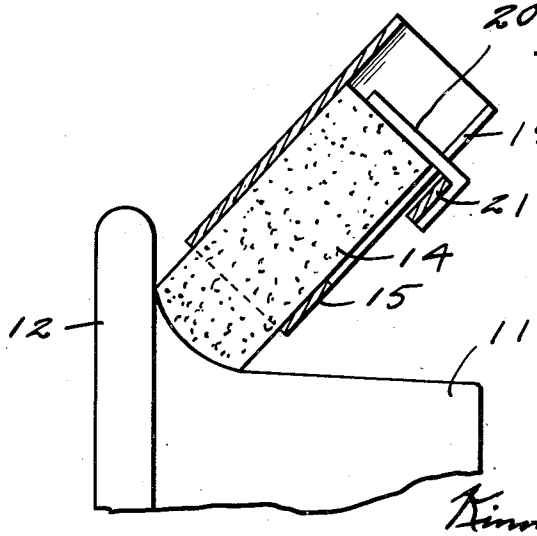


Fig. 4.



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LUBRICANT STICK

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5 Claims. (Cl. 252—12)

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This invention relates to a wheel flange lubricating brush or stick, and is a continuation-in-part of our copending application Serial Number 783,062, filed October 30, 1947, now abandoned, for Car Wheel Lubricators.

An object of this invention is to provide an improved dry lubricant stick for car wheel flanges, which includes, talc, soapstone, plumbago or amorphous graphite either singly or in combination, with a Bakelite binder which is supported in position to engage the wheel flange.

Another object of this invention is to provide a dry lubricant, which will cling to the wheel flange so as to prevent undue wear on the flange when the car is on a curve and also prevent undue wear on the head of the rail.

Another object of this invention is to provide a dry lubricant, so as to eliminate the serious objections to bonds, such as grease, oils, rosins or the like which liquify under frictional heat. For instance car wheel lubricators are separated from the sanding jets by a distance of a few feet or inches. When the rails are sanded for traction, this greasy, oily or gluey surface of the flange offers a ready and inviting binding agent for this sand. Thus while giving temporary lubrication, grease, rosin, gums defeat the very purpose of the lubricating device by increasing wear. Clay as a binder is also not used because it also is an abrasive and has no clinging ability.

A further object of this invention is to provide an improved dry lubricant, block, brush or stick for use with a novel, simple design, rugged and easily maintained spring pressed holder, which embodies in one form thereof a Bakelite bonded dry body of talc and/or soapstone and/or plumbago, amorphous graphite or other dry lubricant.

A further object of this invention is to provide an improved lubricant, brush, block or stick formed of Bakelite binder and a dry lubricant, such as talc, soapstone, plumbago, or amorphous graphite or equivalants either singly or in combination of such great mechanical strength as to be practically self-supporting, capable of holding the lubricant in constant forcible contact with the flange and to eliminate the need of delicate and elaborately designed holders and lubricators.

A further object of this invention is to provide an improved dry lubricant brush, block or stick formed of a Bakelite binder and a dry lubricant such as talc, soapstone, plumbago, or amorphous graphite either singly or in combination, which is of great heat, cold, acid, alkali, rain, snow and impact resisting qualities.

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A further object of this invention is to provide an improved dry lubricant block of sufficient mechanical strength to eliminate the need of supporting lead or other cores, cases or shells.

A further object of this invention is to provide an improved dry lubricant stick formed of inexpensive materials with corresponding low cost benefits to the railroads.

With the above and other objects in view, our invention consists in the arrangement, combination and details of construction disclosed in the drawings and specification, and then more particularly pointed out in the appended claims.

In the drawings:

Figure 1 is a plan view of a wheel lubricating means constructed according to an embodiment of this invention, showing the device in applied position with respect to a car wheel.

Figure 2 is a detailed side elevation of the holder for the lubricant.

Figure 3 is a detailed plan view, partly broken away and in section, of the holder.

Figure 4 is a fragmentary sectional view taken on the line 4—4 of Figure 2.

Figure 5 is a perspective view of the lubricant stick having a polygonal configuration in cross section.

Figure 6 is a perspective view of a round lubricant stick.

Referring to the drawings, the numeral 10 designates generally a car wheel which includes a rim 11 and a flange 12. In order to provide a means whereby the flange 12 and the outer portion of the rim 11 may be lubricated by means of a dry lubricant, we have provided a lubricant stick generally designated as 14. The stick 14 is mounted in a substantially tubular holder 15 which includes a pair of rearwardly extending ears 16 which are secured to a supporting bar 17 by fastening means 18. The tubular holder 15 is formed with an elongated slot or opening 19 in one side thereof and a follower 20 loosely engages through the opening 19 and is adapted to press on the upper end of the lubricant stick 14.

The follower 20 is carried by an elongated angled arm or lever 21 which is pivotally mounted on a bolt 22 extending through the supporting bar 17. A spring 23 constantly urges the bar or lever 21 downwardly so as to constantly press against the lubricant member 14 and hold this member in contacting relation with the flange and outer portion of the wheel rim. The supporting bar 17 is secured at its outer end to a twisted bar 24 which is fixed by fastening means

25 to a suitable part 26 of the truck frame. The twisted supporting bar 24 is adapted to maintain the holder 15 in the desired angular relation with respect to the flange 12 so that the lubricant 14 will maintain the flange in the desired condition.

The lubricant member 14 has a configuration coincident with the shape of the holder 15. This holder 15 may be either polygonal, or round or oval in cross section, and as shown in Figures 5 and 6 the lubricant members 14 and 14*a* will be molded either polygonal as shown in Figure 5 or round as shown in Figure 6. The exact shape of the lubricant member 14 is not important, whereas the material of which the lubricant member is composed is important.

In general the lubricant member 14 is formed as follows:

	Per cent
Dry lubricant	80 to 90
Bakelite binder	20 to 10

The dry lubricant referred to consists of soapstone, graphite or amorphous graphite either singly or in combination. By use of the term Bakelite we refer to a conventional synthetic resin formed by the condensation of phenols and formaldehyde; for example, approximately 94.5% phenols or equivalents, .5% household ammonia, and 5% formaldehyde (35 U. S. P.) combined to provide a thermosetting cementitious substance. In the selection of a dry lubricant as set forth we have found that a relatively coarse amorphous graphite of approximately 140–145 mesh screen gives the best results and is preferable over flake graphite for the reason that flake graphite will not readily adhere to a revolving locomotive wheel. The ingredients are mixed thoroughly and then molded under pressure of 15,000 lbs. at a minimum temperature of 250° F. The temperature may vary from 250° to 450° F., the higher temperatures requiring proportionately less time to form the stick. At minimum temperature of 250° F. the time is at least three hours.

While a generally satisfactory lubricating member can be attained when constructed according to the above general specifications we have found that a more serviceable stick for certain types of service will result when formed in accordance with the following examples in which amorphous graphite in specific quantities is used.

One example of a specific composition of a stick for lubricating the flanges of a high-speed locomotive used to draw trains in main line service where structural strength requirements of the lubricant stick would be high is:

	Per cent
Amorphous graphite	80
Bakelite binder	20
	100

Another example of the composition for use on low-speed locomotives used in yard service involving operation over a large number of switches and around numerous curves where the requirements for lubrication are greater is:

	Per cent
Amorphous graphite	90
Bakelite binder	10
	100

In forming a lubricant member for use on a locomotive used in general service we use a composition of:

	Per cent
Amorphous graphite	85
Bakelite binder	15
	100

The formed stick 14 will be relatively hard and strong, and will stand up under heat and frictional wear for a relatively long period of time, while at the same time providing a non-flowing lubricant film on the wheel flange which will prevent undue wear on the wheel and on the rail head.

We do not mean to confine ourselves to the exact details of construction herein disclosed but claim all variations falling within the purview of the appended claims.

What we claim is:

1. A heat resistant solid composition combined of 80 to 90% amorphous graphite and 20 to 10% "bakelite" combined under heat at a temperature of at least 250° Fahrenheit and pressure of at least 15,000 pounds per square inch for a period of approximately three hours to form a linear member for engagement with the flange of a locomotive wheel to effect a non-liquefying lubricating coating thereon.

2. A car wheel lubricating element in solid stick form element comprised of from 80% to 90% graphite intermixed with a "bakelite" binder.

3. A heat resistant car wheel lubricating element in solid stick form comprising the combination of approximately 80% amorphous graphite and 20% "bakelite" binder.

4. A heat resistant car wheel lubricating element in solid stick form comprising the combination of approximately 85% amorphous graphite and 15% "bakelite" binder.

5. A heat resistant car wheel lubricating element in solid stick form comprising the combination of approximately 90% amorphous graphite and 10% "bakelite" binder.

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JOSEPH F. MAY.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,100,335	Williamson	June 16, 1914
1,102,473	Chappell	July 7, 1914
1,185,682	Kirkegaard	June 6, 1916
2,326,000	Teeple	Aug. 3, 1943

FOREIGN PATENTS

Number	Country	Date
565,955	Great Britain	Dec. 6, 1944