Patented Jan. 22, 1935 1,988,764

UNITED STATES PATENT OFFICE

1,988,764

STOP LEAK COMPOSITION AND METHOD OF MAKING THE SAME

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No Drawing. Application January 22, 1932, Serial No. 588,236

3 Claims. (Cl. 134—17.5)

This invention relates to improvements in stopping leaks in water circulating systems, particularly automobile radiators. It is known that leaks in such circulating systems can be stopped with relative permanence by the addition of a suitable stop leak composition. Necessary qualities of such a stop leak composition are that it should quickly and effectively plug the leaking opening and yet not interfere with the normal working of the system.

A principal object of our invention is to provide an improved stop leak composition that can be readily dispersed through the system by the normal circulation of the water.

Another object of our invention is to provide a stop leak composition that is capable of plugging leaks and does not stop up the cells of the radiator and interfere with circulation.

Another object of our invention is to provide a stop leak composition that does not settle out in the cooling system and interfere with heat transfer.

Another object of our invention is to provide a stoppage of the leak that is permanent and not susceptible to loosening by the shaking a car receives upon driving over rough roads, etc.

Another object of our invention is to provide a stop leak composition that functions in the presence of the usual anti-freeze compounds.

Another object of our invention is to provide a stop leak composition that is not corrosive to the cooling system and has no objectionable odor.

According to this invention, the base of the improved stop leak composition is a suitable finely divided solid which can readily be suspended in the water of the cooling system, and which will stop any hole the cooling water tends to carry it through. The particles of solid should be fibrous in nature so that they will mat, yet should not be so long as to bridge the cells of the radiator and stop up the cooling system. We prefer to employ fibers not over $\frac{1}{16}$ inch in length.

This fibrous solid should be of a specific gravity about the same as that of water and should be readily wet by water so that it will not tend to settle out of the cooling water. We have found that pulverized spent Pyrethrum flowers from insecticide manufacture, after cooking with an alkaline material, such as sodium hydroxide or sodium silicate, have the necessary fibrous nature to serve as a suitable stop leak base. Any other material meeting the above requirements, such as paper pulp or wood pulp may also be employed. The paper that we use is preferably prepared from bleached sulphite stock of very low lignin content which has been passed through a Hollander beater and Jordan engine, formed on the fourdrinier and then re-beaten in the hollander thus obtaining a pulp in extremely fine state of sub-division and substantially free from sticky lignins.

In addition to the base, a mucilaginous binder is required which will hold the stop leak in place once a mat or patch has been formed over the leak. Mere addition of glue or starch paste to the composition is not effective in the low concentration we prefer to employ. Efficient results are obtained only if the binder is present in jelly-like clots similar, for instance, to frogs' eggs. It is not necessary that these clots be discrete masses of uniform shape but it is necessary that they possess sufficient mechanical strength to prevent their filtering completely through the partially matted patch. We have found that in properly formulated compositions, a leak is quickly partially stopped by a loosely matted, felt-like pad of the fibrous base and this semi-patch is then bound together with the jelly-like clots of the binder, these not only holding the fibers to one another but also penetrating the patch and establishing a hold upon the outer surface of the wall being patched. The outer jelly which is exposed to the air then dries and firmly glues the patch in place.

Numerous materials have these properties requisite for binders, the caustic treated Pyrethrum flowers mentioned above, besides forming a matting substance, also yield sticky masses of the required type. Flaxseed, preferably sifted to 20 mesh before use, is also well suited for this purpose.

To obtain the quick dispersion of the compound throughout the cooling water, it is desirable to introduce the composition as a concentrated water suspension in which all of the ingredients are present in their proper form. If dry flax seed were employed, for instance, some time would elapse before this had assumed the jelly-like character necessary for effective leak stopping. Thus suitable compositions are:

Example I

Pulverized spent Pyrethrum flowers	10 grams
Sodium silicate, 40° Bé	5 cc.
Benzoic acid (preservative)	0.3 gram
Water	200 cc.

Heat to boiling and boil gently for 2 hours before packaging.

Example II

Paper pulp	4 grams
Sifted flax seed	5 grams
Phenol (preservative)	1 gram
Water	200 cc.

Mix cold and package.

These compositions are given only by way of example and should not be construed as limitations either to the particular proportions or ma-

terials indicated. Either constitutes a charge sufficient for cooling systems of under 4 gal. capacity. For larger systems correspondingly larger charges are required. Dyes and odorants may be added to these compositions to obtain any color or odor required.

The foregoing description is merely illustrative and various changes and alternative arrangements may be made within the scope of the appended claims in which it is our intention to claim all novelty inherent in the invention as broadly as the prior art permits.

We claim:

1. A stop leak composition for water circulating systems, comprising as chief ingredients paper pulp, flax seed finer than 20 mesh, and water.

2. A stop leak composition for water circulating systems according to claim 1, in which phenol is added as a preservative.

3. A stop leak composition for water circulating systems, comprising as chief ingredients about 4 grams of paper pulp, 5 grams of sifted flax seed, 200 cubic centimeters of water, and a small percentage of a perservative.

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