Patented Mar. 17, 1931 1,797,141

UNITED STATES PATENT OFFICE

AURBORN L. HAGER AND LON S. HAGER, OF NASHVILLE, TENNESSEE

MANUFACTURE AND TREATMENT OF AUTOMOBILE BRAKE BANDS, LININGS, STRAPS, DISKS, CLUTCH FACINGS, AND CONES

No Drawing. Application filed August 17, 1928. Serial No. 300,392.

Our invention relates to the method and means for treating fabric and similar material for use primarily as brake bands, linings, straps, disks, clutch facings and cones and the like, and has in view particularly the use of these devices in automobiles, vehicles and the like.

An object of the invention is to provide a method and means for treating the said brake bands, etc., with a material which will make them impervious to moisture, will give them a lubricating character as well as greater adhesive effects on the surfaces to prevent squeaking and grabbing, with the result that there will be less wear on drums and disks, and thus prolong their lives.

Another object of the invention is to provide a new solution or paste for treating materials which will protect the materials against heat and friction, and thus prevent loss of power when these materials are used as brake linings, brake drums or brake bands, or like uses.

Another object of the invention is to provide a solution with which to treat brake bands and the like which will render the said bands impervious to moisture.

Further objects and advantages of the invention will become apparent as the description proceeds.

Our invention is applicable to brake bands, linings, etc., which are woven or spun in the form of a fabric belt manufactured with iron wire threads, asbestos and cotton threads or the like, or to brake bands, linings, etc., which are cast, compressed or molded from comminuted material.

In treating brake bands or the like which are woven in the form of a fabric belt, we use the following ingredients:

First, fine or coarse graphite,
Second, white lead,
Third, creosote.

In preparing the solution, we preferably take about 65 parts of graphite and 35 parts of white lead. These two ingredients are then thoroughly mixed together and then mixed with a creosote solution. Enough creosote is added to make a penetrating fluid. The fabric is then treated with this solution. Usually the amount of solution represents between ½% and 3% of the total volume of material forming the brake band, lining, etc. This proportion may be increased for parts which are to be used with very heavy automobiles, or when the part is to be subjected to very heavy duty. We do not therefore, intend to limit the invention to this particular proportion.

In applying the solution to the fabric we find either of two methods particularly suitable. In the first of these methods we treat the threads from which the fabric is to be woven with the material during the weaving process,—that is, the threads of the fabric are thoroughly impregnated with the solution as they pass into the loom. The woven fabric is also subsequently treated both inside and outside with the improved solution. In applying the solution to the raw threads as they enter the loom we either spray the solution upon the threads, or we deliver it to a brush from which it is applied directly upon the threads before they undergo the weaving operation in the loom.

Another method for treating the fabric is to first weave the linings, band, etc., and then subject them to the solution. In this case the solution is applied by hydraulic pressure on the fabric, so that the solution may permeate and saturate the same until the threads or cords of the fabric are thoroughly covered with a film of the solution.

Any suitable means for applying the solution hydraulically to the woven fabric comes within the scope of our invention. When using this method the fabric is treated before the lining or fabric goes through the usual and customary toughening or pressing process.

We use the hydraulic method when treating fabrics known as "soft linings" since the solution will easily pass through and form a film around the cords of which the linings are woven. When linings are made with "cotton hard cord" that is tightly woven, it is difficult for the solution to penetrate the fabric. In treating this kind of fabric therefore we preferably use the first named method

Published by AsbestosClaims.Law
asbestosclaims.law/library/22946/1

of spraying or brushing the threads with the solution before they pass into the loom.

When material has been treated with our solution containing graphite, white lead and creosote, the creosote is absorbed in the cotton material and the graphite and white lead form a solid matter in the fabric. When heated the graphite and white lead become a hardened base within the lining, which does not gradually work out of the finished product as is the case when graphite is mixed with such materials as oil, grease, starch, paraffin, gelatine or other similar materials. Since both the white lead and the graphite are insoluble in water, the treated fabric is impervious to moisture. It is likewise not injured by any temperatures to which it will be subjected in ordinary use. In fact, the mixture of graphite and white lead becomes more hardened by contact with such temperatures as would burn out the oil, grease, paraffin, starch or gelatine from the lining.

When treating a fabric which has been cast or compressed such as certain types of brake bands, linings, straps, disks, clutch facings and cones, we use the following ingredients:

First, fine or coarse graphite,
Second, white lead, and
Third, alcohol.

We use the same proportions of graphite and white lead as used for the woven or fabric types. In preparing the solution in this case we mix together denatured alcohol and white lead until they form a thin paste and then add the graphite. The solution is then mixed with the raw materials from which the parts are to be molded. When so mixed and cast the graphite and white lead thoroughly permeate the raw material and are ultimately distributed throughout the article. As soon as the brake band, lining, strap, etc., is molded, cast or compressed, the alcohol promptly evaporates, leaving only the graphite and white lead.

When the brake band, lining, etc., has been molded, cast or compressed of material treated with this solution of graphite, white lead and alcohol, the resulting product is substantially the same as that described with respect to the woven product, and is particularly unsusceptible to heat, and is impervious to moisture as well as having its wearing qualities very considerably increased.

It will be obvious to those skilled in the art that various changes may be made in our device without departing from the spirit of the invention, and we, therefore, do not limit ourselves to what is shown in the drawings and described in the specification, but only as set forth in the appended claims.

Having thus fully described our said invention, what we claim as new and desire to secure by Letters Patent, is:

1. A brake lining, formed of fabric material impregnated with a solution of graphite, white lead and creosote, substantially as set forth.

2. A brake lining formed of comminuted material impregnated with a solution of graphite, white lead, and creosote, and compressed into form, substantially as set forth.

3. A solution for treating brake bands comprising graphite, white lead and creosote, wherein approximately 65 parts of graphite are used with approximately 35 parts of white lead, substantially as set forth.

4. A solution for treating brake bands, comprising graphite, white lead and denatured alcohol, wherein approximately 65 parts of graphite and approximately 35 parts of white lead are used substantially as set forth.

In witness whereof, we have hereunto set our hands at Nashville, Tennessee, this 24th day of July, A. D. nineteen hundred and twenty-eight.

AURBORN L. HAGER.
LON S. HAGER.