Patented Mar. 17, 1931

1,797,142

UNITED STATES PATENT OFFICE

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

METHOD OF MANUFACTURING AND TREATING BRAKE BANDS

No Drawing. Original application filed August 17, 1928, Serial No. 300,392. Divided and this application filed July 12, 1929. Serial No. 377,912.

This invention relates to the method of treating fabric and similar material for use primarily as brake bands, linings, straps, discs, clutch facings, cones and the like, with a view particularly to their use in automobiles and other vehicles.

An object of the invention is to devise a method for treating the brake bands or other material so as to make them impervious to moisture, give them a lubricating character, and prolong their wearing life.

This application is a division of our copending application, Serial No. 300,392, filed August 17, 1928, for manufacture and treatment of automobile brake bands, linings, etc. Our invention is applicable to brake bands, linings, etc. which are woven or spun in the form of a belt, manufactured with 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 fine or coarse graphite, white lead and creosote. In preparing the solution with which the bands are treated we preferably take about 65 parts of graphite and 35 parts of white lead. These are then thoroughly mixed and then mixed with a creosote solution, enough creosote being added to make a penetrating fluid. The fabric is then treated with the solution and then is preferably heated. Usually the solution represents between one-half per cent and three per cent of the total volume of material forming the brake band. This proportion may be increased for parts which are to be subjected to very heavy duty. We therefore do not wish to limit the invention to this percentage of the solution.

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 solution 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 out with the solution. In applying the solution to the raw threads as they enter the loom we either spray it upon the threads or deliver it to a brush from which it is applied directly upon the threads after they enter the weaving operation in the loom. Instead of applying the solution to the threads before weaving we may apply it to the woven fabric. In this case the solution is preferably applied by hydraulic pressure on the fabric so that the solution may permeate and saturate the fabric until the threads or cords are thoroughly covered with a film of the solution. Any suitable means for applying the solution hydraulically to the woven fabric is deemed to come within the scope of our invention. When using this method the fabric is treated before it goes through the usual toughening or pressing process. We use the hydraulic method when treating fabric known as soft linings, since the solution will easily pass through and form a film around the cords from which the linings are woven. When linings are made with "cotton hard cord", that is, tightly woven cord, it is difficult for the solution to penetrate the fabric. In treating this kind of fabric therefore we preferably use the first named method of spraying or brushing the threads with the solution before they pass into the loom.

When material has been treated by the process just outlined, 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 true when graphite is mixed with such materials as oil, grease, starch, paraffin, gelatine and other similar materials. Since both the white lead and the graphite are insoluble in water, the

Published by AsbestosClaims.Law
asbestosclaims.law/library/23072/1

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 exposure to such temperatures as would burn out the oil, grease, paraffin, starch and gelatine from the lining. When treating a fabric which his been cast or compressed, such as certain types of brake bands, straps, discs, clutch facings and cones, we preferably use fine or coarse graphite, white lead and alcohol. The same proportions of graphite and white lead are used as were used for the woven or fabric type of band. 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 materials. As soon as the brake band, lining, etc. is molded, the alcohol evaporates, leaving the graphite and white lead.

It will be obvious to those skilled in the art that various changes may be made in our method without departing from the spirit of the invention, and we, therefore, do not limit ourselves to what is 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. The method of preparing brake bands, which consists in weaving a fabric, impregnating the fabric during the process of weaving with a solution containing graphite, white lead and creosote, and subjecting the woven impregnated fabric to heat to harden the white lead and the graphite, substantially as set forth.

2. In a method of making brake bands the step which consists in treating the fabric of the band with a solution of creosote, white lead and graphite whereby the bands are made impervious to moisture and are given a lubricating character, substantially as set forth.

3. The method of preparing brake bands and linings, which consists in building a band to assume the desired form, and applying to the finished fabric of the band a solution containing creosote, white lead and graphite, substantially as set forth.

4. The method of making brake bands which consists in molding the bands to shape, and subjecting the bands to hydraulically applied solutions of creosote, white lead, and graphite, substantially as set forth.

5. The method of making brake bands and linings, which consists in molding the bands to shape and then impregnating the fabric with a solution of creosote, white lead and graphite, the solution containing approximately sixty-five parts of graphite to thirty-five parts of white lead with enough creosote solution to make a penetrating fluid, substantially as set forth.

In witness whereof, we have hereunto set our hands at Nashville, Tennessee, this 28th day of June, A. D. nineteen hundred and twenty-nine.

AURBORN LEE HAGER.
LON S. HAGER.

Published by AsbestosClaims.Law
asbestosclaims.law/library/23072/2