Patented May 8, 1934

1,958,220

UNITED STATES PATENT OFFICE

1,958,220

BELT DRESSING

James A. Webb, Buffalo, N. Y., assignor to J. A. Webb Belting Co., Inc., Buffalo, N. Y.

No Drawing. Application February 5, 1932, Serial No. 591,237

6 Claims. (Cl. 149—6)

My invention relates to belt dressings, and it has particular reference to a composition of matter, and a method of making the same, providing an improved material for treating belting to increase the longevity and driving power thereof.

Transmission belts are customarily made of leather, canvas or other vegetable base fabric, or fabric impregnated with rubber, and, while new, often fail to deliver the required amount of horsepower, or, during service, may become dry or harsh, due to the absence of suitable lubricating material. It has heretofore been proposed to apply various compositions to condition the belt for use, or to recondition a used belt, and in such conditioning, the objects have been to soften the belt, so that it would not crack or break, and also to enhance its adhesive qualities against the pulley or driving wheel with which it contacts. Various oils, resinous substances, and the like, have heretofore been used for such purpose.

In considering the matter of providing an adequate belt dressing, I have discovered that a dressing which is applicable to one type of belting is not equally applicable to another. A dressing suitable for a leather belt might not possess enough pulling power for a rubber or rubberized belt, while again, a dressing suitable for a leather belt might detract from, rather than add to, the adhesive qualities of a canvas belt. The factors desired are, therefore, a composition which serves to lubricate the fibers of the material of which the belt is made, without causing them to separate or disintegrate, and a composition which also imparts to the belt surface an enhanced adhesiveness to the pulley or other driving wheel. Compositions which have little or no penetrating power, and which are composed of solid or thick substances, tend to build up on the belt surface, and thus fail to supply the desired degree of internal lubrication, while some purely oleaginous substances may fail as belt dressings because of lack of adhesion imparting qualities.

In a prior patent, No. 1,765,553, I have pointed out that blown tallow, either when used alone or admixed with other ingredients, is a satisfactory belt dressing, particularly for leather belting, and that such material may be used without allowance for time consumed to "break in" the belt, or that time after the application of the dressing during which the adhesive and pulling properties of the belt are decreased, rather than increased. I have further discovered that, while such material may be applied to rubber and canvas belting, more efficacious results for these materials are obtained by using a belt dressing in which the major constituent is a blown vegetable oil, and, more particularly, oils of the class known as semi-drying oils, of which cottonseed oil is exemplary.

Without desiring to commit my invention to the ultimate exhaustive demonstration of my present views, I may state that my observations are to the effect that the vegetable oils are more specific in their beneficial effects to belts which contain appreciable quantities of vegetable fiber. The animal fats, such as tallow and neat's-foot oil, are likewise more applicable to leather belts. I have found that there is a greater nourishing quality and penetrating value for vegetable fiber belting in an oil such as cottonseed oil, whereby adequate lubrication is obtained with a minimum of material, and, to supply the desired adhesion imparting qualities, I subject the oil to an air blowing process, and also may resort to the compounding of the blown oil with other ingredients.

The blowing process is readily conducted by placing a quantity of the oil in a vat and blowing clean air therethrough for a suitable length of time. The blowing process may be conducted more satisfactorily at elevated temperatures, and it should be continued until the viscosity of the oil has reached a predetermined point. In the case of the vegetable semi-drying oils, for example, the blowing process may be controlled by measuring the iodine value, but it is usually sufficient to sample the oil from time to time, and determine the viscosity.

For cottonseed oil, which is an economical material and one readily susceptible of treatment, I heat the oil to a temperature of about 250° F., and continue the blowing process until the viscosity has been increased from its initial value (about one or two minutes Saybolt) to a value between say ten and forty-five minutes Saybolt. I find that a less degree of blowing is beneficial, but the full value of the process is not realized, while if the viscosity is materially increased above the range given, for example, to fifty-six minutes, the oil is too viscous for general application. Other vegetable oils, such as corn oil, may be used in lieu of the cottonseed oil, or a mixture of oils may be treated, but I find that cottonseed oil alone, treated as described, produces a highly practical product.

To the treated oil may be added other substances, such as tar, asphaltic bodies, pitch, rosin, or gums, in accordance with the compounding practices known in the art, but to much less extent than heretofore deemed necessary to effect the results desired. It is not necessary, when us-

ing blown oil, to add the relatively high percentages of these substances which have heretofore been used, and the use of small amounts only has the added advantage of avoiding too much stickiness in the completed dressing.

I find that blown vegetable oils, such as the blown cottonseed oil just referred to, may be applied as a belt dressing to various types of belting with good results. It may be applied to rubber or rubberized fabric belting, for example, without danger of softening the rubber in a destructive manner. By this discovery, I have overcome one of the outstanding objections to dressings for rubber belts. In the case of rubber belts, the blown cottonseed oil immediately imparts enhanced adhesive properties to the belting, whereas, with other materials, a considerable time factor must be allowed, to overcome the initial reduction of tractiveness. In this respect, the blown oil differs materially in its properties from untreated oil.

When using the material for canvas belts which are not rubberized, it is best to admix with the oil a small quantity of some substance such as tar, asphalt, rosin, pitch, or gum, as explained above, which remains on the belt surface, while much of the oil works its way into the pores of the fibers. If a blown oil of comparatively low viscosity is used, a higher percentage of added solid should be employed, and hence it will be seen that the viscosity is advantageously brought within the limits herein set forth. For this application, it is better to form a mixed composition than to omit the added material and increase the viscosity of the oil above the limits given, for otherwise the oil will be lacking in penetrative properties, and the desired virtues of the dressings,—lubrication, traction, and absence of deterioration, may not be obtained in optimum ratios.

It will be seen, therefore, that my invention contemplates the provision of a belt dressing which contains no ingredients harmful to the belting, which serves to lubricate the belt and increase immediately its traction, and which dressing is made essentially of blown vegetable oils, particularly such semi-drying oils as cottonseed oil, so treated as to have enhanced viscosity and withal be penetrative, admixed with other ingredients or used without such other materials.

I claim:

1. The method of dressing a belt to enhance its driving properties which comprises applying thereto blown semi-drying vegetable oil.

2. The method of dressing a belt to enhance its driving properties which comprises applying thereto blown cottonseed oil.

3. The method of dressing a belt to enhance its driving properties which comprises applying thereto blown cottonseed oil having a viscosity of ten to forty-five minutes Saybolt.

4. The method of dressing a belt to enhance its driving properties which comprises applying thereto blown semi-drying vegetable oil having a viscoscity of ten to forty-five minutes Saybolt.

5. The method of dressing a belt to enhance its driving properties which comprises applying thereto a composition of blown semi-drying vegetable oil and a substance of the class consisting of tar, asphalt, rosin, pitch, and gum.

6. The method of dressing a belt to enhance its driving properties which comprises applying thereto a composition of blown cottonseed oil and a substance of the class consisting of tar, asphalt, rosin, pitch, and gum.

JAMES A. WEBB.