To all whom it may concern:

Be it known that we, HARRY L. BUCKNER and EDMUND BURKE, citizens of the United States, and respectively residing at Worcester, in the county of Worcester and State of Massachusetts, and at Portland, in the county of Cumberland, and State of Maine, have invented new and useful Improvements in Waterproofing Compositions for Fibrous Materials, of which the following is a specification.

This invention has for its object to provide a water-repellent composition which may be used for treating and waterproofing fabrics of various kinds, such as felt, paper, woven fabrics, textile belts, paper tubing and the like. It is desirable that such impregnating composition should, for the purposes mentioned, possess a fairly high coefficient of pliability, should be resistant to oxidation so as to withstand weathering, and should be capable of permeating the pores and interstices of the article treated therewith.

We have found that such a composition may be prepared by blending hard asphalt and crude petrolatum or "petroleum grease" as it is sometimes called. These two substances are mixed together in the desired proportions, and the mixture may be softened and rendered plastic by heat conducted and radiated from pipes containing steam under pressure. The petroleum grease appears to have a moderate solvent action upon the hard asphalt. The composition or mixture thus formed may be thinned by a suitable solvent so as to render it highly liquid at a fairly low temperature.

In practice, we place in a kettle equipped with a steam coil suitable proportions of gilsonite and petroleum grease, and these substances are heated with steam at a pressure of approximately 80 pounds. After the entire mass has been thoroughly softened and rendered plastic, we add thereto a sufficient quantity of solvent to thin the mass sufficiently so that it will readily permeate the material to be treated. For example, we may first place in the vat 20 parts by weight of petroleum grease to 60 parts of gilsonite, and then as the solvent or thinner may add 20 parts of gasolene. Instead of gasolene, however, other solvents may be used, such as turpentine, benzol, or a mixture of gasolene and kerosene or other equivalent solvents.

Gasolene is one of the cheapest materials that may be used for this purpose, and hence it is important that the composition should be of such character as to be heated without the application of a flame such as might ignite any vapors. While the mixture is in its thin heated condition, the articles to be treated may be coated therewith or may be dipped into the vat containing the mixture. We have found that relatively thick paper board, paper tubing, and other fairly hard bodies may be saturated or impregnated with the composition after a short period of immersion, the length of time required also depending on the hardness or density of the article to be filled. This period, however, may be decreased by carrying on the impregnation under pressure.

The composition, as herein described, is particularly applicable for treating textile belts, as it retains its flexibility and does not crack and harden even after long usage. This composition can also be applied to the surface of a belt in a cold state, the number of coats depending on the protective surface required. It may also be used as a protective coating for metals. When exposed to the weather, the composition is not appreciably oxidized but retains its relatively soft and flexible characteristics. The composition, furthermore, has decided advantages for insulating purposes. It may be used in the manufacture of insulating tapes and may be also employed for coating wires. By increasing the proportion of petroleum grease, a softer composition is produced; whereas, by increasing the proportion of the gilsonite, a relatively harder but still flexible composition results. Instead of gilsonite, any other hard asphalt, either natural or artificial, may be employed.

It is quite evident that to the basic mixture of gilsonite and petroleum grease (or other residuum resulting from the distillation of petroleum) other ingredients may be added, without departing from the spirit and scope of this invention as set forth in the claims.

Having thus explained the nature of our said invention and described a way of making and using the same, although without attempting to set forth all of the forms in which it may be made or all of the modes of its use, what we claim is:

1. A composition for treating fibrous and
other materials comprising hard asphalt blended with petroleum grease.

2. A composition for treating fibrous and other materials comprising hard asphalt blended with petroleum grease and thinned by a suitable solvent.

3. A composition for impregnating fibrous materials, comprising about 20 parts of petroleum grease, 60 parts of gilsonite and 20 parts of gasoline.

In testimony whereof we have affixed our signatures.

HARRY L. BUCKNER.
EDMUND BURKE.