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WATER TREATING COMPOUND

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2 Claims. (Cl. 210—23)

The invention relates to water treating compounds and particularly to the class of compounds referred to in my former Patent 1,717,905. The purpose of the present invention is to provide a practical and convenient solid form of such tannin compound and a method or process for making it.

Tannin as a water compound may be used either in solid state or in solution. The latter is often very inconvenient. On the other hand, when the moisture from the liquid tannin extract is evaporated, the remaining solid is in a more or less pulverized state and in this form is likewise not very convenient for use especially when intended for use on locomotives. It is therefore desirable to put it into the form of briquettes or similar larger solids so that it can be more readily stored and handled. Attempts at briquetting the solid extract have heretofore proven unsuccessful, or at least unsatisfactory, but by my present invention I have provided a thoroughly satisfactory form of such briquettes and a method of making them. It is true that briquettes can be made by merely pressing the dry or slightly moistened compound into the desired form. The resulting briquettes, however, are very fragile and not adapted for the intended use. The same applies to briquettes made with the use of a number of binders which have been tried. The resulting product has not been strong enough to stand the handling it is subjected to.

A further and serious objection to these briquettes which appeared when they were used, is that they dissolve entirely too fast when put to the desired use. This use consists in the case of locomotives in putting them into the tender of the locomotive. The briquette should be large enough to last over an appreciable period of time, for instance, for a round trip of several hundred miles. If this is not the case, the personnel of the locomotive is put to considerable trouble in connection with watching that the required amount of the material is added as required. If the briquettes could be made to dissolve somewhat slowly, it could be made of such size as to last through a period such as indicated. This is not the case with briquettes as hitherto prepared. They dissolved too fast and the entire amount of the treating material went into the feed water heater and locomotive boiler in too short a time. By my invention the dissolving is sufficiently delayed so that the material lasts over a considerable period.

In preparing my material, I make sure that the tannin itself is in a finely divided form and then I further grind up into a fine powder a quantity of dry glue. These two ingredients I next mix in such proportion that about 10% of the mixture is glue. The exact proportion may be varied from this figure, although I have found that this proportion is the most satisfactory.

After the two have been thoroughly mixed, I moisten the mixture with water or an aqueous glue solution. This is preferably done by atomizing the water or solution on the mixture which is kept in constant agitation to prevent an excess of moisture at any one point. When a glue solution is used, its exact strength may be considerably varied.

Preferably I moisten the mixture only sufficiently so that it can readily be formed into coherent briquettes. I find that from three to five percent moisture is about right. The briquettes are formed of the moistened mass preferably under pressure, and may be given any desired form or size. They will not deteriorate with age, will stand very rough usage without breaking and can be stored under a wide range of conditions.

When such a briquette is put into water, for instance, in the tender of a locomotive, it will not dissolve anywhere nearly as rapidly as will briquettes without binder or with the ordinary binder. The probable explanation of the slowing up of the dissolving is that in the presence of moisture a tannate of glue is formed which is indissoluble in water. This tannate of glue extends through every part of the briquette and in effect forms a sort of a frame-work or porous skeleton with interstices holding the tannin. When the briquette is immersed in water and the tannin begins to dissolve, the outer portions of the briquette will first be emptied of their tannin content and will be washed off from the briquettes by the currents of water, exposing further parts of the briquette to the eroding action of the water currents. The indissoluble particles of tannate of glue will be carried off by the water and will either collect with the sludge in the bottom of the tank to be drained off from time to time or reach the feed water heater and boiler with the water where they will do no harm as they are inert and only small in amount.

Whether the theory set forth above concerning the slowness of the dissolving is correct or not, it is a fact that my improved briquette dissolves much more slowly than briquettes of tannin as made heretofore and for reasons clear

from the above, present a very much improved product.

I claim:

1. As a new article of manufacture, a briquette comprising a porous structure of material composed of glue and tannin and tannin-bearing extract in the pores.

2. As a new article of manufacture, a briquette containing a tannin-bearing extract and means to slow up the dissolution of the briquette in water, these means including a relatively non-soluble material composed of glue and tannin so distributed through the briquette that as the tannin-bearing extract dissolves, a protective coating of the non-soluble material is left on the surface of the briquette.

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