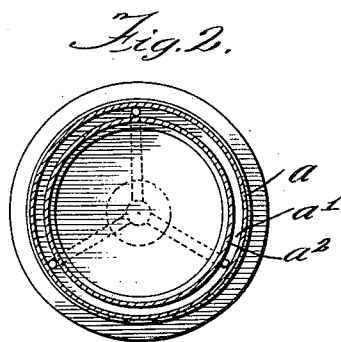
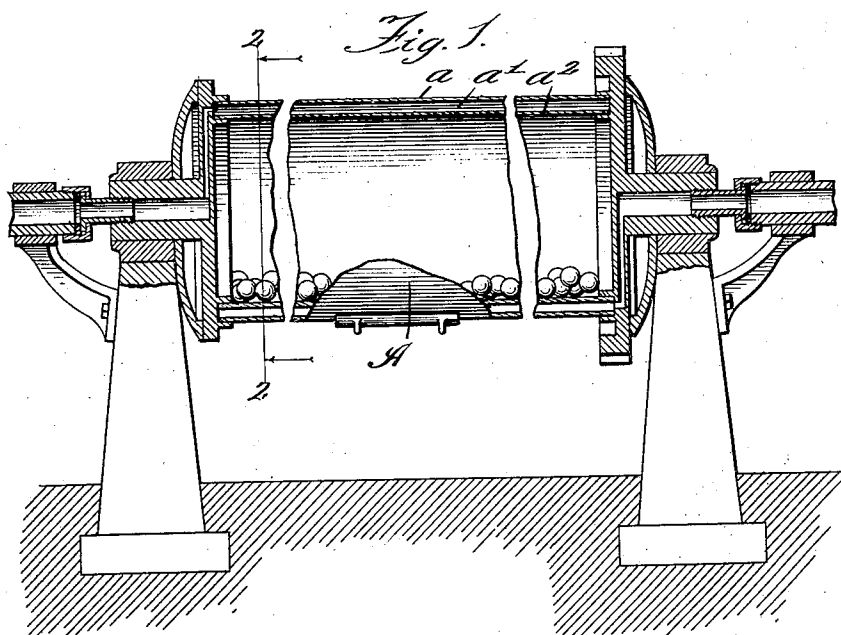


J. C. ROSS.
METHOD OF TREATING BITUMINOUS MATERIAL.
APPLICATION FILED SEPT. 27, 1911.

1,104,140.

Patented July 21, 1914.



Witnesses:

Edw. Perry

H. W. Thomas Jr.

Inventor:

James C. Ross.

By Bulkeley & Lurand

Attys.

UNITED STATES PATENT OFFICE.

JAMES C. ROSS, OF COLORADO SPRINGS, COLORADO, ASSIGNOR TO THE HYDRO-CARBON COMPANY, A CORPORATION OF NEVADA.

METHOD OF TREATING BITUMINOUS MATERIAL.

1,104,140.

Specification of Letters Patent.

Patented July 21, 1914.

Application filed September 27, 1911. Serial No. 651,492.

To all whom it may concern:

Be it known that I, JAMES C. ROSS, a citizen of the United States of America, and resident of Colorado Springs, El Paso county, Colorado, have invented a certain new and useful Improvement in Methods of Treating Bituminous Materials, of which the following is a specification.

My invention relates to a new and improved method of grinding or pulverizing natural or artificial bituminous or asphaltic materials. Such materials are too soft to be ground by the usual methods employed and heretofore it has been proposed to grind these materials by taking advantage of the fact that when their temperature has been sufficiently reduced they become brittle and can be ground as desired. This cooling has been accomplished by the refrigeration of the material to be ground in the grinding machine. I have discovered, however, in carrying out the grinding operation as above described, that even though a low temperature is maintained that the particles of the bituminous material being ground stick together rendering it impossible to obtain a finely divided product. This action is, I believe, due to the fact that during the grinding operation the bituminous materials become electrically charged thus greatly hindering the grinding process on account of the strong dielectric properties. I have found that, by mixing the bituminous material with litharge or any other suitable inorganic substance that this dielectric property is reduced so as to be practically negligible. The finely divided particles therefore do not agglomerate and I am enabled to obtain a much more finely divided product than has heretofore been possible. Furthermore I have discovered that the addition of litharge or any other suitable inorganic substance raises the temperature at which the bituminous material may be ground, and in many instances renders refrigeration unnecessary.

These and other objects of my invention will be more readily understood by having reference to the accompanying drawing in which I have illustrated one method of practicing my invention and in which—

Figure 1 represents a longitudinal sec-

tional view of grinding machine for carrying out my invention. Fig. 2 is a cross section thereof taken on the line 2—2 Fig. 1.

I have there illustrated what is ordinarily known as a tube mill, such as commonly employed for grinding or pulverizing ore, the same comprising the usual rotary cylinder A, and suitable means for operating the same. The said cylinder, however, is different from the ordinary tube mill in this respect, namely that it has an outer jacket or casing *a*, which provides a chamber or inclosure *a'* between the inner and outer shells or thicknesses of the material from which the cylinder is made. This chamber *a'* completely surrounds the cylinder, so that the material within the main chamber *a* of the cylinder is completely separated or insulated from atmospheric conditions. A suitable refrigerating medium, such as that ordinarily employed in refrigerating plants, is introduced into the said chamber *a'*, and thus the interior of the cylinder is maintained at a low temperature. Suppose for example the machine is being employed for grinding or pulverizing elaterite or other natural or artificial bituminous or asphaltic materials. The material to be ground is mixed with a suitable quantity of litharge, or other suitable inorganic substance, and placed in the grinding mill. The temperature can be regulated to suit the material to be ground it being necessary to employ a lower temperature with some materials than with others. Often times it will be found that it is unnecessary to lower the temperature at all. During the grinding operation the inorganic substance, such as litharge, prevents the particles from agglomerating as it prevents any dielectric action while the temperature is maintained at such a point that the material does not become soft enough to stick together.

By this method bituminous materials can be reduced to a very finely divided or pulverized condition and are thus rendered highly useful and valuable for mixture with other ingredients in the manufacture of various so called rubber and other articles.

What I claim as my invention is:

1. The method of treating bituminous materials which consists in first mixing the

material with a suitable quantity of litharge and then grinding or pulverizing the same.

5 2. The method of treating bituminous materials which consists in first mixing the material with a suitable quantity of litharge, then lowering the temperature of the mixture and then grinding or pulverizing

the same while said lowered temperature is maintained.

Signed by me at Colorado Springs, Colorado, this 18th day of September 1911.

JAMES C. ROSS.

Witnesses:

CHARLES V. TURNER,

E. F. DRAPER.