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MULCH.

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To all whom it may concern:

Be it known that I, DOZIER FINLEY, a citizen of the United States of America, and a resident of Berkeley, county of Alameda, and State of California, have invented a new and useful Mulch, of which the following is a specification.

My invention relates to mulching sheets, and one of the objects of the invention is the production of a mulching sheet having pronounced capacity for absorbing solar heat and transmitting such heat to the underlying soil. Another object is the provision of a mulch sheet characterized by its resistance to deterioration and decay due to the invasion of micro-organic life or other destructive agencies.

My invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of my invention. It is to be understood that I do not limit myself to the showing made by the said description, as I may adopt variant forms of my invention within the scope of the claims.

Broadly considered, the mulch of my invention comprises a paper or felt base which has been first saturated with a coal tar pitch then coated with a harder coal tar pitch on the upper surface with preferably a thinner skin coating on the under surface. A dust finish of dark or black pulverulent material is next applied to prevent adhesion of the layers when the sheet is rolled up, to increase the absorption of heat from the sun's rays when the sheet is in use as a mulch, and to enhance the wearing qualities of the sheet. For this purpose a variety of materials may be used including coal, black earth, cinder, graphite and lampblack, each of which is preferably of a size to pass thru a 65 mesh screen.

In detail my mulching paper is formed on a paper or felt base, or on a stock formed of a combination of the two in any desired proportion, or on a fabric base such as burlap or muslin. I prefer however under conditions now obtaining to use a base comprising 90% mixed paper stock and 10% rag. If desired, the base sheet may be rendered black by the addition of a black dyestuff to the paper pulp while in the beaters, or by the addition of lampblack to the paper stock in the beater and the subsequent precipitation of the lampblack on the fibers by a rosin size and alum in a manner known to papermakers, or by the use of both dyestuff and lampblack. The lampblack I prefer to use is that derived in the oil gas process.

Preferably, I use a stock weighing from 17 to 19 pounds per 480 square feet if my product is to be used in pineapple or sugar cane culture, although a lighter stock may be used for garden vegetables.

The stock is next saturated with a coal tar pitch, the percentage of saturation running from 75 to 110. Preferably, the saturant is a low carbon tar, semi-solid at ordinary temperature, and sufficiently fluid at 275° Fahrenheit readily to saturate a sheet of roofing felt. The saturating process proceeds in accordance with known methods.

The saturated stock is next preferably coated, and given a dust finish, but it should here be noted that the saturated black sheet may be used as a mulch without additional processing, and in this state provides a good, though cheaper, material, which will not bleach out upon exposure to the sun. Both the black base sheet and the tar saturant contribute to this result, and tar as a saturating material is particularly valuable since it is permanently black under exposure to the solar rays, and in addition is characterized by qualities which prevent the invasion and growth of micro-organic or other destructive or disintegrating agencies.

To make a mulching sheet of highest quality, I coat the saturated stock in accordance with known methods with a coal tar pitch having a softening point of preferably 170° Fahrenheit, by the methods of the American Society for Testing Materials, Serial 61–20. Preferably the bulk of the coating material is applied on that surface of the sheet which is to be uppermost and exposed to the weather, with a thinner skin coating on the under surface.

The saturated and coated sheet is finally given a finish comprising pulverulent matter, preferably of a size to pass thru a 65 mesh screen and including all the fines. Such matter may be derived from a variety of sources including graphite, black earth, coal cinder, and lampblack.

Test sheets finished with lampblack give a higher degree of heat absorption than any

of the others, although all give good results, and a mixture of two parts black earth and one part lampblack is only slightly inferior in the quality named, to lampblack alone. Pulverized bituminous coal or graphite also give good results and I prefer one or the other of these three carbonaceous materials either alone or in combination with other materials, the choice being determined by practical considerations of availability and price.

The finish of pulverulent material is not only productive of increased capacity to absorb solar heat, but also functions to prevent sticking of the layers of the sheet in the rolls during shipment and storage, under the high temperatures characteristic of the localities in which my product finds an important application.

With a coated and finished mulch, the black coloring of the base sheet material is of course of less importance in determining the efficiency of the product than in the uncoated mulch, and if desired, the base sheet for the coated and finished mulch may be untreated in this respect.

I claim:

1. A mulch comprising a sheet saturated with a dark material possessing the quality of inhibiting the growth of micro-organic and other destructive agencies and permanently surfaced with dark pulverulent material in the form of a dust finish to increase the heat absorptive qualities of the mulch.

2. A mulch comprising a sheet saturated with a dark material possessing the quality of inhibiting the growth of micro-organic and other destructive agencies, and permanently surfaced with a finish of pulverulent carbonaceous material.

3. A mulch comprising a sheet saturated with a coal tar pitch and surfaced with an embedded dust finish of pulverulent carbonaceous material.

4. A mulch comprising a sheet saturated with a low carbon semi-solid tar and coated with tar having a softening point of substantially 170° Fahrenheit.

In testimony whereof, I have hereunto set my hand.

DOZIER FINLEY.