HEATED GROUND COVER FOR THE DISSIPATION OF MOISTURE

Inventor: Peter M. Borgren, Duluth, Minn.
Assignee: Boonie Pad Co., Inc., Duluth, Minn.
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A heated ground cover including a first outer sheet member, a second outer sheet member, heating wires interposed between the outer sheet members with chambers adjacent to the heating wires together with means supporting the outer members whereby heat issuing from the heating wires is distributed throughout the cover to cause evaporation of moisture collected upon the uppermost of the outer sheet member.

Primary Examiner—C. L. Albright
Attorney, Agent, or Firm—Wicks & Nemer

ABSTRACT

3 Claims, 9 Drawing Figures
HEATED GROUND COVER FOR THE DISSIPATION OF MOISTURE

This is a division of application Ser. No. 106, 198, filed Jan. 13, 1971, now abandoned.

The invention relates to a heated ground cover and more particularly to a ground cover which is heated substantially evenly throughout its entire upper surface whereby moisture collecting upon the upper surface is evaporated evenly and substantially simultaneously as it strikes the surface. In the northern climates snow and ice gather on walkways which produce dangerous conditions for walking and access to building structures and with the subject cover snow and ice are dissipated. It is also highly beneficial in that it will aid in keeping entryways of buildings dry and prevent the tracking of dirt and water into the building. The cover, due to its construction, may be safely walked upon without damage to the same or danger of electric shock.

It is an object of the invention to provide a heated ground cover having first and second outer cover members between which heating wires are interposed. The cover has chambers adjacent to the heating wires which aid in distribution of heat throughout the cover together with means for supporting the outer covers which also protects the heating wires, conducts heat and further aids in the distribution of heat. As a result cold spot areas are eliminated.

In the drawings forming part of this application:

FIG. 1 is a perspective view of a ground cover device embodying the invention.

FIG. 2 is an enlarged sectional view on the line 2—2 of FIG. 1.

FIG. 3 is a sectional view on the line 3—3 of FIG. 1 on a different scale than that of FIG. 2.

FIG. 4 is sectional view similar to FIG. 2 of a further embodiment of the invention.

FIG. 5 is a top plan view of the flat base of FIGS. 1, 2 and 3.

FIG. 6 is a top plan view of the flat base of the embodiment of FIG. 4.

FIG. 7 is a further embodiment of the invention.

FIG. 8 is an enlarged sectional view on the line 8—8 of FIG. 7 with portions of the various layers thereof being broken.

Referring to the drawings in detail, the ground cover member A includes the flat sheet first outer member in the form of the rubber base 10. Formed in the top surface of the member 10 is a chamber in the form of the recess 12 which extends throughout the extent of the top surface except for a peripheral upstanding shoulder indicated as 14.

The bottom of the recess 12 has formed therein the transverse narrow spaced channels 16 intersected by the longitudinal channels 18, 19 and 20 all of which form chambers. The spaced transverse channels 16 and longitudinal channels 18, 19, and 20 provide islands 22 therebetween above which the second outer member in the form of the cover piece 24 which may be formed of carpet is secured. The islands 22 partially support the outer cover piece 24 and protect the heating element, hereinafter described, from physical abuse where there is a sagging thereof.

Mounted on and secured to the top surface of the peripheral shoulder portion 14 and extending over all the channels 16, 18, 19 and 20 and the chamber 12 is the sheet member 26 preferably a thin liquid-impervious material such as "Mylar." The numeral 28 designates a conventional heating element wire which is positioned in and extends throughout the channels 16, 18, 19 and 20. The depth of the channels 16, 18, 19 and 20 is such that the wire 28 is not above the upper surface of the bottom of recess 12. The wire 28 extends outwardly of the member A and has thereon a conventional plug for connection with a conventional electrical outlet and embodies a copper ground braid around its entire surface as a safety feature to prevent electrical shock in the event the electrical insulation is physically damaged.

The outer carpet cover piece 24 is securely sealed on top of the shoulder 14 of sheet member 26 by means of adhesive or other well-known securing means. As a result of the above construction it will be seen that the recess 12 and the communicating channels 16, 18, 19 and 20 form an irregular but continuous chamber which is completely sealed off. When the heating wire 28 is operated, heat rises to the sheet 26 and spreads throughout the chamber 12 thereby heating all of the under surface of the sheet member 26, the sheet member aiding in guaranteeing the spreading of the heat evenly under the entire cover piece 24 but for the marginal portion 14. With rain or snow upon the outer cover member piece 24 of member A, the heat causes the same to evaporate practically instantaneously and evenly over all the surface of the member A except for the marginal portion. The heating wires may also be imbedded in the body 10 substantially level with the bottom of recess 12. The heating wire 28 is placed in the channels 16, 18, 19 and 20 in a circuitous continuous path.

In FIG. 4 is illustrated a further embodiment of the invention indicated as B wherein there is provided the flat sheet rubber base substantially identical to the base 10 with identical parts bearing the same number but with a lower case letter a added. The base 10a includes the layer of conventional heat reflective paint 30 upon the entire bottom surface of chamber 12a which causes heat from the heating wires 28a to be directed upwardly to the underside of the cover piece 24a while at the same time distributed throughout the chamber 12a beneath the cover piece 24a. As a result water or other material upon the cover piece 24a is caused to evaporate practically instantaneously and evenly over all the surface of the member B.

In FIGS. 7, 8 and 9 is shown a further embodiment of the ground cover B which includes the first outer sheet member 34 made of inert fireproof nonabsorbent semi-rigid material such as polypropylene. Further provided is a first perforate sheet member in the form of the screen wire cloth 36 preferably of aluminum in a 16 to 18 mesh and secured to the inner surface of the first outer sheet member 34 by means of a contact cement 38 such as "Weldwood" contact cement sprayed on the wire cloth. The numeral 40 designates an electrical resistance heating wire with copper ground overbraid which is laid upon the sheet screen 36 in somewhat of a spaced serpentine fashion and spaced from the edges of the outer sheet member 34.

Additionally provided is the second perforate sheet member in the form of the screen wire cloth 42 secured by means of contact cement 44 sprayed upon the screen wire upon the electrical resistance heating wire 40 and screen 36 and underlying sheet 34. The second
3 outer sheet member 46 identical to sheet member 34 and is secured upon the sheet screen 42 and over the heating wire 40 by means of the contact cement 48. The assembly is then subjected to pressure to allow the various layers of cement to bond substantially all surfaces together.

With the positioning of the sheet screen members upon and below the spaced heating wire 40 air spaces 50 are formed which distribute heat generated by the heating wire 40 throughout the ground cover member B.

The screen wire cloths 36 and 42 protect the heating wire 40 from physical injury and give a firmness to the unit B. The screen wire cloths 36 and 42 also act as a conductor and distribution medium for the heat generated by the electrical resistance heating wire 40. The wire screens also conceal the heating wire within the member B, and minimize the tendency of the heating wire to show on the surface of the sheet members 34 and 46 as a deformation thereof. Additionally the sheet screening provides a stronger bond between the surfaces of the sheet members than if the sheet members were bonded directly.

The wire 40 extends outwardly of the member B and has thereon the conventional plug 52 for connection with a conventional electrical outlet.

The member B may also be constructed by laying the screen member 36 upon the outer member 34 and then both sprayed with adhesive. The heating wire 40 is then laid in the uncured adhesive followed by placing the second screen 42 on the second outer member 46 and spraying both with adhesive. The screen 42 and outer member 46 are then placed on the first outer member and screen 36 followed by running the entire unit through a cold roller press and allowed to cure.

I claim:
1. A heated ground cover comprising:
   a. a flat body member,
   b. said body member having a chamber formed in the upper surface thereof extending throughout the same but with a remaining peripheral shoulder,
   c. heating means carried by same body member adjacent to and communicating with said chamber,
   d. a cover piece secured to said peripheral shoulder of said body member and covering said chamber whereby heat issuing from said heating means is distributed throughout said chamber beneath said cover piece to cause moisture to evaporate which collects upon the outer upper surface of said cover piece;
   e. said heating means includes heating wires, and
   f. the chamber of said body member is formed with channels extending thereinto and in which said heating wires are positioned.
2. The device of claim 1 in which the bottom surface of said chamber has a heat reflective surface to cause radiation and distribution of heat from said heating wires throughout the chamber beneath the cover piece.
3. The device of claim 1 in which a sheet member extends between the chamber and the cover piece the full extent of the chamber to aid in distribution of heat from the heating wires beneath the cover piece.

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