

POLE HOLDER COVER

Field of the Invention

[0001] The present invention generally relates to a cover for pole holder, and more particularly to a cover that prevents water accumulation in the pole holder so as to minimize the chances of insect breeding therein.

Background of the Invention

[0002] It is common for residents of multi-storey dwellings to hang wet apparels, linen and laundry on poles for air-drying outdoors. The poles are disposed in rows of pole holders that are located at an angle on external walls of such dwellings. FIG. 1A illustrates the side view of one such pole holder **102** mounted on a wall **104**. The wet apparels **106** are hung on a pole **108**, for example a bamboo pole, and the pole **108** is inserted into the pole holder **102**. However, when the pole holder **102** is not in use and uncovered as shown in FIG. 1B, it accumulates rainwater and becomes a breeding ground for insects, such as AEDES mosquito-a carrier of the dengue virus-posing a huge public health concern. Therefore, it is beneficial to prevent water accumulation in pole holder in order to eradicate potential insect breeding grounds within the pole holders.

[0003] Conventionally, a cover is attached to the pole holder for covering the opening when the pole holder is not in use so as to prevent rainwater accumulation within. As shown in FIG. 1A and 1B, the cover **100** is typically cup-shaped, and has a rubber attachment **110** that secures it to the pole holder **102**. However, there are a few drawbacks associated with the conventional pole holder cover **100**. For example, the rubber attachment **110** of the cover is prone to wear and tear and thus breaks easily. As a result, the cover **100** is usually lost and the pole holder **102** remains uncovered. In addition, the cover **100** is mostly made of plastic, which cracks and crumbles easily under long exposure to sunlight. Moreover, some residents may forget to manually cover the opening of the pole holder **102** with the cover **100** after removing the pole **108**. Furthermore, the cover **100**, when dangling from the pole holder **102**, collects rainwater, being an additional potential insect breeding ground.

[0004] To address the above-mentioned shortcomings of the conventional pole holder cover, the inventor of the present invention has disclosed, in Singapore Patent Application No. 200607066-8, a cover which is connected to a pole holder directly and having a flip-lid for automatically covering the opening of the pole holder when it is not in use. However, when a pole is loaded and the lid of the cover is flipped away from the opening, chances are high that rainwater enters the pole holder from the opening of the cover and accumulate in the space between the pole and the pole holder.

[0005] Hence, there is a need for an improved solution to effectively eliminate rainwater accumulation in the pole holder not only when the pole holder is out of use, but also when it is in use as well.

Summary of the Invention

[0006] The present invention provides a cover for pole holder, which minimizes the entry of any fluid into the pole holder no matter whether the pole holder is loaded with a pole or not.

[0007] Accordingly, in one aspect, the present invention provides a pole holder cover, which comprises a body having a hollow inner chamber, a front opening for receiving a pole, and a rear opening for fitting over the pole holder so as to load the received pole therein; and a membrane for partially or fully covering the front opening, the membrane having a sealing structure configured so as to allow the received pole to pass through and form a seal thereon.

[0008] In accordance with one embodiment of the present invention, the sealing structure within the membrane is an aperture in a form of open-ache.

[0009] In accordance with another embodiment of the present invention, the sealing structure within the membrane is an aperture of a circular shape dimensioned to fit the outer diameter of the pole.

[0010] In accordance with yet another embodiment of the present invention, the sealing structure within the membrane has a plurality of cross cuts so that an aperture is formed when the pole pokes through the cuts.

[0011] The objectives and advantages of the present invention will become apparent from the following detailed description of embodiments thereof in connection with the accompanying drawings.

Brief Description of the Drawings

[0012] Preferred embodiments according to the present invention will now be described with reference to the Figures accompanied herein, in which like reference numerals denote like elements.

[0013] FIG. 1A and 1B show a conventional pole holder cover coupled to a pole holder, when the pole hold is loaded with and without a pole respectively.

[0014] FIG. 2 shows a side view of a pole holder cover in accordance with one embodiment of the present invention.

[0015] FIG. 3 shows an exploded perspective view of the pole holder cover as shown in FIG. 2.

[0016] FIG. 4A, 4B, 4C and 4D show different configurations of the sealing structure within the membrane in accordance with other embodiments of the present invention.

[0017] FIG. 5 shows a perspective view of a pole holder cover in accordance with another embodiment of the present invention.

[0018] FIG. 6A and 6B show cross-sectional views of a pole holder cover coupled to a pole holder without and with a pole loaded respectively, in accordance with yet another embodiment of the present invention.

[0019] FIG. 7 shows a front perspective view of the pole holder cover shown in FIG. 6A with the membrane removed for clear illustration.

[0020] FIG. 8A and 8B show cross-sectional views of a pole holder cover coupled to a pole holder without and with a pole loaded respectively, in accordance with further another embodiment of the present invention.

Detailed Description of the Invention

[0021] The present invention may be understood more readily by reference to the following detailed description of certain embodiments of the invention.

[0022] Referring to FIG. 2, there is provided a side view of a pole holder cover in accordance with one embodiment of the present invention. The pole holder cover **200** comprises a body **220** having a front opening **222** for receiving a pole **208** (not shown in FIG. 2), a hollow inner chamber **226** (not shown in FIG. 2) for housing the loaded pole **208** and a rear opening **224** (not shown in FIG. 2) for connecting to a pole holder **202** (not shown in FIG. 2); a membrane **230** attached to the front opening **222** for reducing the entry of rainwater; and a slit **240** at the bottom of the body **220** for draining off any rainwater trapped within.

[0023] Now referring to FIG. 3, there is provided an exploded perspective view of the pole holder cover **200** in FIG. 3 with more details. The front opening **222** forms an acute angle from the vertical plane, generating a top protruding structure **221** that functions as a shelter to reduce the amount of rainwater entering the front opening **222**. And there is a cut **223** in the lower portion of the body **220** adjacent to the front opening **222**, so as to avoid any direct interaction of the pole **208** with the body **220**, even when the pole **208** is slightly bent downwards due to the weight of the apparels **206** (not shown in FIG. 3). As a result, the weight of the pole **208** and the apparels **206** is supported by the pole holder **202**, without putting any stress on the cover **200**.

[0024] The rear opening **224** of the cover **200** is dimensioned to fit the average outer diameter of pole holders **202**. In order to provide additional tension and automatic dimensional adjustment to the connection between the pole holder **202** and the cover **200**, a plurality of ribs **228** parallel to the longitudinal axis of the body **220** are disposed at the back section of the body **220** close to the rear opening **224**. In accordance with one embodiment of the ribs, the height of each rib **228** is elevated from the rear end **228a** towards the front end **228b**.

[0025] The slit **240** is carved at the bottom of the body **200** for draining off the rainwater trapped in the cover **200**. In accordance with one embodiment, the slit **240** is bridged by a cross bar in the middle to maintain the distance across the slit **240**. Next to the slit, a barrier **250** is disposed in the inner surface of the body **220** for stopping the rainwater trapped in the cover **200** from flowing further down towards the pole holder **202**, for facilitating the drainage of rainwater through the adjacent slit **240**, and for stopping the coupled pole holder **202** from traveling further towards the front opening **222**. In

accordance with one embodiment of the barrier, the barrier **250** is a 360-degree barrier. In another embodiment, the barrier **250** extends only along the lower part of the body **220**.

[0026] The body **220** can be made of any material that is of sufficient strength and of certain resistance to photodeterioration by ultraviolet. In accordance with one embodiment, the body **220** is made of metal or metal alloys. In another embodiment, the body **220** is made of material containing ultraviolet stabilizers.

[0027] Still referring to FIG. 3, the membrane **230** stretching over the front opening **222**, has the edge secured to the circumference of the front opening **222** by adhesive agents. The membrane **230** is made of elastic materials and has a sealing structure **232** configured so as to allow the pole **208** to pass through and form a seal automatically by exerting tension upon the pole **208**. In this way, when the pole **208** is loaded, the amount of rainwater able to enter the cover **200** from the front opening **222** and flow through the space between the pole **208** and the cover **200** is substantially minimized.

[0028] In accordance with one embodiment of the membrane, the membrane **230** is made of rubber. In another embodiment, the membrane **230** is made of silicon.

[0029] Now referring to FIG. 4, there are provided exemplary configurations of the sealing structure **232** within the membrane **230** in accordance with embodiments of the present invention. As shown in FIG. 4A, the sealing structure **232** is an aperture in the form of an open-arch, which is dimensioned to fit the outer diameter of the pole **208**. In another embodiment as shown in FIG. 4B, the sealing structure **232** is an aperture of circular shape, the dimension of which is designed to be slightly smaller than the outer dimension of the pole **208**. In yet another embodiments as shown in FIG. 4C and 4D, the sealing structure **232** has a plurality of cross cuts, which forms an aperture when being pushed apart by the leading end of the pole **208**. The dimension of the formed aperture is automatically adjusted according to the outer dimension of the pole **208**.

[0030] Now referring to FIG. 5, there is provided a perspective view of a pole holder cover in accordance with another embodiment of the present invention. The pole holder cover **300** is similar to the earlier embodiment **200** in FIGs. 2 and 3, except that the membrane **330** is of a cup shape, which is capped onto the front opening **322**.

[0031] Now referring to FIG. 6A and 6B, there are provided cross-sectional views of a pole holder cover coupled to a pole holder without and with a pole loaded respectively, in accordance with yet another embodiment of the present invention.

Compared to the earlier embodiment 200, the pole holder cover 400 further comprises a lid 460 at the front opening 422 behind the membrane 430, and a mesh 470 disposed over the slit 440 for preventing any insects from entering the inner chamber 426 of the cover from the slit 440.

[0032] The lid 460 is pivotally connected to a hinge 468, and operable to flip between a closed configuration 462 and an open configuration 464 with respect to the front opening 422. In the closed configuration 462, the lid 460 fully blocks the passage towards the inner chamber 426 of the cover 420, preventing rainwater from entering. In the open configuration 464, the lid 460 is pivoted into the inner chamber 426, allowing the loading of the pole 408.

[0033] A biasing element 466 is attached to the lid 460, operable to bias the lid 460 towards the closed configuration 462 as shown in FIG. 6A. When a pole 408 is loaded as shown in FIG. 6B, the leading end of the pole 408 passes through the sealing structure 432 of the membrane 430 and pushes the lid 460 inwards and upwards, counteracting the biasing force exerted on the lid 460 by the biasing element 466 and driving the lid 460 towards the open configuration 464, thereby allowing the loading of the pole 408 into the coupled pole holder 402.

[0034] In accordance with one embodiment of the lid, the lid 460 has a concave surface so as to minimize the force exerted on the surface of the lid 460 by the leading edge of the pole 408 during the loading process.

[0035] In accordance with one embodiment of the biasing element, the biasing element 466 is a spring. In yet another embodiment, the spring is J-shaped.

[0036] Now referring to FIG. 7, there is provided a front view of the pole holder cover as shown in FIG. 6A and 6B.

[0037] Now referring to FIG. 8A and 8B, there are provided perspective views of a pole holder cover coupled to a pole holder without and with a pole loaded respectively, in accordance with further another embodiment of the present invention. The pole holder cover 500 has a similar configuration to that of the earlier embodiment 400, except for the lid. The lid 560 is disposed in front of the membrane 530 at the front opening 522, and operable to be manually flipped outward and upward, away from the inner chamber 526 of the cover 500, so as to assume the open configuration 564.

[0038] In the embodiment as shown in 8A and 8B, to facilitate a user to manually flip the lid 560, a handle 569 is attached to the front surface of the lid 560. After the lid 560 is flipped open and the pole 508 is loaded, the lid 560 rests on the pole. No biasing element is attached to force the lid 560 to the closed configuration 562. After the pole 508 is unloaded, the lid 560 returns to the closed configuration 562 under the gravity force or by manual operation.

[0039] In accordance with another embodiment, instead of having the handle 569, the lid 560 is so designed that in the closed configuration, the lower edge of the lid 560 slightly protrudes from the body 520 of the cover 500 for a user to hold and flip. In yet another embodiment, the lid 560 is operable to be flipped over more than 180 degree and rest on the top of the body 520 in the open configuration 564. In further another embodiment, a biasing element is attached to urge the lid 560 to the closed configuration 562. In yet another embodiment, a damper is used conjunction with a biasing element in order to slow down the motion, when the lid 560 is forced to the closed configuration 562 by the biasing element, after the pole 508 is unloaded.

[0040] While the present invention has been described with reference to particular embodiments, it will be understood that the embodiments are illustrative and that the invention scope is not so limited. Alternative embodiments of the present invention will become apparent to those having ordinary skill in the art to which the present invention pertains. Such alternate embodiments are considered to be encompassed within the spirit and scope of the present invention. Accordingly, the scope of the present invention is described by the appended claims and is supported by the foregoing description.

Claims

1. A cover for a pole holder, the cover comprising:
a body having a hollow inner chamber, a front opening for receiving a pole, and a rear opening for fitting over the pole holder so as to load the received pole therein; and
a membrane for partially or fully covering the front opening, the membrane having a sealing structure configured so as to allow the received pole to pass through and form a seal thereon.
2. A cover in accordance with claim 1, wherein the membrane is made of elastic material.
3. A cover in accordance with claim 2, wherein the membrane is made of rubber.
4. A cover in accordance with claim 2, wherein the membrane is made of silicon.
5. A cover in accordance with claim 1, wherein the sealing structure within the membrane is an aperture in a form of open-ache.
6. A cover in accordance with claim 1, wherein the sealing structure within the membrane is an aperture of a circular shape dimensioned to fit the outer diameter of the pole.
7. A cover in accordance with claim 1, wherein the sealing structure within the membrane has a plurality of cross cuts so that an aperture is formed when the pole pokes through the cuts.
8. A cover in accordance with claim 1, which further comprises a lid at the front opening behind the membrane, the lid being operable to flip between a closed configuration and an open configuration, wherein in the closed configuration, the lid blocks the passage towards the inner chamber of the cover, thereby minimizing fluid entering the pole holder from the front opening, whilst in the open configuration, the lid is

flipped into the inner chamber of the cover, thereby allowing the loading of the pole into the pole holder.

9. A cover in accordance with claim 1, which further comprises a lid at the front opening in front of the membrane, the lid being operable to flip between a closed configuration and an open configuration, wherein in the closed configuration, the lid blocks the passage towards the inner chamber of the cover, thereby minimizing fluid entering the pole holder from the front opening, whilst in the open configuration, the lid is flipped away from the inner chamber of the cover, thereby allowing the loading of the pole into the pole holder.

10. A cover in accordance with claim 8 or 9, wherein the lid has a concave surface.

11. A cover in accordance with claim 8 or 9, which further comprises a biasing element coupled to the lid for biasing the lid towards the closed configuration.

12. A cover in accordance with claim 11, wherein the biasing element is a spring.

13. A cover in accordance with claim 12, wherein the spring is J-shaped.

14. A cover in accordance with claim 11, which further comprises a damper coupled to the lid for slowing the motion thereof, when the lid is flipped towards the closed configuration by the biasing element.

15. A cover in accordance with claim 1, wherein the front opening forms an acute angle to the vertical plane.

16. A cover in accordance with claim 1, wherein the body has a plurality of ribs disposed close to the rear opening for providing additional tension to the connection with the pole holder.

17. A cover in accordance with claim 1, which further comprises a slit disposed at the bottom of the body for draining off fluid that enters the pole holder cover.
18. A cover in accordance with claim 17, which further comprises a mesh disposed over the slit for preventing insects from entering the inner chamber of the cover from the slit.
19. A cover in accordance with claim 1, which further comprises a barrier disposed along the inner surface of the body for stopping fluid trapped therein from flowing further towards the pole holder.
20. A cover in accordance with claim 19, wherein the barrier is 360-degree barrier.
21. A cover in accordance with claim 19, wherein the barrier extends only along the lower part of the body.
22. A cover in accordance with claim 1, wherein the cover is made of metal or metal alloys.
23. A cover in accordance with claim 1, wherein the cover is made of material containing UV stabilizers.
24. A cover in accordance with claim 1, which further comprises a cut in the lower portion of the body adjacent to the front opening for avoiding direct interaction with the loaded pole.