METHOD AND APPARATUS FOR SECURING PROPERTY FROM WIND DAMAGE

Inventors: Homer C. Osbon, St. Petersburg, FL (US); John E. Carvalis, St. Petersburg, FL (US)

Correspondence Address:
LARSON AND LARSON
11199 69TH STREET NORTH
LARGO, FL 33773

Assignee: JOHMER, INC.

Publication Classification
Int. Cl. E04B 7/00 (2006.01)
U.S. Cl. ............................................................ 52/23

ABSTRACT
A series of screw-type anchors are set around the periphery of the structure. The anchors are set below the ground surface and enclosed in recess pots to provide access, helping to keep soil from covering the anchors. When a storm is predicted, a plurality of straps are passed over the roof and hooked into the anchors. The straps have a ratchet at one end to tighten the straps and provide tension to the roof. Gutter guards are optionally provided to protect a gutter from damaged by the straps. Ridge vent guards are also optionally provided to protect a ridge vent from damage by the straps. Recess pot covers are provided to reduce the chances of tripping.
**INSTALL**

1. **DIG HOLES FOR RECESS POTS**
2. **SCREW ANCHORS INTO HOLES**
3. **INSERT RECESS POTS INTO HOLES**
4. **PLACE COVERS OVER RECESS POTS**
5. **DONE**

**DEPLOY**

1. **RUN STRAPS OVER ROOF OF STRUCTURE**
2. **GUTTERS?**
   - **Y**
     - **INSTALL GUTTER GUARDS**
   - **N**
   - **ROOF VENTS?**
     - **N**
     - **DONE**
     - **Y**
     - **INSTALL ROOF VENT GUARDS**
3. **ATTACH STRAPS TO ANCHORS AND RATCHETS**
4. **TIGHTEN RATCHETS TO TENSION THE STRAPS**
5. **DONE**

Fig. 9
METHOD AND APPARATUS FOR SECURING PROPERTY FROM WIND DAMAGE

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to the field of protecting roofs of buildings to prevent damage during storms and more particularly to a method and apparatus for securing an roof of a building to prevent or reduce damage during a severe storm such as a hurricane.

[0003] 2. Description of the Related Art

[0004] Many, hold-down systems have been designed to prevent or reduce damage to structures occurring during severe storms such as hurricanes and tornadoes. The art has many examples of ways to protect building structures with roofs during severe storms, including U.S. Pat. No. 5,570,545, “Apparatus for Holding a Roof on a Building during High Winds,” to Adams, which is hereby incorporated by reference. This patent describes a system of straps that are passed across a roof of a structure then tensioned to anchors. Unfortunately, the disclosed invention does not provide for quick deployment when a storm is forecasted and safe removal after the storm passes. Furthermore, the patent does not provide for roofs with gutter systems in that the application of the patent could cause damage to the gutters. Furthermore, the patent does not provide for ridge vents, which are often made from soft aluminum; which could also be damaged.

[0005] What is needed is a method and apparatus that will tie down a roof of a structure without damaging associated gutters and ridge vents and can be easily installed and uninstalled.

SUMMARY OF THE INVENTION

[0006] In one embodiment, a system for securing a structure is disclosed including anchors having an eye at one end installed around the periphery of the structure and set below ground level in a recess pots. Also included are straps with hooks affixed to one end and ratchets affixed to the opposite end. The ratchets have a second hook on a distal end. The hooks and the second hooks are adapted to be removably attached to one of the eyes of the anchors. Removable covers are provided to cover the recess pots when not in use.

[0007] In another embodiment, a method of protecting a structure is disclosed including digging a plurality of holes around the periphery of the structure and screwing anchors into each of the holes so that an eye of the anchors is set below ground level. Next, inserting a recess pot into each of the holes and covering each of the recess pots with a cover. At least one feature protection device such as a gutter guard or ridge vent guard is provided for installation at a later time.

[0008] In another embodiment, an apparatus for protecting a structure is disclosed with anchors around the periphery of the structure set below ground level in recess pots. Straps with hooks at one end and tightening mechanisms at the opposite end are included to pass over the structure and hold it in place during a storm. The straps have tightening and the second hooks are adapted to be removably attached to the eyes of the anchors. At least one feature protection device is included to protect the gutters and/or ridge vents of the structure.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] The invention can be best understood by those having ordinary skill in the art by reference to the following detailed description when considered in conjunction with the accompanying drawings in which:

[0010] FIG. 1 illustrates a perspective view of the prior art
[0011] FIG. 2 illustrates a perspective view of a first embodiment of the present invention.
[0012] FIG. 3 illustrates a detail view of the anchor of all embodiments of the present invention.
[0013] FIG. 4 illustrates a perspective view of a second embodiment of the present invention.
[0014] FIG. 5 illustrates a detail view of a gutter extension of the second embodiment of the present invention.
[0015] FIG. 6 illustrates a perspective view of a third embodiment of the present invention.
[0016] FIG. 7 illustrates a detail view of a ridge vent guard of the third embodiment of the present invention.
[0017] FIG. 8 illustrates a perspective view of all embodiments of the present invention when not in use.
[0018] FIG. 9 illustrates the flow of installation and deployment of all embodiments of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0019] Reference will now be made in detail to the presently preferred embodiments of the invention, examples of which are illustrated in the accompanying drawings. Throughout the following detailed description, the same reference numerals refer to the same elements in all figures. Although a house with a simple roof structure is described as the structure being protected, the present invention performs equally as well on many building structures, even those with complex roof surfaces and the like.

[0020] Referring to FIG. 1, a perspective view of the prior art is shown. The roof 110 of a structure 100 is held down by a plurality of spaced straps 120. The straps are attached to anchors 140 that are screwed into the soil at the periphery of the structure 100. Ratchets 130 are provided to tighten the straps and provide adequate tension. The prior art does not provide for a removable system with anchors that are recessed to reduce the tripping hazard and the prior art does not provide for protecting gutters and roof vents from damage when the straps are placed and tightened. The prior art does not include a device to protect typical features that are found on various structures such as roof ridge vents or gutters.

[0021] Referring to FIG. 2, a perspective view of the apparatus of a first embodiment of the present invention is shown. A plurality of straps 10 pass over the roof 5 of a structure 4. Preferably, the straps 10 are made from a sturdy material as known in the industry, for example polypropylene, polyester or nylon; and are of sufficient width to hold the roof 5 in place during hurricane force winds, for example 2 inches wide polypropylene straps. One end of each strap 10 is removably attached to an anchor 18 using a J-hook 14 or other type of hook that allows removal from the anchor when desired. The other end of each strap 10 is attached to
a ratchet 12 such as a come-along ratchet 12. The other end of the ratchet 12 is removable attached to another anchor 18 using another hook 14, for example, a J-hook. The ratchet 12 is one possible means to tension the strap 10 and other means to tighten the straps 10 are known in the art.

Referring to FIG. 3, a detail view of the anchor of all embodiments of the present invention is shown. The strap 10 is attached to a hook 14, for example a J-hook. The hook catches in an eye 15 of the anchor 18. The anchor 18 is set within a recess pot 16 so that, when the system of the present invention is dismantled, the anchors 18 sit below ground level as to help reduce the potential for tripping.

[0024] Referring to FIG. 4, a perspective view of a second embodiment of the present invention is shown. This embodiment has many of the same features of the first embodiment of FIG. structure 4. In this embodiment, the structure 4 has gutters 6 at the edge of the roof 5. If the straps 10 were attached as in FIG. 2, the tension of the straps 10 would damage the gutters 6. To prevent this, a feature protection device such as a gutter guard is installed to protect the gutter. Each strap 10 has a gutter guard 20 to prevent the strap from damaging the gutter 6. More details of the gutter guard 20 are shown in FIG. 5.

[0025] One end of each strap 10 is removably attached to an anchor 18 using a J-hook 14 or other type of hook that allows removal from the anchor when desired. The other end of each strap 10 is attached to a first end of a ratchet 12 such as a come-along ratchet 12. The other end of the ratchet 12 is removably attached to another anchor 18 using another hook 14, for example, a J-hook.

[0026] Each anchor 18 has a spiral 19 for insertion into the ground by twisting the anchor 18. Each anchor 18 is recessed far enough into the ground such that the attachment end of the anchor sits just below the ground level and within a recess pot 16, keeping the soil from covering the anchor 18.

Referring to FIG. 5, a detail view of a gutter guard of the second embodiment of the present invention is shown. The gutter guard 20 has a base 21 that is a flat piece of sturdy material such as wood or plastic. In a preferred embodiment, the base 21 is made from plastic decking material, usually available in 1x6 or 2x6 configurations and preferably 3' to 40 in length. The strap 10 passes over the base 21, which extends far enough beyond the roof 5 edge, so that the strap 10 is prevented from damaging the gutter 6. In some embodiments, brackets 22 with fasteners 24 hold the strap 10 in place on the gutter guard 20.

[0028] Referring to FIG. 6, a perspective view of a third embodiment of the present invention is shown. This embodiment has many of the same features of the first embodiment of FIG. 2. A plurality of straps 10 pass over the roof 5 of a structure 4. In this embodiment, the structure 4 has ridge vents 8 at the peak of the roof 5. If the straps 10 were attached as in FIG. 2, the tension of the straps 10 would damage the ridge vents 8. To prevent this, another feature

One end of each strap 10 is removably attached to an anchor 18 using a J-hook 14 or other type of hook that allows removal from the anchor when desired. The other end of each strap 10 is attached to a first end of a ratchet 12 such as a come-along ratchet 12. The other end of the ratchet 12 is removably attached to another anchor 18 using another hook 14, for example, a J-hook.

Each anchor 18 has a spiral 19 for insertion into the ground by twisting the anchor 18. Each anchor 18 is installed far enough into the ground such that the attachment end of the anchor sits just below the ground level and within a recess pot 16, keeping the soil from covering the anchor 18.

Referring to FIG. 7, a detail view of a ridge vent guard of the third embodiment of the present invention is shown. The ridge vent guard 30 sits on the roof 5 and holds the strap 10 away from the ridge vent 8, protecting it from being damaged by the strap 10. In this embodiment, the ridge vent guard is triangular in shape, comprising a base member 30c resting on the roof surface, a riser member 30a and a longer member 30b, providing structural strength when the strap 10 is tensioned. Also, in this embodiment, a cross member 30d is provided to space the individual ridge vent guards 30 and hold them in position while the straps 10 are being installed and tensioned. In some embodiments, there are no cross members 30d and the ridge vent guards 30 stand independently.

Referring to FIG. 8, a perspective view of all embodiments of the present invention is shown. In this, the strap system of the previous embodiments is removed, perhaps during a season when there is little chance of storms or when no storms are predicted. The straps 10, the ridge vent guards 30 (if any) and the gutter guards 20 (if any) have been removed from the roof 5 of the structure 4 and are in storage. The anchors 18 with anchor spirals 19 are not removed, but to reduce a potential tripping hazard, the recess pots 16 are covered with covers 17, covering the anchors 18 and providing a relatively smooth surface, similar to sprinkler control boxes.

Referring to FIG. 9, a flow chart of installation of the present invention is shown. In general, the footings are installed at any time, and then when a storm is predicted, the straps, optional gutter guards and optional ridge vent guards are deployed. To start, holes are dug 200 in the periphery of holes, deep enough so that the eye of the anchor is below ground level. Next, the recess pots are inserted 220 into the holes and covers are placed 230 on the pots to reduce the potential for tripping.

When a storm is predicted, the straps are run 300 over the roof of the structure. If there are gutters 310, gutter guards are installed 320 on the straps to prevent damage to the gutters. If there are roof vents 330, roof vent guards are installed 340 and the straps are passed over the roof vent guards to prevent damage to the roof vents. Next, the straps and ratchets are attached 350 to the eyes of the anchors and the straps are tightened 360 using the ratchets.
Equivalent elements can be substituted for the ones set forth above such that they perform in substantially the same manner in substantially the same way for achieving substantially the same result.

Although the guard systems are described as separate embodiments, it is not intended to be limited in any way, such that depending upon the structure being protected, the protection system of the first embodiment stands alone or in another. It is believed that the system and method of the present invention and many of its attendant advantages will be understood by the foregoing description. It is also believed that it will be apparent that various changes may be made in the form, construction and arrangement of the components thereof without departing from the scope and spirit of the invention or without sacrificing all of its material advantages. The form herein before described being merely exemplary and explanatory embodiment thereof. It is the intention of the following claims to encompass and include such changes. What is claimed is:

1. A system for securing a structure, the system comprising:

   a plurality of anchors around a periphery of the structure, the plurality of anchors set below a ground level on which the structure rests, an eye of the plurality of anchors set in recess pots, the recess pots having removable covers;

   a plurality of straps, each of the plurality of straps having a hook affixed to one end and each of the plurality of straps and having a ratchet affixed to an opposite end, the ratchet having a second hook on a distal end, the hooks and the second hooks adapted to be removably attached to one of the eyes of plurality of anchors;

   at least one feature protection device.

2. The system of claim 1, wherein the plurality of straps is made of a material selected from the group consisting of polypropylene, polyester and nylon.

3. The system of claim 1, wherein the at least one feature protection device comprises a plurality of gutter guards, each of the gutter guards having a plurality of brackets adapted to hold one of the plurality of straps and each of the gutter guards adapted to extend beyond a roof of the structure to protect a gutter of the structure.

4. The system of claim 1, wherein the at least one feature protection device comprises a plurality of ridge vent guards, each of the ridge vent guards adapted to elevate one of the plurality of straps beyond a ridge vent on a roof of the structure to protect the ridge vent from being damaged by the plurality of straps.

5. The system of claim 4, wherein two or more of the ridge vent guards are coupled to each other by a cross member.

6. The system of claim 1, wherein the ratchet is a come-along ratchet.

7. A method for protecting a structure, the method comprising:

   digging a plurality of holes around a periphery of the structure;

   screwing an anchor into each of the holes whereas an eye of the anchor is set below ground level;

   inserting a recess pot into each of the plurality of holes;

   covering each of the recess pots with a cover; and

   providing at least one feature protection device.

8. The method of claim 7, further comprising:

   when a storm is predicted:

   running a plurality of straps over a roof of the structure, each of the plurality of straps having a hook affixed to one end and each of the plurality of straps and having a ratchet affixed to an opposite end, the ratchet having a second hook on a distal end, the hooks and the second hooks adapted to be removably attached to one of the eyes of plurality of anchors;

   attaching each of the hooks and second hooks to one of the anchors;

   tightening the ratchets thereby tensioning the plurality of straps to hold the roof in place during the storm.

9. The method of claim 7, wherein the at least one feature protection device is at least one gutter guard for preventing damage to a gutter of the structure.

10. The method of claim 7, wherein the at least one feature protection device is at least one roof vent guard for preventing damage to a roof vent of the structure.

11. The method of claim 7, wherein the plurality of straps is made of a material selected from the group consisting of polypropylene, polyester and nylon.

12. An apparatus for protecting a roof of a building comprising:

   an anchor means installed around a periphery of the structure and an eye of the anchor means is set below a ground level on which the structure rests, the anchor means including recess pots to provide continued access to the eye;

   a strap means having a hook means affixed to one end and a tightening means affixed to an opposite end, the tightening means having a second hook means on a distal end, the hook means and the second hook means adapted to be removably attached to the anchor means; and

   a feature protection means.

13. The apparatus of claim 12, wherein the strap means comprises a plurality of straps made of a material selected from the group consisting of polypropylene, polyester and nylon.

14. The apparatus of claim 12, wherein the feature protection means comprises a plurality of gutter guards each having a plurality of brackets adapted to hold one of the plurality of straps and each of the plurality of gutter guards adapted to extend beyond an edge of the roof to protect a gutter of the structure.

15. The apparatus of claim 12, wherein the feature protection means comprises at least one ridge vent guard adapted to elevate at least one of the plurality of straps beyond a ridge vent on the roof to protect the ridge vent from being damaged by the at least one of the plurality of straps.

16. The apparatus of claim 15, wherein two or more of the ridge vent guards are coupled to each other by a cross member.
17. The apparatus of claim 14, wherein each of the plurality of gutter guard means comprises a section of decking material.

18. The apparatus of claim 17, wherein the section of decking material is at least 3 feet in length.

19. The apparatus of claim 12, further comprising a cover means to removably cover the recess pots.

20. The apparatus of claim 12, wherein the tightening means is a come-along ratchet.

* * * * *