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Anic(10) **Pub. No.: US 2016/0160509 A1**(43) **Pub. Date: Jun. 9, 2016**(54) **DECK DRAINAGE SYSTEM****Publication Classification**(71) Applicant: **Miro Anic**, Mechanicsburg, PA (US)(72) Inventor: **Miro Anic**, Mechanicsburg, PA (US)(21) Appl. No.: **14/961,442**(22) Filed: **Dec. 7, 2015****Related U.S. Application Data**

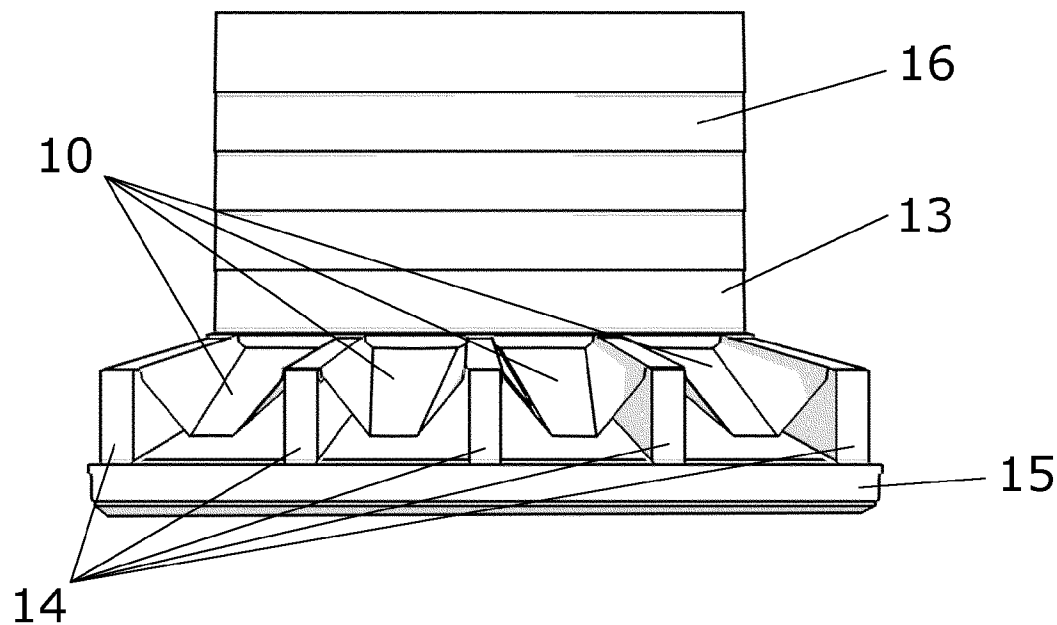
(60) Provisional application No. 62/088,618, filed on Dec. 7, 2014.

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(57)

ABSTRACT

A plurality of interlocking sloped channels, which drain water seeping through the deck into a rain gutter comprises a deck drainage system. Each channel provides a flashing on each side edge, which overlaps the corresponding flashing on the neighboring channel to prevent leakage. The flashings overlap each other on the top surface of the deck joists, and the channels are suspended between the joists, such that they only occupy unused space.



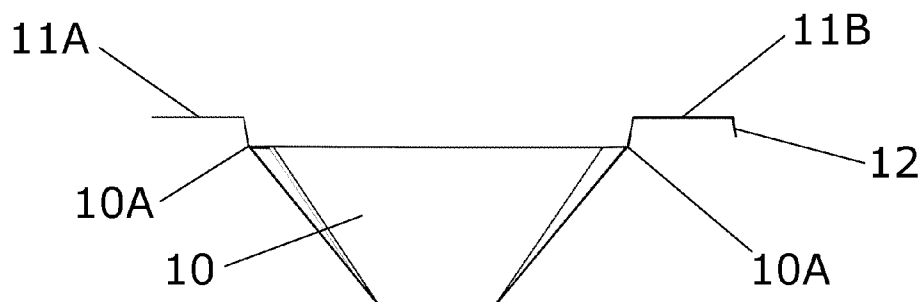


FIG. 1

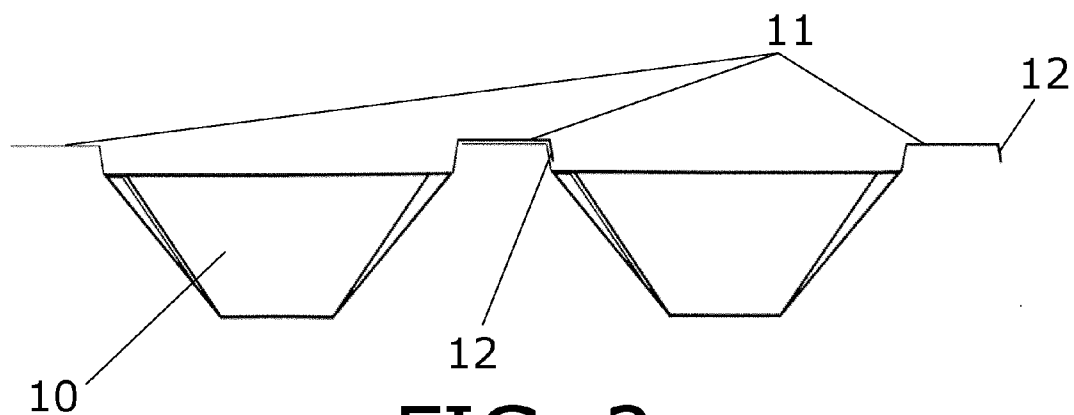


FIG. 2

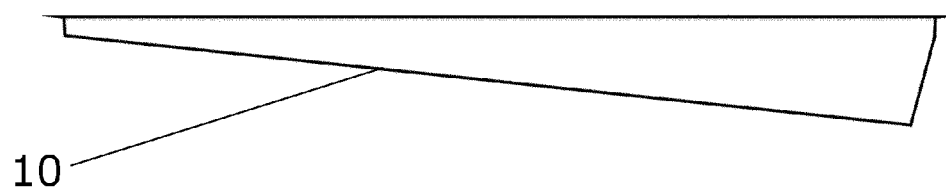


FIG. 3

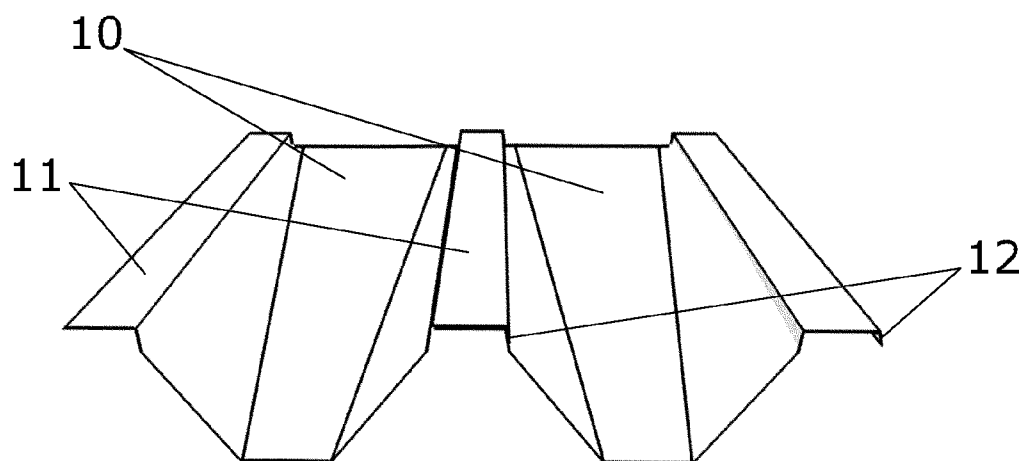


FIG. 4

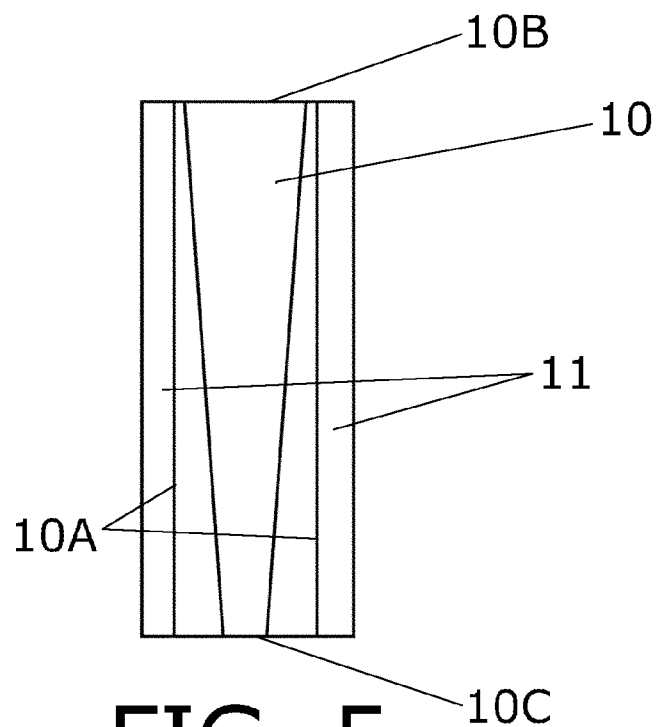


FIG. 5

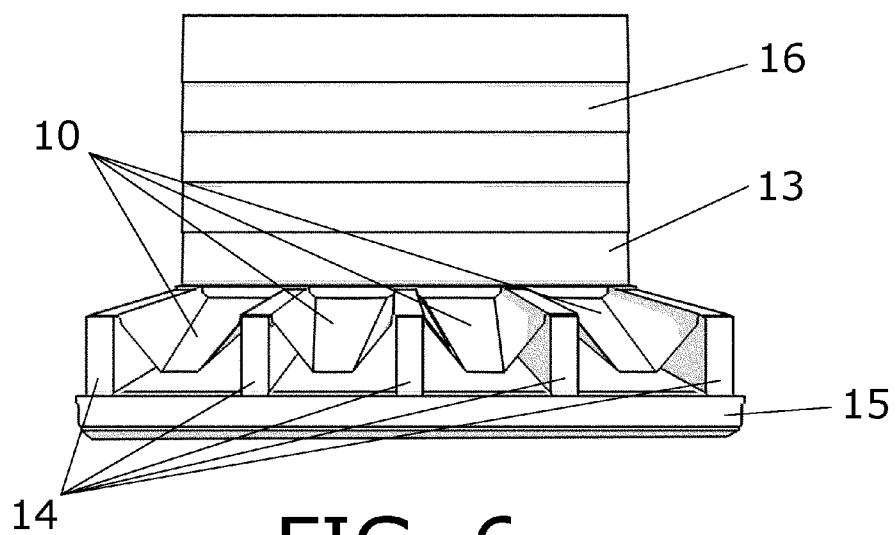


FIG. 6

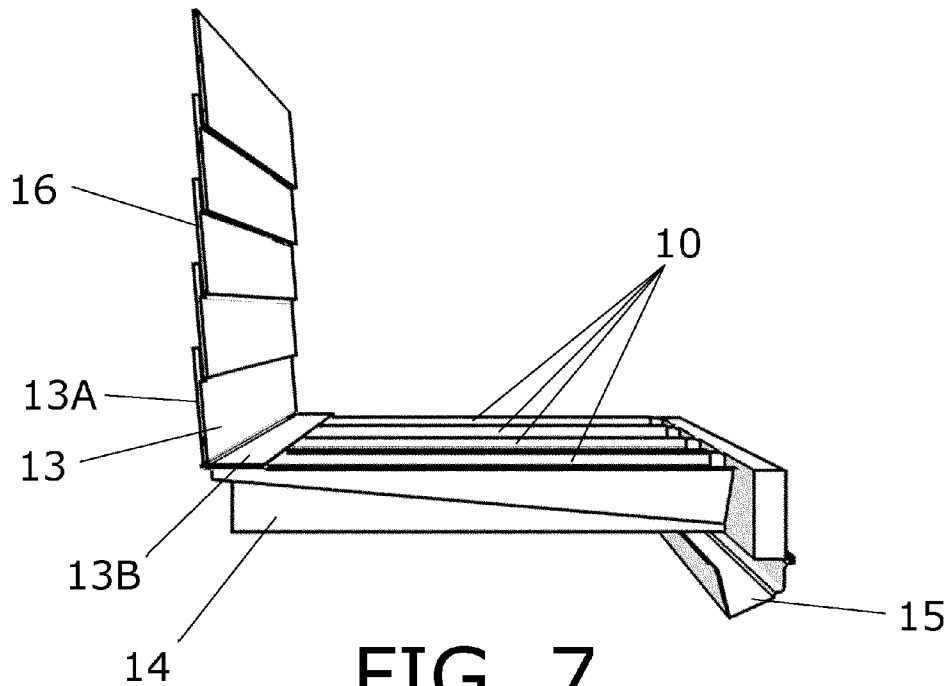


FIG. 7

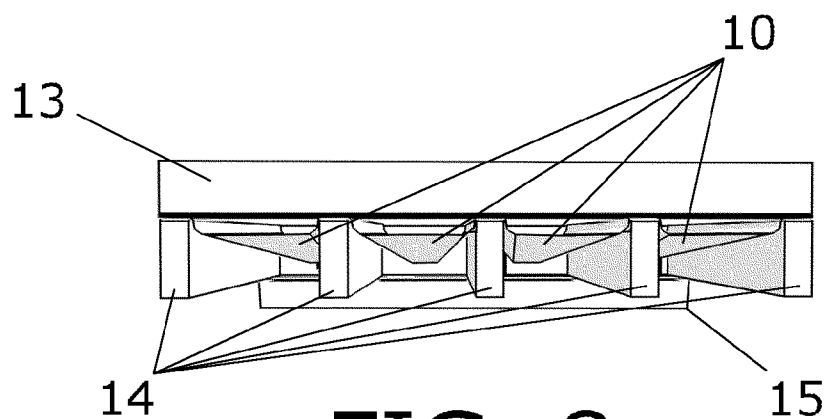


FIG. 8

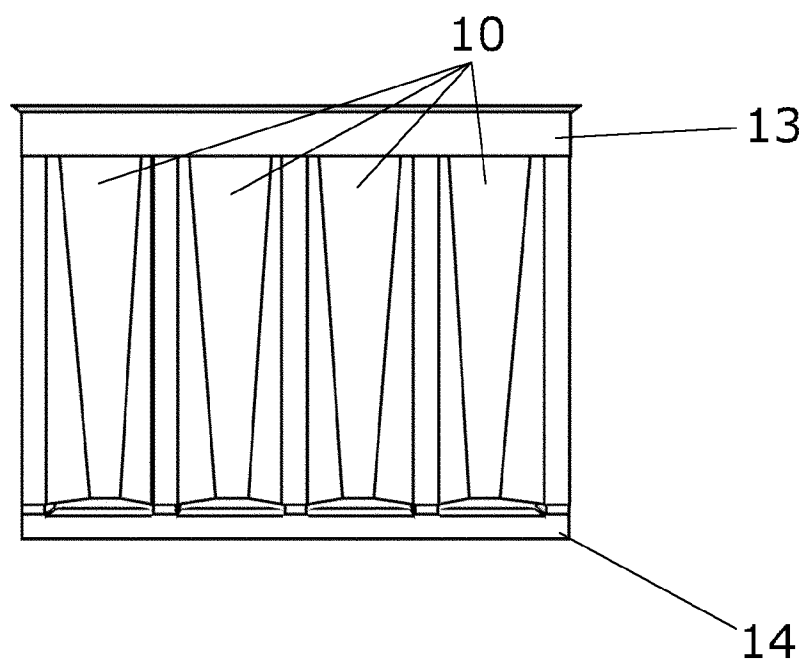


FIG. 9

DECK DRAINAGE SYSTEM**CROSS-REFERENCE TO RELATED APPLICATIONS**

[0001] This Application claims the benefit of U.S. Provisional Application No. 62/088,618, filed Dec. 7, 2014, which is hereby incorporated by reference.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not Applicable

PARTIES TO A JOINT RESEARCH AGREEMENT

[0003] Not Applicable

REFERENCE TO SEQUENCE LISTING, A TABLE, OR A COMPUTER PROGRAM LISTING COMPACT DISK APPENDIX

[0004] Not Applicable

BACKGROUND OF THE INVENTION

[0005] The invention relates generally to home improvements and in particular to a deck drainage system. Homeowners have discovered the many benefits of building a deck, to add recreational living space and value to the home. Unfortunately, in most cases a large space is created beneath the deck that cannot be used, and may eventually provide a home for a stray dog or wild animal, such as a skunk or raccoon. Water seeping through the deck on rainy days, and when snow and ice are melting, prevent the space from being reclaimed by the homeowner for storage.

[0006] A search of the prior art reveals various attachments which have been developed to drain away rainwater and melted snow and ice from the surface of a deck. None are closely related to the present invention, but several include features which resemble those of the present invention. Each has proven to be less than satisfactory in its own way. In many densely populated urban areas, space is at a premium and prior art drainage systems generally protrude outward along the entire edge of the deck, creating an obstruction if the deck is located next to a sidewalk or driveway. The present invention has been developed for the purpose of addressing and resolving these disadvantages. A deck drainage system, which redirects the water seeping through the deck into a rain gutter and is located within unused space between the joists, would resolve these problems.

[0007] Under deck drainage system, U.S. Pat. No. 8,245,451 (priority Jan. 17, 2008), provides an under deck drainage system for use with a deck. The system includes at least one starter strip mounted to one or more joists of the deck, and a plurality of clips coupled with the starter strip, where the clips are slidable along the starter strip. The system further includes an elongated channel member coupled with at least one of the plurality of clips, and the elongate channel member has at least one channel therein.

[0008] Ventilated deck drainage systems, U.S. Pat. No. 8,082,712 (priority Dec. 12, 2005), provides a system and method for providing a deck drain vent system. The deck drain vent system includes at least one panel disposed below a lower surface of a deck. The panel is substantially planar and has a bottom side and a top side facing and spaced apart from the lower surface. At least one vent penetrates the panel to

allow fluid communication between the cavity and the bottom side. The deck drain vent system further includes a shaft lock secured to the vent. The shaft lock hinders liquids and debris from entering the vent, yet allows air to freely circulate between the cavity and a surrounding atmosphere.

[0009] Modular deck drainage system, U.S. Pat. No. 6,886,302 (priority Aug. 22, 2002), provides a deck drainage system having a plurality of channeled drainage panels. The drainage panels are mounted to direct water flow transversely of the deck joists to a gutter, the panels connected to and suspended from the underside of the joists. The gutter is mounted transversely across the discharge ends of the drainage panels to collect water therefrom and direct it to a down spout. Drainage panels, which are rectangular with the individual drainage channels extending lengthwise, may be overlapped both lengthwise and widthwise to fit the perimeter of the deck.

[0010] Deck drain, U.S. Pat. No. 6,792,723 (priority Dec. 13, 2001), provides a deck drain which is manufactured from extruded plastic, with a cross section defining a substantially cylindrical main channel, a mid section, and a top section having a top face with a plurality of openings defined therein. Nail guiding means are attached to the mid section, and direct a nail or screw through the mid section to secure the deck drain to contact the planar surface without wobbling when attached.

[0011] Drainage system for decks, U.S. Pat. No. 5,511,351 (priority Sep. 29, 1993), and Drainage system for decks, U.S. Pat. No. 5,765,328 (priority Sep. 29, 1993), provide a deck assembly made of flexible material and mounted beneath the surface decking between adjacent drainage system is designed to collect water leaking through the spaces between adjacent deck dry. The drainage system consists of a plurality of water channeling members respectively formed from substantially flexible web material mounted side-by-side in succession and mounted in an overlapping relationship, straddling adjacent deck joists from view.

[0012] Drainage system for decks, U.S. Pat. No. 5,765,328 (priority Sep. 29, 1993), provides a deck assembly made of flexible material and mounted beneath the surface decking between adjacent drainage system is designed to collect water leaking through the spaces between adjacent deck dry. The drainage system consists of a plurality of water channeling members respectively formed from substantially flexible web material mounted side-by-side in succession and mounted in an overlapping relationship, straddling adjacent deck joists from view.

[0013] Under a deck ceiling drainage system, U.S. Pat. No. 8,250,821 (priority Sep. 3, 2009), provides a ceiling drainage system disposed beneath an outdoor deck wherein the deck includes a frame structure supporting multiple parallel deck floor panels and the drainage system includes a U-shaped frame structure secured to the deck frame with multiple interlocking drain trays having one end secured to the drainage system U-shaped frame structure. The system further comprises a gutter extending between the free ends of the U-shaped frame structure, and the opposite ends of the drain trays interlocked with the gutter.

[0014] Device to collect moisture from open decks, U.S. Pat. No. 6,796,092 (priority Aug. 7, 2001), provides a plurality of deck pans under an open planked deck. The deck pans are shaped to direct the moisture as water to a collecting trough which, in turn, directs the water to a vertical drain pipe or downspout. For new construction, the deck pans are joined to fit over parallel adjacent joists and are held in place by the

deck planking overhead. For renovation of existing decks, the deck pans are attached to the sides or undersides of the adjacent joists. The deck pans and collecting troughs are formed with specific pitches to prevent collection of standing water in the pans or troughs.

SUMMARY OF THE INVENTION

[0015] Accordingly, the invention is directed to a deck drainage system. The system is comprised of a plurality of interlocking sloped channels, which drain water seeping through the deck into a rain gutter. Each channel provides a flashing on each side edge, which overlaps the corresponding flashing on the neighboring channel to prevent leakage. The flashings overlap each other on the top surface of the deck joists, and the channels are suspended between the joists, such that they only occupy unused space.

[0016] Additional features and advantages of the invention will be set forth in the description which follows, and will be apparent from the description, or may be learned by practice of the invention. The foregoing general description and the following detailed description are exemplary and explanatory and are intended to provide further explanation of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] The accompanying drawings are included to provide a further understanding of the invention and are incorporated into and constitute a part of the specification. They illustrate one embodiment of the invention and, together with the description, serve to explain the principles of the invention.

[0018] FIG. 1 is a front view of a channel component of the first exemplary embodiment, displaying the channel 10, the flashings 11, and the flange 12.

[0019] FIG. 2 is a front view of two assembled channel components of the first exemplary embodiment, displaying the channels 10, the flashings 11, and the flanges 12.

[0020] FIG. 3 is a side view of a channel component of the first exemplary embodiment, displaying the channel 10.

[0021] FIG. 4 is a front perspective view of two assembled channel components of the first exemplary embodiment, displaying the channels 10, the flashings 11, and the flanges 12.

[0022] FIG. 5 is a top view of a channel component of the first exemplary embodiment, displaying the channel 10, and the flashings 11.

[0023] FIG. 6 is a front perspective view of the first exemplary embodiment, displaying the channels 10, the profile board 13, the joists 14, the gutter 15, and the wall 16.

[0024] FIG. 7 is a side perspective view of the first exemplary embodiment, displaying the channels 10, the profile board 13, a joist 14, the gutter 15, and the wall 16.

[0025] FIG. 8 is a rear view of the first exemplary embodiment, displaying the channels 10, the profile board 13, and the joist 14s.

[0026] FIG. 9 is a top view of the first exemplary embodiment, displaying the channels 10, the profile board 13, and the gutter 15.

DETAILED DESCRIPTION OF THE INVENTION

[0027] Referring now to the invention in more detail, the invention is directed to a deck drainage system.

[0028] The first exemplary embodiment is comprised of a plurality of interlocking sloped channels 10, which drain

water seeping through the deck into a rain gutter 15. Each channel 10 provides a flashing 11 on the rear edge and each side edge 10A. One of the flashings 11 being an overlapping flashing 11B, which overlaps the corresponding base flashing 11A on the neighboring channel 10 to prevent leakage. The overlapping flashing 11B, is preferably on the right side of the channel 10, and provides a full length flange 12 to ensure a leakproof joint. The flashings 11 overlap each other on the top surface of the deck joists 14, and the channels 10 are suspended between the deck joists 14, such that they only occupy unused space. An L-shaped profile board 13 having a back edge 13A and bottom edge 13B, is preferably 6 inches tall and 6 inches deep, is installed on top of the deck's ledger board to secure the system to the house wall 16.

[0029] The channels 10 are preferably provided in 4-foot, 6-foot, and 8-foot lengths, and in two widths, fitting between joists which are 16 inches and 24 inches apart, center to center. Preferably, joists are 2-inch by 8-inch beams, allowing a 6-inch drop from the rear to the front of the channel 10.

[0030] To use the first exemplary embodiment, the user installs the posts, frame, joists 14, and ledger board of the deck, then installs the channels 10 between the joists 14, with the flashings 11 of the channels 10 overlapping on top of the joists 14. Preferably, the user secures the flashing 11 on the left side of each channel 10 with galvanized nails, and the flashing 11 of the channel 10 to the left of it will cover the nails. The user may then install the profile board 13 and the gutter 15. Once the profile board 13, the channels 10, and the gutter 15 have been installed, the deck flooring may be secured to the joists by installing screws or similar fasteners through the flooring and the flashings 11.

[0031] The channels 10, the profile board 13, and the gutter 15 are preferably manufactured from a semi-rigid, durable material which is corrosion resistant, such as aluminum alloy or vinyl. Components, component sizes, and materials listed above are preferable, but artisans will recognize that alternate components and materials could be selected without altering the scope of the invention.

[0032] While the foregoing written description of the invention enables one of ordinary skill to make and use what is presently considered to be the best mode thereof, those of ordinary skill in the art will understand and appreciate the existence of variations, combinations, and equivalents of the specific embodiment, method, and examples herein. The invention should, therefore, not be limited by the above described embodiment, method, and examples, but by all embodiments and methods within the scope and spirit of the invention.

I claim:

1. A deck drainage system, comprised of:
 - a. a plurality of interlocking sloped channels having a front edge, rear edge, and two side edges;
 - b. a plurality of flashings;
 - b. one of said plurality of flashings being a base flashing and being connected to one side edge of said interlocking sloped channel;
 - c. one of said plurality of flashings being an overlapping flashing and being connected to one side edge of said interlocking sloped channel opposite said base flashing;
 - d. a plurality of deck joists;
 - e. wherein said plurality of interlocking sloped channels are suspended between said plurality of deck joists and supported on each side by said plurality of flashings.

2. The deck drainage system of claim 1, wherein one of said plurality of flashings being a rear flashing and being connected to said rear edge.

3. The deck drainage system of claim 1, further comprising a flange; said flange being connected to said overlapping flashing; said flange being configured such that a waterproof seal is formed when said overlapping flashing is placed over said base flashing.

4. The deck drainage system of claim 2, further comprising a flange; said flange being connected to said overlapping flashing; said flange being configured such that a waterproof seal is formed when said overlapping flashing is placed over said base flashing.

5. The deck drainage system of claim 1, further comprising a profile board; said profile board being L-shaped and having a back edge and bottom edge; said back edge being configured to attach to a ledger board of a wall; said bottom edge being configured to attach to said plurality interlocking sloped channels.

6. The deck drainage system of claim 2, further comprising a profile board; said profile board being L-shaped and having a back edge and bottom edge; said back edge being configured to attach to a ledger board of a wall; said bottom edge being configured to attach to said rear flashing.

7. The deck drainage system of claim 3, further comprising a profile board; said profile board being L-shaped and having a back edge and bottom edge; said back edge being configured to attach to a ledger board of a wall; said bottom edge being configured to attach to said plurality interlocking sloped channels.

8. The deck drainage system of claim 4, further comprising a profile board; said profile board being L-shaped and having a back edge and bottom edge; said back edge being configured to attach to a ledger board of a wall; said bottom edge being configured to attach to said rear flashing.

9. The deck drainage system of claim 1, further comprising a rain gutter; said rain gutter being attached to the front edge of said plurality of interlocking sloped channels.

10. The deck drainage system of claim 1, wherein the channels are four feet long.

11. The deck drainage system of claim 1, wherein the channels are six feet long.

12. The deck drainage system of claim 1, wherein the channels are eight feet long.

13. The deck drainage system of claim 10, wherein the deck joists are spaced 16 inches apart and said plurality of interlocking sloped channels are configured and sized to be suspended between said deck joists.

14. The deck drainage system of claim 10, wherein the deck joists are spaced 24 inches apart and said plurality of interlocking sloped channels are configured and sized to be suspended between said deck joists.

15. The deck drainage system of claim 11, wherein the deck joists are spaced 16 inches apart and said plurality of interlocking sloped channels are configured and sized to be suspended between said deck joists.

16. The deck drainage system of claim 11, wherein the deck joists are spaced 24 inches apart and said plurality of interlocking sloped channels are configured and sized to be suspended between said deck joists.

17. The deck drainage system of claim 12, wherein the deck joists are spaced 16 inches apart and said plurality of interlocking sloped channels are configured and sized to be suspended between said deck joists.

18. The deck drainage system of claim 12, wherein the deck joists are spaced 24 inches apart and said plurality of interlocking sloped channels are configured and sized to be suspended between said deck joists.

19. The deck drainage system of claim 1, wherein said base flashing is secured to said deck joist with nails.

20. The deck drainage system of claim 2, wherein said base flashing is secured to said deck joist with nails.

7. (canceled)

8. (canceled)

9. (canceled)

10. (canceled)

11. (canceled)

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