HOSE GUIDING DEVICE

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ABSTRACT

The invention relates to a hose guiding device for use with a utility hose comprising a hanger for securing the device to a user's belt and means for guiding the hose that is pivotally supported by the hanger. The means for guiding has an elongated passageway with a forward end and a rear end that allows the hose to be pulled forward through the passageway toward the front end. The means for guiding impedes reverse movement of the hose.
HOSE GUIDING DEVICE

BACKGROUND OF THE INVENTION

[0001] This invention relates to a hose guiding device for use, particularly a power or utility hose used with hand tools. The device comprises a hanger for securing the device to an object and means for guiding the hose that is rotatably supported by the hanger. The object may be a belt that moves with the user. The means for guiding has an elongated passageway with a forward end and a rear end that allows the hose to be pulled forward through the passageway toward the front end. The means for guiding impedes reverse movement of the hose.

[0002] Alternative technology is available in the form of U.S. Pat. No. 6,336,578 issued in 2002 to Maynard which discloses a wire belt attachable air hose holder which pulls the hose forward as the user walks in order to maintain the selected slack on the air hose. The hose has to be disengaged from the device, however, to allow the user to change the amount of slack desired on the hose.

[0003] U.S. Pat. No. 6,254,050 issued in 2001 to Albrecht et al. for a safety tether system for air tool and air line teaches an S-hook and a figure-eight hook swively attachable to the S-hook.

[0004] Similarly, U.S. Pat. No. 5,050,786 issued in 1991 to DeMott for a waist-attached cable holder which teaches the use of a device which is attachable to a person’s belt for supporting the weight of a flexible member extending from a tool and which grips the flexible member for maintaining its slack.

[0005] Further, see U.S. Pat. No. 4,321,755 issued to Illgen 1992 for a plumb bob holder which teaches a stiff wire frame holder that attaches to a person’s belt and which includes an anchoring member made of a coiled wire.

[0006] Additionally, see U.S. Pat. No. 1,787,106 issued to Glazener in 1927 for a cord hanger which discloses an elongated-coil hanger having a support engaging loop.

[0007] The principal disadvantage of such a devices is they do not automatically grasp the hose pulling it forward with the forward movement of the user, allow for easy addition and/or reduction of hose slack between the end of the hose connected to a tool and the user. To alleviate this problem, and others which will become apparent from the disclosure which follows, the present invention conveniently grasp the hose pulling it forward with the forward movement of the user and without human intervention, and allows for easy addition and/or reduction of hose slack between the end of the hose connected to a tool and the user.

[0008] The citation of the foregoing publications is not an admission that any particular publication constitutes prior art, or that any publication alone or in conjunction with others, renders unpatentable any pending claim of the present application. None of the cited publications is believed to detract from the patentability of the claimed invention.

ADVANTAGES OF THIS INVENTION

[0009] One principal advantage of the hose guiding device of this important invention is its simplicity in being formed of two articles of manufacture with no moving parts. Another advantage is its modest cost of manufacture.

[0010] An object of this invention is to secure a hose to the person using the hose, to secure the hose to any other location to keep the drag of the device not hand held by the operator. The device will carry the hose and allow the user to move about without the hose pulling against the end connected to the tool that is being held by the user. The hose is thus dragged forward when the user moves forward.

[0011] The spiral element of the device is separable from the securing member of the device. Advantages with the device secured to a person’s waist that is the weight of the hose will be carried at the waist and not by the discharged end of the hose and the person’s hands. Pulling a hose through the device on one’s waist band takes much less effort than pulling the hose with the hands alone because of different muscle groupings are used. Also this frees both hands to perform different tasks instead of one hand having to stay on the hose.

[0012] The device can be secured to a person’s attire, clothing, or other location. For example, the hose can be secured at the user’s waistline by a belt. When a hose is in the elongated passageway of the device, the device can hang freely from a belt or clip or other location. As the user moves forward the spiraled portion of the device will swing out of horizontal alignment which will cause a binding action between the hose and spiral and the spiral along with the individual to which it is secured, moves forward so that the device drags the hose. The user may urge the hose in a rearward direction by pushing it from the forward end of the passageway. However, as noted, any attempt to pull the hose rearward from the rear end is impeded.

[0013] These together with other objects of the invention, along with the various features of novelty which characterize the invention are pointed out with particularity in the claims annexed to and forming a part of this disclosure. For a better understanding of the invention, its operating advantages and the specific objects attained by its uses, reference should be had to the accompanying drawings and descriptive matter in which there is illustrated preferred embodiments of the invention.

[0014] Still other advantages will be apparent from the disclosure that follows.

SUMMARY OF THE INVENTION

[0015] The invention relates to a hose guiding device for use with a hose comprising a hanger for securing the device to an object and means for guiding the hose that is rotatably supported by the hanger. The means for guiding has an elongated passageway with a forward end and a rear end that allows the hose to be pulled forward through the passageway toward the front end. The means for guiding impedes reverse movement of the hose.

[0016] There has thus been outlined, rather broadly, the more important features of the invention in order that the detailed description thereof that follows may be better understood, and in order that the present contribution to the art may be better appreciated. There are, of course, additional features of the invention that will be described hereinafter and which will form the subject matter of the claims appended hereto. Those skilled in the art will appreciate that
the conception upon which this disclosure is based, may readily be utilized as a basis for the designing of other structures, methods and systems for carrying out the several purposes of the present invention. It is important, therefore, that the claims be regarded as including such equivalent constructions insofar as they do not depart from the spirit and scope of the present invention.

BRIEF DESCRIPTION OF THE DRAWING

[0017] Preferred embodiments of the invention are described hereinafter with reference to the accompanying drawing wherein:

[0018] FIG. 1 is a perspective view of a hose guiding device of the present invention showing a hanger portion of the device attached to a horizontal belt and rotatingly supporting a means for guiding an elongated passageway for a hose;

[0019] FIG. 2 is a perspective view of the hose guiding device of the current invention shown supporting a pneumatic hose for a pneumatically operated tool;

[0020] FIG. 3 shows the hose guiding device of the present invention with the device attached to a horizontal belt of a user and a user who is moving forward with the means for guiding pivoting with the forward end of the passageway causing the forward end of the passageway to fall in elevation relative to the rear end of the passageway so that the section of the hose supported by the invention is moved forward along with the forward movement of the user;

[0021] FIG. 3A is an enlarged view taken from FIG. 3 showing the forward end of the passageway at a height lower than the passageway when the user to which the device is attached is moving in a forward direction;

[0022] FIG. 4 is a perspective view showing the means for guiding being supported by a second turning section which is adapted for use by a left handed user and again can be disposed on the left hand side of the user, as opposed to what is shown in FIGS. 3 and 3A which is designed for a right handed user showing the means for guiding comprising an elongated passageway an eyelet disposed at an upper end and an elongated shank disposed there between with a means for connecting and a flip resistant sleeve for connecting a first portion of an elongated shank to a second portion of the elongated shank for disconnecting the first portion from the second portion upon the application of the separating force exceeding a predetermined threshold;

[0030] FIG. 13 shows the means for connecting a ball tip on an upper end of the elongated shank which is adapted for use with a horizontal eyelet on the hanger;

[0031] FIG. 14 is a fragmentary top elevation view taken along the line of 14-14 of FIG. 13 showing the eyelet of the hanger flexing sufficiently upon the application of a separating force that is exerted by the ball tip on the eyelet to allow the ball tip to be released from the eyelet; and

[0032] FIG. 15 is a fragmentary top elevation view of the eyelet of the hanger showing a formable grommet disposed therein where the grommet is sufficiently deformable to release from the eyelet of the hanger upon application of a separating exerted by the ball tip upon the grommet;

[0033] FIG. 16 is a perspective view of the hose guiding device showing the means for connecting comprising a spring clip for connecting the means for guiding the hanger.

DETAILED DESCRIPTION OF THE INVENTION

[0034] Without departing from the generality of the invention disclosed herein and without limiting the scope of the invention, the discussion that follows, will refer to the invention as depicted in the drawing.

[0035] The preferred embodiments of the apparatus depicted in the drawing comprise a hose guiding device for use with a hose comprising a hanger for securing the device to an object and means for guiding the hose that is rototurinly supported by the hanger. The means for guiding has an elongated passageway with a forward end and a rear end that allows the hose to be pulled forward through the passageway toward the front end. The means for guiding impeds reverse movement of the hose.

[0036] As shown in the drawing, the means for guiding maybe independent of a spring. Moreover, the means for guiding impeds reverse movement of the hose independent of a clamp.

[0037] The forward end of the passageway may be disposed at a height lower than the rear end of the passageway when the object to which the device is secured is moving in a forward direction. In this way, a section of the hose that is disposed in the passageway as the forward end of the passageway is lower than the rear end of the passageway is impeded by the passageway from reverse movement. The means for guiding may pivot relative to the hanger causing the forward end of the passageway to fall in elevation relative to the rear end of the passageway as the end of the hose extending from the rear end of the passageway moves away from the hose guiding device.
The passageway preferably has a minimum transverse dimension that is larger than the outside diameter of the hose. The passageway may be defined by one of a spiral configuration, a helical configuration, a conical configuration, and a tube. The tube may be limited to having a rectangular cross-section.

In a preferred embodiment, the means for guiding comprises the elongated passageway is disposed at a lower end, means for connecting the means for guiding to the hanger disposed at an upper end, and an elongated shank disposed between the elongated passageway and the means for connecting. The means for connecting is rotatably supported by the hanger. The means for connecting may comprise one of an eyelet and a spring biased clip for connecting the means for guiding to the hanger and for disconnecting the means for guiding from the hanger upon the application of a separating force exceeding a predetermined threshold.

Moreover, the means for connecting may comprise a ball tip on an upper end of the elongated shank adapted for use with a horizontal eyelet on the hanger, the horizontal eyelet having an opening with a minimum diameter larger than the cross-section of the shank and a maximum diameter smaller than the diameter of the ball tip, the horizontal eyelet on the hanger having sufficient flexibility that upon the application of a separating force exerted by the ball tip on the eyelet exceeding a predetermined threshold, the horizontal eyelet flexes to release the ball tip.

Additionally, the means for connecting may comprise a ball tip on an upper end of the elongated shank adapted for use with a horizontal eyelet on the hanger, the horizontal eyelet having an internal radial deformable grommet with an external diameter greater than the internal diameter of the horizontal eyelet, the internal diameter of the horizontal eyelet is greater than the diameter of the ball tip, the grommet having an opening with a minimum diameter larger than a cross-section of the shank and a maximum diameter smaller than the diameter of the ball tip, the grommet adapted for retentive disposition in the horizontal eyelet, the grommet is sufficiently deformable to release from the retentive disposition in the horizontal eyelet upon the application of a separating force exerted by the ball tip on the grommet exceeding a predetermined threshold.

The elongated shank may also have a first portion and a second portion and a slip resistant sleeve for connecting the first portion to the second portion and for disconnecting the first portion from the second portion upon the application of a separating force exceeding a predetermined threshold.

The hanger of the present invention may comprise a wire with a hook on a first end and an eyelet on a second end, so that the means for guiding can be pivotally supported by the eyelet and the hook can be secured to horizontally disposed belt of a user. The hanger may be formed of a formed rigid elongated wire having a first section, a second section, and a middle section disposed between the first section and the second section, with the first section having a first upright linear length of wire connected to a first vertical linear length by a first turned section and the middle section having a second turned section extending from the vertical linear length of the first section, a second upright linear length, a third turned section, a second vertical linear length, and a fourth turned section. The second upright linear length can be disposed between the second turned section and the third turned section, and the second vertical linear length is disposed between the third turned section and the fourth turned section. The second section may have a third upright linear length of wire extending from the fourth turned section of the middle section, a third vertical linear length, and a fifth turned section, and the third upright linear length connected to the third vertical linear length by the fifth turned section.

Additionally, the at least one of the first turned section, the second turned section, the third turned section, the fourth turned section, and the fifth turned section can be a curved section. At least one of the first section and the second section may form a clip for engaging a belt of a user. As shown in FIG. 3A, the middle section pivotally supports the means for guiding. Furthermore, the means for guiding may have the elongated passageway disposed at a lower end, an eyelet disposed at an upper end, and an elongated shank disposed between the elongated passageway and the eyelet, and the eyelet is pivotally supported by the middle section of the hanger.

Preferably, the elongated passageway has a centerline that is transverse to the elongated shank, the eyelet lies in a first plane that is parallel to the centerline of the elongated passageway, and the eyelet is supported by one of the second turned section and the third turned section to allow the hose to be pulled forward through the passageway in a first direction, and the eyelet is supported by the other of the second turned section and the third turned section to allow the hose to be pulled forward through the passageway in a second direction, with the first direction is generally opposite the second direction.

As seen in the drawing, the hose guiding device for use with a hose comprises a first article for securing the device to an object and a second article for guiding the hose that is rotatably supported by the first article. The second article has an elongated passageway with a forward end and a rear end that allows the hose to be pulled forward through the passageway toward the forward end and the second article impedes reverse movement of the hose. The hose may be a power or a utility hose, including a pneumatic hose, for use with a tool.

Furthermore, in an environment which includes a utility hose having a first end connected to a powering source and a second end connected to a tool, a hose guiding device for use with the hose comprises a hanger for securing the device to an object and means for guiding the hose that is rotatably supported by the hanger. The hanger has a three rigid elongated wire having a first section, a second section, and a middle section disposed between the first section and the second section. The first section has a first upright linear length of wire connected to a first vertical linear length by a first turned section. The middle section has a second turned section extending from the vertical linear length of the first section, a second upright linear length, a third turned section, a second vertical linear length, and a fourth turned section. The second upright linear length is disposed between the second turned section and the third turned section, and the second vertical linear length is disposed between the third turned section and the fourth turned section. The second section has a third upright linear
length of wire extending from the fourth turned section of the middle section, a third vertical linear length, and a fifth turned section, and the third upright linear length connected to the third vertical linear length by the fifth turned section.

[0048] Additionally, the means for guiding has an elongated passageway with a forward end and a rear end that allows the hose to be pulled forward through the passageway toward the front end and the means for guiding impedes reverse movement of the hose, the passageway is disposed at a lower end, an eyelet disposed at an upper end, and an elongated shank disposed between the elongated passageway and the eyelet. The eyelet is pivotally supported by the middle section of the hanger. The passageway has a minimum transverse dimension that is larger than the outside diameter of the hose and the passageway is defined by a spiral configuration, the forward end of the passageway is disposed at a height lower than the rear end of the passageway when the object to which the device is secured is moving in a forward direction, and the passageway has a centerline that is transverse to the elongated shank, the eyelet lies in a first plane that is parallel to the centerline of the elongated passageway, and the eyelet is supported by one of the second turned section and the third turned section to allow the hose to be pulled forward through the passageway in a first direction, and the eyelet is supported by the other of the second turned section and the third turned section to allow the hose to be pulled forward through the passageway in a second direction, the first direction is generally opposite the second direction.

[0049] In this way, a section of the hose that is disposed in the passageway as the forward end of the passageway is lower than the rear end of the passageway is impeded by the passageway from reverse movement.

[0050] The device can be made out of metal, plastic or any other material that can provide the required strength to support the hose.

[0051] While this invention has been described in connection with the best mode presently contemplated by the inventor for carrying out his invention, the preferred embodiments described and shown are for purposes of illustration only, and are not to be construed as constituting any limitations of the invention. Modifications will be obvious to those skilled in the art, and all modifications that do not depart from the spirit of the invention are intended to be included within the scope of the appended claims. Those skilled in the art will appreciate that the conception upon which this disclosure is based, may readily be utilized as a basis for the designing of other structures, methods and systems for carrying out the several purposes of the present invention. It is important, therefore, that the claims be regarded as including such equivalent constructions insofar as they do not depart from the spirit and scope of the present invention.

[0052] My invention resides not in any one of these features per se, but rather in the particular combinations of some or all of them herein disclosed and claimed and it is distinguished from the prior art in these particular combinations of some or all of its structures for the functions specified.

[0053] With respect to the above description then, it is to be realized that the optimum dimensional relationships for the parts of the invention, including variations in size, materials, shape, form, function and manner of operation, assembly and use, and all equivalent relationships to those illustrated in the drawings and described in the specification, that would be deemed readily apparent and obvious to one skilled in the art, are intended to be encompassed by the present invention.

[0054] Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

What is claimed as being new and desired to be protected by Letters Patent of the United States is as follows:

1. A hose guiding device for use with a hose comprising a hanger for securing the device to an object and means for guiding the hose that is rotatingly supported by the hanger, said means for guiding having an elongated passageway with a forward end and a rear end that allows the hose to be pulled forward through the passageway toward the front end and said means for guiding impedes reverse movement of the hose.

2. The hose guiding device of claim 1, wherein the forward end of the passageway is disposed at a height lower than the rear end of the passageway when the object to which the device is secured is moving in a forward direction, whereby, a section of the hose that is disposed in the passageway as the forward end of the passageway is lower than the rear end of the passageway is impeded by the passageway from reverse movement.

3. The hose guiding device of claim 1, wherein the means for guiding pivots relative to the hanger causing the forward end of the passageway to fall in elevation relative to the rear end of the passageway as the end of the hose extending from the rear end of the passageway moves away from the hose guiding device.

4. The hose guiding device of claim 1, wherein the passageway has a minimum transverse dimension that is larger than the outside diameter of the hose.

5. The hose guiding device of claim 1, wherein the passageway is defined by a spiral configuration.

6. The hose guiding device of claim 4, wherein the passageway is defined by a helical configuration.

7. The hose guiding device of claim 4, wherein the passageway is defined by a conical configuration.

8. The hose guiding device of claim 4, wherein the passageway is defined by a tube.

9. The hose guiding device of claim 8, wherein the tube has a rectangular cross-section.

10. The hose guiding device of claim 1, wherein the means for guiding comprises the elongated passageway being disposed at a lower end, means for connecting the means for guiding to the hanger disposed at an upper end, and an elongated shank disposed between the elongated passageway and the means for connecting, said means for connecting being rotatively supported by the hanger.

11. The hose guiding device of claim 10, wherein the means for connecting comprises an eyelet.
12. The hose guiding device of claim 10, wherein the means for connecting comprises a spring biased clip for connecting the means for guiding to the hanger and for disconnecting the means for guiding from the hanger upon the application of a separating force exceeding a predetermined threshold.

13. The hose guiding device of claim 10, wherein the means for connecting comprises a ball tip on an upper end of the elongated shank adapted for use with a horizontal eyelet on the hanger, said horizontal eyelet having an opening with a minimum diameter larger than a cross-section of the shank and a maximum diameter smaller than the diameter of the ball tip, said horizontal eyelet on the hanger having sufficient flexibility that upon the application of a separating force exerted by the ball tip on the eyelet exceeding a predetermined threshold, the horizontal eyelet flexes to release said ball tip.

14. The hose guiding device of claim 10, wherein the means for connecting comprises a ball tip on an upper end of the elongated shank adapted for use with a horizontal eyelet on the hanger, said horizontal eyelet having an internal radial deformable grommet with an external diameter greater than the internal diameter of the horizontal eyelet, said internal diameter of the horizontal eyelet being greater than the diameter of the ball tip, said grommet having an opening with a minimum diameter larger than a cross-section of the shank and a maximum diameter smaller than the diameter of the ball tip, said grommet adapted for retentive disposition in said horizontal eyelet, said grommet being sufficiently deformable to release from the retentive disposition in said horizontal eyelet upon the application of a separating force exerted by the ball tip on the grommet exceeding a predetermined threshold.

15. The hose guiding device of claim 10, wherein the elongated shank has a first portion and a second portion and a slip resistant sleeve for connecting the first portion to the second portion and for disconnecting the first portion from the second portion upon the application of a separating force exceeding a predetermined threshold.

16. The hose guiding device of claim 1, wherein the means for guiding is independent of a spring.

17. The hose guiding device of claim 1, wherein the means for guiding impedes reverse movement of the hose independent of a clamp.

18. The hose guiding device of claim 1, wherein the hanger comprises a wire with a hook on a first end and an eyelet on a second end, whereby, the means for guiding can be pivotally supported by the eyelet and the hook can be secured to horizontally disposed belt of a user.

19. The hose guiding device of claim 1, wherein the hanger comprises a formed rigid elongated wire having a first section, a second section, and a middle section disposed between the first section and the second section, said first section having a first upright linear length of wire connected to a first vertical linear length by a first turned section, said middle section having a second turned section extending from the vertical linear length of the first section, a second upright linear length, a third turned section, a second vertical linear length, and a fourth turned section, said second upright linear length is disposed between the second turned section and the third turned section, and the second vertical linear length is disposed between the third turned section and the fourth turned section, said second section having a third upright linear length of wire extending from the fourth turned section of the middle section, a third vertical linear length, and a fifth turned section, and said third upright linear length connected to the third vertical linear length by the fifth turned section.

20. The hose guiding device of claim 19, wherein the at least one of the first turned section, the second turned section, the third turned section, the fourth turned section, and the fifth turned section is a curved section.

21. The hose guiding device of claim 19, wherein at least one of the first section and the second section form a clip for engaging a belt of a user.

22. The hose guiding device of claim 19, wherein the middle section pivotally supports the means for guiding.

23. The hose guiding device of claim 19, wherein the means for guiding has the elongated passageway disposed at a lower end, an eyelet disposed at an upper end, and an elongated shank disposed between the elongated passageway and the eyelet, said eyelet being pivotally supported by the middle section of the hanger.

24. The hose guiding device of claim 23, wherein the elongated passageway has a centerline that is transverse to the elongated shank, the eyelet lies in a first plane that is parallel to the centerline of the elongated passageway, and the eyelet is supported by one of the second turned section and the third turned section to allow the hose to be pulled forward through the passageway in a first direction, and the eyelet is supported by the other of the second turned section and the third turned section to allow the hose to be pulled forward through the passageway in a second direction, said first direction being generally opposite the second direction.

25. A hose guiding device for use with a hose comprising a first article for securing the device to an object and a second article for guiding the hose that is rotarily supported by the first article, said second article having an elongated passageway with a forward end and a rear end that allows the hose to be pulled forward through the passageway toward the forward end and said second article impedes reverse movement of the hose.

26. In an environment which includes a utility hose having a first end connected to a powering source and a second end connected to a tool, a hose guiding device for use with the hose comprising a hanger for securing the device to an object and means for guiding the hose that is rotarily supported by the hanger, said hanger has a formed rigid elongated wire having a first section, a second section, and a middle section disposed between the first section and the second section,
said first section having a first upright linear length of wire connected to a first vertical linear length by a first turned section,
said middle section having a second turned section extending from the vertical linear length of the first section, a second upright linear length, a third turned section, a second vertical linear length, and a fourth turned section,
said second upright linear length is disposed between the second turned section and the third turned section, and the second vertical linear length is disposed between the third turned section and the fourth turned section,
said second section having a third upright linear length of wire extending from the fourth turned section of the middle section, a third vertical linear length, and a fifth turned section, and
said third upright linear length connected to the third vertical linear length by the fifth turned section; and
said means for guiding having an elongated passageway with a forward end and a rear end that allows the hose to be pulled forward through the passageway toward the front end and said means for guiding impedes reverse movement of the hose,
said passageway disposed at a lower end, an eyelet disposed at an upper end, and an elongated shank disposed between the elongated passageway and the eyelet,
said eyelet being pivotally supported by the middle section of the hanger,
said passageway has a minimum transverse dimension that is larger than the outside diameter of the hose and said passageway is defined by a spiral configuration,
said forward end of the passageway is disposed at a height lower than the rear end of the passageway when the object to which the device is secured is moving in a forward direction,
said passageway has a centerline that is transverse to the elongated shank, the eyelet lies in a first plane that is parallel to the centerline of the elongated passageway, and the eyelet is supported by one of the second turned section and the third turned section to allow the hose to be pulled forward through the passageway in a first direction, and the eyelet is supported by the other of the second turned section and the third turned section to allow the hose to be pulled forward through the passageway in a second direction, said first direction being generally opposite the second direction,
whereby, a section of the hose that is disposed in the passageway as the forward end of the passageway is lower than the rear end of the passageway is impeded by the passageway from reverse movement.

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