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UTILITY PATENT APPLICATION TRANSMITTAL (Only for new nonprovisional applications under 37 CFR 1.53(b))	Attorney Docket No.	308329-00007-3
	First Named Inventor	Allen Garrett Smith
	Title	LOCKING CABLE HANGER AND METHOD OF USING
	Express Mail Label No.	Filed via EFS-Web

APPLICATION ELEMENTS <i>See MPEP chapter 600 concerning utility patent application contents.</i>	Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450
1. ☐ Fee Transmittal Form (PTO/SB/17 or equivalent)	ACCOMPANYING APPLICATION PAPERS 10. ☐ Assignment Papers (cover sheet & document(s)) Name of Assignee _____ 11. ☐ 37 CFR 3.73(c) Statement ☐ Power of Attorney (when there is an assignee) 12. ☐ English Translation Document (if applicable) 13. ☒ Information Disclosure Statement (PTO/SB/08 or PTO-1449) ☐ Copies of citations attached 14. ☐ Preliminary Amendment 15. ☐ Return Receipt Postcard (MPEP § 503) (Should be specifically itemized) 16. ☐ Certified Copy of Priority Document(s) (if foreign priority is claimed) 17. ☐ Nonpublication Request Under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent. 18. ☐ Other: _____ _____ _____ _____
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LOCKING CABLE HANGER AND METHOD OF USING

CROSS REFERENCE TO RELATED APPLICATION

This application is a continuation application of and claims priority to U.S. Patent Application Serial No. 17/199,992, filed March 12, 2021, which claims priority to U.S. Patent Application Serial No. 15/662,474, filed July 28, 2017, now U.S. Patent No. 10,978,861, issued April 13, 2021, which claims priority to U.S. Patent Application Serial No. 14/556,117, filed November 29, 2014, now U.S. Patent No. 9,722,405, issued August 1, 2017.

BACKGROUND OF THE INVENTION

This invention has to do with a locking cable hanger system for use in the solar, mining, and electrical industries. In solar, mining, and electrical industries there is a need for electrical cables to extend from a power or signal source to a location of application. Such cables are usually supported by a messenger wire that are themselves independently structurally supported and strung along the planned cable route. In solar plants, direct current wires attach first to the solar panels and then run to combiner boxes before extending further to power inverters. In addition, alternating current power cables are used to power the motors that control the trackers, devices that rotate the solar panels to follow the sun in order to obtain maximum power during daylight hours.

Prior to 2014, AC and DC cables could be bundled immediately adjacent to, and touching, one another in a wire management system for the solar panels. In the new National Electric Code of 2014, the AC and DC cables must not be immediately adjacent to one another, but must have a degree of separation from one another. Power carrying cables have a tendency to induce errors or interfere with the signal wires that are located in close proximity to them. This new requirement also applies to other applications outside the solar power industry, such as the mining and electrical industries.

Because of the increased use of trackers in solar power plants, there is increased use of category five cables and other data wiring. This type of control wiring is used to give power plant operators feedback from the solar power plant array on what angles the panels are stationed, and what the proper angle should be to maximize power output from

the sun. This data and information is constantly monitored to obtain maximum power output from the thousands of solar panels in the solar power plant. The type of wiring used in collecting data is sensitive to cables used for AC and DC power and because of that sensitivity, data wiring cannot be bundled with power cables and must be supported
5 by a separate carrier that is at least one inch away from all power cables.

In solar power plants, mining and other electrical applications, there are various sized wires and bundles of wires with an almost unlimited variety of wire bundle sizes. Bundle size is becoming very important in the manufacture of hangers to accommodate these various sizes, especially in multiple carrier hangers.

10 The cable hanger has a unique locking arm attachment section which has a closed loop spiral for a secure lock on the messenger wire. In the past, hangers had open loops or modified open loops on the top attachment section which could easily fall off if the hanger were bumped or hit during the wire loading process. In a solar plant there is a recent move to tracker systems which utilize more wiring than previously fixed in place
15 systems. There is also the new NEC code which went into effect January 1, 2014, which states that all AC and DC wiring must now be separated in any hanging or support system. Because of these changes, the wire management systems are much more complex, especially given the vast number of wires involved in a utility scale solar power plant. With these changes, the hangers are initially installed on the messenger wire with a
20 captive top spiral loop, and the bundles of cables are loaded separately in the carrier or carriers of the hanger. This process continues until all individual cables and bundles of cables are supported in the hangers. In the process of loading cables, the hangers are constantly bumped and jostled as they are loaded with bundles of cables. All styles of hangers presently on the market can easily fall off the messenger wire because they are
25 only hanging by one open loop, and they can fall off when bumped during cable installation. Cambria County's Association for The Blind And Handicapped ("CAB") is a new and improved captive locking arm designed to securely grip the messenger wire so the cable hangers stay in position during the entire loading process and will not fall off when bumped or knocked. After all cables are loaded, the other top attachment end of the
30 cable hanger is then squeezed and locked on the messenger wire.

The new NEC code requires any cable support system to have supports that are spaced at no greater than twelve-inch intervals. This applies to cable trays, hangers or all other types of cable support systems. The old-style hangers with their open style loops can fall off easily during installation and also easily slide out of their twelve-inch spacing when loading the cables. This is a more serious problem when you consider that there are tens of thousands of hangers being installed in the desert heat which can reach 120 degree F. Any wasted labor is a high additional cost in this environment. The new unique captive closed loop locking arm on CAB's cable hangers securely retains the hanger in place even when bumped or knocked around during the cable installation process. This improved captive engagement will also keep cable hangers securely in position on the twelve-inch centers and eliminate the need to reposition hangers on twelve-inch centers after all cables have been loaded into the carriers of the hangers.

A major factor affecting labor costs during installation of cables is how easily the electrician can load the cables and bundles of cables in the hangers in the stifling heat of the desert where solar power plants are usually located. All styles of cable hangers presently on the market will easily swing from side to side as they are initially suspended on the messenger wire. This means an electrician must take one hand and properly align the hanger in a 90 degree perpendicular orientation to the messenger wire in order to load the cables or bundles of cables in the hanger with the other hand. This two handed process of aligning the hanger increases the time necessary to load cables over the thousands of feet of messenger wire with the hangers on twelve-inch centers. The newly designed captive top locking arm of the CAB cable hanger addresses this problem by always maintaining the hanger at a 90 degree orientation to the messenger wire on initial installation. The newly designed top locking arm totally eliminates any lengthwise swinging or traveling movement from side to side and allows the electrician to use both hands for the loading of cables and cable bundles. The new design feature will save many hours of labor in the field and improve efficiency by maintaining twelve-inch centers on the messenger wire when installing all types of cables or cable bundles.

The secure gripping top locking arm is a major improvement in hangers which can save hundreds of hours of labor on a large scale solar power plant; it greatly improves the efficiency of electricians and the quality of cable installations. Three major

advantages of the new secure top locking installation arm are: the elimination of hangers falling off the messenger wires during loading, maintaining hangers at the proper orientation to the messenger wire for ease of cable loading, and maintaining the cable hanger on the messenger wire at the specified spacing for improved quality and speed of installation

BRIEF SUMMARY OF THE INVENTION

This invention has to do with a locking cable hanger and multiple cable carriers or saddles on one hanger.

10 The arrangement according to the present invention comprises a flexible wire of shape retention material formed so as to have an elongated u-shaped configuration forming a pair of spaced apart side arms extending from a closed configuration on one end to an open configuration on the other end. Cable supports (saddles) extend across the space between the side arms with co-operating elements of support and attachment
15 between the cable supports and the side arms to support the cable supports on the wire hanger between the side arms. Attachment sections are formed on each of the open ends of the spaced apart arms with the attachment sections being elastically shape resilient and flexible so as to be bent together for attachment to a messenger wire. The attachment sections comprise two loops, one of which wraps around the messenger wire to
20 effectively lock it in place and the other an open loop which simply latches onto the messenger wire. Installation involves twisting the locking arm around the messenger wire to secured it in place, then squeezing the cable hanger from both sides to a point when the second loop goes past and under the messenger wire so when it is raised and released, the second loop forcefully engages the messenger wire.

25 This locking hanger and saddle system can have one to five individual separate saddles or cable supports arranged in either a vertical or horizontal configuration. The saddles can attach to the cable hanger in a variety of positions to provide a greater support area for cables and to allow for the separation of cable bundles. One cable hanger can include one to five saddles to accommodate up to five cables or bundles of cable
30 separately. In the vertical design, the saddle can lay on the bottom of the ring or through a wire form retention designed to be attached anywhere from the bottom of the ring to the

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top of the ring. In this manner of construction, the spacing distance between the saddles can vary to any size to accommodate any size cable or cable bundle. In the horizontal design the saddle would lay on the bottom of the hanger for additional cable support.

The locking saddle and hanger assembly according to the present invention also includes the option of an integrated closed loop on the top of the hanger which is used to safely hold category five cables or other small wiring in an area separate and has a good distance from the bundles of power cables. In this manner of construction, the more sensitive fiber-optic or control wires are retained in a separate carrier at least one-inch from the bundles of power cables in the horizontal or vertical design of this cable ring in saddle arrangement. The distance of separation will ensure there is no signal strength loss or interference on the category five cables from the power cables.

The saddle and hanger system according to the present invention also includes the option of a total or partial coating of PVC, plastisol, or other style coating on the saddle and hanger assembly. The PVC coating is a high dielectric grade and flame retardant. The coating has UV inhibitors for the more demanding environments of solar power plants in desert locations and for improved performance and highly corrosive environments. The total PVC coating on the cable hanger assembly provides additional corrosion resistance and protection of cables; it also add stability by providing a more secure grip of the top attachment loops to the messenger wire. A totally PVC coated single or multiple cable ring and saddle assembly is also easier to handle and install with a heavy 50 to 100 mil inch thick PVC coating over the entire surface. This coating helps to retain all saddles in a fixed position which eliminates the chance of loose saddles moving out of position during installation. The PVC coating is 50 to 100 mils inch thick which also has the added benefit of providing cushioning for the hands when squeezing in installing the cable hanger on the messenger wire. This benefit improves efficiency by allowing more cable hangers to be installed and significantly reduces the fatigue factor of the hand.

Materials used for the cable hangers include high tensile spring steel such as class 50 galvanized steel, copper clad steel, or type 316 stainless steel. Material can be 0.125 to 0.250 inch diameter high tensile spring steel, round or rolled flat wire form. This high quality material provides maximum strength with a smooth, flat surface for the support of cables and rounded edges for the protection of cable jackets.

OBJECTS OF THE INVENTION

5 It is an object of the present invention to provide a cable support system that can be easily installed and remain captive on the messenger wire during installation of cables thereby improving efficiency of labor in the solar, mining, and electrical industries.

 It is the object of the present invention to provide a cable support system that maintains the position of the hanger at a specified spacing on the messenger wire to
10 improve the quality and efficiency of cable installations.

 It is an object of the present invention to provide a cable support system that will consistently maintain a cable hanger in the proper 90 degree orientation to the messenger wire for ease of loading cables and cable bundles by electricians.

 It is an object of the present invention to provide a new safe and more efficient
15 hanger system for the solar, mining, and electrical industries.

 It is an object of the present invention to provide a new multiple cable hanger system for the solar, mining, and electrical industries.

 It is an object of the present invention to provide a new hanger system that greatly reduces installation labor time for the solar, mining, and electrical industries.

20 It is a further object of the present invention to provide a more organized system to support cables in the solar, mining, and electrical industries.

 It is a further object of the present invention to provide a cable support system that provides a safer, secure, strong, and effective separation of cables and wires so as to protect the electrical performance of cables in the solar, mining and electrical
25 applications.

 It is a further object of the present invention to provide a stronger, more corrosion resistant cable management system for the solar, mining, and electrical industries.

 It is a further object of the present invention to provide a more flexible cable management system for multiple bundles of cables of different sizes for the solar, mining,
30 and electrical industries.

It is a further object of the present invention to provide a safer cable management system for communication, control and electrical cables for the solar, mining, and electrical industries.

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BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 is an environmental perspective showing one end of the hanger according to the present invention engaged on a cable.

FIG. 2 is an environmental perspective showing the fully mounted hanger according to the present invention.

10 FIG. 3 is a perspective showing a double carrier hanger according to the present invention.

FIG. 4 is a front view of a hanger according to the present invention.

FIG. 5 top view of a hanger according to the present invention.

FIG. 6 is a bottom view of the hanger according to the present invention.

15 FIG. 7 is left end view of a hanger according to the present invention.

FIG. 8 is right end view of a hanger according to the present invention.

FIG. 9 is a fragmentary view showing the first position in mounting a hanger according to the present invention.

20 FIG. 9a is another fragmentary view showing the first position in mounting a hanger.

FIG. 10 is a fragmentary view showing the second position in mounting a hanger according to the present invention.

FIG. 11 is a fragmentary view showing the final position in mounting a hanger according to the present invention.

25 FIG. 12 is a cross-section of the hanger according to the present invention taken on the line 12-12 from FIG. 11.

FIG. 13 is a top view of the hanger according to the present invention device mounted on a cable and supporting another cable.

30 FIG. 14 is a perspective view of an uncoated, vertically mounted double carrier hanger according to the present invention.

FIG. 15 is a perspective view of a PVC coated, vertically mounted double carrier hanger according to the present invention.

FIG. 16 is a left end view of an uncoated, vertically mounted hanger according to the present invention.

5 FIG. 17 is a front view of an uncoated, vertically mounted hanger according to the present invention.

FIG. 18 is a cross-section taken on the line 18-18 of FIG. 17 of the hanger according to the present invention.

10 FIG. 19 is a bottom view of an uncoated, vertically mounted hanger according to the present invention.

FIG. 20 is a front view of an uncoated, vertically mounted hanger according to the present invention.

FIG. 21 is a fragmentary side view showing the crimp in the legs of the hanger according to the present invention that keeps the saddle in place.

15 FIG. 22 is a cross-section taken on the line 22-22 of FIG. 21 of the hanger according to the present invention.

FIG. 23 is a diagrammatic view showing various permutations of vertical and horizontal hangers according to the present invention.

20 FIG. 24 is a fragmentary side view showing the crimp-locking method of keeping a hanger according to the present invention in place

FIG. 25 is a fragmentary cross-section taken on the line 25-25 of FIG. 24 of the hanger according to the present invention.

FIG. 26 is a front view of a coated, single mount hanger according to the present invention.

25 FIG. 27 is a fragmentary cross-section taken on the line 27-27 of FIG. 26 of the hanger according to the present invention.

DETAILED DESCRIPTION OF DRAWING

30 Shown in FIG. 1 is an environmental perspective showing a hanger 10 according to the present invention. The hanger 10 has a spiral gripper 24 that is engage with the messenger wire 12. The hanger 10 is formed of a wire 14 that has opposing ends 11 and

13 that has been bent into a U-shaped configuration to form at least one (one to sometimes five) cable carrier formations 16, 17 with a cable carrier divider 18 separating cable carrier formations 16 and 17. The hanger 10 has shoulders 20 and 22 that extend towards each other from the lateral opposing sides 30 and 32 of the hanger 10. Formed on the distal end of shoulder 22 is the spiral gripper 24 that engages the messenger wire 12. Formed on the distal end of shoulder 20 is the locking hook 26 that has the data carrier loop 28 formed on its distal end. The cable carrier formations 16, 17 are of the same or different widths so that different cable sizes may be loaded onto the hanger 10 prior to it being locked in place. A similar hanger 10 is shown further down the messenger wire 12 to show how the cable may be loaded into several hangers prior to the top locking loop 26 being engaged with the messenger wire 12. The wire 14 used for the hanger 10 is selected from the group consisting of round or flat rolled galvanized or stainless steel spring material. The wire 14 will have a shape memory retention property so as to provide a locking force when both the spiral gripper 24 and the locking hook 26 are engaged with the messenger wire 12. In order to fully engage the hanger 10 with the messenger wire 12 lateral sides 30 and 32 must be squeezed so that shoulders 20 and 22 come towards each other and the locking hook 26 comes under the messenger wire 12 so that when the squeezing of the hanger 10 is released the locking hook 26 will engage the messenger wire as is more formally shown in FIG. 2.

FIG. 2 is an environmental perspective view showing the hanger 10 fully mounted on the messenger wire 12. The spiral gripper 24 is engaged with the messenger wire 12 and the locking loop 26 is also fully engage with the messenger wire 12. The spiral gripper 24 has at least two interference abutment surfaces that will but with messenger wire 12 to hold the hanger 10 in place on the messenger wire 12. The locking loop locking hook 26 has at least one abutment surface that engages the messenger wire 12 and it is the spring force exerted by the wire material that urges shoulders 20 and 22 apart and causes a locking force to be exerted between the abutment surface on locking hook 26 and the two abutment surfaces on the spiral gripper 24.

FIG. 3 is an enlarged perspective view of the hanger 10 according to the present invention as it is attached to the messenger wire 12. The hanger 10 is shown having to cable carrier formations 16, 17 with cable divider 18 shown separating the carrier

formations 16, 17. Shoulders 20 and 22 are shown extending towards one another from the lateral sides 30 and 32 of the hanger 10. Formed on the distal end is a spiral gripper formation 24 that terminates in end 13 of the wire 14 that is used to form the hanger 10; the spiral gripper formation 24 and has at least two messenger wire abutment surfaces as is shown at 34, 36 such that when the locking hook 26 is engaged with the messenger wire 12 the abutment surface surfaces 34 and 36 on the spiral gripper 24 will engage the messenger wire 12 in such a way as to prevent sliding movement along the messenger wire 12; the locking hook 26 has its distal end 11 and formed on that distal end is a data carrier loop 28 for carrying the data information wire along the same path as the messenger wire. What is important is that the hanger 10 provides a sufficient separation between both cable carrier formations 16, 17 and a further sufficient separation between the two carriers formations 16, 17, and the data carrier loop 28 as can be seen when engaged the shoulders 20, 22 have been compressed, preferably by an installer and gripping the outer and squeezing them such that the locking hook 26 and data carrier loop 38 have gone under the messenger wire 12 and then are raised so that when the spring wire 14 is released the locking hook 26 then has an abutment surface 38 that firmly engages the messenger wire 12 and creates a locking force on the messenger wire 12 between the abutment surfaces 34, 36, and 38.

What is shown in FIG. 4 is a side view of the hanger 10 according to the present invention. The hanger 10 has a first cable carrier formation 16 and a second cable carrier portion 17. The cable carrier formations 16, 17 are located immediately adjacent to one another with a cable carrier divider 18 located between the two cable carrier formations 16, 17. Lateral sides 30 and 32 are shown on the hanger 10 with lateral sides having shoulders 22 and 20 that extend from the upper end of the lateral sides 30 and 32 towards one another. The distal end of the shoulder 22 has the spiral wound gripper 24 formed thereon with the wire end 12 shown therein. The shoulder 20 extends from the lateral side 32 and forms the locking hook 26 which has at its distal end the data carrier loop 28, the opposing ends 11 of the wire 14 shown therein.

What is shown in FIG. 5 is a top view of the hanger 10 according to the present invention. The data carrier wire formation 27 is shown formed at the end of the locking

hook 26. The top of the cable carrier divider 18 is shown separating the cable carrier formations 16, 17. The shoulder 22 is shown extending out to the spiral gripper 24.

What is shown in FIG. 6 is a bottom view of the hanger 10 according to the present invention. The cable carrier divider 18 is shown dividing the cable carrier formations 16 and 17 with the spiral gripper 24 and the data carrier loop 28 shown
5 formed thereon.

Shown in FIG. 7 is a left end view of the hanger 10 according to the present invention. The hanger 10 is shown with the cable carrier divider 18 dividing the cable carrier formations 16, 17, the shoulders 22, 20 shown leading to the spiral gripper 24 and
10 forming the locking loop locking hook 26. The locking hook 26 has the data carrier loop 28 formed thereon.

What is shown in FIG. 8 is a right end view of the hanger 10 according to the present invention. The hanger 10 is shown for the cable carrier divider 18 dividing the carrier formations 16, 17 with a shoulder 22 leading up to the spiral gripper 24 and
15 showing the opposing end 13 of the wire 14. Also shown is the shoulder 20 that leads up to the locking hook 26 which has the data carrier loop 28 formed on its distal end.

What is shown in FIGS. 9 and 9A is a fragmentary view showing the first position of engaging the hanger 10 with the messenger wire 12. The shoulder 22 of the hanger 10 is held closely adjacent to the messenger wire 12 and the spiral gripper 24 is placed down
20 over the messenger wire with the end 13 to the far side of the messenger wire 12. FIG. 9 shows this result more clearly that the end 13 of the spiral gripper 24 is now at or below the level of the messenger wire 12 and the spiral gripper 24 is mounted on the messenger wire 12

What is shown in FIGS. 10-12 is a view of the hanger 10 as originally shown in
25 FIGS. 9 and 9A but with the shoulder 22 having been pushed under the messenger wire 12, to the opposite side of the messenger wire 12, and has rotated the end 13, also under the messenger wire 12, and end 13 is now projecting on the other side as is shown in FIG. 12 in this manner to captively hold the hanger 10 on the messenger wire 12.

FIG. 11 is a fragmentary view showing the final position in mounting a hanger
30 according to the present invention. Shown in FIG. 11 is the messenger wire 12 having the

hanger 10 actually hanging on the messenger wire 12; the spiral gripper 24 is shown surrounding the messenger wire 12 of its end 13 pointing upward.

FIG. 12 is a top view of the hanger 10 according the present invention on the messenger wire 12.

5 FIG. 13 is a top view of the hanger 10 according to the present invention, with the hanger mounted on the messenger wire 12 and supporting the data carrier wire 38. As is shown in FIG. 13, messenger wire 12 has a hanger 10 firmly held in place by the spiral gripper 24 and the locking hook 26 firmly engaged with the messenger wire 12. The previous steps in the above FIG. 10 maneuvered the shoulder 22 such that the spiral
10 gripper 24 was placed on the messenger wire 12. Cables have been loaded into the cable carrier and the locking loop 26 was brought through and under the messenger wire 12 and then released. Once released, the shape memory material would cause the wire to spring back to its initial state and engage the messenger wire 12. Shown opposite the spiral gripper 24 and the locking hook 26, is the data carrier loop 28 carrying the data wire 38.

15 FIG. 14 is a perspective of an alternate hanger 40 according to the present invention. What is shown in FIG. 14 is an alternate hanger 40 that is made of a wire 44 that is either round or flat rolled stainless steel, or flat rolled galvanized steel, that has been formed in the U-shaped configuration having upper shoulders 50, 52 that extend from lateral sides 60 and 62 of the U-shaped formation. On the end of shoulder 52 is
20 spiral gripper 64 that engages the messenger wire 12. The wire has an ends 41, 43 as shown in FIG. 14. The data wire 38 is shown engaging the data carrier loop 58. The hanger 40 has a spiral gripper 64 and a locking loop 56 that engages the messenger wire 12 to hold a hanger 40 firmly in place. Cable carrier saddles 46 and 47 are shown engaged with and supported from lateral sides 60 and 62. The saddles 46 and 47 each
25 have opposing ends 70 and 72 with separate ear formations 80 and 82 formed thereon. The separate ear formations 80 and 82 have a slot formed that fits around the lateral side 60 of the hanger 40. The ears 80 and 82 are then crimped towards one another so as to permanently hold the saddles 46 and 47 in place on each lateral side 60 and 62 of the hanger 40. As will be seen later the lateral sides 60 and 62 of the U-shaped formation of
30 the hanger 40 may be bent inwardly at the junctures with a side 70, 72 of the saddles 46 or 47 so as to better support the cable saddles on the hanger 40.

FIG. 15 is a perspective of two alternate hanger's 100 according to the present invention. Shown in FIG. 15 are hangers 100 that are attached to a messenger wire 12 and carry data wire 38. The hangers 100 are formed of a wire 102 that has been bent in the U-shaped formation to have to have lateral sides 104 and 106, the lateral sides 104 and 106 each have, respectively, upper shoulders 108 and 110. The upper shoulder 108 ends with a spiral gripper 112 with the end of the wire shown at 103. The spiral gripper 112 is shown engaging the messenger wire 12. The upper shoulder 110 of hanger 100 has a locking loop 114 with a data carrier loop 116 formed thereon, the end of the wire on the lateral shoulder side 106 is labeled 101. Hangers 100 are coated with a plastisol coating that has a high flame retardant, high UV resistance, and high dielectric value. Saddles 116, 118 are shown with ends 120 and 122 attached to the lateral sides 104 and 106 of the one hanger 100; cables 130 and 132 are shown as they would be placed and suspended by the hangers 100.

Shown in FIG. 16 is the alternate hanger 40 shown in a side view. The alternate hanger 40, shows the lateral side 60 with the saddles 46 and 47 attached to the lateral side 60. The saddles 46, 47 have ears 80, 82 formed upon each of the saddles 46 and 47 such that the slot 84 engages the lateral side 60 of the hanger 40 is shown having upper shoulders 50, 52 with the shoulder 52 having a spiral gripper 64 shown thereon and the data carrier loop 58 shown at the end of shoulder 50. Shown in FIG. 17 is a front view of the hanger 40 shown in FIG. 16 with the data carrier loop shown at 58 and spiral gripper shown at 64, saddles 46 and 47 are shown attached to the lateral sides 60 and 62 of the hanger for the U-shaped hanger 40.

FIG. 17 is a front view of an uncoated, vertically mounted hanger 100 according to the present invention. In FIG. 17 each of the lateral side 60 and 62 is shown being bent inward at 65 so as to add an additional support from the lateral sides 60 and 62 to the bottom of the saddle 46 while the ears 80 and 82 will be crimped around the lateral side 60 and 62 of the U-shaped hanger 40. The additional bands at 65 of the lateral sides 60 and 62 will add support to the carrier 46 when a cable is loaded into the top of saddle 46.

FIG. 18 is a cross-section taken on the line 18-18 of FIG. 17 of the hanger 40 according to the present invention, shown in FIG. 18 having the ears 80 and 82 engaged with the lateral side 60 and 62 of the hanger 40.

FIG. 19 is a bottom view of an uncoated, vertically mounted hanger 40 according to the present invention.

FIG. 20 is a front view of an uncoated, singly mounted hanger 40 according to the present invention. The hanger 40 shown in FIG. 20 has U-shaped lateral sides 60, 62; a single saddle 46 between the lateral side 60, 62; the data carrier loop 58 is shown formed on the upper shoulder 52 with the spiral gripper 64 shown in the upper part of shoulder 50.

FIGS. 21 and 22 show the bends in the lateral side 60 and 62 that is used to hold the saddle 47, on the lateral sides 60 and 62 is a fragmentary side view showing the crimp in the legs of the hanger 40 according to the present invention that keeps the saddle in place.

FIG. 22 is a cross-section taken on the line 22-22 of FIG. 21 of the hanger according to the present invention.

FIG. 23 is a diagrammatic view showing various permutations of vertical and horizontal hangers according to the present invention. As can be seen in FIG. 23 it is within the contemplation of this invention that whether the hangers 10, 40 or 100 are furnished with the spiral gripper and locking hook there are many configurations of vertical and horizontal saddle or carry arrangements that can be utilized with this type of locking hanger. The upper part of FIG. 23 shows that a vertically oriented hanger can have saddle supports of one, two, three or more, that can be attached to a cable messenger wire. The lower part of FIG. 23 shows that the horizontal carrier formations 16 and 17 may be formed using a single carrier formations 16, double carrier formations 16, 17 or a triple or more carrier formation of 1617 and 19. Each of the carrier formations 16, 17 will have a carrier divider 18 formed between each of the carrier formations. Horizontal oriented hangers can have one, two, or three, or more cable carriers.

FIGS. 24 and 25 are a fragmentary side view of a hanger 40 showing the crimp-locking method of keeping a saddle supported in place according to the present invention. Shown in FIG. 24 is a saddle 47 with the ears 80 and 82 shown crimped around the lateral side 60 of the hanger 40.

FIG. 25 is a fragmentary cross-section taken on the line 25-25 of FIG. 24 of the hanger 40 according to the present invention.

FIG. 26 is a side view of a coated, single mount hanger 40 according to the present invention.

FIG. 27 is a fragmentary cross-section taken on the line 27-27 of FIG. 26 of the hanger according to the present invention.

CLAIMSWhat is Claimed Is:

1. A system for organizing a plurality of electrical cables extending from a plurality of solar panels, the system comprising:
 - a messenger wire structured to be supported a distance above the ground; and
 - a plurality of cable hangers structured to be disposed along, and suspended from, the messenger wire, each cable hanger having a plurality of cable carrying surfaces, each cable carrying surface being structured to support at least one electrical cable of the plurality of electrical cables.
2. The system of claim 1, wherein the plurality of cable carrying surfaces comprises at least three cable carrying surfaces.
3. The system of claim 1, wherein the plurality of cable carrying surfaces comprises at least four cable carrying surfaces.
4. The system of claim 1, wherein the plurality of cable carrying surfaces comprises at least five cable carrying surfaces.
5. The system of claim 1, wherein adjacent cable carrying surfaces of the plurality of cable carrying surfaces are separated by a cable carrier divider.
6. The system of claim 5, wherein the cable carrier divider extends vertically.
7. The system of claim 1, wherein each cable hanger of the plurality of cable hangers comprises:
 - a high tensile strength wire with two opposing ends and configured intermediate of said ends to form a plurality of substantially U-shaped configurations each having a cable carrying surface of the plurality of cable carrying surfaces located thereon;
 - outermost lateral spaced apart opposing sides forming the boundary of said hanger;

opposite shoulders extending toward each other from said spaced apart opposite sides, each of said shoulders having an arrangement structured to engage the messenger wire so as to securely hold the hanger on the messenger wire.

8. The system of claim 7, wherein the arrangement of one of the shoulders that is structured to engage the messenger wire is a spiral gripper formation and the arrangement of the other shoulder that is structured to engage the messenger wire is a locking hook.

9. The system of claim 1, wherein each cable hanger of the plurality of cable hangers comprises a wire selected from the group of round galvanized steel, round stainless steel, flat rolled galvanized steel, flat rolled stainless steel.

10. The system of claim 1, wherein each cable hanger of the plurality of cable hangers further comprises a formation structured to support a data carrier.

11. The system of claim 10, wherein the formation structured to support the data carrier is positioned closer to the messenger wire than the cable carrying surfaces.

12. The system of claim 1, wherein each cable hanger of the plurality of cable hangers includes a plastisol or PVC coating.

13. The system of claim 12, wherein the coating has a thickness in the range of from 50 mils to 100 mils thick.

14. The system of claim 1, wherein each cable hanger of the plurality of cable hangers includes a coating having a flame retardant, high dielectric grade, UV inhibited material.

15. A solar plant comprising:
a plurality of solar panels;
a plurality of electrical cables extending from the plurality of solar panels; and

a system for organizing the plurality of electrical cables, the system comprising:
a messenger wire supported a distance above the ground adjacent the solar panels; and
a plurality of cable hangers disposed along, and suspended from the messenger wire, each cable hanger having a plurality of cable carrying surfaces, each cable carrying surface being structured to support at least one electrical cable of the plurality of electrical cables.

16. The solar plant of claim 15, wherein the plurality of cable carrying surfaces comprises at least three cable carrying surfaces.

17. The solar plant of claim 15, wherein the plurality of cable carrying surfaces comprises at least four cable carrying surfaces.

18. The solar plant of claim 15, wherein the plurality of cable carrying surfaces comprises at least five cable carrying surfaces.

19. The solar plant of claim 15, wherein adjacent cable carrying surfaces of the plurality of cable carrying surfaces are separated by a cable carrier divider.

20. The solar plant of claim 19, wherein the cable carrier divider extends vertically.

21. The solar plant of claim 15, wherein each cable hanger of the plurality of cable hangers comprises:

a high tensile strength wire with two opposing ends and configured intermediate of said ends to form a plurality of substantially U-shaped configurations each having a cable carrying surface of the plurality of cable carrying surfaces located thereon;
outermost lateral spaced apart opposing sides forming the boundary of said hanger;

opposite shoulders extending toward each other from said spaced apart opposite sides, each of said shoulders having an arrangement structured to engage the messenger wire so as to securely hold the hanger on the messenger wire.

22. The solar plant of claim 15, wherein each cable hanger of the plurality of cable hangers comprises a wire selected from the group of round galvanized steel, round stainless steel, flat rolled galvanized steel, flat rolled stainless steel.

23. The solar plant of claim 15, further comprising a data carrier associated with the plurality of solar panels, and wherein each cable hanger of the plurality of cable hangers further comprises a formation structured to support the data carrier along the messenger wire.

24. The solar plant of claim 23, wherein, for each cable hanger, the formation structured to support the data carrier is positioned closer to the messenger wire than the cable carrying surfaces.

25. The solar plant of claim 15, wherein each cable hanger of the plurality of cable hangers includes a plastisol, PVC coating, and/or a coating having a flame retardant, high dielectric grade, UV inhibited material.

26. A method for organizing a plurality of electrical cables extending from a plurality of solar panels in a solar plant, the method comprising:
providing a messenger wire a distance above the ground;
providing a plurality of cable hangers spaced along the messenger wire, each cable hanger having a plurality of cable carrying surfaces, each cable carrying surface being structured to support at least one electrical cable of the plurality of electrical cables;
providing a first electrical cable of the plurality of electrical cables in engagement with a first cable carrying surface of each cable hanger of the plurality of cable hangers;
and

providing a second electrical cable of the plurality of electrical cables in engagement with a second cable carrying surface of each cable hanger of the plurality of cable hangers.

27. The method of claim 26, wherein:

each cable hanger of the plurality of cable hangers comprises:

a high tensile strength wire with two opposing ends and configured intermediate of said ends to form a plurality of substantially U-shaped configurations having cable carrying surfaces located thereon;

outermost lateral spaced apart opposing sides forming the boundary of said hanger;

opposite shoulders extending toward each other from said spaced apart opposite sides, each of said shoulders having an arrangement structured to engage the messenger wire so as to securely hold the hanger on the messenger wire; and

the method further comprises, for each cable hanger, bringing the arrangement of one of the shoulders of the cable hanger into engagement with the messenger wire after providing at least the first electrical cable of the plurality of electrical cables in engagement with the first cable carrying surface.

28. The method of claim 26, further comprising providing a third electrical cable of the plurality of electrical cables in engagement with a third cable carrying surface of each cable hanger of the plurality of cable hangers.

ABSTRACT

A cable hanger for the solar, mining, and electrical industry for use in supporting a plurality of conductive cables from a messenger wire.

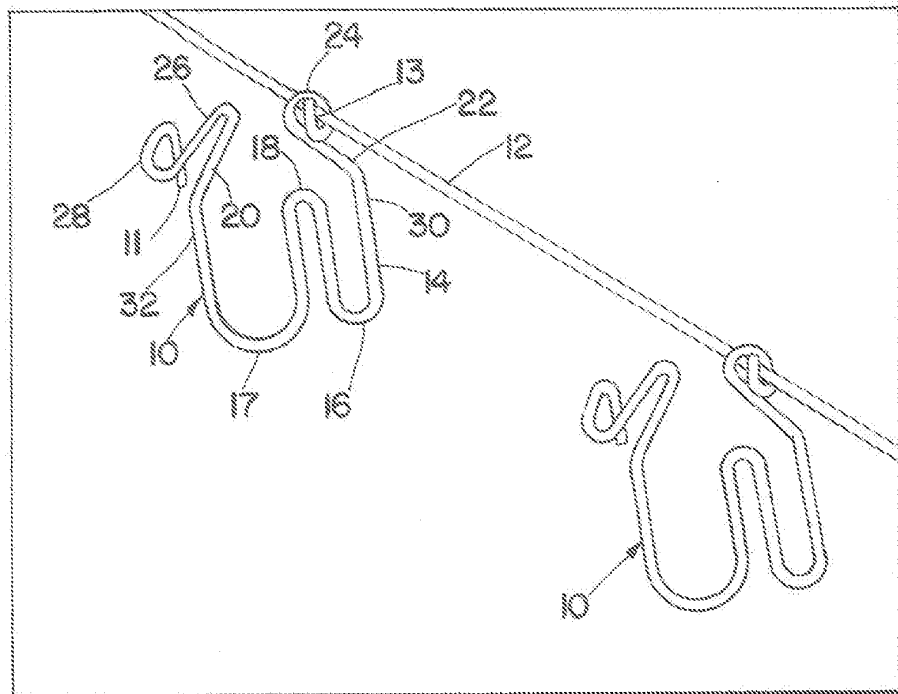


Fig. 1

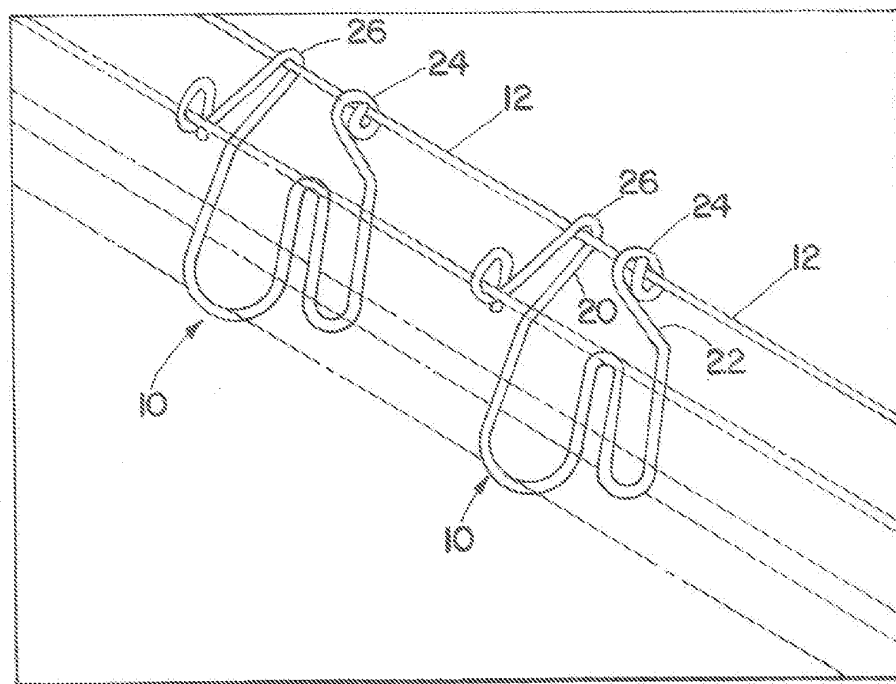
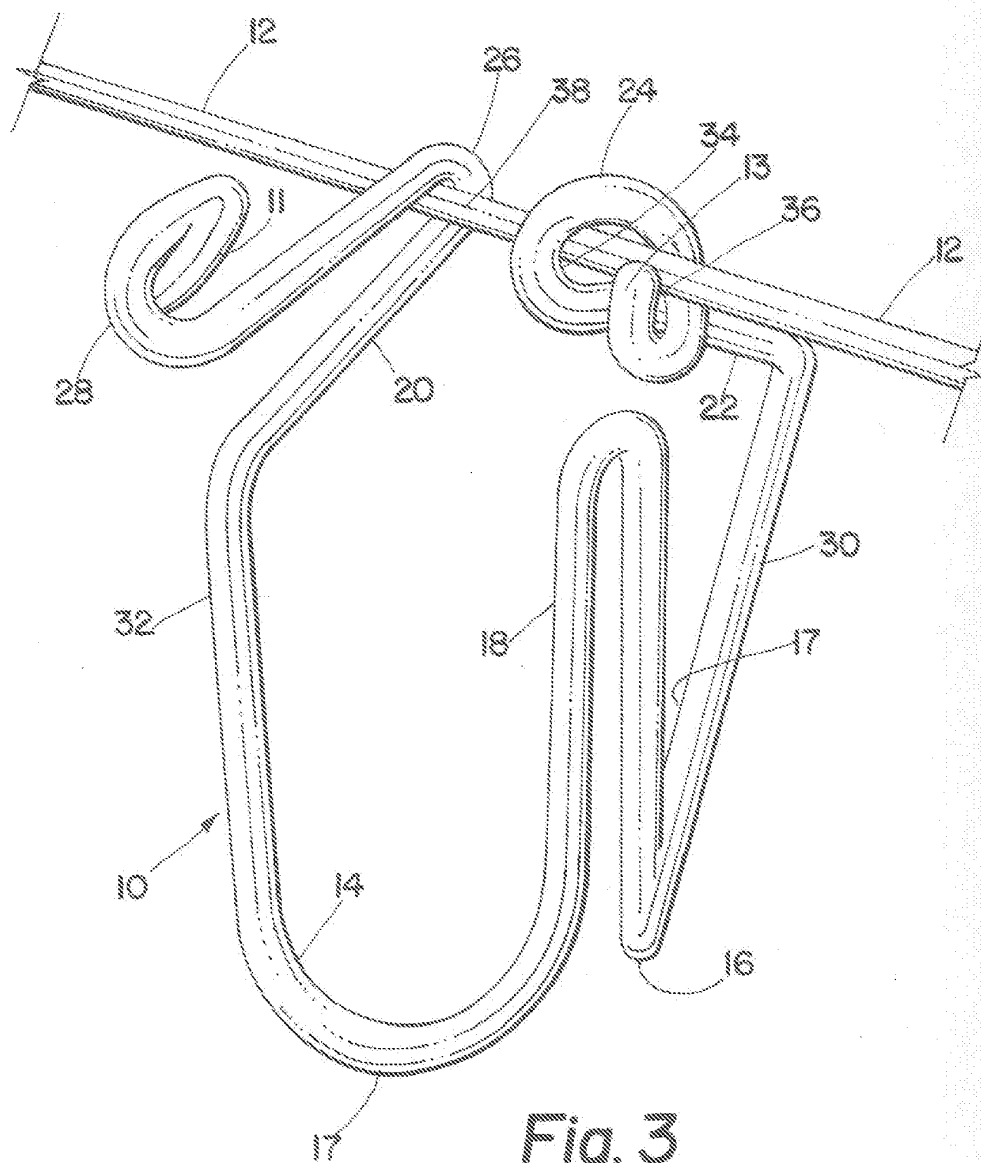
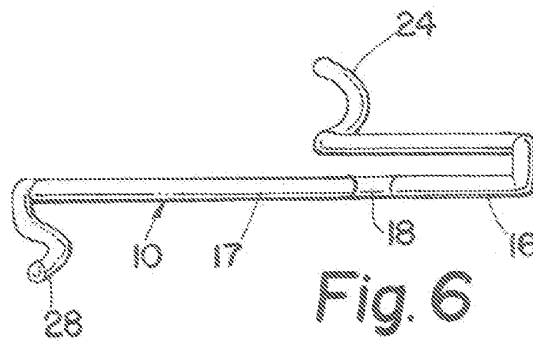
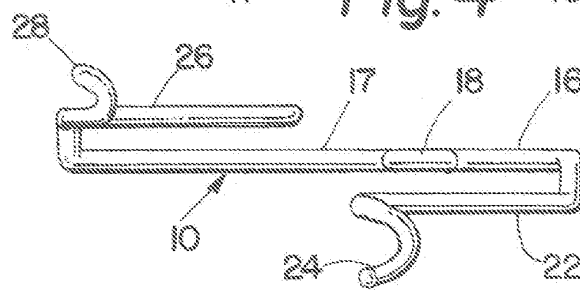
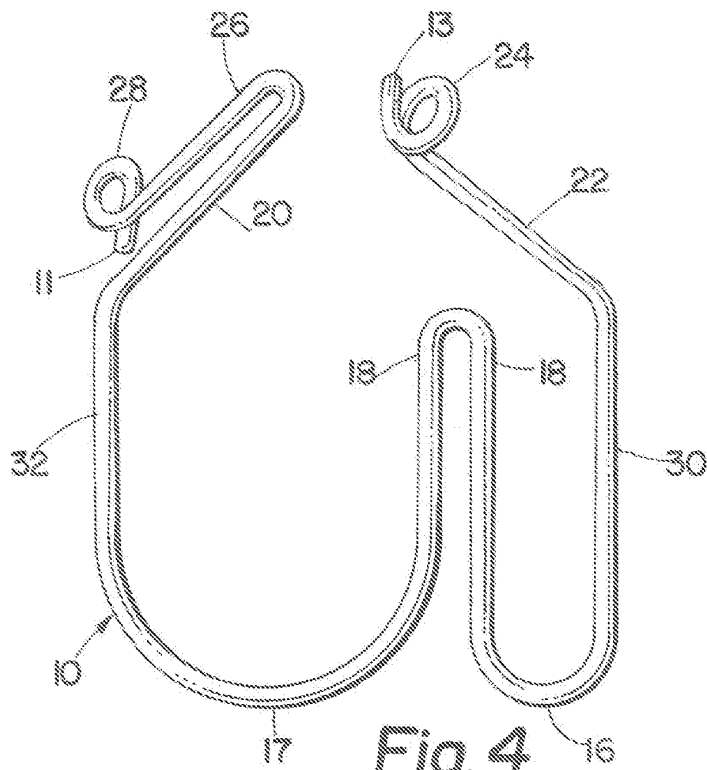


Fig. 2





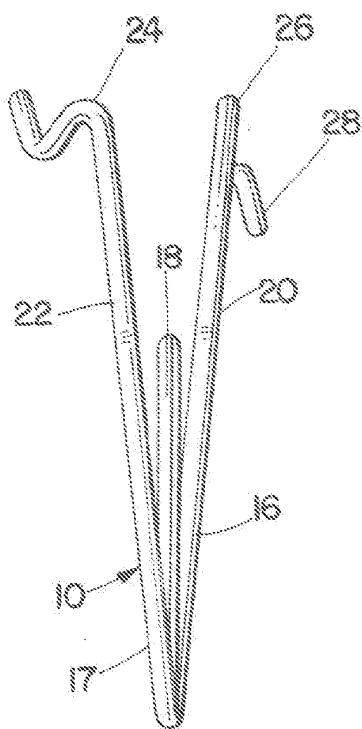


Fig. 7

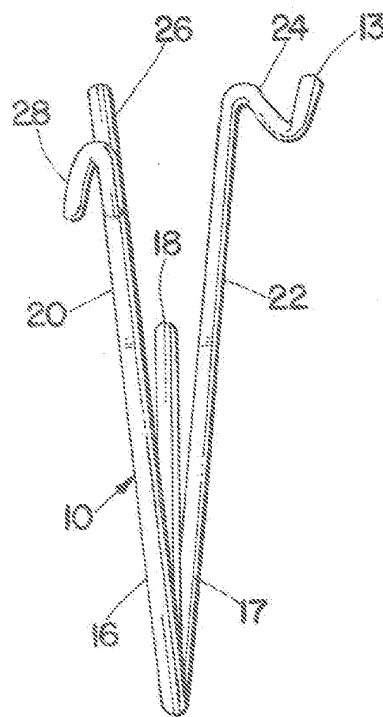


Fig. 8

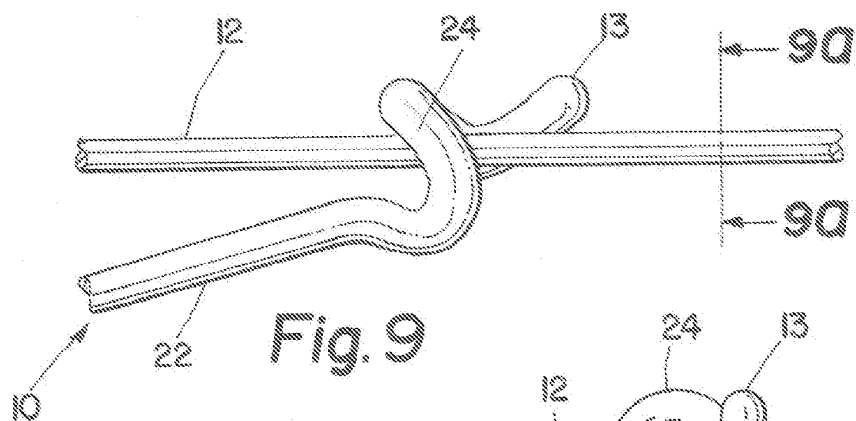


Fig. 9

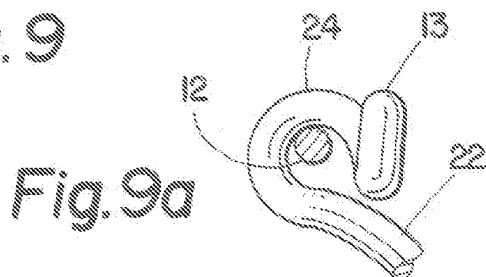


Fig. 9a

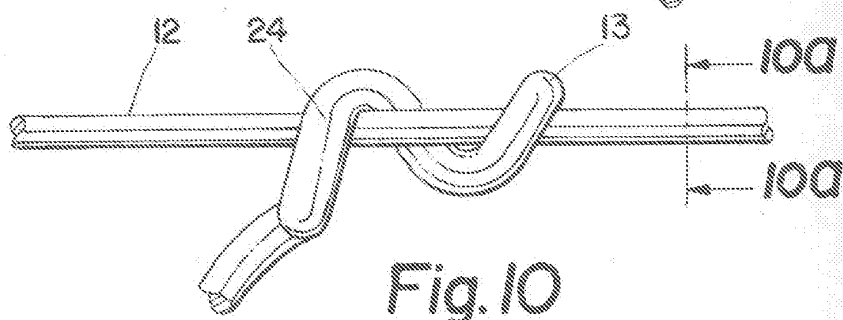


Fig. 10

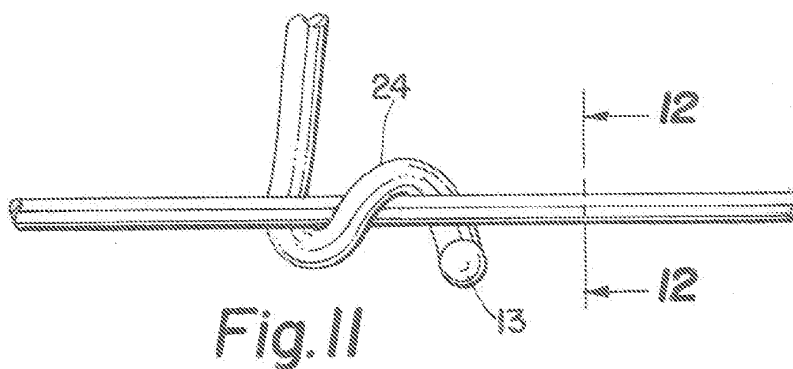


Fig. 11

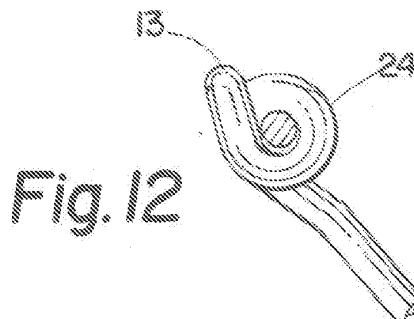


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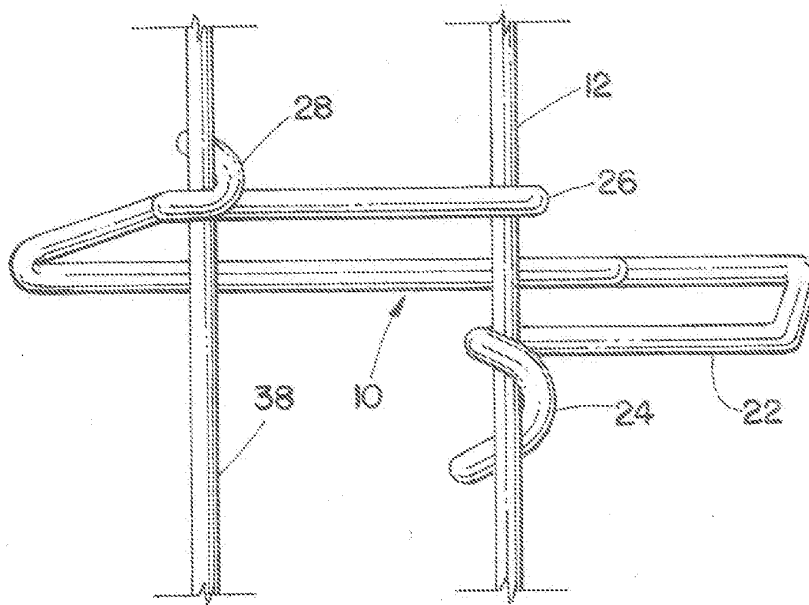


Fig. 13

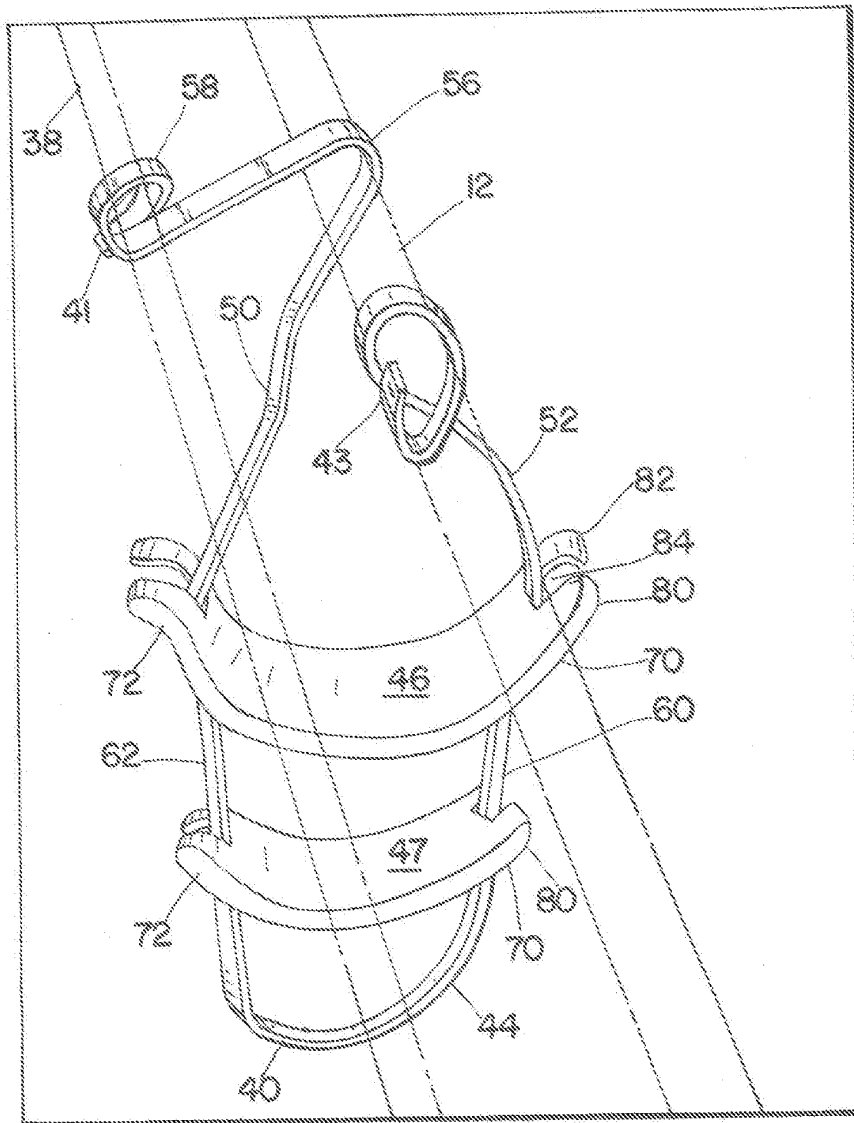


Fig. 14

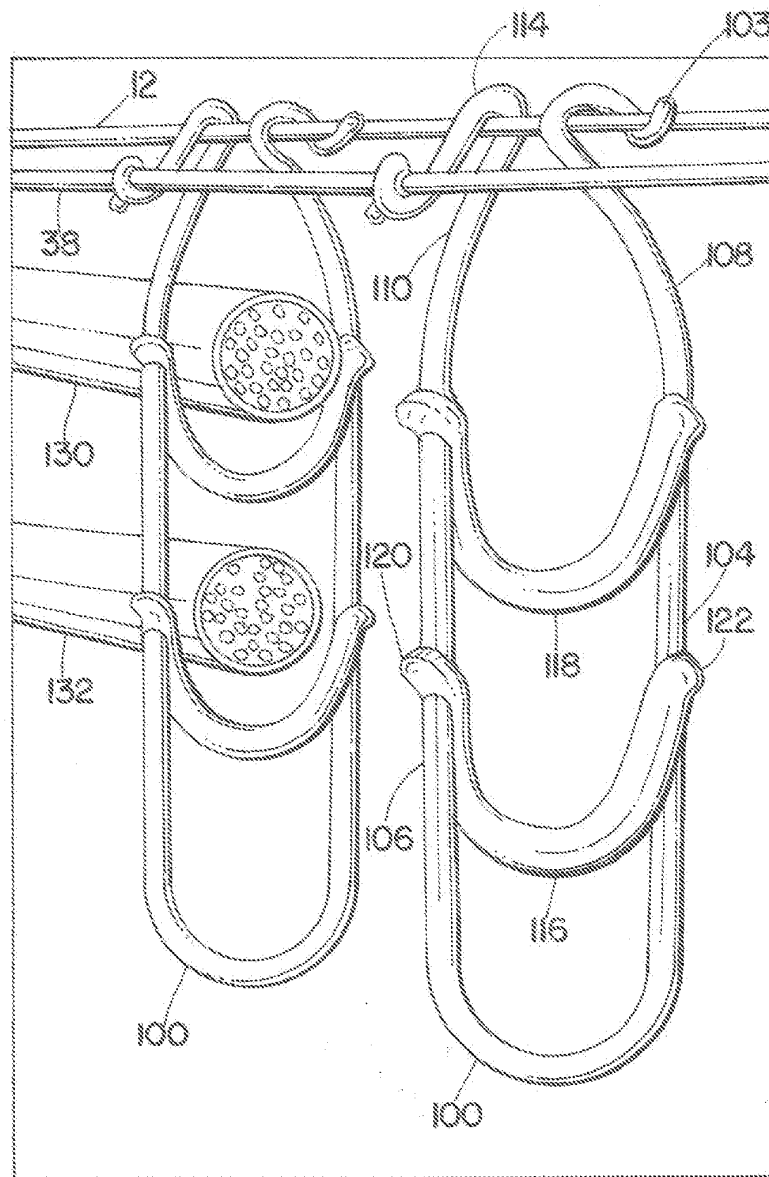


Fig. 15

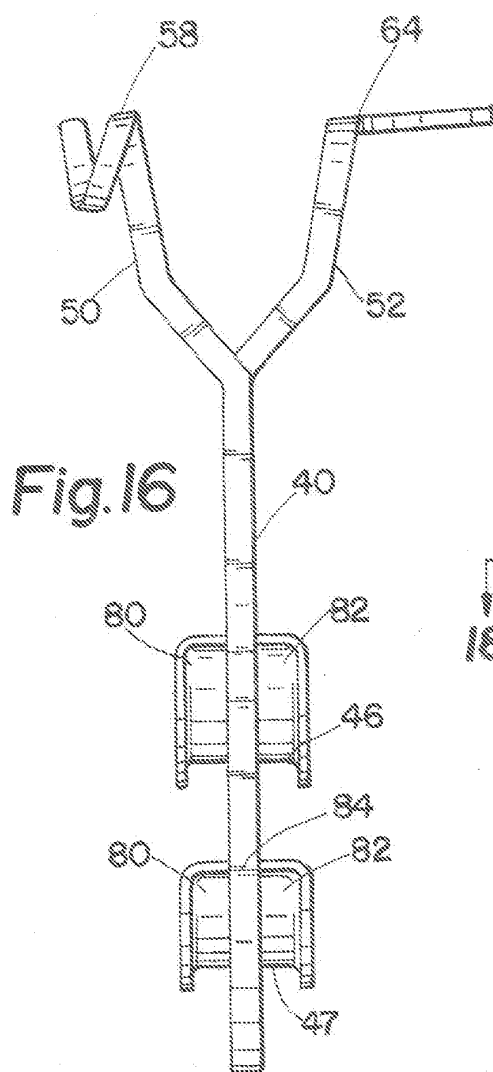


Fig. 16

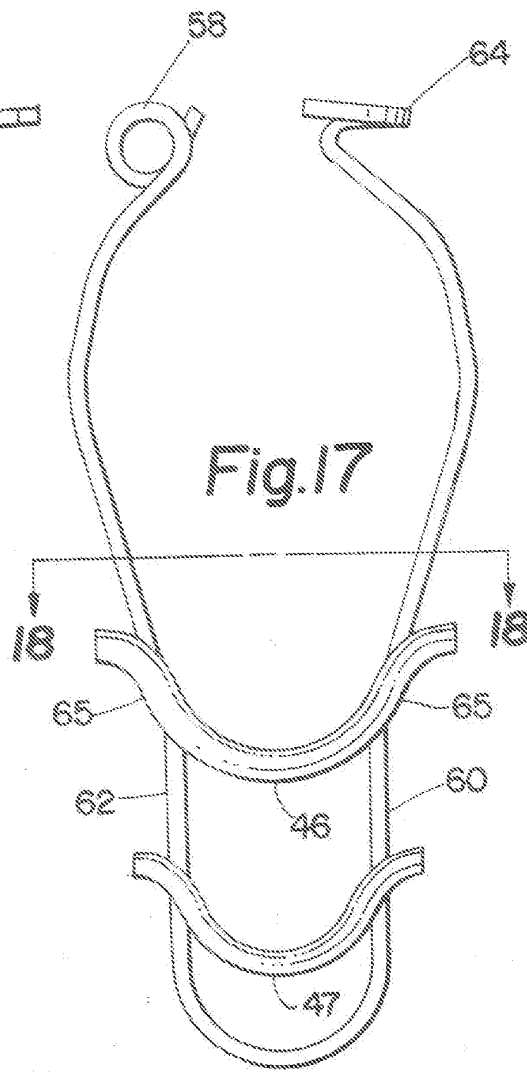


Fig. 17

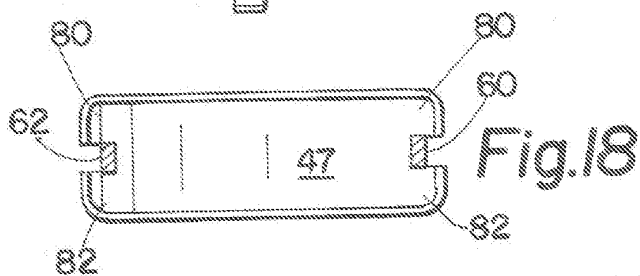


Fig. 18

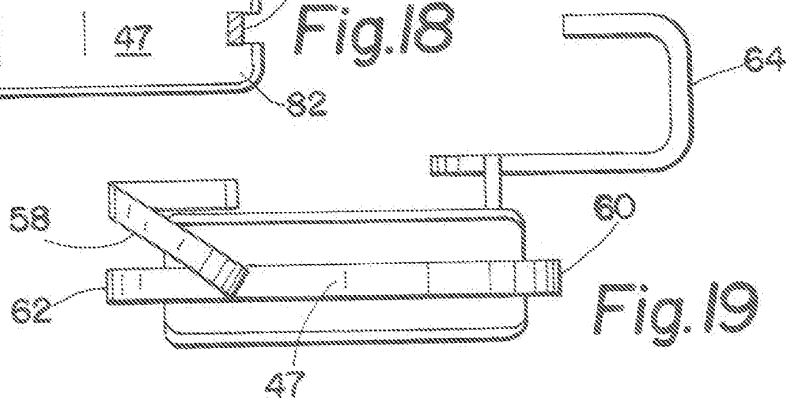
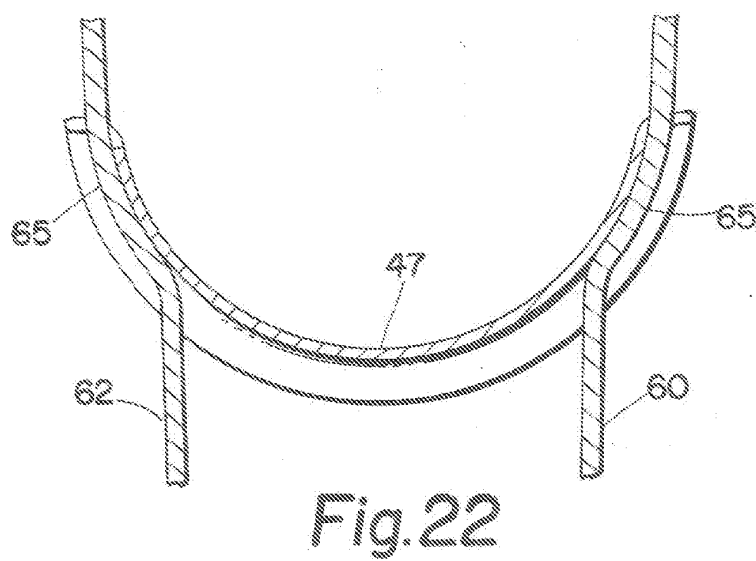
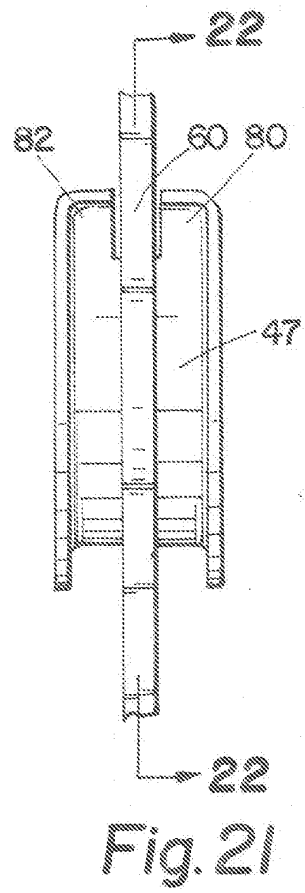
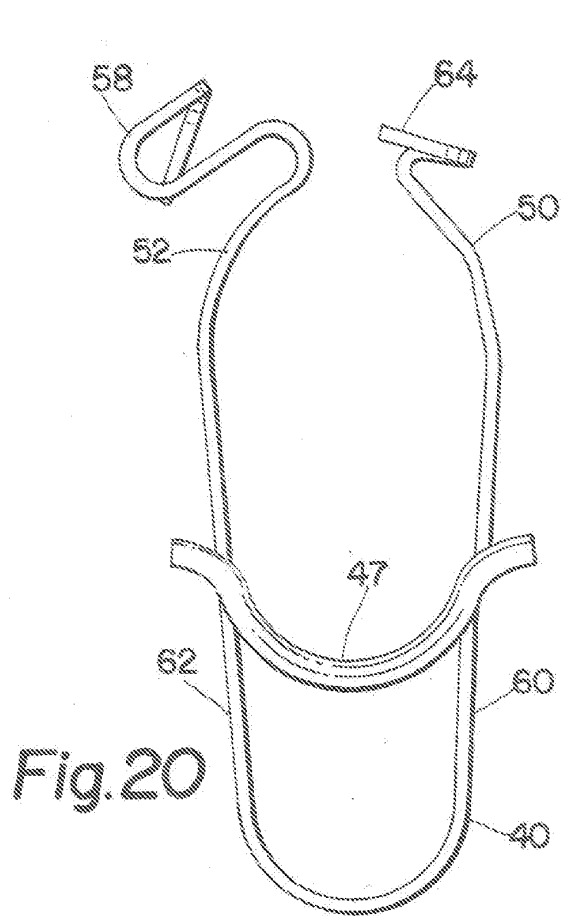


Fig. 19



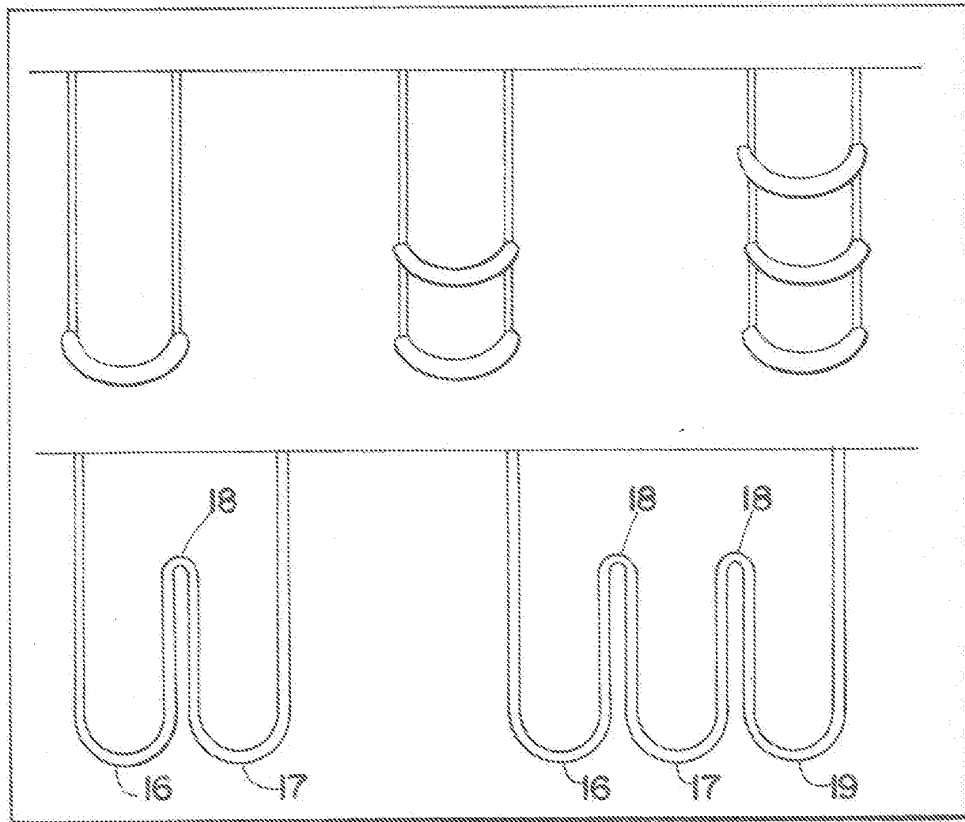


Fig. 23

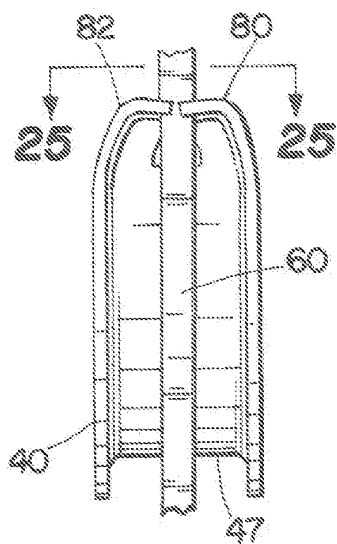


Fig. 24

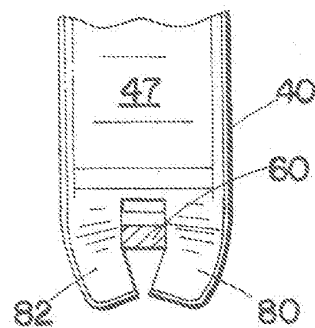


Fig. 25

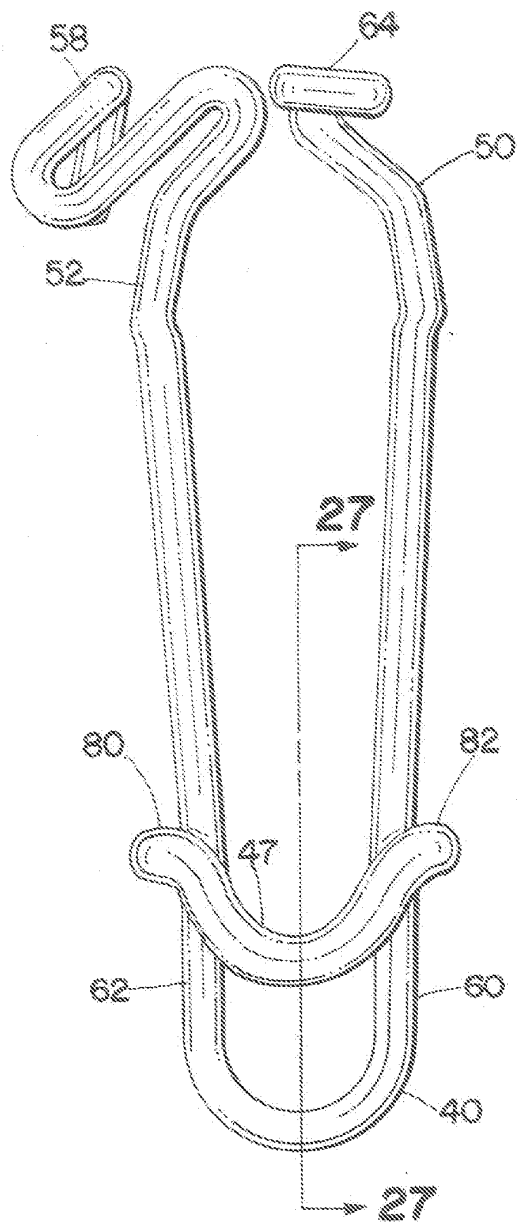


Fig. 26

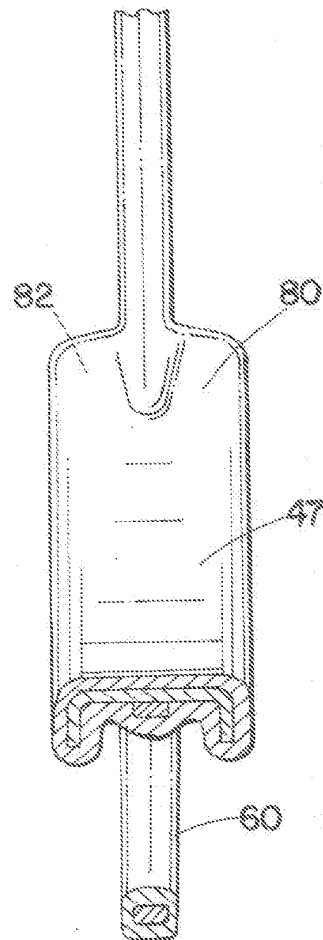


Fig. 27

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**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

**Title of
Invention**

LOCKING CABLE HANGER AND METHOD OF USING

As the below named inventor, I hereby declare that:

This declaration
is directed to:

☐

The attached application, or

☒

United States application or PCT international application number 14/556,117

filed on November 29, 2014

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Frank Edward Hodge

Date (Optional): 6-9-16

Signature: Frank Edward Hodge

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The information provided by you in this form will be subject to the following routine uses:

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3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	LOCKING CABLE HANGER AND METHOD OF USING
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This declaration is directed to: ☐ The attached application, or
☒ United States application or PCT international application number 14/556,117
filed on November 29, 2014

The above-identified application was made or authorized to be made by me.

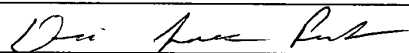
I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

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LEGAL NAME OF INVENTOR

Inventor: David James Prasko Date (Optional): 6-9-16
Signature: 

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The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	LOCKING CABLE HANGER AND METHOD OF USING
-------------------------------	---

As the below named inventor, I hereby declare that:

This declaration is directed to: ☐ The attached application, or
☒ United States application or PCT international application number 14/556,117
 filed on November 29, 2014

The above-identified application was made or authorized to be made by me.

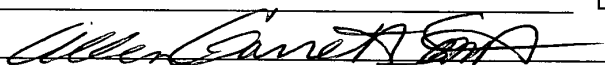
I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Allen Garret Smith Date (Optional): 6-9-16
 Signature: 

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

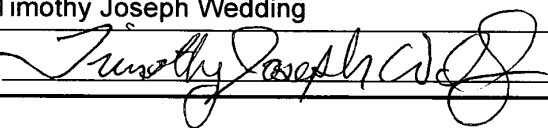
Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	LOCKING CABLE HANGER AND METHOD OF USING
As the below named inventor, I hereby declare that: This declaration is directed to: ☐ The attached application, or ☒ United States application or PCT international application number <u>14/556,117</u> filed on <u>November 29, 2014</u> The above-identified application was made or authorized to be made by me. I believe that I am the original inventor or an original joint inventor of a claimed invention in the application. I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both. WARNING: Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available. LEGAL NAME OF INVENTOR Inventor: <u>Timothy Joseph Wedding</u> Date (Optional): <u>6-9-16</u> Signature: <u></u> Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.	

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

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4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	308329-00007-3
		Application Number	
Title of Invention	LOCKING CABLE HANGER AND METHOD OF USING		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor	1				Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Allen	Garrett	Smith		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					
City	Johnstown	State/Province	PA	Country of Residence	US
Mailing Address of Inventor:					
Address 1	180 Kenesaw Lane				
Address 2					
City	Johnstown	State/Province	PA		
Postal Code	15905	Country i	US		
Inventor	2				Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Frank	Edward	Hodge		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					
City	Portage	State/Province	PA	Country of Residence	US
Mailing Address of Inventor:					
Address 1	883 Munster Road				
Address 2					
City	Portage	State/Province	PA		
Postal Code	15946	Country i	US		
Inventor	3				Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	David	James	Prasko		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	308329-00007-3
		Application Number	
Title of Invention	LOCKING CABLE HANGER AND METHOD OF USING		

City	Hastings	State/Province	PA	Country of Residence ⁱ	US
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Mailing Address of Inventor:

Address 1	243 Lewis Road				
Address 2					
City	Hastings	State/Province	PA		
Postal Code	16646	Country ⁱ	US		
Inventor	4				Remove
Legal Name					

Prefix	Given Name	Middle Name	Family Name	Suffix
	Timothy	Joseph	Wedding	

Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service

City	Johnstown	State/Province	PA	Country of Residence ⁱ	US
------	-----------	----------------	----	-----------------------------------	----

Mailing Address of Inventor:

Address 1	31 Schrader Avenue				
Address 2					
City	Johnstown	State/Province	PA		
Postal Code	15902	Country ⁱ	US		

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button.**Correspondence Information:**Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).☐ An Address is being provided for the correspondence Information of this application.

Customer Number	3705		
Email Address	ipmail@eckertseamans.com	Add Email	Remove Email

Application Information:

Title of the Invention	LOCKING CABLE HANGER AND METHOD OF USING		
Attorney Docket Number	308329-00007-3	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)		Suggested Figure for Publication (if any)	

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	308329-00007-3
		Application Number	
Title of Invention	LOCKING CABLE HANGER AND METHOD OF USING		

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	☒ Customer Number	US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	03705		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status		Remove	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	17199992	2021-03-12

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	308329-00007-3
		Application Number	
Title of Invention	LOCKING CABLE HANGER AND METHOD OF USING		

Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
	Continuation of	15662474	2017-07-28	10978861	2021-04-13
Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15662474	Continuation of	14556117	2014-11-29	9722405	2017-08-01
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.					Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)ⁱ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

			Remove
Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ⁱ (if applicable)
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			Add

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013. NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	308329-00007-3
		Application Number	
Title of Invention	LOCKING CABLE HANGER AND METHOD OF USING		

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	308329-00007-3
		Application Number	
Title of Invention	LOCKING CABLE HANGER AND METHOD OF USING		

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.			
Applicant	1		Remove
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.			
Clear			
☒ Assignee	Legal Representative under 35 U.S.C. 117		Joint Inventor
Person to whom the inventor is obligated to assign.		Person who shows sufficient proprietary interest	
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:			
Name of the Deceased or Legally Incapacitated Inventor:			
If the Applicant is an Organization check here. ☒			
Organization Name	CAMBRIA COUNTY ASSOCIATION FOR THE BLIND AND HANDICAPPED		
Mailing Address Information For Applicant:			
Address 1	211 Central Avenue		
Address 2			
City	Johnstown	State/Province	PA
Country	US	Postal Code	15902-2945
Phone Number		Fax Number	
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button. Add			

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	308329-00007-3
		Application Number	
Title of Invention	LOCKING CABLE HANGER AND METHOD OF USING		

Assignee	1		
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.			
Remove			
If the Assignee or Non-Applicant Assignee is an Organization check here. ☒			
Organization Name	CAMBRIA COUNTY ASSOCIATION FOR THE BLIND AND HANDICAPPED		
Mailing Address Information For Assignee including Non-Applicant Assignee:			
Address 1	211 Central Avenue		
Address 2			
City	Johnstown	State/Province	PA
Country i	US	Postal Code	15902-2945
Phone Number		Fax Number	
Email Address			
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. Add			

Signature:

Remove

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/STEPHEN A. BUCCHIANERI/		Date (YYYY-MM-DD)	2021-06-16	
First Name	Stephen	Last Name	Bucchianeri	Registration Number	54928
Additional Signature may be generated within this form by selecting the Add button. Add					

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	308329-00007-3
		Application Number	
Title of Invention	LOCKING CABLE HANGER AND METHOD OF USING		

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (03-15)

Approved for use through 07/31/2016. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	
	Filing Date	
	First Named Inventor	Allen Garrett Smith
	Art Unit	
	Examiner Name	
	Attorney Docket Number	308329-00007-3

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	0499549		1893-06-13	J. H. Hunter et al.	
	2	1609052		1926-11-30	J. Blackburn	
	3	1720746		1929-07-16	P. K. Povlsen et al.	
	4	1912704		1933-06-06	D. I. Graham	
	5	2106006		1938-01-18	C. H. Klein	
	6	2172174		1939-09-05	F. H. Pierson	
	7	2210722		1940-08-06	C. H. Klein	
	8	2384440		1945-09-11	J. A. Carr	
If you wish to add additional U.S. Patent citation information please click the Add button.						Add

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		
	First Named Inventor	Allen Garrett Smith	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	308329-00007-3	

U.S.PATENT APPLICATION PUBLICATIONS						Remove
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	20110079427		2011-04-07	L. S. Powale et al.	
	2	20110089294		2011-04-21	D. Buytaert et al.	

If you wish to add additional U.S. Published Application citation information please click the Add button.

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FOREIGN PATENT DOCUMENTS								Remove
Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²ⁱ	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button

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NON-PATENT LITERATURE DOCUMENTS			Remove
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1		

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EXAMINER SIGNATURE	
Examiner Signature	Date Considered

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		
	First Named Inventor	Allen Garrett Smith	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	308329-00007-3	

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		
	First Named Inventor	Allen Garrett Smith	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	308329-00007-3	

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/STEPHEN A. BUCCHIANERI/	Date (YYYY-MM-DD)	2021-06-16
Name/Print	Stephen A. Bucchianeri	Registration Number	54928

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		LOCKING CABLE HANGER AND METHOD OF USING		
First Named Inventor/Applicant Name:		Allen Garrett Smith		
Filer:		Stephen Arthur Bucchianeri/CATHY ROEDER		
Attorney Docket Number:		308329-00007-3		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY FILING FEE (ELECTRONIC FILING)	4011	1	80	80
UTILITY SEARCH FEE	2111	1	350	350
UTILITY EXAMINATION FEE	2311	1	400	400
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	2202	8	50	400
Miscellaneous-Filing:				
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1230

Electronic Acknowledgement Receipt

EFS ID:	43006285
Application Number:	17349447
International Application Number:	
Confirmation Number:	5107
Title of Invention:	LOCKING CABLE HANGER AND METHOD OF USING
First Named Inventor/Applicant Name:	Allen Garrett Smith
Customer Number:	3705
Filer:	Stephen Arthur Bucchianeri/CATHY ROEDER
Filer Authorized By:	Stephen Arthur Bucchianeri
Attorney Docket Number:	308329-00007-3
Receipt Date:	16-JUN-2021
Filing Date:	
Time Stamp:	16:24:37
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$1230
RAM confirmation Number	E20216FG25021283
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal of New Application	30832972_TRANSMITTAL.pdf	276761	no	2
			014bc9f4cb6720a45446d999c8834f0aa8ce4bbd		
Warnings:					
Information:					
2		30832972_PATAP.pdf	121351	yes	21
			8f88a7059cf9da0d2413376acabba7bf2fa4fd7		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	15	
	Claims		16	20	
	Abstract		21	21	
Warnings:					
Information:					
3	Drawings-only black and white line drawings	30832972_DRAWINGS.pdf	1219202	no	12
			7e935f7da092101276ed54604e2b995dfc2c431a		
Warnings:					
Information:					
4	Oath or Declaration filed	30832972_DECLARATIONS.pdf	1201695	no	8
			0e39023d5d9e95c7ac3e2fe23eec391e9d63e96e		
Warnings:					
Information:					
5	Application Data Sheet	30832972_ADSFORM.pdf	1823464	no	9
			623fe0beb209160f69987239d11405c61bd9edc0		

Warnings:					
Information:					
6	Information Disclosure Statement (IDS) Form (SB08)	30832972_IDSFORM.pdf	1035252	no	5
			98daec957d542fd4e94ce2fb0a65a6940155928b		
Warnings:					
Information:					
7	Fee Worksheet (SB06)	fee-info.pdf	36599	no	2
			b8ef0599ecf721ce1186153b07578ebb0d131b1f		
Warnings:					
Information:					
Total Files Size (in bytes):			5714324		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA/82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	17/349,447
Filing Date	June 16, 2021
First Named Inventor	Allen Garrett Smith
Title	LOCKING CABLE HANGER AND METHOD OF USING
Art Unit	Not Yet Assigned
Examiner Name	Not Yet Assigned
Attorney Docket Number	308329-00007-3

SIGNATURE of Applicant or Patent Practitioner

Signature	/STEPHEN A. BUCCHIANERI/	Date (Optional)	2021-06-16
Name	Stephen A. Bucchianeri	Registration Number	54928
Title (if Applicant is a juristic entity)	Attorney for Applicant		
Applicant Name (if Applicant is a juristic entity)	Cambria County Association for the Blind and Handicapped		

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.



*Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number

Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)



I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above:

03705

OR



I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:



The address associated with the above-mentioned Customer Number

OR



The address associated with Customer Number:

OR



Firm or
Individual Name

Address

City

State

Zip

Country

Telephone

Email

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Cambria County Association for the Blind and Handicapped



Inventor or Joint Inventor (title not required below)



Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)



Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)



Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature

Date (Optional)

Name

Tara Bosserman

Title

Director of Operations, Cambria County Association for the Blind and Handicapped

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.



Total of

forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Acknowledgement Receipt	
EFS ID:	43007897
Application Number:	17349447
International Application Number:	
Confirmation Number:	5107
Title of Invention:	LOCKING CABLE HANGER AND METHOD OF USING
First Named Inventor/Applicant Name:	Allen Garrett Smith
Customer Number:	3705
Filer:	Stephen Arthur Bucchianeri/CATHY ROEDER
Filer Authorized By:	Stephen Arthur Bucchianeri
Attorney Docket Number:	308329-00007-3
Receipt Date:	16-JUN-2021
Filing Date:	
Time Stamp:	17:21:52
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment		no			
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	30832972_POA.pdf	996927	no	2
			26f2852a66c7f5b63591f4475156208f891a57c6		
Warnings:					

Information:	
Total Files Size (in bytes):	996927
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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO.	TOT CLAIMS	IND CLAIMS
17/349,447	06/16/2021	3632	1230	308329-00007-3	28	3

CONFIRMATION NO. 5107

FILING RECEIPT



CC000000126396954

3705
ECKERT SEAMANS CHERIN & MELLOTT LLC
U.S. Steel Tower
600 Grant Street, 44th Floor
Pittsburgh, PA 15219

Date Mailed: 06/29/2021

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

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Inventor(s)

Allen Garrett Smith, Johnstown, PA;
Frank Edward Hodge, Portage, PA;
David James Prasko, Hastings, PA;
Timothy Joseph Wedding, Johnstown, PA;

Applicant(s)

CAMBRIA COUNTY ASSOCIATION FOR THE BLIND AND HANDICAPPED, Johnstown, PA;

Assignment For Published Patent Application

CAMBRIA COUNTY ASSOCIATION FOR THE BLIND AND HANDICAPPED, Johnstown, PA

Power of Attorney: The patent practitioners associated with Customer Number 03705

Domestic Priority data as claimed by applicant

This application is a CON of 17/199,992 03/12/2021
and is a CON of 15/662,474 07/28/2017 PAT 10978861
which is a CON of 14/556,117 11/29/2014 PAT 9722405

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

page 1 of 4

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 06/28/2021

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/349,447**

Projected Publication Date: 10/07/2021

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

LOCKING CABLE HANGER AND METHOD OF USING

Preliminary Class

248

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

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For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative,

page 2 of 4

this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 17/349,447	
APPLICATION AS FILED - PART I							
(Column 1)		(Column 2)		SMALL ENTITY		OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	80		N/A	
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	350		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	400		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	28	minus 20 = *	8	x 50 =	400		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3	minus 3 = *		x 240 =	0.00		
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.					TOTAL	1230	
APPLICATION AS AMENDED - PART II							
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		OTHER THAN SMALL ENTITY
	Total (37 CFR 1.16(i))	*	Minus **	=	x =		RATE(\$)
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x =		ADDITIONAL FEE(\$)
	Application Size Fee (37 CFR 1.16(s))						
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
				TOTAL ADD'L FEE			
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		OTHER THAN SMALL ENTITY
	Total (37 CFR 1.16(i))	*	Minus **	=	x =		RATE(\$)
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x =		ADDITIONAL FEE(\$)
	Application Size Fee (37 CFR 1.16(s))						
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
				TOTAL ADD'L FEE			
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.							



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
17/349,447	06/16/2021	Allen Garrett Smith	308329-00007-3

CONFIRMATION NO. 5107

PUBLICATION NOTICE

3705
ECKERT SEAMANS CHERIN & MELLOTT LLC
U.S. Steel Tower
600 Grant Street, 44th Floor
Pittsburgh, PA 15219



Title: LOCKING CABLE HANGER AND METHOD OF USING

Publication No. US-2021-0313788-A1

Publication Date: 10/07/2021

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publicly available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently <http://www.uspto.gov/patft/>.

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Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/349,447	06/16/2021	Allen Garrett Smith	308329-00007-3	5107
3705 7590 11/09/2021 ECKERT SEAMANS CHERIN & MELLOTT LLC U.S. Steel Tower 600 Grant Street, 44th Floor Pittsburgh, PA 15219			EXAMINER MARSH, STEVEN M	
			ART UNIT 3632	PAPER NUMBER
			NOTIFICATION DATE 11/09/2021	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ipmail@eckertseamans.com

DETAILED ACTION

This is the first office action for US Application 17/349,447 for a Locking Cable Hanger and Method of Using.

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries for establishing a background for determining obviousness under 35 U.S.C. 103 are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-4, 9-18, 22-25, 26, and 28 is/are rejected under 35 U.S.C. 103 as being unpatentable over the prior art disclosed by Applicant in view of Zak. Regarding claim

1, Applicant discloses that the prior art discloses a system for organizing a plurality of electrical cables extending from a plurality of solar panels; a messenger wire structured to be supported a distance above ground; and a plurality of cable hangers structured to be disposed along, and suspended from, the messenger wire (see pages 2 and 3 of the specification). The prior art does not disclose the cable hangers as comprising a plurality of cable carrying surfaces, each cable carrying surface being structured to support at least one electrical cable of the plurality of cables.

Zak discloses a cable hanger for use in supporting a plurality of conductive cables from a messenger wire. The cable hanger comprises a plurality of cable carrying surfaces (formed by 2 and 3), each cable carrying surface supporting a corresponding conductive cable of the plurality of conductive cables.

Because both the prior art disclosed by Applicant and Zak disclose cable hangers for supporting a plurality of cables on a messenger wire, it would have been obvious to one ordinary skill in the art at the effective filing date of the present invention, to substitute one cable hook for the other, to achieve the predictable result of a plurality of cable hangers, each supporting a plurality of cables from a messenger wire in a vertical arrangement.

Regarding claims 2-4, the prior art disclosed by Applicant in view of Zak discloses two cable carrying surface, but does not disclose three, four, or five carrying surfaces. However, duplication of parts is a matter of design choice. It would have been obvious to one of ordinary skill in the art at the effective filing date of the present invention to have provided additional cable carrying surfaces to support additional cables.

Regarding claim 9, Zak does not disclose the cable hangers as formed of wire selected from round galvanized steel, round stainless steel, flat rolled galvanized steel, and flat rolled stainless steel. However, the specific material used is a design preference that would have been obvious to one of ordinary skill in the art at the effective filing date of the present invention based on cost and strength considerations.

Regarding claim 10, each cable hanger of the plurality of cable hangers further comprises a formation structure to support a data carrier (the top cable support 2, 3 can support a data carrier). Regarding claim 11, the formation structured to support the data carrier is positioned closer to the messenger wire than the cable carrying surface.

Regarding claim 12-14, Zak does not disclose the cable hanger as having a plastisol or PVC coating, a thickness in the range of 50 mils to 100 mils, or the coating as having a flame retardant, high dielectric grade, UV inhibited material. However, the specific material used is a design preference that would have been obvious to one of ordinary skill in the art at the effective filing date of the present invention based on cost and strength considerations. It would have been obvious to one of ordinary skill in the art to utilize a known material with a PVC coating that is flame retardant, and the specific dimensions would also be a design choice.

Regarding claim 15, Applicant discloses that the prior art discloses a solar plant comprising a plurality of solar panels; a plurality of conductive cables extending from the plurality of solar panels (see pages 2 and 3 of the specification); a system for organizing the plurality of electrical cables comprising a messenger wire supported a distance above the ground adjacent the solar panels, and a plurality of cable hangers disposed along, and suspended from the messenger wire (see pages 2 and 3 of the

specification). The prior art does not disclose the cable hangers as comprising a plurality of cable carrying surfaces, each cable carrying surface being structured to support at least one electrical cable of the plurality of cables.

Zak discloses a cable hanger for use in supporting a plurality of conductive cables from a messenger wire. The cable hanger comprises a plurality of cable carrying surfaces (formed by 2 and 3), each cable carrying surface supporting a corresponding conductive cable of the plurality of conductive cables.

Because both the prior art disclosed by Applicant and Zak disclose cable hangers for supporting a plurality of cables on a messenger wire, it would have been obvious to one ordinary skill in the art at the effective filing date of the present invention, to substitute one cable hook for the other, to achieve the predictable result of a plurality of cable hangers, each supporting a plurality of cables from a messenger wire in a vertical arrangement.

Regarding claims 16-18, the prior art disclosed by Applicant in view of Zak discloses two cable carrying surface, but does not disclose three, four, or five carrying surfaces. However, duplication of parts is a matter of design choice. It would have been obvious to one of ordinary skill in the art at the effective filing date of the present invention to have provided additional cable carrying surfaces to support additional cables.

Regarding claim 22, Zak does not disclose the cable hangers as formed of wire selected from round galvanized steel, round stainless steel, flat rolled galvanized steel, and flat rolled stainless steel. However, the specific material used is a design

preference that would have been obvious to one of ordinary skill in the art at the effective filing date of the present invention based on cost and strength considerations.

Regarding claim 23, each cable hanger of the plurality of cable hangers further comprises a formation structure to support a data carrier (the top cable support 2, 3 can support a data carrier). Regarding claim 24, the formation structured to support the data carrier is positioned closer to the messenger wire than the cable carrying surface.

Regarding claim 25, Zak does not disclose the cable hanger as having a plastisol or PVC coating, a thickness in the range of 50 mils to 100 mils, or the coating as having a flame retardant, high dielectric grade, UV inhibited material. However, the specific material used is a design preference that would have been obvious to one of ordinary skill in the art at the effective filing date of the present invention based on cost and strength considerations. It would have been obvious to one of ordinary skill in the art to utilize a known material with a PVC coating that is flame retardant, and the specific dimensions would also be a design choice.

Regarding claim 26, Applicant discloses that the prior art discloses a method for organizing a plurality of electrical cables extending from a plurality of solar panels in a solar plant; the method comprising providing a messenger wire supported a distance above the ground, and a plurality of cable hangers spaced along the messenger wire (see pages 2 and 3 of the specification). The prior art does not disclose the cable hangers as comprising a plurality of cable carrying surfaces, each cable carrying surface being structured to support at least one electrical cable of the plurality of cables.

Zak discloses a cable hanger for use in supporting a plurality of conductive cables from a messenger wire. The cable hanger comprises a plurality of cable carrying

surfaces (formed by 2 and 3), each cable carrying surface supporting a corresponding conductive cable of the plurality of conductive cables.

Because both the prior art disclosed by Applicant and Zak disclose cable hangers for supporting a plurality of cables on a messenger wire, it would have been obvious to one ordinary skill in the art at the effective filing date of the present invention, to substitute one cable hook for the other, to achieve the predictable result of a plurality of cable hangers, each supporting a plurality of cables from a messenger wire in a vertical arrangement.

Regarding claims 28, the prior art disclosed by Applicant in view of Zak discloses two cable carrying surface, but does not disclose three carrying surfaces for a third electrical cable. However, duplication of parts is a matter of design choice. It would have been obvious to one of ordinary skill in the art at the effective filing date of the present invention to have provided additional cable carrying surfaces to support additional cables.

Allowable Subject Matter

Claims 5-8, 19-21 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 1869407 to Brenizer

US 1698531 to Brenizer

US 1705233 to Brenizer

US 2012/0318934 to Thomas

US 9518683 to Heppler

US 8294030 to Pollard, Jr.

The above prior art discloses various cable hangers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEVEN M MARSH whose telephone number is (571)272-6819. The examiner can normally be reached Mon-Thurs 9 am-7:30 pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrell McKinnon can be reached on 571-272-4797. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center,

Application/Control Number: 17/349,447
Art Unit: 3632

Page 9

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Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

STEVEN M. MARSH
Primary Examiner
Art Unit 3632

/STEVEN M MARSH/

Primary Examiner, Art Unit 3632

<i>Notice of References Cited</i>	Application/Control No. 17/349,447		Applicant(s)/Patent Under Reexamination Smith et al.	
	Examiner STEVEN M MARSH		Art Unit 3632	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-1705233-A	03-1929	BRENIZER ORSON W	H02G7/10	248/61
*	B	US-1869407-A	08-1932	BRENIZER ORSON W	H02G7/10	248/61
*	C	US-1698531-A	01-1929	Brenizer	H02G7/10	248/61
*	D	US-20120318934-A1	12-2012	Thomas; D. Bryan	F16L3/133	248/58
*	E	US-8294030-B2	10-2012	Pollard, Jr.; Michael E.	H02G3/24	174/155
*	F	US-9518683-B1	12-2016	Heppler; Darren C.	F16L3/237	1/1
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N	CA-2190036-A1	05-1998	CA	ZAK AARON	H02G7/06
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

U.S. Patent and Trademark Office
PTO-892 (Rev. 01-2001)

Notice of References Cited

Part of Paper No. 20211104

<i>Index of Claims</i> 	Application/Control No. 17/349,447	Applicant(s)/Patent Under Reexamination Smith et al.
	Examiner STEVEN M MARSH	Art Unit 3632

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS										
☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47										
CLAIM		DATE								
Final	Original	11/04/2021								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	○								
	6	○								
	7	○								
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	26	✓								
	27	○								
	28	✓								

<i>Search Notes</i> 	Application/Control No. 17/349,447	Applicant(s)/Patent Under Reexamination Smith et al.
	Examiner STEVEN M MARSH	Art Unit 3632

CPC - Searched*		
Symbol	Date	Examiner
see PE2E search	11/04/2021	SMM

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
see	PE2E search	11/04/2021	SMM

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
Conducted text search	11/04/2021	SMM
IP.com search		
forward/backward search		
Inventor name search		

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

/STEVEN M MARSH/ Primary Examiner, Art Unit 3632	
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Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (03-15)

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	17/349,447
	Filing Date	
	First Named Inventor	Allen Garrett Smith
	Art Unit	
	Examiner Name	
	Attorney Docket Number	308329-00007-3

U.S. PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
/S.M.M/	1	0499549		1893-06-13	J. H. Hunter et al.	
/S.M.M/	2	1609052		1926-11-30	J. Blackburn	
/S.M.M/	3	1720746		1929-07-16	P. K. Povlsen et al.	
/S.M.M/	4	1912704		1933-06-06	D. I. Graham	
/S.M.M/	5	2106006		1938-01-18	C. H. Klein	
/S.M.M/	6	2172174		1939-09-05	F. H. Pierson	
/S.M.M/	7	2210722		1940-08-06	C. H. Klein	
/S.M.M/	8	2384440		1945-09-11	J. A. Carr	
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Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
/S.M.M/	1	20110079427		2011-04-07	L. S. Powale et al.	
/S.M.M/	2	20110089294		2011-04-21	D. Buytaert et al.	

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Examiner Signature	/STEVEN M MARSH/	Date Considered	11/04/2021

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		
	First Named Inventor	Allen Garrett Smith	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	308329-00007-3	

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

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	Filing Date		
	First Named Inventor	Allen Garrett Smith	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	308329-00007-3	

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/STEPHEN A. BUCCHIANERI/	Date (YYYY-MM-DD)	2021-06-16
Name/Print	Stephen A. Bucchianeri	Registration Number	54928

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	11	("2404531" "20090224111" "20100123048" "20120205500" "5261633" "5742982" "5992802" "6135398" "6561466" "8074945" "8294030").PN.	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/14 12:41 PM
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L3	1	("5689862").PN.	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/14 12:42 PM
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L10	587	((cable or wire) with clamp) and (clamp with (sealant or glue or cement))	(US-PGPUB; USPAT)	OR	ON	ON	2016/09/15 05:01 AM
L11	2948	((cable or wire) with clamp) and (clamp with seal\$4)	(US-PGPUB; USPAT)	OR	ON	ON	2016/09/15 05:02 AM
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L13	103	((cable or wire) with clamp with sealant)	(US-PGPUB; USPAT)	OR	ON	ON	2016/09/15 05:02 AM
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L16	4014	248/68.1	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/15 03:22 PM
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L20	3192	248/74.1	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/16

11/04/2021 11:28:51 AM

Workspace: Locking Cable Hanger and Method of Using 2

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L21	4906	248/65 or 248/73	(US-PGPUB; USPAT)	OR	OFF	OFF	12:03 AM 2016/09/16 12:03 AM
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		OR F16L9/125 OR F16L11/127 OR F16L11/26 OR F16L13/00 OR F16L17/04 OR F16L19/0218 OR F16L19/065 OR F16L1/00 OR F16L1/0243 OR F16L1/0246 OR F16L1/065 OR F16L1/09 OR F16L1/19 OR F16L1/20 OR F16L1/23 OR F16L1/235 OR F16L1/24 OR F16L1/265 OR F16L23/0283 OR F16L25/0045 OR F16L25/04 OR F16L27/12 OR F16L33/02 OR F16L33/24 OR F16L33/32 OR F16L37/00 OR F16L37/008 OR F16L37/0982 OR F16L37/0987 OR F16L37/123 OR F16L37/2445 OR F16L37/252 OR F16L37/56 OR F16L3/012 OR F16L3/205 OR F16L3/215 OR F16L41/004 OR F16L41/02 OR F16L41/021 OR F16L41/03 OR F16L43/02 OR F16L47/03 OR F16L53/002 OR F16L55/00 OR F16L55/005 OR F16L55/0336 OR F16L55/07 OR F16L55/10 OR F16L55/1725 OR F16L57/005 OR F16L57/02 OR F16L57/06 OR F16L58/1063 OR F16L7/02 OR F16L9/00 OR F16L9/006 OR F16L9/17 OR F16L9/18 OR F16L9/19 OR F16L9/22).CPC.)					
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11/04/2021 11:28:51 AM

Workspace: Locking Cable Hanger and Method of Using 2

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SM

Affordable Wire Management, Exhibit No. EX1015

Case No. IPR2024-00182

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L43	11	("499549").URPN.	(USPAT)	OR	OFF	OFF	2016/09/22 11:32 PM
L44	57	("0426655" "0588886" "0677163" "0679900" "0816473" "0818989"	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 11:33 PM

L45	28	"1054171" "1377413" "1713230" "2046815" "2119217" "2243387" "2605906" "2709028" "2764383" "4027798" "4191034" "4248399" "4550892" "4658100" "4742979" "4756504" "4779815" "5076531" "5104083" "5765801" "6003803" "6135381" "6186455" "6572058" "D032640" "D035612" "D167944" "D336603" "D341311" "D470037" "D480947").PN. OR ("7891614").URPN. ("1141316" "1753013" "1808328" "1895656" "2229129" "3596859" "3605200" "3925851" "4114829" "4131867" "4856739" "5141192" "5460274" "5613656" "6182933" "6644836" "6802480" "7318568" "D247216" "D470034" "D546170").PN. OR ("8147102").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 11:35 PM
L46	15	("1196755" "1225585" "2603438" "5232189").PN. OR ("6364266").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 11:35 PM
L47	9	("2007/0090251").URP N.	(USPAT)	OR	OFF	OFF	2016/09/22 11:37 PM
L48	10	("1720746").URPN.	(USPAT)	OR	OFF	OFF	2016/09/22 11:37 PM
L49	17	("0562468" "1495982" "1764950" "2636704" "4809894" "D027860" "D423916").PN. OR ("D434310").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 11:38 PM
L50	35	("2636704").URPN.	(USPAT)	OR	OFF	OFF	2016/09/22 11:39 PM
L51	20	("0562468" "1495982" "2636704" "4809894" "D027860" "D423916").PN. OR ("D434309").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 11:40 PM
L52	23	("0562468" "1495982" "2636704" "4809894" "D027860" "D423916").PN. OR	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 11:41 PM

L53	6	("D434308").URPN. ("1912704").URPN.	(USPAT)	OR	OFF	OFF	2016/09/22 11:44 PM
L54	922	wire adj hanger	(USPAT)	OR	ON	ON	2016/09/22 11:48 PM
L55	38	L54 and spiral	(USPAT)	OR	ON	ON	2016/09/22 11:48 PM
L56	120	L54 and cable	(USPAT)	OR	ON	ON	2016/09/22 11:52 PM
L57	118	L56 not L55	(USPAT)	OR	ON	ON	2016/09/22 11:52 PM
L58	26	("0509529" "0771905" "1219702" "1472766" "3122803" "3234616" "3604066" "3657909" "4133509" "4847957" "4909466" "5309865").PN. OR ("5788201").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 11:54 PM
L59	766	L54 not (L55 or L56)	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/23 12:06 AM
L60	16	("20100326008" "20110309042" "4238098" "4768741" "5100008" "5531410" "5657953" "5845882" "6152412" "6637704" "6855884" "6926236" "7137608" "7304240" "7364130" "7497405").PN. OR ("8544802").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/23 04:44 AM
L61	41	("0499549" "1536678" "1912704" "2641079" "2846174" "3064933" "3198471" "3250309" "3263026" "3381824" "3504108" "3599916" "3752902" "3883934" "4232847" "4438894" "4560126").PN. OR ("4742979").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/23 04:50 AM
L62	511	line with cable with hanger	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2016/09/23 05:11 AM
L63	3	("2384440").URPN.	(USPAT)	OR	OFF	OFF	2016/09/23 06:13 AM
L64	3	("2384440").URPN.	(USPAT)	OR	OFF	OFF	2016/09/23 06:13 AM
L65	2	("2210722").URPN.	(USPAT)	OR	OFF	OFF	2016/09/23 06:14 AM
L66	1	("2172174").URPN.	(USPAT)	OR	OFF	OFF	2016/09/23 06:15 AM
L67	1	("2106006").URPN.	(USPAT)	OR	OFF	OFF	2016/09/23

L68	0	("1609052").URPN.	(USPAT)	OR	OFF	OFF	06:15 AM 2016/09/23 06:19 AM
L69	1	("8448307").PN.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2016/09/23 03:53 PM
L70	0	"1609052" and steel	(US-PGPUB; USPAT)	OR	ON	ON	2016/09/23 07:30 PM
L71	71	wire with (flame adj retardant) with PVC	(US-PGPUB; USPAT)	OR	ON	ON	2016/09/23 07:40 PM
L72	13	wire with (flame adj retardant) with PVC with coating	(US-PGPUB; USPAT)	OR	ON	ON	2016/09/23 07:40 PM
L73	10	("0499549" "1609052" "1720746" "1912704" "20110079427" "20110089294" "2106006" "2172174" "2210722" "2384440").PN.	(US-PGPUB; USPAT)	OR	OFF	OFF	2018/02/01 05:44 AM
L74	1576	248/61	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 03:08 AM
L75	14	("499549" "1609052" "1720746" "2106006" "2172174" "2210722" "20160153587").pn. OR ("9800028").urpn. AND (PGPB USPT USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/11/04 03:15 AM
L76	55	("429357" "948902" "1362244" "1586642" "2339564" "2339565" "2384440" "2407217" "2714497" "3415474" "3506227" "3517901" "3565375" "3575367" "3687406" "3744837" "3866871" "3923277" "4019706" "4098415" "4245806" "4396135" "4413799" "4960253" "5181680" "5192039" "5344111" "5350141" "5593115" "5848770" "5924655" "6170784" "6505796" "6807791" "7207527" "7284728" "7320448" "7780122" "D625585" "8523119" "8567734" "8596589" "20060180713"	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/11/04 03:18 AM

L77	6	"20090057498" "20090321587" "20120318934").urpn. OR ("9518683").urpn. AND (PGPB USPT USOC).dbnm. ("2012/0318934").urpn. AND (PGPB USPT USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/11/04 03:18 AM
L78	7	("9722405").pn.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 03:37 AM
L79	1	("1705233").urpn. AND (PGPB USPT USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/11/04 06:09 AM
L80	2	("1698531").urpn. AND (PGPB USPT USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/11/04 06:10 AM
L81	32	("824544").urpn. AND (PGPB USPT USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/11/04 06:25 AM
L82	1090	("20160153587" "10978861" "20170338638" "20210313788" "20210226433" "20180034252" "10063039" "20180233888" "9800028" "2303108" "2419364" "5957416" "6517052" "2210722" "6227522" "5979880" "20210088158" "2891751" "11038322" "20190386471" "5727777" "20210238945" "20210265824" "2509422" "4824057" "2566233" "3095471" "1369828" "5964434" "1875697" "2417244" "7757996" "3033978" "4832442" "1972418" "4461521" "1945488" "20050087662" "5740994" "9890937" "2235685" "10670170" "20200189886" "20160033116"	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/11/04 06:41 AM

		"20130248673" "2839597" "20190390528" "20180347727" "20100276551" "10837252" "9765953" "2451004" "20150267843" "20150323125" "20040026558" "20150115122" "5871193" "20180347305" "20100219300" "2564328" "8360372" "2820083" "10947808" "2295749" "3456066" "9407080" "6959898" "20200392763" "7234669" "20170241571" "20180051827" "20030051319" "4658100" "20190109448" "2983037" "20120175482" "10461518" "6622352" "10177551" "2120828" "3013110" "20090301822" "20090101763" "2445758" "20040129841" "10811859" "2299607" "20190386475" "7188814" "2172174" "20030020056" "3057600" "2868861" "20050274840" "20050218269" "8810432" "20140042288" "8540392" "3134575" "20130095710" "6565048" "20050109887" "20210066902" "20140151616" "3333804" "3042353" "7293745" "3026077" "20110089294" "1454559" "7367534" "20050254768" "20130139358" "3334851" "5421068" "2964274" "1698531" "20110108500"				
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		"20090103224" "6345800" "9188193" "3139482" "2348918" "2798680" "2980401" "7346962" "20110073718" "7150078" "9671046" "20190085559" "2059825" "20030221296" "20190183265" "3982372" "20060006276" "2923515" "20050160563" "5322973" "20190032292" "8054195" "20050015939" "9697754" "20110216479" "20130015316" "4386758" "4486620" "7973672" "3335213" "10835060" "9502876" "1988174" "10640975" "20200263425" "4628631" "20130213920" "4997147" "8220758" "20150262516" "4487395" "20160203741" "10867530" "3183972" "2445481" "20070164172" "20180372246" "7891614" "20190147776" "20090294602" "10269271" "1956526" "8011621" "9038835" "20070284498" "20110204191" "7523910" "3537626" "6254040" "20090057498" "20050269158" "20120018212" "20180347303" "10808486" "8840071" "20210267397" "20110300008" "2315082" "20110283515" "20070202286" "10627016" "20190032843"				
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		"8534366" "8757321" "2936991" "8191836" "4925015" "20130315751" "20200103101" "20130214015" "20080093510" "3179177" "20190316746" "20070048554" "4601453" "11131435" "20170241212" "8985528" "20190246825" "7039987" "3416830" "10458594" "3104087" RE25549 "4848538" "2195732" "2239792" "4385742" "20110174951" "6634610" "3398839" "3098115" "8245441" "2584743" "20130140422" "20020025237" "20190227250" "20200400907" "3385487" "10648241" "20140048669" "7329022" "10795106" "8851165" "6039500" "4288313" "20160244922" "20050056736" "9689122" "5961081" "20180320471" "6945501" "4557516" "20140252190" "20130241380" "20040035984" "20180335595" "2404088" "2239656" "20150259865" "20170335995" "3084892" "8659445" "6732981" "2633226" "20210010617" "20050184202" "11134804" "9051947" "20180356006" "20210018116" "20200232582" "20060027714" "10627015" "8749402" "9041555" "6224025" "20160249751" "10731434" "20130146733"				
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		"10125898" "9347188" "10310206" "7078625" "2096600" "1384036" "10801646" "5067621" "2277995" "8672092" "20180202580" "10634265" "20110089301" "4413660" "11054064" "20180045336" "10253906" "20170086602" "2692744" "3177542" "20060207949" "20070128939" "20200256483" "20190178419" "8018350" "4154298" "4874322" "2777619" "9222617" "9820591" "20110089298" "20200088323" "2410836" "4015397" "2939664" "6073819" "7876236" "6367725" "10508757" "7766285" "4909405" "3512743" "20080190044" "6230440" "7316247" "20120047801" "2240986" "20190368159" "20150335154" "7377396" "20140144725" "7189924" "20070101551" "4470622" "8662464" "8154425" "4248459" "20120074276" "2363318" "20040113024" "8375632" "10859187" "8763708" "6325338" "20070205335" "2237597" "2000545" "8395531" "5561268" "7520476" "4647074" "9938733" "9743764" "11091896" "3007243" "4682452" "5393021" "20180283166" "6053457" "20070278376" "7147194" "6330861" "6032993" "5782440" "3045748" "3395378" "10376051" "2969438"				
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		"2222229" "4132372" "2041805" "3109627" "6260489" "2102966" "20060113334" "20050286256" "20200386350" "3259370" "1401650" "20170318962" "20100025064" "7661634" "10201109" "4440425" "20210151972" "7216786" "4693534" "20180163899" "20110155872" "9350145" "20050236544" "10718202" "4524999" "20120085552" "2891752" "9111469" "10910805" "20130214223" "8813400" "8246013" "7429020" "20210102642" "2004695" "2910215" "3154279" "9056393" "1980375" "2288726" "20200321763" "20120066945" "20160258271" "20210192992" "20190075925" "4753355" "4373278" "20070044970" "20070056723" "20070057126" "20190203554" "2568054" "10158218" "8037630" "5720461" "10149536" "2721050" "9988893" "10760714" "20120267483" "20180097346" "20190313793" RE30070 "20180366930" "5667181" "1509321" "20190289740" "20140208568" "5303885" "3989217" "7299867" "8448390" "20190221143" "11035193" "7431077" "4139058" "2023392" "4191334" "10243339" "3052748" "20160281881"				
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		"10962145" "20050005535" "2277935" "3255996" "11004367" "4118760" "20010037599" "10408380" "20210041042" "10638630" "10920911" "6399883" "20180149292" "3500505" "9866004" "2334560" "10422446" "20080093519" "20160076341" "20170044865" "20210164590" "20190353282" "20050167559" "3254814" "20090184269" "20070246631" "20160345757" "4669693" "20180172183" "20140117688" "2114439" "20110314712" "2934587" "20210190237" "2560845" "5970697" "20070080276" "3185444" "20200208757" "9587466" "5575447" "5934408" "20160366783" "10823312" "6345808" "20140103175" "4659051" "10214988" "8398134" "4133378" "8959814" "20110253914" RE22472 "7973299" "4684092" "6644521" "6386489" "6253631" "2582621" "9149009" "6540207" "8207516" "20060243527" "10226139" "4639031" "4066193" "6913822" "3352363" "20170082815" "4184616" "20210156495" "2814861" "20170114953" "2041110" "5282600" "20090218554"				
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		"4431108" "7075013" "4742979" "20140299716" "7350583" "10584543" "20190200786" "3003211" "4661663" "20150323126" "20180340333" "9851523" "7461827" "8505858" "2247613" "9837185" "9074707" "7377014" RE33147 "8485262" "20130160358" "20180187493" "10477776" "3266761" "3519055" "2597626" "2916309" "7658351" "20140374116" "7134490" "20050006107" "2430805" "20150010280" "11143333" "20140099084" "20060196091" "20060249633" "3004644" "2321248" "7185794" "20190360614" "7641062" "20190376644" "4077472" "9416640" "20080023616" "2895713" "20110233345" "8783628" "5127478" "2626301" "20030089828" "2546593" "20030066991" "20200278051" "20050167095" "20200003338" "5779210" RE31689 "10072486" "20050218284" "7090174" "8544802" "20110220692" "5015205" "20100326008" "4943016" "4477948" "20070113381" "4705331" "20210277751" "20100199536" "20050077326" "20170328186"				
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		"1765461" "8770533" "3055623" "3179175" "5292014" "4355677" "5364053" "20160251817" "3521843" "2879963" "3279014" "9933037" "6505818" "8454209" "4681232" "20140083262" "20140374115" "4269673" "8393101" "4154302" "20020088905" "2907872" "9220180" "5986212" "4695018" "7544120" "20170284568" "9879396" "10663088" "9359852" "20150265069" "7753319" "20200406068" "20180358824" "20100133392" "5979022" "9706859" "20130039045" "20110083854" "20040079842" "20160215592" "2163394" "20080203243" "5435514" "3116838" "2554350" "8515236" "20180138678" "20070044971" "7140587" "4019715" "8302265" "20180003913" "2547813" "1682737" "10312700" "4364538" "2070883" "20150211818" "3508631" "20180112369" "20050072090" "20120298809" "20180292029" "6666415" "2003446" "2824679" "4394242" "9939602" "7562856" "8454192" "5308280" "2834301" "20070290111" "2388860" "20100148028" "20140318007" "3256937"				
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		"20100310217" "9083160" "10612366" "2162669" "10359594" "7117650" "10233606" "2764384" "3076865" "9310039" "9379527" "9995414" "2523869" "20160161053" "1476093" "20190194898" "9548595" "5474274" "3052751" "2087667" "20040061030" "20040111995" "9903510" RE46469 "7805814" "20100309658" "20190169980" "20070095996" "20150162730" "20100270764" "10244852" "7692100" "20130214220" "20180094750" "4234146" "4547992" "9989170" "6004011" "20040026593" "8631629" "5760558" "20120074268" "20180356004" "2473898" "20190104585" "20020129629" "4147320" "20170122460" "9546830" "6595492" "4484840" "10577768" "20200052470" "8322428" "2930565" "20160016268" "2179825" "10768390" "20190120008" "20130087672" "20180209247" "2531293" "5474268" "20130139870" "5152395" "20140182860" "20100012351" "20020066892" "10947805" "10920910" "20070241238" "7316380" "2385076" "6065542" "3353595" "20050072881" "20100243845" "1967124" "4187934" "20150300126"				
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		"7461700" "20130269948" "20040084574" "7007900" "20020130094" "20200041041" "7287883" "20180188468" "20060243876" "20140300485" "5178257" "2589899" "20210025258" "10982440" "2110607" "20160138369" "9732899" "20130061466" "8616512" "20060086862" "10830015" "6311006" "4520984" "10774608" "20180223619" "20210062603" "20210281059" "20180340403" "2916249" "20030226666" "9689225" "2384440" "6883768" "20210072072" "6382571" "10428630" "20120024540" "2390940" "2767954" "4877210" "20020034369" "9676070" "20050167118" "3149808" "4869408" "20210198970" "10941883" "3547389" "20040227047" "10119368" "20070125922" "6340238" "6517032" "20180216434" "20070125015" "20050109890" "3501129" "7472881" "7160069" "20200003025" "6520349" "20190274297" "20120055738" "1966454" "7475859" "6974341" "1482335" "8542492" "10605381" "10673215" "7413394" "20200109800" "20070125924"				
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L83	3309	"2980384" "4143845" "2775422" "5101985" "2316103" "1886463").pn. (F16L3/22).cpc.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 07:30 AM
L84	3304	L83 NOT (L82 OR L73)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 07:32 AM
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L86	9067	L85 NOT L84	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 08:33 AM
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L94	162	L93 AND hanger	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 09:05 AM
L95	27	(solar ADJ panel) AND (messenger ADJ wire)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 09:24 AM
L96	45	panel WITH (messenger ADJ wire)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 09:27 AM
L97	10	("0499549" OR "1609052" OR "1720746" OR	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/04 09:29 AM

		"1912704" OR "20110079427" OR "20110089294" OR "2106006" OR "2172174" OR "2210722" OR "2384440").pn.					
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PE2E SEARCH - Search History (Interference)

There are no Interference searches to show.



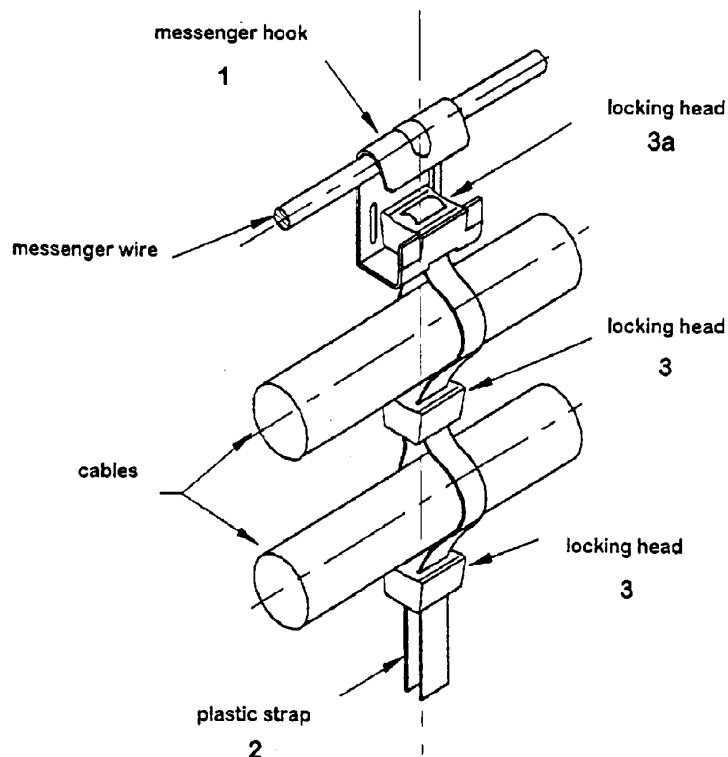
(72) Zak, Aaron, CA

(71) Zak, Aaron, CA

(51) Int.Cl.⁶ H02G 7/06

(54) **ENSEMBLE DE SUSPENSION POUR CÂBLES**

(54) **CABLE SUSPENSION ASSEMBLY**



(57) Pour suspendre des câbles de télécommunications ou de transport d'électricité le long d'un fil porteur en acier, il faut normalement employer des suspensions de câbles. Avec la présente invention, il est possible d'accroître sensiblement la capacité de charge de l'ensemble de suspension de câble et d'ajouter plusieurs installations subséquentes de câbles ou de faisceaux de câbles sur le même ensemble de suspension de câbles.

(57) To suspend electrical or communication cables along an aerial steel messenger wire, it is known to use cable suspension assemblies. With this invention, it may be possible to substantially increase the load holding capacity of the cable suspension assembly and carry out multiple consequent installations of cables or cable bundles on the same cable suspension assembly.



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ABSTRACT

To suspend electrical or communication cables along an aerial steel messenger wire, it is known to use cable suspension assemblies. With this invention, it may be possible to substantially increase the load holding capacity of the cable suspension assembly and carry out multiple consequent installations of cables or cable bundles on the same cable suspension assembly.

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SPECIFICATION

This invention relates to aerial installation of electrical and/or communication cables where a cable or a cable bundle is suspended underneath a steel messenger wire by means of a "hook and strap" assembly.

The previously known hook and strap assembly shown in Figure 7 comprises a metal hook 1, a hanger lashing strap (or a cable tie) 2, and a special device called mounting head 3. The hook 1 may be placed on the messenger wire, and the hanger lashing strap (or a cable tie) 2 may be wrapped around the cable or cable bundle and secured in the mounting head 3.

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The key component in the previously known hook and strap assembly further shown in Figure 8 is the mounting head 3, which facilitates the attachment of the lashing strap 2 to the metal hook 1 and locking of the lashing strap 2. The hook and strap assembly is assembled by inserting the messenger hook 1 into a recess in the plastic mounting head 3. The hanger lashing strap (or the cable tie) 2 must be also inserted into the same recess in the plastic mounting head 3 to prevent the metal hook 1 from sliding out of the recess in the plastic mounting head 3.

Thus, the previously known hook and strap assembly may have the following disadvantages:

The metal hook 1 in Figure 8 slips out of the mounting head 2 under the tension of the cable load and therefore limits the loading capacity of the hook and strap assembly.

The assembly is designed for one installation of cables or cable bundles. After the initial installation is completed, subsequent installations of additional cables or cable bundles on the same hook & strap assembly shown in Figure 7 may be difficult or impossible, since it would require releasing the hanger lashing strap 2 in the mounting head 3, re-lashing the hanger lashing strap 2 around the additional cables or cable bundles, bringing the hanger lashing strap 2 back to the mounting head 3, and re-securing the hanger lashing strap 2 in the mounting head 3.

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I have found that these disadvantages may be overcome by using the proposed cable suspension assembly which dispenses with the mounting head used in the previously known assembly and instead utilizes commercially available lashing strap gripping devices called locking heads to facilitate the attachment of the lashing strap to a specially designed "C" shaped metal messenger hook as well as the locking of the cables in the cable suspension assembly.

The proposed cable suspension assembly shown in Figure 1 may consist of a "C" shaped metal messenger hook 1, a lashing strap of a desired length 2, and a number of identical locking heads 3 & 3a.

The bottom part of the messenger hook (Figure 1, pos. 1 and Figure 2) may be shaped and recessed to hold and support the locking head (Figure 1, pos. 3a) which in turn holds and supports the lashing strap 2.

The locking head (Figure 6) contains a metal pawl which allows only one way movement of the lashing strap inside the locking head.

The cable suspension assembly may be constructed as follows:

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Figure 3: The lashing strap is cut to a desired length. The two ends of the lashing strap 2 may be inserted into the locking head 3a and pulled through evenly, so that the two halves of the lashing strap 2 may have approximately equal lengths.

Figure 4: the lashing strap 2, with the locking head 3a attached to it, may be inserted through the recess in the bottom lip of the "C" shaped messenger hook 1, so that the locking head 3a is resting on the bottom lip of the messenger hook 1 and the two halves of the lashing strap 2 extend out of the messenger hook 1.

A cable or a cable bundle may be suspended underneath a messenger wire as follows:

The "C" shaped metal messenger hook of the cable suspension assembly shown in Figure 5 may be hanged on the steel messenger wire. A cable or a cable bundle being installed may be placed between the two halves of the lashing strap 2. The two ends of the lashing strap 2 may be inserted into another locking head 3. The locking head 3 may be pulled up underneath the cable or the cable bundle to the required tightness. The cable or the cable bundle may remain locked in the cable installation assembly.

As shown in Figure 1, additional cables or cable bundles may be consecutively installed on the same lashing strap 2 using additional locking heads 3.

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The proposed suspension assembly may substantially increase the permissible cable load, and may allow for subsequent installations of additional cables or cable bundles on the same cable suspension assembly without having to re-lash the strap. The number of cables or cable bundles which can be consequently installed on a single assembly may only be limited by the length of the plastic strap and the maximum loading capacity of the assembly.

Figure 1 illustrates the embodiment of the general view of the invention - the cable suspension assembly, which allows multiple consecutive installations of cables or cable bundles.

Figure 2 illustrates the "C" shaped Messenger Hook with recessed lower lip.

Figure 3 illustrates the first step of putting together the cable suspension assembly by inserting the required length of the lashing strap 2 into the locking head 3a.

Figure 4 illustrates the insertion of the lashing strap 2, with the locking head 3a attached, into the messenger hook 1.

Figure 5 illustrates fastening a cable or a cable bundle to the cable suspension assembly by means of inserting the locking Head 3 onto the lashing strap 2 underneath the cable or the cable bundle.

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Figure 6 illustrates the locking head 3 with inserted lashing strap 2. The locking head comprises an internal steel pawl which allows only the one way movement of the lashing strap 2 in the locking head 3.

Figure 7 illustrates the embodiment of the previously known messenger hook and strap assembly where the mounting head 3 facilitates the attachment of the hanger lashing strap or a cable tie 2 to the messenger hook 1.

Drawing 8 illustrates the engagement of the messenger hook 1 in the mounting head 3 in the previously known hook and strap assembly.

CLAIMS

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A cable suspension assembly comprising a "C" shaped metal messenger hook, a lashing strap, and a number of locking heads to facilitate multiple consequent installations of cables or cable bundles along an aerial messenger wire.
2. A cable suspension assembly as defined in claim 1, in which the metal messenger hook is shaped like a letter "C".
3. A cable suspension assembly as defined in claim 1, in which the metal messenger hook is shaped in accordance with Figure 2.
4. A cable suspension assembly as defined in claim 1, in which the attachment of the lashing strap to the metal messenger hook is facilitated by the insertion of the lashing strap, with the locking head attached to it, through a recess in the lower lip of the metal messenger hook.

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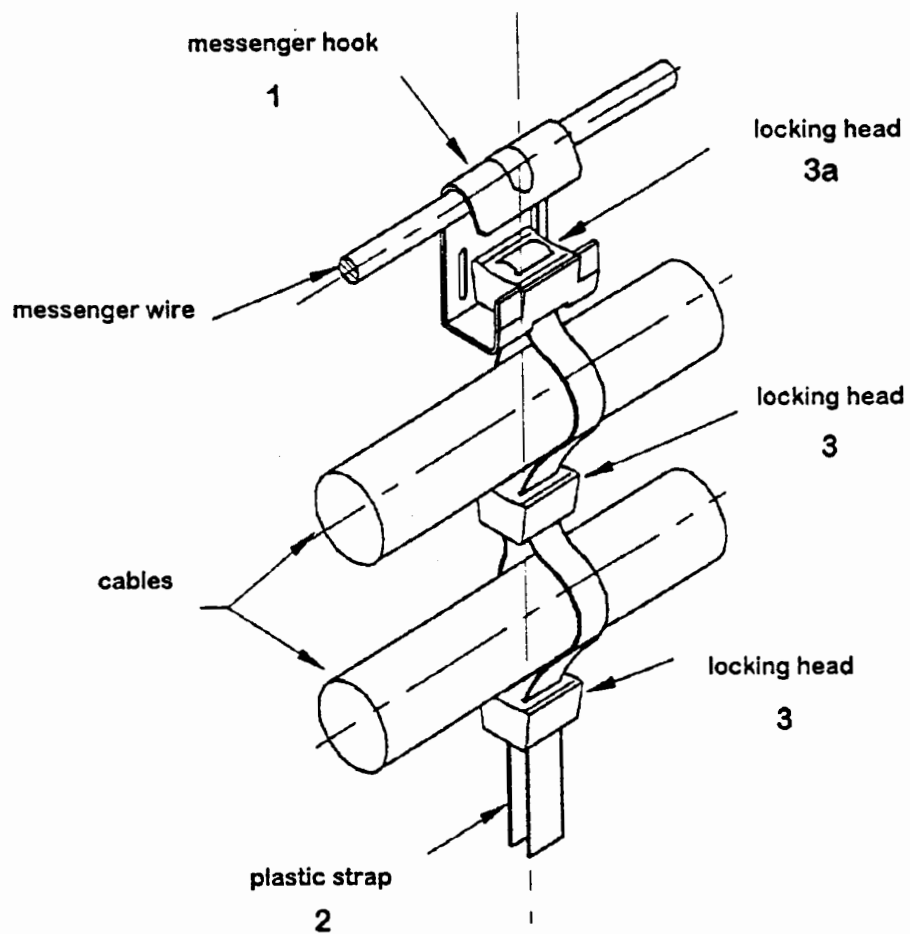
5. A cable suspension assembly as defined in claim 1, which is produced by cutting the lashing strap to a desired length, inserting both ends of the cut lashing strap into the locking head and pulling it through, and then inserting the lashing strap, with the locking head attached to it, into a recess in the bottom lip of the messenger hook so that the locking head is resting on the bottom lip of the messenger hook.

6. A cable suspension assembly as defined in claim 1, in which a cable or a cable bundle being installed is placed between the two halves of the lashing strap extending out of the messenger hook, and another locking head is inserted onto the two ends of the lashing strap underneath the cable or the cable bundle and pulled up to lock the cables in the suspension assembly.

7. A cable suspension assembly as defined in claim 1, in which multiple additional cables or cable bundles can be subsequently installed on the same suspension assembly by placing the additional cable or cable bundle underneath the previously installed cables between the two halves of the lashing strap, inserting another locking head on the two ends of the lashing strap, and pulling the locking head up underneath the cable or the cable bundle and locking them in the suspension assembly.

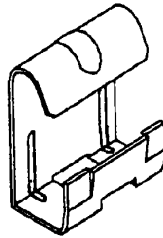
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Figure 1



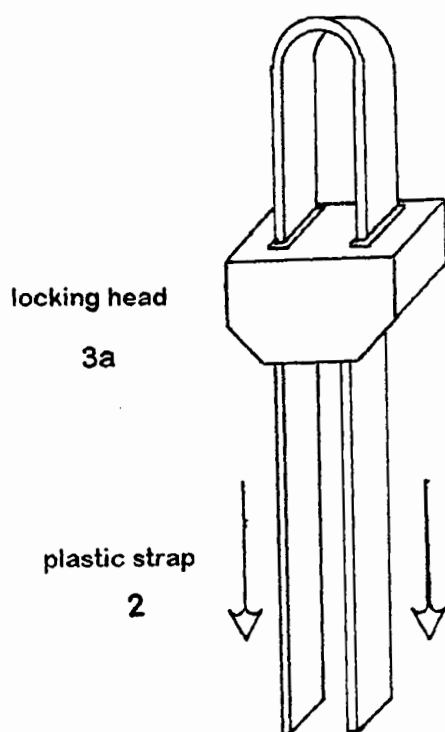
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Figure 2



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Figure 3



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Figure 4

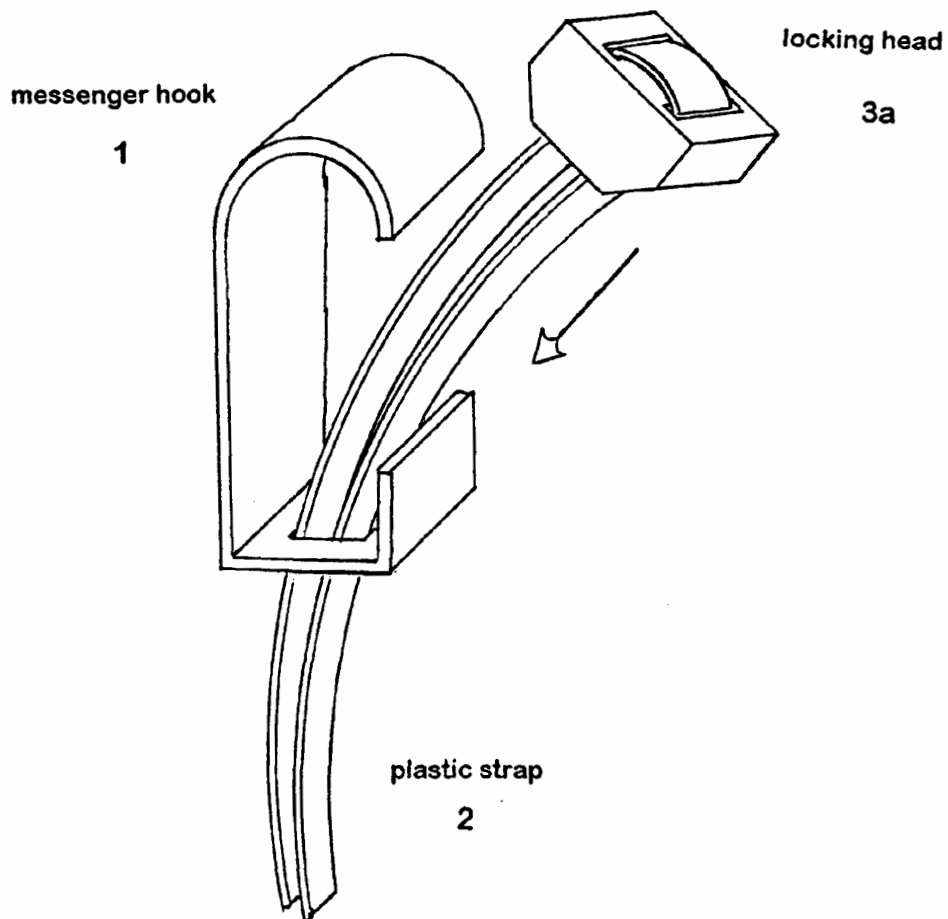
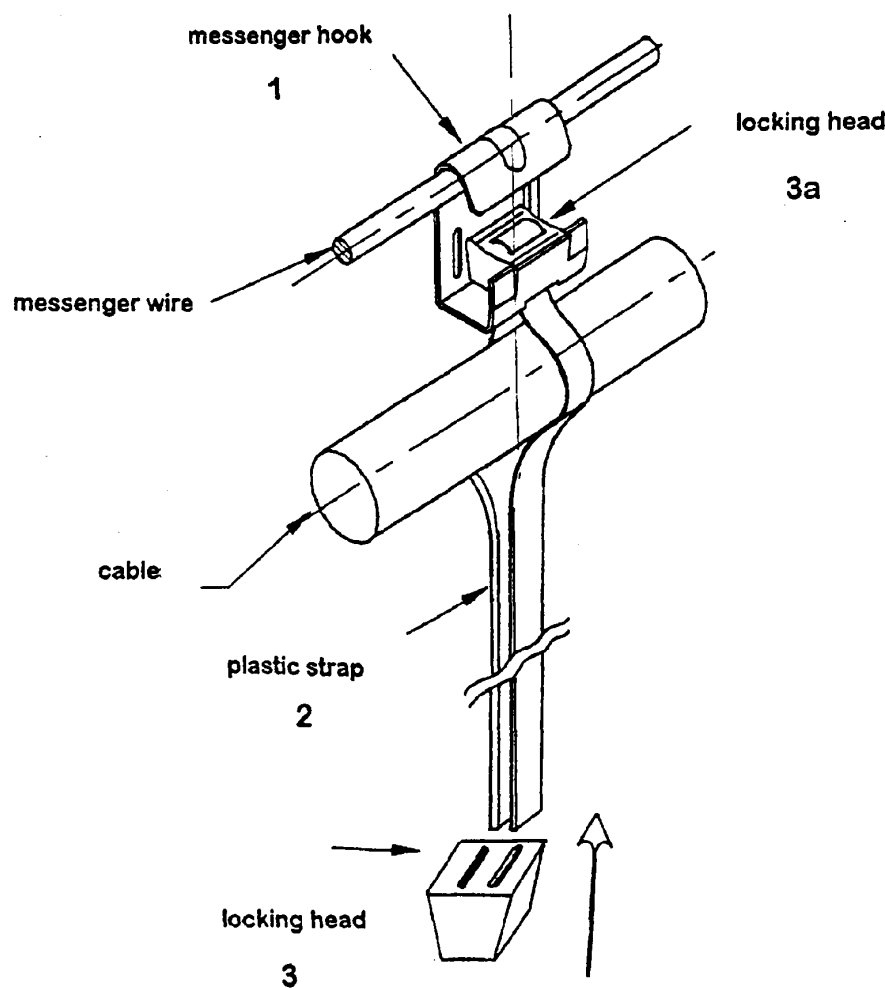
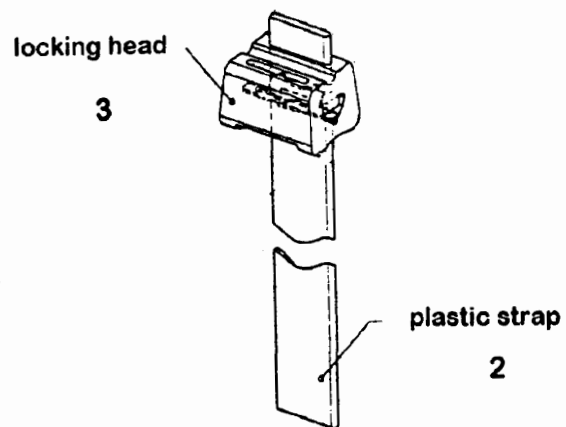


Figure 5



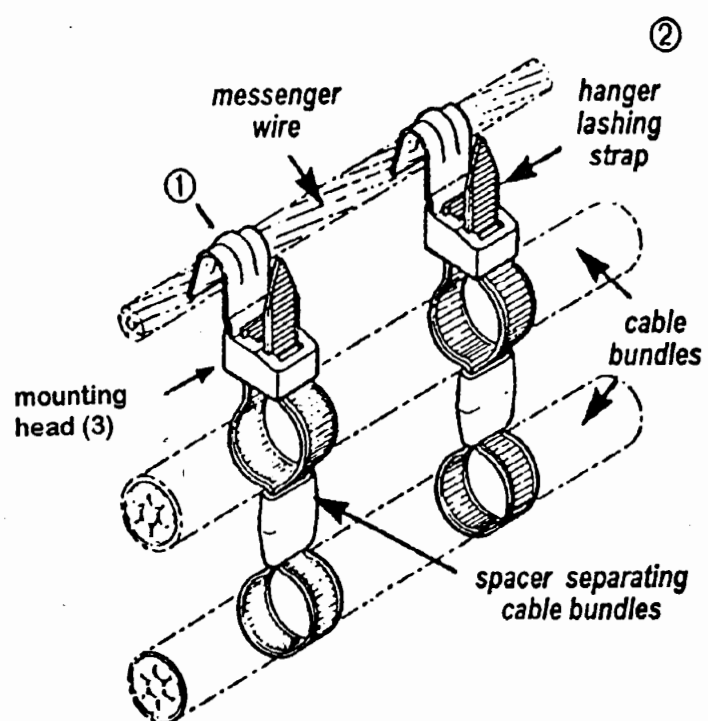
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Figure 6



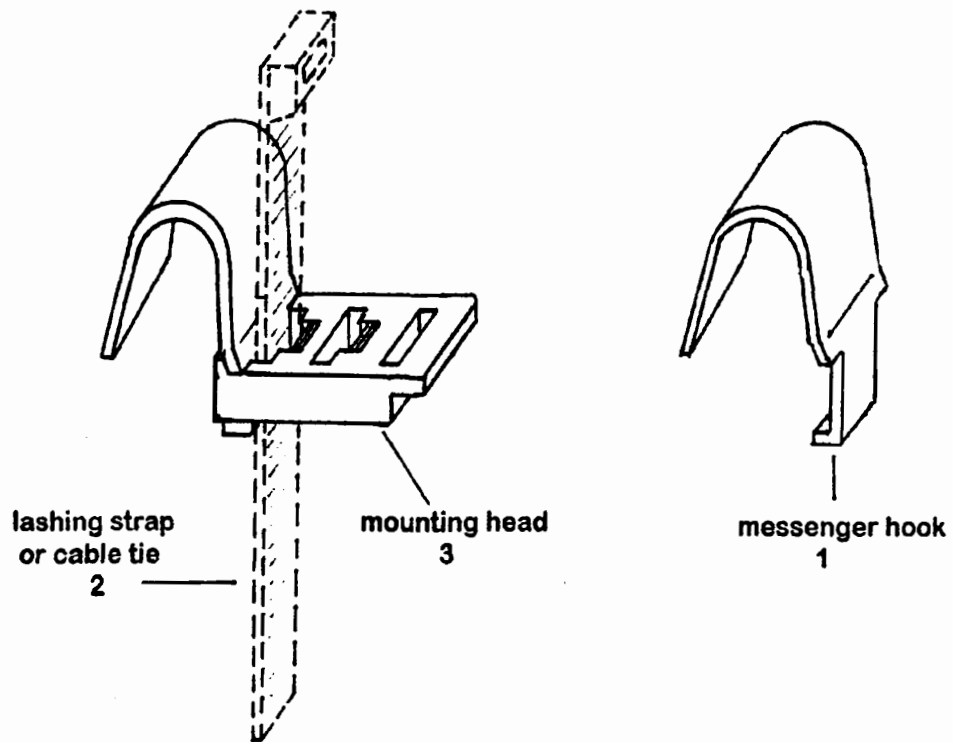
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Figure 7



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Figure 8



PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 17/349,447		Filing Date 06/16/2021		☐ To be Mailed	
ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO									
APPLICATION AS FILED - PART I									
		(Column 1)		(Column 2)					
FOR		NUMBER FILED		NUMBER EXTRA		RATE (\$)		FEE (\$)	
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A		N/A		N/A			
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))		N/A		N/A		N/A			
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A		N/A		N/A			
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 =	*			x \$50 =			
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =	*			x \$240 =			
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).							
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))									
* If the difference in column 1 is less than zero, enter "0" in column 2.						TOTAL			
APPLICATION AS AMENDED - PART II									
		(Column 1)		(Column 2)	(Column 3)				
AMENDMENT	11/19/2021	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	* 28	Minus	** 28	= 0		x \$50 =		0
	Independent (37 CFR 1.16(h))	* 5	Minus	*** 3	= 2		x \$240 =		480
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						TOTAL ADD'L FEE		480	
		(Column 1)		(Column 2)	(Column 3)				
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x \$0 =		
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x \$0 =		
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						TOTAL ADD'L FEE			
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.						Non-Examiner			
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".						/RICARDO ANTONIO CAMOU/			
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".									
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.									

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor : SMITH et al.
Appln. No. : 17/349,447
Conf. No.: : 5107
Filed: : June 16, 2021
Title: : LOCKING CABLE HANGER AND METHOD OF USING
Group Art Unit : 3632
Examiner : Marsh, Steven M
Docket No. : 308329-00007-3

* * * * *

November 19, 2021

VIA EFS

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE/AMENDMENT

Dear Sir:

In response to the non-final Office Action dated November 9, 2021, please consider the following.

Amendments to the Claims are reflected in the listing of the claims, which begin on page 2 of this paper.

Remarks begin on page 7 of this paper.

AMENDMENTS TO THE CLAIMS

This listing of the claims replaces all prior versions in the application:

1. (currently amended) A system for organizing a plurality of electrical cables extending from a plurality of solar panels, the system comprising:

a messenger wire structured to be supported a distance above the ground; and

a plurality of cable hangers structured to be disposed along, and suspended from, the messenger wire, each cable hanger having a plurality of cable carrying surfaces, each cable carrying surface being structured to support at least one electrical cable of the plurality of electrical cables,

wherein adjacent cable carrying surfaces of the plurality of cable carrying surfaces are separated by a cable carrier divider.

2. (original) The system of claim 1, wherein the plurality of cable carrying surfaces comprises at least three cable carrying surfaces.

3. (original) The system of claim 1, wherein the plurality of cable carrying surfaces comprises at least four cable carrying surfaces.

4. (original) The system of claim 1, wherein the plurality of cable carrying surfaces comprises at least five cable carrying surfaces.

5. (cancelled)

6. (currently amended) The system of claim 1~~claim 5~~, wherein the cable carrier divider extends vertically.

7. (currently amended) ~~The system of claim 1~~A system for organizing a plurality of electrical cables extending from a plurality of solar panels, the system comprising:

a messenger wire structured to be supported a distance above the ground; and

a plurality of cable hangers structured to be disposed along, and suspended from, the messenger wire, each cable hanger having a plurality of cable carrying surfaces, each cable

carrying surface being structured to support at least one electrical cable of the plurality of electrical cables, wherein each cable hanger of the plurality of cable hangers comprises:

a high tensile strength wire with two opposing ends and configured intermediate of said ends to form a plurality of substantially U-shaped configurations each having a cable carrying surface of the plurality of cable carrying surfaces located thereon;

outermost lateral spaced apart opposing sides forming the boundary of said hanger;

opposite shoulders extending toward each other from said spaced apart opposite sides, each of said shoulders having an arrangement structured to engage the messenger wire so as to securely hold the hanger on the messenger wire.

8. (original) The system of claim 7, wherein the arrangement of one of the shoulders that is structured to engage the messenger wire is a spiral gripper formation and the arrangement of the other shoulder that is structured to engage the messenger wire is a locking hook.

9. (original) The system of claim 1, wherein each cable hanger of the plurality of cable hangers comprises a wire selected from the group of round galvanized steel, round stainless steel, flat rolled galvanized steel, flat rolled stainless steel.

10. (original) The system of claim 1, wherein each cable hanger of the plurality of cable hangers further comprises a formation structured to support a data carrier.

11. (original) The system of claim 10, wherein the formation structured to support the data carrier is positioned closer to the messenger wire than the cable carrying surfaces.

12. (original) The system of claim 1, wherein each cable hanger of the plurality of cable hangers includes a plastisol or PVC coating.

13. (original) The system of claim 12, wherein the coating has a thickness in the range of from 50 mils to 100 mils thick.

14. (original) The system of claim 1, wherein each cable hanger of the plurality of cable hangers includes a coating having a flame retardant, high dielectric grade, UV inhibited material.

15. (currently amended) A solar plant comprising:

a plurality of solar panels;

a plurality of electrical cables extending from the plurality of solar panels; and

a system for organizing the plurality of electrical cables, the system comprising:

a messenger wire supported a distance above the ground adjacent the solar panels;

and

a plurality of cable hangers disposed along, and suspended from the messenger wire, each cable hanger having a plurality of cable carrying surfaces, each cable carrying surface being structured to support at least one electrical cable of the plurality of electrical cables,

wherein adjacent cable carrying surfaces of the plurality of cable carrying surfaces are separated by a cable carrier divider.

16. (original) The solar plant of claim 15, wherein the plurality of cable carrying surfaces comprises at least three cable carrying surfaces.

17. (original) The solar plant of claim 15, wherein the plurality of cable carrying surfaces comprises at least four cable carrying surfaces.

18. (original) The solar plant of claim 15, wherein the plurality of cable carrying surfaces comprises at least five cable carrying surfaces.

19. (cancelled)

20. (currently amended) The solar plant of claim 15~~claim 19~~, wherein the cable carrier divider extends vertically.

21. (currently amended) ~~The solar plant of claim 15~~ A solar plant comprising:
a plurality of solar panels;

a plurality of electrical cables extending from the plurality of solar panels; and
a system for organizing the plurality of electrical cables, the system comprising:
a messenger wire supported a distance above the ground adjacent the solar panels;
and
a plurality of cable hangers disposed along, and suspended from the messenger
wire, each cable hanger having a plurality of cable carrying surfaces, each cable carrying surface
being structured to support at least one electrical cable of the plurality of electrical cables,
wherein each cable hanger of the plurality of cable hangers comprises:
a high tensile strength wire with two opposing ends and configured
intermediate of said ends to form a plurality of substantially U-shaped configurations each
having a cable carrying surface of the plurality of cable carrying surfaces located thereon;
outermost lateral spaced apart opposing sides forming the boundary of
said hanger;
opposite shoulders extending toward each other from said spaced apart
opposite sides, each of said shoulders having an arrangement structured to engage the messenger
wire so as to securely hold the hanger on the messenger wire.

22. (original) The solar plant of claim 15, wherein each cable hanger of the plurality of cable hangers comprises a wire selected from the group of round galvanized steel, round stainless steel, flat rolled galvanized steel, flat rolled stainless steel.

23. (original) The solar plant of claim 15, further comprising a data carrier associated with the plurality of solar panels, and wherein each cable hanger of the plurality of cable hangers further comprises a formation structured to support the data carrier along the messenger wire.

24. (original) The solar plant of claim 23, wherein, for each cable hanger, the formation structured to support the data carrier is positioned closer to the messenger wire than the cable carrying surfaces.

25. (original) The solar plant of claim 15, wherein each cable hanger of the plurality of cable hangers includes a plastisol, PVC coating, and/or a coating having a flame retardant, high

dielectric grade, UV inhibited material.

26. (currently amended) A method for organizing a plurality of electrical cables extending from a plurality of solar panels in a solar plant, the method comprising:

- providing a messenger wire a distance above the ground;
- providing a plurality of cable hangers spaced along the messenger wire, each cable hanger having a plurality of cable carrying surfaces, each cable carrying surface being structured to support at least one electrical cable of the plurality of electrical cables;
- providing a first electrical cable of the plurality of electrical cables in engagement with a first cable carrying surface of each cable hanger of the plurality of cable hangers; and
- providing a second electrical cable of the plurality of electrical cables in engagement with a second cable carrying surface of each cable hanger of the plurality of cable hangers,

wherein each cable hanger of the plurality of cable hangers comprises:

- a high tensile strength wire with two opposing ends and configured intermediate of said ends to form a plurality of substantially U-shaped configurations having cable carrying surfaces located thereon;
- outermost lateral spaced apart opposing sides forming the boundary of said hanger;
- opposite shoulders extending toward each other from said spaced apart opposite sides, each of said shoulders having an arrangement structured to engage the messenger wire so as to securely hold the hanger on the messenger wire; and
- wherein the method further comprises, for each cable hanger, bringing the arrangement of one of the shoulders of the cable hanger into engagement with the messenger wire after providing at least the first electrical cable of the plurality of electrical cables in engagement with the first cable carrying surface.

27. (cancelled)

28. (original) The method of claim 26, further comprising providing a third electrical cable of the plurality of electrical cables in engagement with a third cable carrying surface of each cable hanger of the plurality of cable hangers.

REMARKS

Reconsideration and allowance in view of the foregoing amendments and the following remarks are respectfully requested. Upon entry of this Amendment, claims 1-4, 6-18, 20-26 and 28 will be pending in the present application. Claims 1, 6, 7, 15, 20, 21 and 26 have been amended herein. Claims 5, 19 and 27 have been cancelled.

Allowable Subject Matter

Applicant gratefully acknowledges the Examiner's indication that claims 5-8, 19-21 and 27, although presented objected to as being dependent upon a rejected base claim, would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claim(s). Independent claim 1, the sole claim from which previous claim 5 depended, has been amended to include all of the limitations of previous claim 5 and as such is believed to be in condition for allowance for at least the same reasoning as previous claim 5.

Each of claims 2-4, 6 and 9-14 depend (directly or indirectly) from independent claim 1 and as such are likewise believed to be in condition for allowance for at least the same reasoning as independent claim 1.

Claim 7 has been amended into independent form including all of the limitations of previous independent claim 1, the sole claim from which previous claim 7 depended and as such is believed to be in condition for allowance.

Claim 8 depends from independent claim 7 and as such is likewise believed to be in condition for allowance for at least the same reasoning as independent claim 7.

Independent claim 15, the sole claim from which previous claim 19 depended, has been amended to include all of the limitations of previous claim 19 and as such is believed to be in condition for allowance for at least the same reasoning as previous claim 19.

Each of claims 16-18, 20 and 22-25 depend (directly or indirectly) from independent claim 15 and as such are likewise believed to be in condition for allowance for at least the same reasoning as independent claim 15.

Independent claim 26, the sole claim from which previous claim 27 depended, has been amended to include all of the limitations of previous claim 27 and as such is believed to be in condition for allowance for at least the same reasoning as previous claim 27.

Claim 28 depends from independent claim 26 and as such is likewise believed to

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be in condition for allowance for at least the same reasoning as independent claim 26.

In view of at least the foregoing, all of the pending claims, i.e., claims 1-4, 6-18, 20-26 and 28, are believed to be in condition for allowance.

Summary and Conclusion

In summary, it is submitted that all of the pending claims, claims 1-4, 6-18, 20-26 and 28 are patentably distinguishable over the references of record. All objections and rejections have been addressed.

Respectfully submitted,

/Stephen A. Bucchianeri/

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Electronic Patent Application Fee Transmittal				
Application Number:		17349447		
Filing Date:		16-Jun-2021		
Title of Invention:		LOCKING CABLE HANGER AND METHOD OF USING		
First Named Inventor/Applicant Name:		Allen Garrett Smith		
Filer:		Stephen Arthur Bucchianeri/CATHY ROEDER		
Attorney Docket Number:		308329-00007-3		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
INDEPENDENT CLAIMS IN EXCESS OF 3	2201	2	240	480
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				480

Electronic Acknowledgement Receipt	
EFS ID:	44330011
Application Number:	17349447
International Application Number:	
Confirmation Number:	5107
Title of Invention:	LOCKING CABLE HANGER AND METHOD OF USING
First Named Inventor/Applicant Name:	Allen Garrett Smith
Customer Number:	3705
Filer:	Stephen Arthur Bucchianeri/CATHY ROEDER
Filer Authorized By:	Stephen Arthur Bucchianeri
Attorney Docket Number:	308329-00007-3
Receipt Date:	19-NOV-2021
Filing Date:	16-JUN-2021
Time Stamp:	15:44:39
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$480
RAM confirmation Number	E2021AIF44584739
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		308329amendment.pdf	129444	yes	8
			6cd90d2ef2c8d64e2b4d34ec26fb70bae68cfa22		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Amendment/Req. Reconsideration-After Non-Final Reject		1	1	
	Claims		2	6	
	Applicant Arguments/Remarks Made in an Amendment		7	8	
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	38102	no	2
			96a817a6972d297273dab482aa9b023d63c219e0		
Warnings:					
Information:					
Total Files Size (in bytes):			167546		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/349,447	06/16/2021	Allen Garrett Smith	308329-00007-3	5107
3705 7590 12/16/2021 ECKERT SEAMANS CHERIN & MELLOTT LLC U.S. Steel Tower 600 Grant Street, 44th Floor Pittsburgh, PA 15219			EXAMINER MARSH, STEVEN M	
			ART UNIT 3632	PAPER NUMBER
			NOTIFICATION DATE 12/16/2021	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ipmail@eckertseamans.com

DETAILED ACTION

This is the first office action for US Application 17/349,447 for a Locking Cable Hanger and Method of Using.

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries for establishing a background for determining obviousness under 35 U.S.C. 103 are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-4, 6, 9-18, 20, and 22-25 is/are rejected under 35 U.S.C. 103 as being unpatentable over the prior art disclosed by Applicant in view of US 2,384,440 to Carr.

Regarding claim 1, Applicant discloses that the prior art discloses a system for organizing a plurality of electrical cables extending from a plurality of solar panels; a messenger wire structured to be supported a distance above ground; and a plurality of cable hangers structured to be disposed along, and suspended from, the messenger wire (see pages 2 and 3 of the specification). The prior art does not disclose the cable hangers as comprising a plurality of cable carrying surfaces, each cable carrying surface being structured to support at least one electrical cable of the plurality of cables.

Carr discloses a cable hanger for use in supporting a plurality of conductive cables from a messenger wire. The cable hanger comprises a plurality of cable carrying surfaces (L1 and L2), each cable carrying surface supporting a corresponding conductive cable of the plurality of conductive cables. Adjacent cable carrying surfaces of the plurality of cable carrying surfaces are separated by a cable carrier divider (L3).

Because both the prior art disclosed by Applicant and Carr disclose cable hangers for supporting a plurality of cables on a messenger wire, it would have been obvious to one ordinary skill in the art at the effective filing date of the present invention, to substitute one cable hanger for the other, to achieve the predictable result of a plurality of cable hangers, each able to support a plurality of cables from a messenger wire in a side by side arrangement..

Regarding claims 2-4, the prior art disclosed by Applicant in view of Carr discloses two cable carrying surface, but does not disclose three, four, or five carrying surfaces. However, duplication of parts is a matter of design choice. It would have been obvious to one of ordinary skill in the art at the effective filing date of the present

invention to have provided additional cable carrying surfaces to support additional cables. Regarding claim 6, the cable carrier divider (L3) extends vertically).

Regarding claim 9, Carr does not disclose the cable hangers as formed of wire selected from round galvanized steel, round stainless steel, flat rolled galvanized steel, and flat rolled stainless steel. However, the specific material used is a design preference that would have been obvious to one of ordinary skill in the art at the effective filing date of the present invention based on cost and strength considerations.

Regarding claim 10, each cable hanger of the plurality of cable hangers further comprises a formation structure to support a data carrier (any of the cable hangers could be utilized to support a data carrier). Regarding claim 11, the formation structured to support the data carrier is positioned closer to the messenger wire than the cable carrying surface (a data carrier stored in a middle carrying surface would be closer to the messenger wire than cables in the outermost cable carrying surfaces).

Regarding claim 12-14, Carr does not disclose the cable hanger as having a plastisol or PVC coating, a thickness in the range of 50 mils to 100 mils, or the coating as having a flame retardant, high dielectric grade, UV inhibited material. However, the specific material used is a design preference that would have been obvious to one of ordinary skill in the art at the effective filing date of the present invention based on cost and strength considerations. It would have been obvious to one of ordinary skill in the art to utilize a known material with a PVC coating that is flame retardant for flame resistance, and the specific dimensions would also be a design choice.

Regarding claim 15, Applicant discloses that the prior art discloses a solar plant comprising a plurality of solar panels; a plurality of conductive cables extending from the

plurality of solar panels (see pages 2 and 3 of the specification); a system for organizing the plurality of electrical cables comprising a messenger wire supported a distance above the ground adjacent the solar panels, and a plurality of cable hangers disposed along, and suspended from the messenger wire (see pages 2 and 3 of the specification). The prior art does not disclose the cable hangers as comprising a plurality of cable carrying surfaces, each cable carrying surface being structured to support at least one electrical cable of the plurality of cables.

Carr discloses a cable hanger for use in supporting a plurality of conductive cables from a messenger wire. The cable hanger comprises a plurality of cable carrying surfaces (L1 and L2), each cable carrying surface supporting a corresponding conductive cable of the plurality of conductive cables. Adjacent cable carrying surfaces of the plurality of cable carrying surfaces are separated by a cable carrier divider (L3).

Because both the prior art disclosed by Applicant and Carr disclose cable hangers for supporting a plurality of cables on a messenger wire, it would have been obvious to one ordinary skill in the art at the effective filing date of the present invention, to substitute one cable hanger for the other, to achieve the predictable result of a plurality of cable hangers, each able to support a plurality of cables from a messenger wire in a side by side arrangement.

Regarding claims 16-18, the prior art disclosed by Applicant in view of Carr discloses two cable carrying surface, but does not disclose three, four, or five carrying surfaces. However, duplication of parts is a matter of design choice. It would have been obvious to one of ordinary skill in the art at the effective filing date of the present

invention to have provided additional cable carrying surfaces to support additional cables.

Regarding claim 20, the cable carrier divider (L3) extends vertically.

Regarding claim 22, Carr does not disclose the cable hangers as formed of wire selected from round galvanized steel, round stainless steel, flat rolled galvanized steel, and flat rolled stainless steel. However, the specific material used is a design preference that would have been obvious to one of ordinary skill in the art at the effective filing date of the present invention based on cost and strength considerations.

Regarding claim 23, each cable hanger of the plurality of cable hangers further comprises a formation structure to support a data carrier (any of the cable hangers could be utilized to support a data carrier). Regarding claim 24, the formation structured to support the data carrier is positioned closer to the messenger wire than the cable carrying surface (a data carrier stored in a middle carrying surface would be closer to the messenger wire than cables in the outermost cable carrying surfaces).

Regarding claim 25, Carr does not disclose the cable hanger as having a plastisol or PVC coating, a thickness in the range of 50 mils to 100 mils, or the coating as having a flame retardant, high dielectric grade, UV inhibited material. However, the specific material used is a design preference that would have been obvious to one of ordinary skill in the art at the effective filing date of the present invention based on cost and strength considerations. It would have been obvious to one of ordinary skill in the art to utilize a known material with a PVC coating that is flame retardant to provide protection against flames, and the specific dimensions would also be a design choice.

Claims 7, 8, 21, 26, and 28 is/are rejected under 35 U.S.C. 103 as being unpatentable over the prior art disclosed by Applicant in view of US 2,384,440 to Carr, and in further view of US 2,210,722 to Klein. Regarding claim 7, Applicant discloses that the prior art discloses a system for organizing a plurality of electrical cables extending from a plurality of solar panels; a messenger wire structured to be supported a distance above ground; and a plurality of cable hangers structured to be disposed along, and suspended from, the messenger wire (see pages 2 and 3 of the specification). The prior art does not disclose the cable hangers as comprising a plurality of cable carrying surfaces, each cable carrying surface being structured to support at least one electrical cable of the plurality of cables.

Carr discloses a cable hanger for use in supporting a plurality of conductive cables from a messenger wire. The cable hanger comprises a plurality of cable carrying surfaces (L1 and L2), each cable carrying surface supporting a corresponding conductive cable of the plurality of conductive cables.

Because both the prior art disclosed by Applicant and Carr disclose cable hangers for supporting a plurality of cables on a messenger wire, it would have been obvious to one ordinary skill in the art at the effective filing date of the present invention, to substitute one cable hanger for the other, to achieve the predictable result of a plurality of cable hangers, each able to support a plurality of cables from a messenger wire in a side by side arrangement.

The prior art disclosed by Applicant in view of Carr discloses the cable hanger as a high tensile strength strip (col. 1, lines 49-51) with two opposing ends, and configured intermediate of the ends to form a plurality of configurations that each have a cable

carrying surface of the plurality of cable carrying surfaces. There are outermost lateral spaced apart opposing sides (s1 and s2) forming the boundary of the hanger. The prior art disclosed by Applicant in view of Carr discloses that the cable hanger has an arrangement (h1, h2) structured to engage a messenger wire, but does not disclose the plurality of cable hangers as comprising opposite shoulders extending toward each other from the spaced apart opposite sides, forming a U-shaped configuration intermediate the ends, wherein each of the shoulders has an arrangement structured to engage the messenger wire, so as to securely hold the hanger on the messenger wire.

Klein discloses a wire cable hanger (see col. 2, lines 12 and 13) with two opposing ends configured intermediate of the ends to form a U-shaped configuration having a cable carrying surface. The hanger comprises opposite shoulders (9, 10 and 9, 11) extending toward each other from spaced apart opposite sides (8). Each of the shoulders has an arrangement (10, 11) structured to engage a messenger wire so as to securely hold the hanger on the messenger wire.

Because both Carr and Klein disclose cable hangers with an arrangement structured to engage a messenger wire, it would have been obvious to one of ordinary skill in the art at the effective filing date of the present invention to have substituted one arrangement for the other to achieve the predictable result of a wire cable hanger with opposing shoulders forming substantially U-shaped configurations as cable carrying surfaces. One of ordinary skill in the art would have been motivated to provide shoulders on the sides of the cable hanger, to provide additional cable holding space between the two arms and dividers.

Regarding claim 8, the arrangement of one of the shoulders that is structured to engage the messenger wire is a spiral gripper formation (10 of Klein) and the arrangement of the other shoulder that is structured to engage the messenger wire is a locking hook (11 of Klein).

Regarding claim 21, Applicant discloses that the prior art discloses a solar plant comprising a plurality of solar panels; a plurality of conductive cables extending from the plurality of solar panels (see pages 2 and 3 of the specification); a system for organizing the plurality of electrical cables comprising a messenger wire supported a distance above the ground adjacent the solar panels, and a plurality of cable hangers disposed along, and suspended from the messenger wire (see pages 2 and 3 of the specification). The prior art does not disclose the cable hangers as comprising a plurality of cable carrying surfaces, each cable carrying surface being structured to support at least one electrical cable of the plurality of cables.

Carr discloses a cable hanger for use in supporting a plurality of conductive cables from a messenger wire. The cable hanger comprises a plurality of cable carrying surfaces (L1 and L2), each cable carrying surface supporting a corresponding conductive cable of the plurality of conductive cables. Adjacent cable carrying surfaces of the plurality of cable carrying surfaces are separated by a cable carrier divider (L3).

Because both the prior art disclosed by Applicant and Carr disclose cable hangers for supporting a plurality of cables on a messenger wire, it would have been obvious to one ordinary skill in the art at the effective filing date of the present invention, to substitute one cable hanger for the other, to achieve the predictable result of a

plurality of cable hangers, each able to support a plurality of cables from a messenger wire in a side by side arrangement.

The prior art disclosed by Applicant in view of Carr discloses the cable hanger as a high tensile strength strip (col. 1, lines 49-51) with two opposing ends, and configured intermediate of the ends to form a plurality of configurations that each have a cable carrying surface of the plurality of cable carrying surfaces. There are outermost lateral spaced apart opposing sides (s1 and s2) forming the boundary of the hanger. The prior art disclosed by Applicant in view of Carr discloses that the cable hanger has an arrangement (h1, h2) structured to engage a messenger wire, but does not disclose the plurality of cable hangers as comprising opposite shoulders extending toward each other from the spaced apart opposite sides, forming a U-shaped configuration intermediate the ends, wherein each of the shoulders has an arrangement structured to engage the messenger wire, so as to securely hold the hanger on the messenger wire.

Klein discloses a wire cable hanger (see col. 2, lines 12 and 13) with two opposing ends configured intermediate of the ends to form a U-shaped configuration having a cable carrying surface. The hanger comprises opposite shoulders (9, 10 and 9, 11) extending toward each other from spaced apart opposite sides (8). Each of the shoulders has an arrangement (10, 11) structured to engage a messenger wire so as to securely hold the hanger on the messenger wire.

Because both Carr and Klein disclose cable hangers with an arrangement structured to engage a messenger wire, it would have been obvious to one of ordinary skill in the art at the effective filing date of the present invention to have substituted one arrangement for the other to achieve the predictable result of a wire cable hanger with

opposing shoulders forming substantially U-shaped configurations as cable carrying surfaces. One of ordinary skill in the art would have been motivated to provide shoulders on the sides of the cable hanger, to provide additional cable holding space between the two arms and dividers.

Regarding claim 26, Applicant discloses that the prior art discloses a method for organizing a plurality of electrical cables extending from a plurality of solar panels in a solar plant; the method comprising providing a messenger wire supported a distance above the ground, and a plurality of cable hangers spaced along the messenger wire (see pages 2 and 3 of the specification). The prior art does not disclose the cable hangers as comprising a plurality of cable carrying surfaces, each cable carrying surface being structured to support at least one electrical cable of the plurality of cables.

Carr discloses a cable hanger for use in supporting a plurality of conductive cables from a messenger wire. The cable hanger comprises a plurality of cable carrying surfaces (L1 and L2), each cable carrying surface supporting a corresponding conductive cable of the plurality of conductive cables.

Because both the prior art disclosed by Applicant and Carr disclose cable hangers for supporting a plurality of cables on a messenger wire, it would have been obvious to one ordinary skill in the art at the effective filing date of the present invention, to substitute one cable hook for the other, to achieve the predictable result of a plurality of cable hangers, each supporting a plurality of cables from a messenger wire in a vertical arrangement.

The prior art disclosed by Applicant in view of Carr discloses the cable hanger as a high tensile strength strip (col. 1, lines 49-51) with two opposing ends, and configured

intermediate of the ends to form a plurality of configurations that each have a cable carrying surface of the plurality of cable carrying surfaces. There are outermost lateral spaced apart opposing sides (s1 and s2) forming the boundary of the hanger. The prior art disclosed by Applicant in view of Carr discloses that the cable hanger has an arrangement (h1, h2) structured to engage a messenger wire, but does not disclose the plurality of cable hangers as comprising opposite shoulders extending toward each other from the spaced apart opposite sides, forming a U-shaped configuration intermediate the ends, wherein each of the shoulders has an arrangement structured to engage the messenger wire, so as to securely hold the hanger on the messenger wire.

Klein discloses a wire cable hanger (see col. 2, lines 12 and 13) with two opposing ends configured intermediate of the ends to form a U-shaped configuration having a cable carrying surface. The hanger comprises opposite shoulders (9, 10 and 9, 11) extending toward each other from spaced apart opposite sides (8). Each of the shoulders has an arrangement (10, 11) structured to engage a messenger wire so as to securely hold the hanger on the messenger wire.

Because both Carr and Klein disclose cable hangers with an arrangement structured to engage a messenger wire, it would have been obvious to one of ordinary skill in the art at the effective filing date of the present invention to have substituted one arrangement for the other to achieve the predictable result of a wire cable hanger with opposing shoulders forming substantially U-shaped configurations as cable carrying surfaces. One of ordinary skill in the art would have been motivated to provide shoulders on the sides of the cable hanger, to provide additional cable holding space between the two arms and dividers.

The method for organizing the cables for each cable hanger would comprise bringing the arrangement of one of the shoulders of the hanger into engagement with the messenger wire (via 10 or 11) after providing at least the first electrical cable of the plurality of electrical cables into engagement with the first cable carrying surface.

Regarding claim 28, the prior art disclosed by Applicant in view of Carr discloses two cable carrying surface, but does not disclose three carrying surfaces for a third electrical cable. However, duplication of parts is a matter of design choice. It would have been obvious to one of ordinary skill in the art at the effective filing date of the present invention to have provided additional cable carrying surfaces to support additional cables.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEVEN M MARSH whose telephone number is (571)272-6819. The examiner can normally be reached Mon-Thurs 9 am-7:30 pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrell McKinnon can be reached on 571-272-4797. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: <https://patentcenter.uspto.gov>. Visit <https://www.uspto.gov/patents/apply/patent-center> for more information about Patent Center and <https://www.uspto.gov/patents/docx> for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

STEVEN M. MARSH
Primary Examiner
Art Unit 3632

/STEVEN M MARSH/

Primary Examiner, Art Unit 3632

<i>Search Notes</i> 	Application/Control No. 17/349,447	Applicant(s)/Patent Under Reexamination Smith et al.
	Examiner STEVEN M MARSH	Art Unit 3632

CPC - Searched*		
Symbol	Date	Examiner
see PE2E search	11/04/2021	SMM

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
see	PE2E search	11/04/2021	SMM

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
Conducted text search	11/04/2021	SMM
IP.com search		
forward/backward search		
Inventor name search		
updated search	12/13/2021	SMM

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

/STEVEN M MARSH/ Primary Examiner, Art Unit 3632	
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<i>Index of Claims</i> 	Application/Control No. 17/349,447	Applicant(s)/Patent Under Reexamination Smith et al.
	Examiner STEVEN M MARSH	Art Unit 3632

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS										
☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47										
CLAIM		DATE								
Final	Original	11/04/2021	12/13/2021							
	1	✓	✓							
	2	✓	✓							
	3	✓	✓							
	4	✓	✓							
	5	O	-							
	6	O	✓							
	7	O	✓							
	8	O	✓							
	9	✓	✓							
	10	✓	✓							
	11	✓	✓							
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	15	✓	✓							
	16	✓	✓							
	17	✓	✓							
	18	✓	✓							
	19	O	-							
	20	O	✓							
	21	O	✓							
	22	✓	✓							
	23	✓	✓							
	24	✓	✓							
	25	✓	✓							
	26	✓	✓							
	27	O	-							
	28	✓	✓							

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	11	("2404531" "20090224111" "20100123048" "20120205500" "5261633" "5742982" "5992802" "6135398" "6561466" "8074945" "8294030").PN.	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/14 12:41 PM
L2	5	("20080251651" "2355742" "3531071" "5794897" "6902138").PN.	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/14 12:42 PM
L3	1	("5689862").PN.	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/14 12:42 PM
L4	17	L1 or L2 or L3	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/14 12:42 PM
L5	4014	248/68.1	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/14 12:44 PM
L6	1	("20070235607").PN.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2016/09/14 01:17 PM
L7	3192	248/74.1	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/15 03:06 AM
L8	4014	248/68.1	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/15 03:06 AM
L9	1972	L7 not L8	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/15 03:06 AM
L10	587	((cable or wire) with clamp) and (clamp with (sealant or glue or cement))	(US-PGPUB; USPAT)	OR	ON	ON	2016/09/15 05:01 AM
L11	2948	((cable or wire) with clamp) and (clamp with seal\$4)	(US-PGPUB; USPAT)	OR	ON	ON	2016/09/15 05:02 AM
L12	1773	((cable or wire) with clamp with seal\$4)	(US-PGPUB; USPAT)	OR	ON	ON	2016/09/15 05:02 AM
L13	103	((cable or wire) with clamp with sealant)	(US-PGPUB; USPAT)	OR	ON	ON	2016/09/15 05:02 AM
L14	1	("4541205").PN.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2016/09/15 02:33 PM
L15	4906	248/65 or 248/73	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/15 03:22 PM
L16	4014	248/68.1	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/15 03:22 PM
L17	3192	248/74.1	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/15 03:22 PM
L18	2677	L15 not (L16 or L17)	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/15 03:22 PM
L19	4014	248/68.1	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/16 12:03 AM
L20	3192	248/74.1	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/16

12/13/2021 09:35:34 PM

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L21	4906	248/65 or 248/73	(US-PGPUB; USPAT)	OR	OFF	OFF	12:03 AM 2016/09/16 12:03 AM
L22	2306	248/49 not (L19 or L20 or L21)	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/16 12:03 AM
L23	18	("20030110719" "20050121217" "2849027" "4270250" "4919372" "5732180" "5736672" "5795634" "6107571" "6543780" "7371969" "7411128" "7446267" "7790252" "H000379").PN. OR ("D694192").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/16 03:16 AM
L24	1	("20080251651").PN.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2016/09/18 11:38 PM
L25	4014	248/68.1	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/19 12:11 AM
L26	1128	L25 AND (H02G3/32 OR H02G3/30 OR H02G3/0608 OR H02G3/26 OR H02G3/0456 OR H02G3/263 OR H02G3/22 OR H02G3/0418 OR H02G3/0437 OR H02G3/0443 OR H02G11/00 OR H02G3/0487 OR H02G11/006 OR H02G3/045 OR H02G3/0431 OR H02G3/0481 OR H02G3/0406 OR H02G9/06 OR H02G1/08 OR H02G3/0475 OR H02G15/013 OR H02G3/02 OR H02G15/007 OR H02G3/0468 OR H02G9/04 OR H02G3/34 OR H02G9/025 OR H02G7/053 OR H02G1/00 OR H02G3/00 OR H02G3/083 OR H02G3/04 OR H02G3/125 OR H02G7/20 OR H02G15/113 OR H02G15/117 OR H02G3/0462 OR	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/19 12:12 AM

		H02G3/0493 OR H02G3/126 OR H02G3/14 OR H02G3/288 OR H02G3/36 OR H02G3/0425 OR H02G3/081 OR H02G3/12 OR H02G3/16 OR H02G3/285 OR H02G3/38 OR H02G5/025 OR H02G3/088 OR H02G3/10 OR H02G3/105 OR H02G3/18 OR H02G3/24 OR H02G11/02 OR H02G1/02 OR H02G3/06 OR H02G3/0691 OR H02G3/286 OR H02G3/305 OR H02G3/386 OR H02G9/065 OR H02G9/10 OR H02G11/003 OR H02G1/04 OR H02G1/06 OR H02G1/14 OR H02G3/0412 OR H02G3/0616 OR H02G3/08 OR H02G3/085 OR H02G3/20 OR H02G3/266 OR H02G3/28 OR H02G7/056 OR H02G7/12 OR H02G7/125 OR H02G9/02 OR H02G15/076 OR H02G1/085 OR H02G2200/10 OR H02G3/0633 OR H02G3/065 OR H02G3/123 OR H02G3/128 OR H02G3/283 OR H02G3/383 OR H02G3/385 OR H02G5/00 OR H02G5/04 OR H02G7/00 OR H02G7/06 OR H02G7/10 OR H02G1/086 OR H02G2200/20 OR					
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		H02G3/03 OR H02G3/0658 OR H02G3/0683 OR H02G3/388 OR H02G5/002 OR H02G5/005 OR H02G7/02 OR H02G7/05 OR H02G7/08 OR H02G9/08 OR H02G13/40 OR H02G15/003 OR H02G15/043 OR H02G15/08 OR H02G15/18 OR H02G15/1806 OR H02G15/192 OR H02G1/088 OR H02G3/0666 OR H02G3/0675 OR H02G3/086 OR H02G3/121 OR H02G3/381 OR H02G5/007 OR H02G5/10 OR H02G7/04 OR H02G7/14 OR H02G9/00).CPC.)					
L27	0	L26 not L25	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/19 12:12 AM
L28	1264	L25 AND (F16L3/24 OR F16L3/223 OR F16L3/237 OR F16L3/2235 OR F16L55/035 OR F16L3/22 OR F16L3/13 OR F16L3/222 OR F16L3/04 OR F16L3/221 OR F16L3/233 OR F16L3/23 OR F16L3/1075 OR F16L3/227 OR F16L3/137 OR F16L3/26 OR F16L3/02 OR F16L3/127 OR F16L3/12 OR F16L3/00 OR F16L3/133 OR F16L3/123 OR F16L3/08 OR F16L3/10 OR F16L3/1025 OR F16L3/1091 OR F16L5/00 OR F16L3/1218 OR F16L5/14 OR F16L3/1226 OR F16L3/06 OR	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/19 12:12 AM

		F16L3/085 OR F16L3/015 OR F16L3/1233 OR F16L3/14 OR F16L3/18 OR F16L3/01 OR F16L3/20 OR F16L3/11 OR F16L3/1203 OR F16L3/1211 OR F16L3/2332 OR F16L3/1041 OR F16L3/1033 OR F16L3/1207 OR F16L3/2334 OR F16L3/1016 OR F16L3/1215 OR F16L39/00 OR F16L5/08 OR F16L3/1083 OR F16L3/1236 OR F16L5/10 OR F16L7/00 OR F16L1/11 OR F16L3/003 OR F16L3/1008 OR F16L3/1066 OR F16L3/1058 OR F16L3/16 OR F16L3/2336 OR F16L1/123 OR F16L3/105 OR F16L3/1222 OR F16L57/00 OR F16L57/04 OR F16L5/027 OR F16L5/04 OR F16L1/06 OR F16L23/08 OR F16L33/03 OR F16L35/00 OR F16L11/04 OR F16L1/028 OR F16L1/10 OR F16L1/207 OR F16L2011/047 OR F16L2201/10 OR F16L23/04 OR F16L23/06 OR F16L25/01 OR F16L33/00 OR F16L33/035 OR F16L33/30 OR F16L37/0925 OR F16L37/0985 OR F16L39/005 OR F16L3/006 OR F16L41/086 OR F16L47/14 OR F16L59/135 OR F16L59/145 OR F16L5/02 OR F16L9/02					
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		OR F16L9/125 OR F16L11/127 OR F16L11/26 OR F16L13/00 OR F16L17/04 OR F16L19/0218 OR F16L19/065 OR F16L1/00 OR F16L1/0243 OR F16L1/0246 OR F16L1/065 OR F16L1/09 OR F16L1/19 OR F16L1/20 OR F16L1/23 OR F16L1/235 OR F16L1/24 OR F16L1/265 OR F16L23/0283 OR F16L25/0045 OR F16L25/04 OR F16L27/12 OR F16L33/02 OR F16L33/24 OR F16L33/32 OR F16L37/00 OR F16L37/008 OR F16L37/0982 OR F16L37/0987 OR F16L37/123 OR F16L37/2445 OR F16L37/252 OR F16L37/56 OR F16L3/012 OR F16L3/205 OR F16L3/215 OR F16L41/004 OR F16L41/02 OR F16L41/021 OR F16L41/03 OR F16L43/02 OR F16L47/03 OR F16L53/002 OR F16L55/00 OR F16L55/005 OR F16L55/0336 OR F16L55/07 OR F16L55/10 OR F16L55/1725 OR F16L57/005 OR F16L57/02 OR F16L57/06 OR F16L58/1063 OR F16L7/02 OR F16L9/00 OR F16L9/006 OR F16L9/17 OR F16L9/18 OR F16L9/19 OR F16L9/22).CPC.)					
L29	0	L28 not L25	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/19

12/13/2021 09:35:34 PM

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L30	41	("0499549" "1536678" "1912704" "2641079" "2846174" "3064933" "3198471" "3250309" "3263026" "3381824" "3504108" "3599916" "3752902" "3883934" "4232847" "4438894" "4560126").PN. OR ("4742979").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	12:12 AM 2016/09/21 11:26 PM
L31	620	248/61	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/21 11:34 PM
L32	1918	248/58	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/21 11:34 PM
L33	2311	L31 or L32	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/21 11:34 PM
L34	4	("3624268" "3644688" "3647933" "7750236").PN. OR ("8618414").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 02:47 AM
L35	15	("1196755" "1225585" "2603438" "5232189").PN. OR ("6364266").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 03:44 AM
L36	36	("0501439" "1529881" "2291148" "2319832" "2352145" "2641428" "2752017" "2835478" "3266761" "3687406" "4057210" "4266745" "4783033" "4941630").PN. OR ("5005789").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 04:14 AM
L37	3012	248/302 or 248/303	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/22 05:23 AM
L38	102	("0310114" "0490224" "0494414" "0619915" "1528111" "1712752" "1720746" "1979674" "1999218" "20020000504" "20060016943" "20070261330" "2310842" "2636704" "2849770" "2957671" "3145963" "3226072" "3310271" "3488025" "3578226" "4029281" "4078755" "4174552" "4319758" "4750700" "4809894" "4979712" "5104082" "5490650" "5501035" "5662446" "5996955" "6135693"	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 12:27 PM

		"6631539" "6659414" "7025309" "7322482" "7735189" "7766285" "D027608" "D028889" "D033777" "D034560" "D046621" "D260234" "D280596" "D312037" "D347679" "D348854" "D354355" "D355112" "D423916" "D434308" "D434309" "D438782" "D458116" "D464560" "D464867" "D464869" "D487561" "D499008" "D499956" "D552980" "D559079" "D566538" "D568145" "D585266" "D599646" "D600102" "D629291" "D645731" "D651066" "D659519" "D661574").PN. OR ("D673031").URPN. ("1720746").URPN.	(USPAT)	OR	OFF	OFF	2016/09/22 12:51 PM
L39	10						
L40	0	("2011/0089294").URP N.	(USPAT)	OR	OFF	OFF	2016/09/22 11:00 PM
L41	21	("2160808" "2619888" "2912198" "2970849" "3204901" "3313503" "3883934" "4019599" "4116411" "4676332" "4932703" "5398907" "5673877" "6402119" "6572070").PN. OR ("8109475").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 11:02 PM
L42	41	("0499549" "1536678" "1912704" "2641079" "2846174" "3064933" "3198471" "3250309" "3263026" "3381824" "3504108" "3599916" "3752902" "3883934" "4232847" "4438894" "4560126").PN. OR ("4742979").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 11:06 PM
L43	11	("499549").URPN.	(USPAT)	OR	OFF	OFF	2016/09/22 11:32 PM
L44	57	("0426655" "0588886" "0677163" "0679900" "0816473" "0818989"	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 11:33 PM

		"1054171" "1377413" "1713230" "2046815" "2119217" "2243387" "2605906" "2709028" "2764383" "4027798" "4191034" "4248399" "4550892" "4658100" "4742979" "4756504" "4779815" "5076531" "5104083" "5765801" "6003803" "6135381" "6186455" "6572058" "D032640" "D035612" "D167944" "D336603" "D341311" "D470037" "D480947").PN. OR ("7891614").URPN.					
L45	28	("1141316" "1753013" "1808328" "1895656" "2229129" "3596859" "3605200" "3925851" "4114829" "4131867" "4856739" "5141192" "5460274" "5613656" "6182933" "6644836" "6802480" "7318568" "D247216" "D470034" "D546170").PN. OR ("8147102").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 11:35 PM
L46	15	("1196755" "1225585" "2603438" "5232189").PN. OR ("6364266").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 11:35 PM
L47	9	("2007/0090251").URP N.	(USPAT)	OR	OFF	OFF	2016/09/22 11:37 PM
L48	10	("1720746").URPN.	(USPAT)	OR	OFF	OFF	2016/09/22 11:37 PM
L49	17	("0562468" "1495982" "1764950" "2636704" "4809894" "D027860" "D423916").PN. OR ("D434310").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 11:38 PM
L50	35	("2636704").URPN.	(USPAT)	OR	OFF	OFF	2016/09/22 11:39 PM
L51	20	("0562468" "1495982" "2636704" "4809894" "D027860" "D423916").PN. OR ("D434309").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 11:40 PM
L52	23	("0562468" "1495982" "2636704" "4809894" "D027860" "D423916").PN. OR	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 11:41 PM

L53	6	("D434308").URPN. ("1912704").URPN.	(USPAT)	OR	OFF	OFF	2016/09/22 11:44 PM
L54	922	wire adj hanger	(USPAT)	OR	ON	ON	2016/09/22 11:48 PM
L55	38	L54 and spiral	(USPAT)	OR	ON	ON	2016/09/22 11:48 PM
L56	120	L54 and cable	(USPAT)	OR	ON	ON	2016/09/22 11:52 PM
L57	118	L56 not L55	(USPAT)	OR	ON	ON	2016/09/22 11:52 PM
L58	26	("0509529" "0771905" "1219702" "1472766" "3122803" "3234616" "3604066" "3657909" "4133509" "4847957" "4909466" "5309865").PN. OR ("5788201").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 11:54 PM
L59	766	L54 not (L55 or L56)	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/23 12:06 AM
L60	16	("20100326008" "20110309042" "4238098" "4768741" "5100008" "5531410" "5657953" "5845882" "6152412" "6637704" "6855884" "6926236" "7137608" "7304240" "7364130" "7497405").PN. OR ("8544802").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/23 04:44 AM
L61	41	("0499549" "1536678" "1912704" "2641079" "2846174" "3064933" "3198471" "3250309" "3263026" "3381824" "3504108" "3599916" "3752902" "3883934" "4232847" "4438894" "4560126").PN. OR ("4742979").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/23 04:50 AM
L62	511	line with cable with hanger	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2016/09/23 05:11 AM
L63	3	("2384440").URPN.	(USPAT)	OR	OFF	OFF	2016/09/23 06:13 AM
L64	3	("2384440").URPN.	(USPAT)	OR	OFF	OFF	2016/09/23 06:13 AM
L65	2	("2210722").URPN.	(USPAT)	OR	OFF	OFF	2016/09/23 06:14 AM
L66	1	("2172174").URPN.	(USPAT)	OR	OFF	OFF	2016/09/23 06:15 AM
L67	1	("2106006").URPN.	(USPAT)	OR	OFF	OFF	2016/09/23

L68	0	("1609052").URPN.	(USPAT)	OR	OFF	OFF	06:15 AM 2016/09/23 06:19 AM
L69	1	("8448307").PN.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2016/09/23 03:53 PM
L70	0	"1609052" and steel	(US-PGPUB; USPAT)	OR	ON	ON	2016/09/23 07:30 PM
L71	71	wire with (flame adj retardant) with PVC	(US-PGPUB; USPAT)	OR	ON	ON	2016/09/23 07:40 PM
L72	13	wire with (flame adj retardant) with PVC with coating	(US-PGPUB; USPAT)	OR	ON	ON	2016/09/23 07:40 PM
L73	10	("0499549" "1609052" "1720746" "1912704" "20110079427" "20110089294" "2106006" "2172174" "2210722" "2384440").PN.	(US-PGPUB; USPAT)	OR	OFF	OFF	2018/02/01 05:44 AM
L74	1576	248/61	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 03:08 AM
L75	14	("499549" "1609052" "1720746" "2106006" "2172174" "2210722" "20160153587").pn. OR ("9800028").urpn. AND (PGPB USPT USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/11/04 03:15 AM
L76	55	("429357" "948902" "1362244" "1586642" "2339564" "2339565" "2384440" "2407217" "2714497" "3415474" "3506227" "3517901" "3565375" "3575367" "3687406" "3744837" "3866871" "3923277" "4019706" "4098415" "4245806" "4396135" "4413799" "4960253" "5181680" "5192039" "5344111" "5350141" "5593115" "5848770" "5924655" "6170784" "6505796" "6807791" "7207527" "7284728" "7320448" "7780122" "D625585" "8523119" "8567734" "8596589" "20060180713"	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/11/04 03:18 AM

L77	6	"20090057498" "20090321587" "20120318934").urpn. OR ("9518683").urpn. AND (PGPB USPT USOC).dbnm. ("2012/0318934").urpn. AND (PGPB USPT USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/11/04 03:18 AM
L78	7	("9722405").pn.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 03:37 AM
L79	1	("1705233").urpn. AND (PGPB USPT USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/11/04 06:09 AM
L80	2	("1698531").urpn. AND (PGPB USPT USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/11/04 06:10 AM
L81	32	("824544").urpn. AND (PGPB USPT USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/11/04 06:25 AM
L82	1090	("20160153587" "10978861" "20170338638" "20210313788" "20210226433" "20180034252" "10063039" "20180233888" "9800028" "2303108" "2419364" "5957416" "6517052" "2210722" "6227522" "5979880" "20210088158" "2891751" "11038322" "20190386471" "5727777" "20210238945" "20210265824" "2509422" "4824057" "2566233" "3095471" "1369828" "5964434" "1875697" "2417244" "7757996" "3033978" "4832442" "1972418" "4461521" "1945488" "20050087662" "5740994" "9890937" "2235685" "10670170" "20200189886" "20160033116"	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/11/04 06:41 AM

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L84	3304	L83 NOT (L82 OR L73)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 07:32 AM
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L91	103	L90 AND hanger	GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) (US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 09:03 AM
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L93	511	L92 NOT (L89 OR L85 OR L83)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 09:05 AM
L94	162	L93 AND hanger	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 09:05 AM
L95	27	(solar ADJ panel) AND (messenger ADJ wire)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 09:24 AM
L96	45	panel WITH (messenger ADJ wire)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 09:27 AM
L97	10	("0499549" OR "1609052" OR "1720746" OR	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/04 09:29 AM

		"1912704" OR "20110079427" OR "20110089294" OR "2106006" OR "2172174" OR "2210722" OR "2384440").pn.					
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PE2E SEARCH - Search History (Interference)

There are no Interference searches to show.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 17/349,447		Filing Date 06/16/2021		☐ To be Mailed	
ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO									
APPLICATION AS FILED - PART I									
FOR		(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE (\$)		FEE (\$)		
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A	N/A		N/A				
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))		N/A	N/A		N/A				
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A	N/A		N/A				
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 = *				x \$50 =			
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 = *				x \$240 =			
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).							
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))									
* If the difference in column 1 is less than zero, enter "0" in column 2.						TOTAL			
APPLICATION AS AMENDED - PART II									
AMENDMENT	03/16/2022	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	* 25	Minus	** 28	= 0	x \$50 =		0	
	Independent (37 CFR 1.16(h))	* 5	Minus	*** 5	= 0	x \$240 =		0	
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						TOTAL ADD'L FEE		0	
AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	*	Minus	**	=	x \$0 =			
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x \$0 =			
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						TOTAL ADD'L FEE			
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.						LIE			
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".						/TARA A WASHINGTON/			
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".									
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.									

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor : SMITH et al.
Appln. No. : 17/349,447
Conf. No.: : 5107
Filed: : June 16, 2021
Title: : LOCKING CABLE HANGER AND METHOD OF USING
Group Art Unit : 3632
Examiner : Marsh, Steven M
Docket No. : 308329-00007-3

* * * * *

March 16, 2022

VIA EFS

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE

Dear Sir:

In response to the non-final Office Action dated December 16, 2021, please consider the following:

The claims as currently pending are reflected in the **Listing of the Claims**, which begins on page 2 of this paper, no claims have been amended herein; and

Remarks which begin on page 7 of this paper.

LISTING OF THE CLAIMS

1. (previously presented) A system for organizing a plurality of electrical cables extending from a plurality of solar panels, the system comprising:
 - a messenger wire structured to be supported a distance above the ground; and
 - a plurality of cable hangers structured to be disposed along, and suspended from, the messenger wire, each cable hanger having a plurality of cable carrying surfaces, each cable carrying surface being structured to support at least one electrical cable of the plurality of electrical cables,wherein adjacent cable carrying surfaces of the plurality of cable carrying surfaces are separated by a cable carrier divider.
2. (original) The system of claim 1, wherein the plurality of cable carrying surfaces comprises at least three cable carrying surfaces.
3. (original) The system of claim 1, wherein the plurality of cable carrying surfaces comprises at least four cable carrying surfaces.
4. (original) The system of claim 1, wherein the plurality of cable carrying surfaces comprises at least five cable carrying surfaces.
5. (cancelled)
6. (previously presented) The system of claim 1, wherein the cable carrier divider extends vertically.
7. (previously presented) A system for organizing a plurality of electrical cables extending from a plurality of solar panels, the system comprising:
 - a messenger wire structured to be supported a distance above the ground; and
 - a plurality of cable hangers structured to be disposed along, and suspended from, the messenger wire, each cable hanger having a plurality of cable carrying surfaces, each cable

carrying surface being structured to support at least one electrical cable of the plurality of electrical cables, wherein each cable hanger of the plurality of cable hangers comprises:

a high tensile strength wire with two opposing ends and configured intermediate of said ends to form a plurality of substantially U-shaped configurations each having a cable carrying surface of the plurality of cable carrying surfaces located thereon;

outermost lateral spaced apart opposing sides forming the boundary of said hanger;

opposite shoulders extending toward each other from said spaced apart opposite sides, each of said shoulders having an arrangement structured to engage the messenger wire so as to securely hold the hanger on the messenger wire.

8. (original) The system of claim 7, wherein the arrangement of one of the shoulders that is structured to engage the messenger wire is a spiral gripper formation and the arrangement of the other shoulder that is structured to engage the messenger wire is a locking hook.

9. (original) The system of claim 1, wherein each cable hanger of the plurality of cable hangers comprises a wire selected from the group of round galvanized steel, round stainless steel, flat rolled galvanized steel, flat rolled stainless steel.

10. (original) The system of claim 1, wherein each cable hanger of the plurality of cable hangers further comprises a formation structured to support a data carrier.

11. (original) The system of claim 10, wherein the formation structured to support the data carrier is positioned closer to the messenger wire than the cable carrying surfaces.

12. (original) The system of claim 1, wherein each cable hanger of the plurality of cable hangers includes a plastisol or PVC coating.

13. (original) The system of claim 12, wherein the coating has a thickness in the range of from 50 mils to 100 mils thick.

14. (original) The system of claim 1, wherein each cable hanger of the plurality of cable hangers includes a coating having a flame retardant, high dielectric grade, UV inhibited material.

15. (previously presented) A solar plant comprising:
a plurality of solar panels;
a plurality of electrical cables extending from the plurality of solar panels; and
a system for organizing the plurality of electrical cables, the system comprising:
a messenger wire supported a distance above the ground adjacent the solar panels;
and
a plurality of cable hangers disposed along, and suspended from the messenger wire, each cable hanger having a plurality of cable carrying surfaces, each cable carrying surface being structured to support at least one electrical cable of the plurality of electrical cables,
wherein adjacent cable carrying surfaces of the plurality of cable carrying surfaces are separated by a cable carrier divider.

16. (original) The solar plant of claim 15, wherein the plurality of cable carrying surfaces comprises at least three cable carrying surfaces.

17. (original) The solar plant of claim 15, wherein the plurality of cable carrying surfaces comprises at least four cable carrying surfaces.

18. (original) The solar plant of claim 15, wherein the plurality of cable carrying surfaces comprises at least five cable carrying surfaces.

19. (cancelled)

20. (previously presented) The solar plant of claim 15, wherein the cable carrier divider extends vertically.

21. (previously presented) A solar plant comprising:
a plurality of solar panels;

a plurality of electrical cables extending from the plurality of solar panels; and
a system for organizing the plurality of electrical cables, the system comprising:
a messenger wire supported a distance above the ground adjacent the solar panels;
and
a plurality of cable hangers disposed along, and suspended from the messenger
wire, each cable hanger having a plurality of cable carrying surfaces, each cable carrying surface
being structured to support at least one electrical cable of the plurality of electrical cables,
wherein each cable hanger of the plurality of cable hangers comprises:
a high tensile strength wire with two opposing ends and configured
intermediate of said ends to form a plurality of substantially U-shaped configurations each
having a cable carrying surface of the plurality of cable carrying surfaces located thereon;
outermost lateral spaced apart opposing sides forming the boundary of
said hanger;
opposite shoulders extending toward each other from said spaced apart
opposite sides, each of said shoulders having an arrangement structured to engage the messenger
wire so as to securely hold the hanger on the messenger wire.

22. (original) The solar plant of claim 15, wherein each cable hanger of the plurality of
cable hangers comprises a wire selected from the group of round galvanized steel, round
stainless steel, flat rolled galvanized steel, flat rolled stainless steel.

23. (original) The solar plant of claim 15, further comprising a data carrier associated
with the plurality of solar panels, and wherein each cable hanger of the plurality of cable hangers
further comprises a formation structured to support the data carrier along the messenger wire.

24. (original) The solar plant of claim 23, wherein, for each cable hanger, the formation
structured to support the data carrier is positioned closer to the messenger wire than the cable
carrying surfaces.

25. (original) The solar plant of claim 15, wherein each cable hanger of the plurality of
cable hangers includes a plastisol, PVC coating, and/or a coating having a flame retardant, high

dielectric grade, UV inhibited material.

26. (previously presented) A method for organizing a plurality of electrical cables extending from a plurality of solar panels in a solar plant, the method comprising:

- providing a messenger wire a distance above the ground;
- providing a plurality of cable hangers spaced along the messenger wire, each cable hanger having a plurality of cable carrying surfaces, each cable carrying surface being structured to support at least one electrical cable of the plurality of electrical cables;
- providing a first electrical cable of the plurality of electrical cables in engagement with a first cable carrying surface of each cable hanger of the plurality of cable hangers; and
- providing a second electrical cable of the plurality of electrical cables in engagement with a second cable carrying surface of each cable hanger of the plurality of cable hangers,

wherein each cable hanger of the plurality of cable hangers comprises:

- a high tensile strength wire with two opposing ends and configured intermediate of said ends to form a plurality of substantially U-shaped configurations having cable carrying surfaces located thereon;
- outermost lateral spaced apart opposing sides forming the boundary of said hanger;
- opposite shoulders extending toward each other from said spaced apart opposite sides, each of said shoulders having an arrangement structured to engage the messenger wire so as to securely hold the hanger on the messenger wire; and
- wherein the method further comprises, for each cable hanger, bringing the arrangement of one of the shoulders of the cable hanger into engagement with the messenger wire after providing at least the first electrical cable of the plurality of electrical cables in engagement with the first cable carrying surface.

27. (cancelled)

28. (original) The method of claim 26, further comprising providing a third electrical cable of the plurality of electrical cables in engagement with a third cable carrying surface of each cable hanger of the plurality of cable hangers.

REMARKS

Reconsideration and allowance in view of the following remarks are respectfully requested. Upon entry of this Response, claims 1-4, 6-18, 20-26 and 28 will be pending in the present application. No claims have been amended herein. Claims 5, 19 and 27 were previously cancelled.

Rejections under 35 USC § 103

Claims 1-4, 6, 9-18, 20 and 22-25 stand rejected under 35 U.S.C. 103 as being unpatentable over the prior art allegedly disclosed by Applicant in view of US 2,384,440 to Carr. Applicant respectfully disagrees. In rejecting the aforementioned claims, the Examiner relies, in part, on the contention that “Applicant discloses that the prior art discloses a system for organizing a plurality of electrical cables extending from a plurality of solar panels; a messenger wire structured to be supported a distance above ground; and a plurality of cable hangers structured to be disposed along, and suspended from, the messenger wire (see pages 2 and 3 of the specification).” It is respectfully submitted that such contention is incorrect. As discussed in the declaration from inventor Allen Garrett Smith submitted herewith, no such system(s)/components related to solar applications existed in the art prior to Applicant’s development thereof. As such, any portions of the specification that the Examiner has interpreted to refer to applications involving solar applications are incorrect or merely refer to the Applicant’s own activities that were either non-public developmental/testing activities and/or occurred less than one year from the priority date to which the present application is entitled. Hence, the Examiner’s contention that the Applicant has disclosed that “the prior art discloses a system for organizing a plurality of electrical cables extending from a plurality of solar panels; a messenger wire structured to be supported a distance above ground; and a plurality of cable hangers structured to be disposed along, and suspended from, the messenger wire” is incorrect. As the additional reference of Carr does nothing to address such deficiency, plainly the rejection of claims 1-4, 6, 9-18, 20 and 22-25 should be withdrawn as the Examiner has failed to show the prior disclosure of all of the elements recited in any of such claims.

In view of at least the foregoing, withdrawal of the rejection of claims 1-4, 6, 9-18, 20 and 22-25 under 35 U.S.C. 103 is respectfully requested.

Rejections under 35 USC § 103

Claims 7, 8, 21, 26 and 28 stand rejected under 35 U.S.C. 103 as being unpatentable over the prior art allegedly disclosed by Applicant in view of US 2,384,440 to Carr, and in further view of US 2,210,722 to Klein. As previously discussed in regard to the 103 rejection above, the alleged disclosure by the Applicant is incorrect. It is respectfully submitted that the additionally cited references of Carr and Klein fail to compensate for such deficiency. Hence, the rejection of claims 7, 8, 21, 26 and 28 should be withdrawn as the Examiner has failed to show the prior disclosure of all of the elements recited in any of such claims.

In view of at least the foregoing, withdrawal of the rejection of claims 7, 8, 21, 26 and 28 under 35 U.S.C. 103 is respectfully requested

Summary and Conclusion

In summary, it is submitted that all of the pending claims, claims 1-4, 6-18, 20-26 and 28, are patentable over the references of record for at least the reasons set forth hereinabove.

Reconsideration and early allowance are requested. The Examiner is encouraged to contact the undersigned via phone with any questions and/or if it is believed a discussion would be helpful moving the examination of the present matter forward.

Respectfully submitted,

/Stephen A. Bucchianeri/

Stephen A. Bucchianeri
Registration No. 54,928
Attorney for Applicants
412-566-6038

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor : SMITH et al.
Appln. No. : 17/349,447
Conf. No.: : 5107
Filed: : June 16, 2021
Title: : LOCKING CABLE HANGER AND METHOD OF USING
Group Art Unit : 3632
Examiner : Marsh, Steven M
Docket No. : 308329-00007-3

DECLARATION UNDER 37 CFR §1.132

I, Allen Garrett Smith, declare as follows:

1. I have been an employee of the Cambria County Association for the Blind and Handicapped (hereinafter "CAB") since 1975. Initially, I was special services worker. In 1977, I became the General Manager of the Ebensburg Division, a position I held until 2018, when I semi-retired and became a part-time Senior Project Manager, a position I still hold today.

2. As General Manager, I oversaw all operations, manufacturing, marketing, and product development. I was involved in the design and engineering for all hangers. In 1977, when I became General Manager, CAB manufactured 2 or 3 styles of hangers for use in a local underground mine. CAB's hangers for the underground mining industry were expanded steadily over the years to include more than 500 different hangers by 2010. Above ground hangers were started in the mid to late 1980's and expanded to include hundreds of different styles of hangers for suspending wires and cabling. The most common above ground hangers were single carrier cable rings that attached to a messenger wire strung between utility poles (i.e., between telephone poles). From approximately 2000 on, CAB has been the largest producer of above ground and mining cable hangers in the United States.

3. Beginning in late 2013, CAB began looking into potentially expanding into the solar industry where existing cable management solutions involved either trenching or

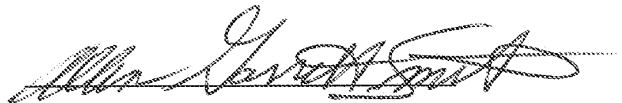
the use of cable trays. At such time, messenger wire/hanger arrangements had never been employed in the solar industry. Accordingly, a great amount of work was required by CAB to develop products that met the particular needs of the industry both from service and safety standpoints as well as to gain acceptance and trust in the industry for such new approach. Such development required testing in order to obtain UL listings, having an expert prepare white papers, have engineering companies write reports on methods of installation, install mockups for owner acceptance and establish actual installations on solar sites to prove the product would perform in actual applications. This process cost hundreds of thousands of dollars and took 2-3 years.

4. I am an inventor of the subject matter claimed in the above-captioned patent application, and I have reviewed in detail, and am thus familiar with, the specification of the above-captioned patent application. I have also reviewed the Examiner's allegation on Page 3 of the Office Action of 12/16/2021 that "Applicant discloses that the prior art discloses a system for organizing a plurality of electrical cables extending from a plurality of solar panels; a messenger wire structured to be supported a distance above ground; and a plurality of cable hangers structured to be disposed along, and suspended from, the messenger wire (see pages 2 and 3 of the specification)." Such allegation made by the Examiner is incorrect. While the discussion provided in the BACKGROUND OF THE INVENTION section of the specification (which encompasses pages 2 and 3 of the specification as well as portions of pages 1 and 4) discusses "solar, mining, and electrical industries", the references contained in such section to any use of known/existing cable hanger systems (i.e., systems utilizing a messenger wire and hangers suspended therefrom) or portions thereof (i.e., messenger wire, hanger(s)) were to arrangements and/or components thereof used in the mining and/or electrical (i.e., utility pole to utility pole) industries. Whereas any references to the use of arrangements or portions thereof in regard to the solar industry were not to any publicly known/available arrangement by any other(s) as none existed at such time. Instead, such references were to CAB's own testing/development which were undertaken non-publicly/confidentially and/or within one year from the filing date of the patent application from which the present application claims priority.

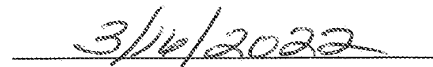
5. Prior to 2014, CAB had no sales in the solar industry. By fiscal year 2020/2021, CAB had sold over 37 million dollars of product to the solar industry. CAB's sales

in the solar industry for the current fiscal year are projected to be over 45 million dollars.

All statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true; further all statements made herein are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

A handwritten signature in cursive script, appearing to read "Allen Garrett Smith", written over a horizontal line.

Allen Garrett Smith

A handwritten date "3/16/2022" written in cursive script over a horizontal line.

Date

Electronic Acknowledgement Receipt	
EFS ID:	45245438
Application Number:	17349447
International Application Number:	
Confirmation Number:	5107
Title of Invention:	LOCKING CABLE HANGER AND METHOD OF USING
First Named Inventor/Applicant Name:	Allen Garrett Smith
Customer Number:	3705
Filer:	Stephen Arthur Bucchianeri/CATHY ROEDER
Filer Authorized By:	Stephen Arthur Bucchianeri
Attorney Docket Number:	308329-00007-3
Receipt Date:	16-MAR-2022
Filing Date:	16-JUN-2021
Time Stamp:	17:05:06
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment		no			
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		308329RESPONSE.pdf	130382	yes	8
			6759a8741d4c277fc0fa3b687ec38e7d56c35d8f		

Multipart Description/PDF files in .zip description					
Document Description			Start	End	
Amendment/Request for Reconsideration-After Non-Final Rejection			1	1	
Claims			2	6	
Applicant Arguments/Remarks Made in an Amendment			7	8	
Warnings:					
Information:					
2	Affidavit-traversing rejections or objections rule 132	308329AGS_DEC.pdf	4689717	no	3
			ed84bedc2d1ca7317776b9c18759e7e0b1419e61		
Warnings:					
Information:					
Total Files Size (in bytes):			4820099		
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NOTICE OF ALLOWANCE AND FEE(S) DUE

3705 7590 04/06/2022
ECKERT SEAMANS CHERIN & MELLOTT LLC
U.S. Steel Tower
600 Grant Street, 44th Floor
Pittsburgh, PA 15219

EXAMINER

MARSH, STEVEN M

ART UNIT

PAPER NUMBER

3632

DATE MAILED: 04/06/2022

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/349,447	06/16/2021	Allen Garrett Smith	308329-00007-3	5107

TITLE OF INVENTION: LOCKING CABLE HANGER AND METHOD OF USING

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$600	\$0.00	\$0.00	\$600	07/06/2022

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

3705 7590 04/06/2022
ECKERT SEAMANS CHERIN & MELLOTT LLC
U.S. Steel Tower
600 Grant Street, 44th Floor
Pittsburgh, PA 15219

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/349,447	06/16/2021	Allen Garrett Smith	308329-00007-3	5107

TITLE OF INVENTION: LOCKING CABLE HANGER AND METHOD OF USING

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$600	\$0.00	\$0.00	\$600	07/06/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
MARSH, STEVEN M	3632	248-061000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/AIA/122 or PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

1 _____

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. Fees submitted: ☐ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

☐ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. Change in Entity Status (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/349,447	06/16/2021	Allen Garrett Smith	308329-00007-3	5107
3705 7590 04/06/2022 ECKERT SEAMANS CHERIN & MELLOTT LLC U.S. Steel Tower 600 Grant Street, 44th Floor Pittsburgh, PA 15219				
EXAMINER MARSH, STEVEN M				
ART UNIT PAPER NUMBER 3632				

DATE MAILED: 04/06/2022

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b) (2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 17/349,447	Applicant(s) Smith et al.	
	Examiner STEVEN M MARSH	Art Unit 3632	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Applicant's communication received on 16 March 2022.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are 1-4,7-18,20-26 and 28. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov**.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) ☐ All b) ☐ Some* c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. ____.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)	5. ☐ Examiner's Amendment/Comment
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date ____.	6. ☒ Examiner's Statement of Reasons for Allowance
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material ____.	7. ☐ Other ____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date ____.	

/STEVEN M MARSH/ Primary Examiner, Art Unit 3632	
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DETAILED ACTION

This is the second office action for US Application 17/349,447 for a Locking Cable Hanger and Method of Using.

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Allowable Subject Matter

Claims 1-4, 7-18, 20-26 and 28 are allowed. The following is an examiner's statement of reasons for allowance: The prior art does not disclose or suggest a system for organizing a plurality of electrical cables extending from a plurality of solar panels, with a plurality of cable hangers disposed along a messenger wire, with cable carrying surfaces structured to support at least one cable and separated by a cable carrier divider.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEVEN M MARSH whose telephone number is (571)272-6819. The examiner can normally be reached Mon-Thurs 9 am-7:30 pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrell McKinnon can be reached on 571-272-4797. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: <https://patentcenter.uspto.gov>. Visit <https://www.uspto.gov/patents/apply/patent-center> for more information about Patent Center and <https://www.uspto.gov/patents/docx> for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197

Application/Control Number: 17/349,447
Art Unit: 3632

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(toll-free). If you would like assistance from a USPTO Customer Service

Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

STEVEN M. MARSH
Primary Examiner
Art Unit 3632

/STEVEN M MARSH/

Primary Examiner, Art Unit 3632

Issue Classification 	Application/Control No. 17/349,447	Applicant(s)/Patent Under Reexamination Smith et al.
	Examiner STEVEN M MARSH	Art Unit 3632

CPC						
Symbol				Type	Version	
H02G	/	3	/	30	F	2013-01-01

CPC Combination Sets					
Symbol		Type	Set	Ranking	Version
	/		/		

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	24	
/STEVEN M MARSH/ Primary Examiner, Art Unit 3632	24 March 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office

Part of Paper No.: 20220324

Issue Classification 	Application/Control No. 17/349,447	Applicant(s)/Patent Under Reexamination Smith et al.
	Examiner STEVEN M MARSH	Art Unit 3632

INTERNATIONAL CLASSIFICATION			
CLAIMED			
F16L		3	00

NON-CLAIMED			

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS
248	61

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	24	
/STEVEN M MARSH/ Primary Examiner, Art Unit 3632	24 March 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office

Part of Paper No.: 20220324

Issue Classification 	Application/Control No. 17/349,447	Applicant(s)/Patent Under Reexamination Smith et al.
	Examiner STEVEN M MARSH	Art Unit 3632

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47															
CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	8	10		19	24	28								
2	2	9	11	17	20										
3	3	10	12	18	21										
4	4	11	13	19	22										
	5	12	14	20	23										
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5	7	14	16	22	25										
6	8	15	17	23	26										
7	9	16	18		27										

NONE	Total Claims Allowed:	
(Assistant Examiner)	(Date)	24
/STEVEN M MARSH/ Primary Examiner, Art Unit 3632	24 March 2022	
(Primary Examiner)	(Date)	
	O.G. Print Claim(s)	O.G. Print Figure
	1	1

<i>Search Notes</i> 	Application/Control No. 17/349,447	Applicant(s)/Patent Under Reexamination Smith et al.
	Examiner STEVEN M MARSH	Art Unit 3632

CPC - Searched*		
Symbol	Date	Examiner
see PE2E search	11/04/2021	SMM

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
see	PE2E search	11/04/2021	SMM

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
Conducted text search	11/04/2021	SMM
IP.com search		
forward/backward search		
Inventor name search		
updated search	12/13/2021	SMM
Interference - see PE2E search	03/24/2022	SMM

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
see	search notes	03/24/2022	SMM

/STEVEN M MARSH/ Primary Examiner, Art Unit 3632	
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PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
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L5	4014	248/68.1	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/14 12:44 PM
L6	1	("20070235607").PN.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2016/09/14 01:17 PM
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L8	4014	248/68.1	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/15 03:06 AM
L9	1972	L7 not L8	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/15 03:06 AM
L10	587	((cable or wire) with clamp) and (clamp with (sealant or glue or cement))	(US-PGPUB; USPAT)	OR	ON	ON	2016/09/15 05:01 AM
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L13	103	((cable or wire) with clamp with sealant)	(US-PGPUB; USPAT)	OR	ON	ON	2016/09/15 05:02 AM
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L20	3192	248/74.1	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/16

03/24/2022 04:10:26 PM

Workspace: Locking Cable Hanger and Method of Using 2

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SM

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		F16L3/085 OR F16L3/015 OR F16L3/1233 OR F16L3/14 OR F16L3/18 OR F16L3/01 OR F16L3/20 OR F16L3/11 OR F16L3/1203 OR F16L3/1211 OR F16L3/2332 OR F16L3/1041 OR F16L3/1033 OR F16L3/1207 OR F16L3/2334 OR F16L3/1016 OR F16L3/1215 OR F16L39/00 OR F16L5/08 OR F16L3/1083 OR F16L3/1236 OR F16L5/10 OR F16L7/00 OR F16L1/11 OR F16L3/003 OR F16L3/1008 OR F16L3/1066 OR F16L3/1058 OR F16L3/16 OR F16L3/2336 OR F16L1/123 OR F16L3/105 OR F16L3/1222 OR F16L57/00 OR F16L57/04 OR F16L5/027 OR F16L5/04 OR F16L1/06 OR F16L23/08 OR F16L33/03 OR F16L35/00 OR F16L11/04 OR F16L1/028 OR F16L1/10 OR F16L1/207 OR F16L2011/047 OR F16L2201/10 OR F16L23/04 OR F16L23/06 OR F16L25/01 OR F16L33/00 OR F16L33/035 OR F16L33/30 OR F16L37/0925 OR F16L37/0985 OR F16L39/005 OR F16L3/006 OR F16L41/086 OR F16L47/14 OR F16L59/135 OR F16L59/145 OR F16L5/02 OR F16L9/02					
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		OR F16L9/125 OR F16L11/127 OR F16L11/26 OR F16L13/00 OR F16L17/04 OR F16L19/0218 OR F16L19/065 OR F16L1/00 OR F16L1/0243 OR F16L1/0246 OR F16L1/065 OR F16L1/09 OR F16L1/19 OR F16L1/20 OR F16L1/23 OR F16L1/235 OR F16L1/24 OR F16L1/265 OR F16L23/0283 OR F16L25/0045 OR F16L25/04 OR F16L27/12 OR F16L33/02 OR F16L33/24 OR F16L33/32 OR F16L37/00 OR F16L37/008 OR F16L37/0982 OR F16L37/0987 OR F16L37/123 OR F16L37/2445 OR F16L37/252 OR F16L37/56 OR F16L3/012 OR F16L3/205 OR F16L3/215 OR F16L41/004 OR F16L41/02 OR F16L41/021 OR F16L41/03 OR F16L43/02 OR F16L47/03 OR F16L53/002 OR F16L55/00 OR F16L55/005 OR F16L55/0336 OR F16L55/07 OR F16L55/10 OR F16L55/1725 OR F16L57/005 OR F16L57/02 OR F16L57/06 OR F16L58/1063 OR F16L7/02 OR F16L9/00 OR F16L9/006 OR F16L9/17 OR F16L9/18 OR F16L9/19 OR F16L9/22).CPC.)					
L29	0	L28 not L25	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/19

03/24/2022 04:10:26 PM

Workspace: Locking Cable Hanger and Method of Using 2

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SM

Affordable Wire Management, Exhibit No. EX1015

Case No. IPR2024-00182

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L30	41	("0499549" "1536678" "1912704" "2641079" "2846174" "3064933" "3198471" "3250309" "3263026" "3381824" "3504108" "3599916" "3752902" "3883934" "4232847" "4438894" "4560126").PN. OR ("4742979").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	12:12 AM 2016/09/21 11:26 PM
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L36	36	("0501439" "1529881" "2291148" "2319832" "2352145" "2641428" "2752017" "2835478" "3266761" "3687406" "4057210" "4266745" "4783033" "4941630").PN. OR ("5005789").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 04:14 AM
L37	3012	248/302 or 248/303	(US-PGPUB; USPAT)	OR	OFF	OFF	2016/09/22 05:23 AM
L38	102	("0310114" "0490224" "0494414" "0619915" "1528111" "1712752" "1720746" "1979674" "1999218" "20020000504" "20060016943" "20070261330" "2310842" "2636704" "2849770" "2957671" "3145963" "3226072" "3310271" "3488025" "3578226" "4029281" "4078755" "4174552" "4319758" "4750700" "4809894" "4979712" "5104082" "5490650" "5501035" "5662446" "5996955" "6135693"	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 12:27 PM

		"6631539" "6659414" "7025309" "7322482" "7735189" "7766285" "D027608" "D028889" "D033777" "D034560" "D046621" "D260234" "D280596" "D312037" "D347679" "D348854" "D354355" "D355112" "D423916" "D434308" "D434309" "D438782" "D458116" "D464560" "D464867" "D464869" "D487561" "D499008" "D499956" "D552980" "D559079" "D566538" "D568145" "D585266" "D599646" "D600102" "D629291" "D645731" "D651066" "D659519" "D661574").PN. OR ("D673031").URPN. ("1720746").URPN.	(USPAT)	OR	OFF	OFF	2016/09/22 12:51 PM
L39	10						
L40	0	("2011/0089294").URP N.	(USPAT)	OR	OFF	OFF	2016/09/22 11:00 PM
L41	21	("2160808" "2619888" "2912198" "2970849" "3204901" "3313503" "3883934" "4019599" "4116411" "4676332" "4932703" "5398907" "5673877" "6402119" "6572070").PN. OR ("8109475").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 11:02 PM
L42	41	("0499549" "1536678" "1912704" "2641079" "2846174" "3064933" "3198471" "3250309" "3263026" "3381824" "3504108" "3599916" "3752902" "3883934" "4232847" "4438894" "4560126").PN. OR ("4742979").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 11:06 PM
L43	11	("499549").URPN.	(USPAT)	OR	OFF	OFF	2016/09/22 11:32 PM
L44	57	("0426655" "0588886" "0677163" "0679900" "0816473" "0818989"	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 11:33 PM

L45	28	"1054171" "1377413" "1713230" "2046815" "2119217" "2243387" "2605906" "2709028" "2764383" "4027798" "4191034" "4248399" "4550892" "4658100" "4742979" "4756504" "4779815" "5076531" "5104083" "5765801" "6003803" "6135381" "6186455" "6572058" "D032640" "D035612" "D167944" "D336603" "D341311" "D470037" "D480947").PN. OR ("7891614").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 11:35 PM
L46	15	("1141316" "1753013" "1808328" "1895656" "2229129" "3596859" "3605200" "3925851" "4114829" "4131867" "4856739" "5141192" "5460274" "5613656" "6182933" "6644836" "6802480" "7318568" "D247216" "D470034" "D546170").PN. OR ("8147102").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 11:35 PM
L47	9	("1196755" "1225585" "2603438" "5232189").PN. OR ("6364266").URPN.	(USPAT)	OR	OFF	OFF	2016/09/22 11:37 PM
L48	10	("2007/0090251").URP N. ("1720746").URPN.	(USPAT)	OR	OFF	OFF	2016/09/22 11:37 PM
L49	17	("0562468" "1495982" "1764950" "2636704" "4809894" "D027860" "D423916").PN. OR ("D434310").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 11:38 PM
L50	35	("2636704").URPN.	(USPAT)	OR	OFF	OFF	2016/09/22 11:39 PM
L51	20	("0562468" "1495982" "2636704" "4809894" "D027860" "D423916").PN. OR ("D434309").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 11:40 PM
L52	23	("0562468" "1495982" "2636704" "4809894" "D027860" "D423916").PN. OR	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 11:41 PM

L53	6	("D434308").URPN. ("1912704").URPN.	(USPAT)	OR	OFF	OFF	2016/09/22 11:44 PM
L54	922	wire adj hanger	(USPAT)	OR	ON	ON	2016/09/22 11:48 PM
L55	38	L54 and spiral	(USPAT)	OR	ON	ON	2016/09/22 11:48 PM
L56	120	L54 and cable	(USPAT)	OR	ON	ON	2016/09/22 11:52 PM
L57	118	L56 not L55	(USPAT)	OR	ON	ON	2016/09/22 11:52 PM
L58	26	("0509529" "0771905" "1219702" "1472766" "3122803" "3234616" "3604066" "3657909" "4133509" "4847957" "4909466" "5309865").PN. OR ("5788201").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/22 11:54 PM
L59	766	L54 not (L55 or L56)	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/23 12:06 AM
L60	16	("20100326008" "20110309042" "4238098" "4768741" "5100008" "5531410" "5657953" "5845882" "6152412" "6637704" "6855884" "6926236" "7137608" "7304240" "7364130" "7497405").PN. OR ("8544802").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/23 04:44 AM
L61	41	("0499549" "1536678" "1912704" "2641079" "2846174" "3064933" "3198471" "3250309" "3263026" "3381824" "3504108" "3599916" "3752902" "3883934" "4232847" "4438894" "4560126").PN. OR ("4742979").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2016/09/23 04:50 AM
L62	511	line with cable with hanger	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2016/09/23 05:11 AM
L63	3	("2384440").URPN.	(USPAT)	OR	OFF	OFF	2016/09/23 06:13 AM
L64	3	("2384440").URPN.	(USPAT)	OR	OFF	OFF	2016/09/23 06:13 AM
L65	2	("2210722").URPN.	(USPAT)	OR	OFF	OFF	2016/09/23 06:14 AM
L66	1	("2172174").URPN.	(USPAT)	OR	OFF	OFF	2016/09/23 06:15 AM
L67	1	("2106006").URPN.	(USPAT)	OR	OFF	OFF	2016/09/23

L68	0	("1609052").URPN.	(USPAT)	OR	OFF	OFF	06:15 AM 2016/09/23 06:19 AM
L69	1	("8448307").PN.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2016/09/23 03:53 PM
L70	0	"1609052" and steel	(US-PGPUB; USPAT)	OR	ON	ON	2016/09/23 07:30 PM
L71	71	wire with (flame adj retardant) with PVC	(US-PGPUB; USPAT)	OR	ON	ON	2016/09/23 07:40 PM
L72	13	wire with (flame adj retardant) with PVC with coating	(US-PGPUB; USPAT)	OR	ON	ON	2016/09/23 07:40 PM
L73	10	("0499549" "1609052" "1720746" "1912704" "20110079427" "20110089294" "2106006" "2172174" "2210722" "2384440").PN.	(US-PGPUB; USPAT)	OR	OFF	OFF	2018/02/01 05:44 AM
L74	1576	248/61	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 03:08 AM
L75	14	("499549" "1609052" "1720746" "2106006" "2172174" "2210722" "20160153587").pn. OR ("9800028").urpn. AND (PGPB USPT USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/11/04 03:15 AM
L76	55	("429357" "948902" "1362244" "1586642" "2339564" "2339565" "2384440" "2407217" "2714497" "3415474" "3506227" "3517901" "3565375" "3575367" "3687406" "3744837" "3866871" "3923277" "4019706" "4098415" "4245806" "4396135" "4413799" "4960253" "5181680" "5192039" "5344111" "5350141" "5593115" "5848770" "5924655" "6170784" "6505796" "6807791" "7207527" "7284728" "7320448" "7780122" "D625585" "8523119" "8567734" "8596589" "20060180713"	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/11/04 03:18 AM

L77	6	"20090057498" "20090321587" "20120318934").urpn. OR ("9518683").urpn. AND (PGPB USPT USOC).dbnm. ("2012/0318934").urpn. AND (PGPB USPT USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/11/04 03:18 AM
L78	7	("9722405").pn.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 03:37 AM
L79	1	("1705233").urpn. AND (PGPB USPT USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/11/04 06:09 AM
L80	2	("1698531").urpn. AND (PGPB USPT USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/11/04 06:10 AM
L81	32	("824544").urpn. AND (PGPB USPT USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/11/04 06:25 AM
L82	1090	("20160153587" "10978861" "20170338638" "20210313788" "20210226433" "20180034252" "10063039" "20180233888" "9800028" "2303108" "2419364" "5957416" "6517052" "2210722" "6227522" "5979880" "20210088158" "2891751" "11038322" "20190386471" "5727777" "20210238945" "20210265824" "2509422" "4824057" "2566233" "3095471" "1369828" "5964434" "1875697" "2417244" "7757996" "3033978" "4832442" "1972418" "4461521" "1945488" "20050087662" "5740994" "9890937" "2235685" "10670170" "20200189886" "20160033116"	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/11/04 06:41 AM

		"20130248673" "2839597" "20190390528" "20180347727" "20100276551" "10837252" "9765953" "2451004" "20150267843" "20150323125" "20040026558" "20150115122" "5871193" "20180347305" "20100219300" "2564328" "8360372" "2820083" "10947808" "2295749" "3456066" "9407080" "6959898" "20200392763" "7234669" "20170241571" "20180051827" "20030051319" "4658100" "20190109448" "2983037" "20120175482" "10461518" "6622352" "10177551" "2120828" "3013110" "20090301822" "20090101763" "2445758" "20040129841" "10811859" "2299607" "20190386475" "7188814" "2172174" "20030020056" "3057600" "2868861" "20050274840" "20050218269" "8810432" "20140042288" "8540392" "3134575" "20130095710" "6565048" "20050109887" "20210066902" "20140151616" "3333804" "3042353" "7293745" "3026077" "20110089294" "1454559" "7367534" "20050254768" "20130139358" "3334851" "5421068" "2964274" "1698531" "20110108500"				
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		"20090103224" "6345800" "9188193" "3139482" "2348918" "2798680" "2980401" "7346962" "20110073718" "7150078" "9671046" "20190085559" "2059825" "20030221296" "20190183265" "3982372" "20060006276" "2923515" "20050160563" "5322973" "20190032292" "8054195" "20050015939" "9697754" "20110216479" "20130015316" "4386758" "4486620" "7973672" "3335213" "10835060" "9502876" "1988174" "10640975" "20200263425" "4628631" "20130213920" "4997147" "8220758" "20150262516" "4487395" "20160203741" "10867530" "3183972" "2445481" "20070164172" "20180372246" "7891614" "20190147776" "20090294602" "10269271" "1956526" "8011621" "9038835" "20070284498" "20110204191" "7523910" "3537626" "6254040" "20090057498" "20050269158" "20120018212" "20180347303" "10808486" "8840071" "20210267397" "20110300008" "2315082" "20110283515" "20070202286" "10627016" "20190032843"				
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		"8534366" "8757321" "2936991" "8191836" "4925015" "20130315751" "20200103101" "20130214015" "20080093510" "3179177" "20190316746" "20070048554" "4601453" "11131435" "20170241212" "8985528" "20190246825" "7039987" "3416830" "10458594" "3104087" RE25549 "4848538" "2195732" "2239792" "4385742" "20110174951" "6634610" "3398839" "3098115" "8245441" "2584743" "20130140422" "20020025237" "20190227250" "20200400907" "3385487" "10648241" "20140048669" "7329022" "10795106" "8851165" "6039500" "4288313" "20160244922" "20050056736" "9689122" "5961081" "20180320471" "6945501" "4557516" "20140252190" "20130241380" "20040035984" "20180335595" "2404088" "2239656" "20150259865" "20170335995" "3084892" "8659445" "6732981" "2633226" "20210010617" "20050184202" "11134804" "9051947" "20180356006" "20210018116" "20200232582" "20060027714" "10627015" "8749402" "9041555" "6224025" "20160249751" "10731434" "20130146733"				
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		"10125898" "9347188" "10310206" "7078625" "2096600" "1384036" "10801646" "5067621" "2277995" "8672092" "20180202580" "10634265" "20110089301" "4413660" "11054064" "20180045336" "10253906" "20170086602" "2692744" "3177542" "20060207949" "20070128939" "20200256483" "20190178419" "8018350" "4154298" "4874322" "2777619" "9222617" "9820591" "20110089298" "20200088323" "2410836" "4015397" "2939664" "6073819" "7876236" "6367725" "10508757" "7766285" "4909405" "3512743" "20080190044" "6230440" "7316247" "20120047801" "2240986" "20190368159" "20150335154" "7377396" "20140144725" "7189924" "20070101551" "4470622" "8662464" "8154425" "4248459" "20120074276" "2363318" "20040113024" "8375632" "10859187" "8763708" "6325338" "20070205335" "2237597" "2000545" "8395531" "5561268" "7520476" "4647074" "9938733" "9743764" "11091896" "3007243" "4682452" "5393021" "20180283166" "6053457" "20070278376" "7147194" "6330861" "6032993" "5782440" "3045748" "3395378" "10376051" "2969438"				
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		"2222229" "4132372" "2041805" "3109627" "6260489" "2102966" "20060113334" "20050286256" "20200386350" "3259370" "1401650" "20170318962" "20100025064" "7661634" "10201109" "4440425" "20210151972" "7216786" "4693534" "20180163899" "20110155872" "9350145" "20050236544" "10718202" "4524999" "20120085552" "2891752" "9111469" "10910805" "20130214223" "8813400" "8246013" "7429020" "20210102642" "2004695" "2910215" "3154279" "9056393" "1980375" "2288726" "20200321763" "20120066945" "20160258271" "20210192992" "20190075925" "4753355" "4373278" "20070044970" "20070056723" "20070057126" "20190203554" "2568054" "10158218" "8037630" "5720461" "10149536" "2721050" "9988893" "10760714" "20120267483" "20180097346" "20190313793" RE30070 "20180366930" "5667181" "1509321" "20190289740" "20140208568" "5303885" "3989217" "7299867" "8448390" "20190221143" "11035193" "7431077" "4139058" "2023392" "4191334" "10243339" "3052748" "20160281881"				
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		"10962145" "20050005535" "2277935" "3255996" "11004367" "4118760" "20010037599" "10408380" "20210041042" "10638630" "10920911" "6399883" "20180149292" "3500505" "9866004" "2334560" "10422446" "20080093519" "20160076341" "20170044865" "20210164590" "20190353282" "20050167559" "3254814" "20090184269" "20070246631" "20160345757" "4669693" "20180172183" "20140117688" "2114439" "20110314712" "2934587" "20210190237" "2560845" "5970697" "20070080276" "3185444" "20200208757" "9587466" "5575447" "5934408" "20160366783" "10823312" "6345808" "20140103175" "4659051" "10214988" "8398134" "4133378" "8959814" "20110253914" RE22472 "7973299" "4684092" "6644521" "6386489" "6253631" "2582621" "9149009" "6540207" "8207516" "20060243527" "10226139" "4639031" "4066193" "6913822" "3352363" "20170082815" "4184616" "20210156495" "2814861" "20170114953" "2041110" "5282600" "20090218554"				
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		"4431108" "7075013" "4742979" "20140299716" "7350583" "10584543" "20190200786" "3003211" "4661663" "20150323126" "20180340333" "9851523" "7461827" "8505858" "2247613" "9837185" "9074707" "7377014" RE33147 "8485262" "20130160358" "20180187493" "10477776" "3266761" "3519055" "2597626" "2916309" "7658351" "20140374116" "7134490" "20050006107" "2430805" "20150010280" "11143333" "20140099084" "20060196091" "20060249633" "3004644" "2321248" "7185794" "20190360614" "7641062" "20190376644" "4077472" "9416640" "20080023616" "2895713" "20110233345" "8783628" "5127478" "2626301" "20030089828" "2546593" "20030066991" "20200278051" "20050167095" "20200003338" "5779210" RE31689 "10072486" "20050218284" "7090174" "8544802" "20110220692" "5015205" "20100326008" "4943016" "4477948" "20070113381" "4705331" "20210277751" "20100199536" "20050077326" "20170328186"				
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		"1765461" "8770533" "3055623" "3179175" "5292014" "4355677" "5364053" "20160251817" "3521843" "2879963" "3279014" "9933037" "6505818" "8454209" "4681232" "20140083262" "20140374115" "4269673" "8393101" "4154302" "20020088905" "2907872" "9220180" "5986212" "4695018" "7544120" "20170284568" "9879396" "10663088" "9359852" "20150265069" "7753319" "20200406068" "20180358824" "20100133392" "5979022" "9706859" "20130039045" "20110083854" "20040079842" "20160215592" "2163394" "20080203243" "5435514" "3116838" "2554350" "8515236" "20180138678" "20070044971" "7140587" "4019715" "8302265" "20180003913" "2547813" "1682737" "10312700" "4364538" "2070883" "20150211818" "3508631" "20180112369" "20050072090" "20120298809" "20180292029" "6666415" "2003446" "2824679" "4394242" "9939602" "7562856" "8454192" "5308280" "2834301" "20070290111" "2388860" "20100148028" "20140318007" "3256937"				
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L83	3309	"2980384" "4143845" "2775422" "5101985" "2316103" "1886463").pn. (F16L3/22).cpc.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 07:30 AM
L84	3304	L83 NOT (L82 OR L73)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 07:32 AM
L85	9227	(H02G3/30).cpc.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 08:33 AM
L86	9067	L85 NOT L84	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 08:33 AM
L88	592	L86 AND hanger	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 08:42 AM
L89	7100	(H02G3/04).cpc.	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 09:02 AM
L90	6577	L89 NOT (L85 OR L83)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR,	OR	ON	ON	2021/11/04 09:03 AM

L91	103	L90 AND hanger	GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) (US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 09:03 AM
L92	517	(H02G7/06).cpc.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 09:04 AM
L93	511	L92 NOT (L89 OR L85 OR L83)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 09:05 AM
L94	162	L93 AND hanger	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 09:05 AM
L95	27	(solar ADJ panel) AND (messenger ADJ wire)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 09:24 AM
L96	45	panel WITH (messenger ADJ wire)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/04 09:27 AM
L97	10	("0499549" OR "1609052" OR "1720746" OR "1912704" OR	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/04 09:29 AM

L98	26652	"20110079427" OR "20110089294" OR "2106006" OR "2172174" OR "2210722" OR "2384440").pn. N2 OR N3 OR N4 OR N5 OR N6 OR N7	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/03/24 04:01 PM
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PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N1	6262	248/68.1	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/03/24 03:54 PM
N2	4784	248/74.1	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/03/24 03:59 PM
N3	6512	248/65 OR 248/73	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/03/24 03:59 PM
N4	3327	248/49 NOT (L19 OR L20 OR L21)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/03/24 03:59 PM
N5	1131	248/61	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/24 04:00 PM
N6	580	(H02G3/04).cpc.	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/24 04:00 PM
N7	1825	L25 AND ((H02G3/32 OR H02G3/30 OR H02G3/0608 OR H02G3/26 OR H02G3/0456 OR H02G3/263 OR H02G3/22 OR H02G3/0418 OR H02G3/0437 OR H02G3/0443 OR H02G11/00 OR H02G3/0487 OR H02G11/006 OR H02G3/045 OR H02G3/0431 OR H02G3/0481 OR H02G3/0406 OR H02G9/06 OR H02G1/08 OR H02G3/0475 OR H02G15/013 OR H02G3/02 OR H02G15/007 OR H02G3/0468 OR	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/03/24 04:01 PM

		H02G9/04 OR H02G3/34 OR H02G9/025 OR H02G7/053 OR H02G1/00 OR H02G3/00 OR H02G3/083 OR H02G3/04 OR H02G3/125 OR H02G7/20 OR H02G15/113 OR H02G15/117 OR H02G3/0462 OR H02G3/0493 OR H02G3/126 OR H02G3/14 OR H02G3/288 OR H02G3/36 OR H02G3/0425 OR H02G3/081 OR H02G3/12 OR H02G3/16 OR H02G3/285 OR H02G3/38 OR H02G5/025 OR H02G3/088 OR H02G3/10 OR H02G3/105 OR H02G3/18 OR H02G3/24 OR H02G11/02 OR H02G1/02 OR H02G3/06 OR H02G3/0691 OR H02G3/286 OR H02G3/305 OR H02G3/386 OR H02G9/065 OR H02G9/10 OR H02G11/003 OR H02G1/04 OR H02G1/06 OR H02G1/14 OR H02G3/0412 OR H02G3/0616 OR H02G3/08 OR H02G3/085 OR H02G3/20 OR H02G3/266 OR H02G3/28 OR H02G7/056 OR H02G7/12 OR H02G7/125 OR H02G9/02 OR H02G15/076 OR H02G1/085 OR H02G2200/10 OR H02G3/0633 OR					
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		H02G3/065 OR H02G3/123 OR H02G3/128 OR H02G3/283 OR H02G3/383 OR H02G3/385 OR H02G5/00 OR H02G5/04 OR H02G7/00 OR H02G7/06 OR H02G7/10 OR H02G1/086 OR H02G2200/20 OR H02G3/03 OR H02G3/0658 OR H02G3/0683 OR H02G3/388 OR H02G5/002 OR H02G5/005 OR H02G7/02 OR H02G7/05 OR H02G7/08 OR H02G9/08 OR H02G13/40 OR H02G15/003 OR H02G15/043 OR H02G15/08 OR H02G15/18 OR H02G15/1806 OR H02G15/192 OR H02G1/088 OR H02G3/0666 OR H02G3/0675 OR H02G3/086 OR H02G3/121 OR H02G3/381 OR H02G5/007 OR H02G5/10 OR H02G7/04 OR H02G7/14 OR H02G9/00).CPC.)					
N8	14708	N2 OR N3 OR N4 OR N5 OR N6 OR N7	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/24 04:01 PM

Bibliographic Data

Application No: 17/349,447

Foreign Priority claimed: ☐ Yes ☒ No

35 USC 119 (a-d) conditions met: ☐ Yes ☒ No ☐ Met After Allowance

Verified and Acknowledged:

/STEVEN M MARSH/

Examiner's Signature Initials

Title:

LOCKING CABLE HANGER AND METHOD OF USING

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
06/16/2021	248	3632	308329-00007-3
RULE			

APPLICANTS

CAMBRIA COUNTY ASSOCIATION FOR THE BLIND AND HANDICAPPED, Johnstown, PA, UNITED STATES

INVENTORS

Allen Garrett Smith, Johnstown, PA, UNITED STATES

Frank Edward Hodge, Portage, PA, UNITED STATES

David James Prasko, Hastings, PA, UNITED STATES

Timothy Joseph Wedding, Johnstown, PA, UNITED STATES

CONTINUING DATA

This application is a CON of 17199992 03/12/2021

This application is a CON of 15662474 07/28/2017 PAT 10978861

15662474 is a CON of 14556117 11/29/2014 PAT 9722405

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

06/28/2021

** SMALL ENTITY **

STATE OR COUNTRY

UNITED STATES

ADDRESS

ECKERT SEAMANS CHERIN & MELLOTT LLC

U.S. Steel Tower

600 Grant Street, 44th Floor

Pittsburgh, PA 15219

UNITED STATES

FILING FEE RECEIVED

\$1,230

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

3705 7590 04/06/2022
ECKERT SEAMANS CHERIN & MELLOTT LLC
U.S. Steel Tower
600 Grant Street, 44th Floor
Pittsburgh, PA 15219

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/349,447	06/16/2021	Allen Garrett Smith	308329-00007-3	5107

TITLE OF INVENTION: LOCKING CABLE HANGER AND METHOD OF USING

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$600	\$0.00	\$0.00	\$600	07/06/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
MARSH, STEVEN M	3632	248-061000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/AIA/122 or PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Eckert Seamans Cherin & Mellott, LLC

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

Cambria County Association for
the Blind and Handicapped

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Johnstown, Pennsylvania

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government4a. Fees submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

☒ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 022556

5. Change in Entity Status (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29☐ Applicant asserting small entity status. See 37 CFR 1.27☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment. NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /STEPHEN A. BUCCHIANERI/

Date April 8, 2022

Typed or printed name Stephen A. Bucchianeri

Registration No. 54928

Electronic Patent Application Fee Transmittal				
Application Number:		17349447		
Filing Date:		16-Jun-2021		
Title of Invention:		LOCKING CABLE HANGER AND METHOD OF USING		
First Named Inventor/Applicant Name:		Allen Garrett Smith		
Filer:		Stephen Arthur Bucchianeri/CATHY ROEDER		
Attorney Docket Number:		308329-00007-3		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	2501	1	600	600

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				600

Electronic Acknowledgement Receipt	
EFS ID:	45427066
Application Number:	17349447
International Application Number:	
Confirmation Number:	5107
Title of Invention:	LOCKING CABLE HANGER AND METHOD OF USING
First Named Inventor/Applicant Name:	Allen Garrett Smith
Customer Number:	3705
Filer:	Stephen Arthur Bucchianeri/CATHY ROEDER
Filer Authorized By:	Stephen Arthur Bucchianeri
Attorney Docket Number:	308329-00007-3
Receipt Date:	08-APR-2022
Filing Date:	16-JUN-2021
Time Stamp:	13:10:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$600
RAM confirmation Number	E202248D10323971
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	308329issuefeepaymentform.pdf	89494	no	1
			34de096c81204f284dabda4348a2e8f40f741a89		
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	38017	no	2
			109494b69a3b8f2a342fe7b6b667dd72a0e52320		
Warnings:					
Information:					
Total Files Size (in bytes):			127511		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/349,447	06/16/2021	Allen Garrett Smith	308329-00007-3	5107
3705 7590 04/25/2022 ECKERT SEAMANS CHERIN & MELLOTT LLC U.S. Steel Tower 600 Grant Street, 44th Floor Pittsburgh, PA 15219			EXAMINER MARSH, STEVEN M	
			ART UNIT 3632	PAPER NUMBER
			NOTIFICATION DATE 04/25/2022	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ipmail@eckertseamans.com

Corrected Notice of Allowability	Application No. 17/349,447	Applicant(s) Smith et al.	
	Examiner STEVEN M MARSH	Art Unit 3632	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Applicant's communication received on 16 March 2022.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are See Continuation Sheet. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov**.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) ☐ All b) ☐ Some* c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. ____.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892) 2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date ____. 3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material ____. 4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____.	5. ☐ Examiner's Amendment/Comment 6. ☒ Examiner's Statement of Reasons for Allowance 7. ☐ Other _____.
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/STEVEN M MARSH/ Primary Examiner, Art Unit 3632	
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Continuation of 3. The allowed claim(s) is/are: 1-4,6-18,20-26 and 28

DETAILED ACTION

This is a correction of the second office action for US Application 17/349,447 for a Locking Cable Hanger and Method of Using.

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Allowable Subject Matter

Claims 1-4, 6-18, 20-26 and 28 are allowed. The following is an examiner's statement of reasons for allowance: The prior art does not disclose or suggest a system for organizing a plurality of electrical cables extending from a plurality of solar panels, with a plurality of cable hangers disposed along a messenger wire, with cable carrying surfaces structured to support at least one cable and separated by a cable carrier divider.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEVEN M MARSH whose telephone number is (571)272-6819. The examiner can normally be reached Mon-Thurs 9 am-7:30 pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrell McKinnon can be reached on 571-272-4797. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: <https://patentcenter.uspto.gov>. Visit <https://www.uspto.gov/patents/apply/patent-center> for more information about Patent Center and <https://www.uspto.gov/patents/docx> for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197

Application/Control Number: 17/349,447
Art Unit: 3632

Page 4

(toll-free). If you would like assistance from a USPTO Customer Service

Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

STEVEN M. MARSH
Primary Examiner
Art Unit 3632

/STEVEN M MARSH/

Primary Examiner, Art Unit 3632

Issue Classification 	Application/Control No. 17/349,447	Applicant(s)/Patent Under Reexamination Smith et al.
	Examiner STEVEN M MARSH	Art Unit 3632

CPC						
Symbol				Type	Version	
H02G	/	3	/	30	F	2013-01-01

CPC Combination Sets					
Symbol		Type	Set	Ranking	Version
	/		/		

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	25	
/STEVEN M MARSH/ Primary Examiner, Art Unit 3632	19 April 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

Issue Classification 	Application/Control No. 17/349,447	Applicant(s)/Patent Under Reexamination Smith et al.
	Examiner STEVEN M MARSH	Art Unit 3632

INTERNATIONAL CLASSIFICATION			
CLAIMED			
F16L		3	00

NON-CLAIMED			

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS
248	61

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	25	
/STEVEN M MARSH/ Primary Examiner, Art Unit 3632	19 April 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office

Part of Paper No.: 20220419

Issue Classification 	Application/Control No. 17/349,447	Applicant(s)/Patent Under Reexamination Smith et al.
	Examiner STEVEN M MARSH	Art Unit 3632

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47															
CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	9	10		19	25	28								
2	2	10	11	18	20										
3	3	11	12	19	21										
4	4	12	13	20	22										
	5	3	14	21	23										
5	6	14	15	22	24										
6	7	15	16	23	25										
7	8	16	17	24	26										
8	9	17	18		27										

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	25	
/STEVEN M MARSH/ Primary Examiner, Art Unit 3632	19 April 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

<i>Search Notes</i> 	Application/Control No. 17/349,447	Applicant(s)/Patent Under Reexamination Smith et al.
	Examiner STEVEN M MARSH	Art Unit 3632

CPC - Searched*		
Symbol	Date	Examiner
see PE2E search	11/04/2021	SMM

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
see	PE2E search	11/04/2021	SMM

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
Conducted text search	11/04/2021	SMM
IP.com search		
forward/backward search		
Inventor name search		
updated search	12/13/2021	SMM
Interference - see PE2E search	03/24/2022	SMM

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
see	search notes	03/24/2022	SMM

/STEVEN M MARSH/ Primary Examiner, Art Unit 3632	
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Issue Classification 	Application/Control No. 17/349,447	Applicant(s)/Patent Under Reexamination Smith et al.
	Examiner STEVEN M MARSH	Art Unit 3632

☐ Claims renumbered in the same order as presented by applicant
 ☐ CPA
 ☐ T.D.
 ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	9	10		19	25	28								
2	2	10	11	18	20										
3	3	11	12	19	21										
4	4	12	13	20	22										
	5	13	14	21	23										
5	6	14	15	22	24										
6	7	15	16	23	25										
7	8	16	17	24	26										
8	9	17	18		27										

Change(s) applied
 to document,
 /Q.N./
 4/22/2022

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	25	
/STEVEN M MARSH/ Primary Examiner, Art Unit 3632	19 April 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office

Part of Paper No.: 20220419



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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/349,447	05/31/2022	11349291	308329-00007-3	5107

3705 7590 05/11/2022
ECKERT SEAMANS CHERIN & MELLOTT LLC
U.S. Steel Tower
600 Grant Street, 44th Floor
Pittsburgh, PA 15219

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Patents Stakeholder Experience (OPSE), Stakeholder Support Division (SSD) at (571)-272-4200.

INVENTOR(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional inventors):

Allen Garrett Smith, Johnstown, PA;
Frank Edward Hodge, Portage, PA;
David James Prasko, Hastings, PA;
Timothy Joseph Wedding, Johnstown, PA;

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

CAMBRIA COUNTY ASSOCIATION FOR THE BLIND AND HANDICAPPED, Johnstown, PA;

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IR103 (Rev. 10/09)