A electronic winding device for winding cargo strap. The present invention is a motorized winding shaft that can be powered by means of a battery or an external power source. The present invention provides the user with a normally switch that can be depressed to activate the motor for winding of cargo straps. A light is provided for illumination of the winding shaft and allows the user to utilize the present invention during the night.
ELECTRONIC CARGO STRAP WINDER


FIELD OF THE INVENTION

[0002] The present invention relates generally to an apparatus for winding a cargo strap. More particularly, the present invention is a motorized, rotatable shaft for winding a cargo strap that is attachable to a moving vehicle.

BACKGROUND OF THE INVENTION

[0003] Users of ground transport vehicles carrying bulky and heavy payload are required to harness their payload with durable cargo straps. It is necessary that the cargo straps are wrapped around the payload in such a way that any part of the payload is unable to be displaced from the vehicle. When a user of a transport vehicle reaches his or her destination and releases the payload, the cargo straps are often disposed in such a way that it is left entangled and becomes troublesome for later use. As a result of the tangled cargo straps, the user is left spending extra time to untangle and organize the cargo straps. It is therefore an object of the present invention to introduce a cargo strap winder which is motorized and attachable to a moving vehicle. The present invention allows users to automatically retract and roll up the cargo straps in an organized fashion that is readily available for use immediately. It is a further object of the present invention to provide a rotatable means connected to the motor of the invention for electrically winding the cargo straps.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] FIG. 1 is a perspective view of the present invention showing the winding shaft.

[0005] FIG. 2 is an alternative view of the present invention showing the charging port.

[0006] FIG. 3 is a rear view of the present invention showing the battery of the present invention.

DETAIL DESCRIPTIONS OF THE INVENTION

[0007] All illustrations of the drawings are for the purpose of describing selected versions of the present invention and are not intended to limit the scope of the present invention.

[0008] The present invention is a cargo strap winder that can receive and roll cargo straps for quick storage. In the preferred embodiment, the present invention is able to receive any straps with widths of 1 inch to 4 inches. The present invention provides the user with the ability to automatically roll the cargo strap without the need for the user to manually roll the straps. The electronic cargo strap winder comprises of an enclosure 1, a winding shaft 2, a bracket 3, a motor 4, a switch 5, a power port 6, a power cord 7, a light 8, and a battery 9. The present invention utilizes a motorized winding shaft 2 to automatically wind and roll the cargo strap. The bracket 3 allows the user to clamp the electronic cargo strap winder to a truck. The remaining components of the present invention are encased by the enclosure 1 to provide a compact and convenient design.

[0009] In reference to FIG. 1-3, the enclosure 1 further comprises of a battery compartment 11. In the preferred embodiment of the present invention, the enclosure 1 is a semi-cylindrically shaped. The battery compartment 11 is positioned on a back side of the enclosure 1. The battery 9 is inserted and fitted into the battery compartment 11. The battery compartment 11 having positive and negative contacts will engage with the corresponding contacts on the battery 9. The switch 5 is positioned on a top side of the enclosure 1. The switch 5 is a normally open switch that is able to electronically connect the motor 4 with the battery 9. Additionally, when using an external power source, the switch 5 connects the power port 6 with the motor 4. The motor 4 is positioned within the enclosure 1 and protrudes from a first end of the enclosure 1. The protrusion of the motor 4 allows the winding shaft 2 to be attached and extended from the motor 4 to hold and roll a cargo strap.

[0010] In reference to FIG. 2, the power port 6 is positioned on a second end of the enclosure 1. The power port 6 is a recessed space with a positive and negative lead that is readily available for the power cord 7 to be plugged in. The power cord 7 is inserted into the power port 6 to provide power from an external power source to directly to the motor 4, indirectly to the battery 9, or directly to the battery 9 for charging. The external power source from the power cord 7 can lead to the battery 9 of the user’s vehicle or even a power outlet. The power port 6 is electrically connected to the motor 4 by means of the switch 5. Similarly, the battery 9 is electrically connected to the motor 4 by means of the switch 5. The switch 5, being a normally open switch 5, requires the user to close the circuit to activate the motor 4.

[0011] In reference to FIG. 1, the winding shaft 2 further comprises of a strap slot 21. In the preferred embodiment of the present invention, the strap slot 21 is able to accommodate cargo straps that have a width from 1 inch to 4 inches. The strap slot 21 also provides a ¼ inch space cut out from the winding shaft 2 to accommodate thicker cargo straps. In other embodiments of the present invention, the width of the strap slot 21 and the length of the slot can be of other dimensions. The strap slot 21 is traversed along the length of the winding shaft 2 to provide the length to accommodate the width of the cargo strap. The light 8 of the present invention is positioned on the first end adjacent to the motor 4. The light 8 provides lighting directly by the winding shaft 2. This allows the user to wind cargo straps in the dark.

[0012] The bracket 3 allows the user to secure the electronic cargo strap winder to a vehicle. The bracket 3 comprises of an adapter clamp 31 and a pair of fastening knobs 32. The bracket 3 is fastened to the back side of the enclosure 1. The adapter clamp 31 is extended from the portion of the bracket 3 that is fastened to the electronic cargo strap winder. The adapter clamp 31 is a U-shaped bracket 3 that allows the user to dock the present invention to the edge of a user’s truck bed or any other edge. The adapter clamp 31 further comprises a fastener holes. The fastener holes traverse through the adapter clamp 31. The pair of fastener knobs traverses through the fastener holes to pin the user’s truck bed edge to securely fasten the present invention to the vehicle. The adapter clamp 31 can be sized differently to fit the frame or body of different types of vehicles. In the preferred embodiment of the present invention, the bracket 3 can be 12 inches wide by 16 inches long metal backing made from material including steel or aluminum. In other embodiments of the present invention, the bracket 3 can be made from other suitable materials such as high strength polymers. The U-shaped design of the adapter clamp 31 allows the user to clamp the present invention onto a flatbed trailer’s rub rail. The pair of fastening knobs 32
allows the user to adjust the bracket 3 to have a tight fit to the rub rail to prevent the present invention from falling off.

[0013] To use the present invention, the user is able to insert a cargo strap into the strap slot 21. Once the strap is in place, the user can depress the switch 5 to activate the motor 4 for automatic winding of the cargo strap. In the preferred embodiment of the present invention, the motor 4 is a 12 volt DC motor which is able to rotate the shaft. In other embodiments of the present invention, any other suitable DC motor can be used. While the user depresses the switch 5 for winding the cargo strap the lights 8 positioned adjacent to the winding shaft 2 are also activated and illuminated. The light 8 provides the user with the ability to operate the present invention at night and ensure the cargo strap is aligned to the winding shaft 2. In the preferred embodiment of the present invention, the light 8 can be an L.E.D light. However, in other embodiments of the present invention, the light 8 can be a halogen light, fluorescent light, incandescent light, halide lights, or any other suitable source of illumination. Once the cargo strap has been completely rolled, the user is able to slip the entire roll of cargo strap off of the winding shaft 2 for storage.

[0014] With the charging port and the battery 9, the user can operate the present invention with the power provided by the battery 9. If the user does not have a battery, the user is able to plug the present invention into an external power source to power the motor 4 for operation. External power sources can be the 12V power port, cigarette lighters on cars, or any convenient socket that is accessible by the user. However, the user can also choose to use the battery 9 and the charging port simultaneously. While the battery 9 is fitted into the battery compartment 11, the user can plug the present invention into an external power source through the power port 6. This will allow the user to operate the present invention while the battery 9 is being charged. The charged battery 9 allows the user to operate the present invention in a different environment where an external power source is not accessible.

[0015] In an alternative application of the present invention, the present invention can be used for winding other extended items. These extended items can be extension power cords, ribbons, network cables, or any other elongated items that require winding. In the field of construction or landscaping, extension cords are typically tugged, pulled, and extended in several directions. Once the task has been completed, the user is often left with a tangled mess to be rolled for storage. The present invention provides the user with the means to conveniently clean up after their task is completed. In another embodiment of the present invention, the user can attach a reel to the winding shaft 2 for proper accommodations of cables. The user is able to operate the present invention in the same fashion by feeding any cables to the reel and depressing the switch 5.

[0016] Although the invention has been explained in relation to its preferred embodiment, it is to be understood that many other possible modifications and variations can be made without departing from the spirit and scope of the invention as hereinafter claimed.

What is claimed is:

1. An electronic cargo strap winder comprises,
   an enclosure;
   a winding shaft;
   a bracket;
   a motor;
   a switch;
   a power port;
   a power cord;
   a light;
   a battery;
   the bracket comprises an adapter clamp and a pair of fastening knobs;
   the motor being positioned in the enclosure protruding from a first end of the enclosure;
   the winding shaft being extended from the motor; and
   the light being positioned on the first end adjacent to the motor.

2. The electric cargo strap winder as claimed in claim 1 comprises,
   the enclosure comprises a battery compartment;
   the battery compartment being positioned on a back side of the enclosure;
   the battery being fitted positioned in the battery compartment; and
   the switch being positioned on the enclosure, wherein the switch is a normally open switch that electronically connects the motor with the battery.

3. The electric cargo strap winder as claimed in claim 1 comprises,
   the power port being positioned on a second end of the enclosure; and
   the power cord being inserted in the power port, wherein the power cord may lead to a power source to provide the motor power or charge the battery.

4. The electric cargo strap winder as claimed in claim 1 comprises,
   the winding shaft comprises a strap slot; and
   the strap slot being traversed along the winding shaft.

5. The electric cargo strap winder as claimed in claim 2 comprises,
   the bracket being fastened to the back side of the enclosure;
   the adapter clamp comprises fastener holes; and
   the pair of fastening knobs being traversed through the fastener holes.

6. An electronic cargo strap winder comprises,
   an enclosure;
   a winding shaft;
   a bracket;
   a motor;
   a switch;
   a power port;
   a power cord;
   a light;
   a battery;
   the bracket comprises an adapter clamp and a pair of fastening knobs;
   the motor being positioned in the enclosure protruding from a first end of the enclosure;
   the winding shaft being extended from the motor; and
   the light being positioned on the first end adjacent to the motor;
   the enclosure comprises a battery compartment;
   the battery compartment being positioned on a back side of the enclosure;
   the battery being fitted positioned in the battery compartment;
   the power port being positioned on a second end of the enclosure;
   the power cord being inserted in the power port, wherein the power cord may lead to a power source to provide the motor power or charge the battery; and
   the winding shaft comprises a strap slot.
7. The electric cargo strap winder as claimed in claim 6 comprises, the switch being positioned on the enclosure, wherein the switch is a normally open switch that electronically connects the motor with the battery; The strap slot being traversed along the winding shaft; the bracket being fastened to the back side of the enclosure; the adapter clamp comprises fastener holes; and the pair of fastening knobs being traversed through the fastener holes.

8. An electronic cargo strap winder comprises, an enclosure a winding shaft; a bracket; a motor; a switch; a power port; a power cord; a light; a battery; the bracket comprises an adapter clamp and a pair of fastening knobs; the motor being positioned in the enclosure protruding from a first end of the enclosure; the winding shaft being extended from the motor; the light being positioned on the first end adjacent to the motor; the enclosure comprises a battery compartment; the battery compartment being positioned on a back side of the enclosure; the battery being fitted positioned in the battery compartment; the power port being positioned on a second end of the enclosure; the power cord being inserted in the power port, wherein the power cord may lead to a power source to provide the motor power or charge the battery; the winding shaft comprises a strap slot; the switch being positioned on the enclosure, wherein the switch is a normally open switch that electronically connects the motor with the battery; The strap slot being traversed along the winding shaft; the bracket being fastened to the back side of the enclosure; the adapter clamp comprises fastener holes; and the pair of fastening knobs being traversed through the fastener holes.

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