CLIMB ASSIST SYSTEM

BACKGROUND

[0001] The ability to service devices that are elevated requires a system for getting a service technician to the device. One common system used to reach elevated locations is a ladder. However, when the distance to reach the device is significant, the use of a ladder is restricted to only those individuals that are physically capable of climbing the distance of the ladder. Safety issues also have to be considered. The more fatigue a worker is experiencing, the more likely an accident could occur such as slipping and falling. Hence, fatigue that comes with climbing great distances should be taken into consideration when implementing a system to reach a device at an elevated location.

[0002] For the reasons stated above and for other reasons stated below which will become apparent to those skilled in the art upon reading and understanding the present specification, there is a need in the art for an effective and safe means to assist a worker climb a ladder.

SUMMARY OF INVENTION

[0003] The above-mentioned problems of current systems are addressed by embodiments of the present invention and will be understood by reading and studying the following specification. The following summary is made by way of example and not by way of limitation. It is merely provided to aid the reader in understanding some of the aspects of the invention.

[0004] According to an aspect of the present invention, there is provided a climb aid and safety system, comprising: a motorized climb assist system configured to assist a user in using a ladder, the motorized climb assist system including a looped belt with an attaching member configured and arranged to be coupled to a safety harness of the user, the looped belt providing a pulling force to assist the user in using the ladder; the motorized climb assist system further including a motor assembly, the motor assembly

including, a motor having a drive shaft, and a drive sheave coupled to the drive shaft, the drive sheave being in frictional contact with the looped belt; and a fall arrest system integrated with the drive sheave of the motorized climb assist system, the fall arrest system configured and arranged to prevent the looped belt from moving during a fall event, the fall arrest system including: a catch coupled to the motor assembly, the catch including at least one protrusion, and at least one pawl pivotally coupled to the drive sheave, the at least one pawl configured and arranged to engage the at least one protrusion of the catch to prevent the drive shaft from rotating thereby preventing the looped belt from moving during a fall event.~~In one embodiment a motorized climb assist assembly is provided. The motorized climb assist assembly includes a looped belt, an attaching member, a motor assembly and a fall arrest system. The attaching member is coupled to the looped belt. A safety harness is in turn coupled to attaching member. The motor assembly includes a motor and a drive sheave. The motor has a drive shaft. The drive sheave is coupled to the drive shaft. In addition, the drive sheave is in contact with the looped belt. The~~

~~fall arrest system is integrated with the drive sheave and is configured to limit the looped belt movement as the result of a fall event.~~

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] The present invention can be more easily understood and further advantages and uses thereof more readily apparent, when considered in view of the detailed description and the following figures in which:

[0006] Figure 1A is a front perspective view of a ladder having a climb assist system of one embodiment of the present invention coupled thereon;

[0007] Figure 1B is rear perspective view of the ladder having the climb assist system of Figure 1A coupled thereon;

[0008] Figure 2A is a close up rear perspective view of a motor assembly and tension adjusting assembly of one embodiment of the present invention;

[0009] Figure 2B is a close up front perspective view of the motor assembly and the tension adjusting assembly of Figure 2A;

[0010] Figure 2C illustrates the routing of a cable through sheaves of one embodiment of the present invention;

[0011] Figure 3 is a close up front view of a motor assembly of one embodiment of the present invention;

[0012] Figure 4A is an assembled front prospective view of a motor assembly of one embodiment of the present invention;

[0013] Figure 4B is an exploded front prospective view of the motor assembly of Figure 4A;

[0014] Figure 4C is an assembled front perspective view of a motor assembly of another embodiment of the present invention;

[0015] Figure 4D is an exploded front perspective view of a motor assembly of another embodiment of the present invention;