SYSTEM FOR LIFTING, HOLDING, AND DISPENSING SPOOLED CABLE

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ABSTRACT
A method for dispensing cable, using a cable dispensing apparatus including a pair of spaced horizontal support members, wheels connected thereto, a pair of spaced, generally parallel vertical support members, each respective vertical support member connected to and extending upwardly from a respective horizontal support member to define a spool holding space, a slidable support member slidably connected each respective vertical support member, and a lifting actuator operationally connected to at least one horizontal support member and a slidable support member. An axel member is inserted through an axel core of a spool of cable and engaged to the slidable support members. The lifting actuator is energized to raise the axel member to move the spool into the spool holding space and the apparatus is moved to a desired work location where a desired length of cable is unspoiled.
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CROSS-REFERENCE TO RELATED APPLICATIONS

This patent application claims priority to co-pending provisional patent application Ser. No. 60/955,505, filed on Aug. 13, 2007.

TECHNICAL FIELD

The novel technology relates generally to the mechanical arts, and, more particularly, to a system and apparatus for supporting a rotatable wire or cable spool and facilitating the supply of cable during the installation thereof in a structure.

BACKGROUND

Electrical cable or wire is typically supplied wound on large wooden or plastic spools. The spools are typically several feet in diameter and may weigh many hundreds of pounds. One of the more common applications of electrical cable is in the electrical wiring of buildings and structures. Typically, during the wiring installation process, the cable is supplied on spools that are typically lifted via screw jack onto support stands for unreeling. The placement of the spool onto the stand and the actuation of the screw jack are manual processes. The spool axles are set directly onto the support stand, and so during unreeling the spool must be manually lifted and turned; this process typically takes at least two men, and more typically several men, to accomplish.

Unreeling the cable is likewise labor-intensive, as the cable typically weighs about one pound per foot. The unreeling and positioning of the cable thus occupies at least 5 and more typically 8 or 9 men. Moreover, both the screw jacks themselves and the stands are prone to tipover, and the unreeling process inherently generates a torque on the stands and jacks, creating an inherent danger to the process that increases with the number of technicians involved when they are not all working in harmony (typically the situation). Thus, there is a need for an improved system for lifting and positioning cable spools and dispensing cable. The present invention addresses this need.

SUMMARY

The present novel technology relates generally to the field of mechanical devices, more particularly, to a method and apparatus for positioning and dispensing cable. One object of the present novel technology is to provide an improved system of dispensing cable. Related objects and advantages of the present novel technology will be apparent from the following description.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1A is a first perspective view of system for holding, moving and dispensing spooled wire to a first embodiment of the present novel technology.

FIG. 1B is a perspective view of the system of FIG. 1A upon which a spool of cable has been loaded.

FIG. 2A is a partial exploded view of an axel support member of FIG. 1A.

FIG. 2B is a partial exploded view of a vertical support member of FIG. 1A.

FIG. 3 is a partial exploded view of the axel members of FIG. 1A.

FIG. 4 is an enlarged partial perspective view of the axel bearings engaged to the support member of the embodiment of FIG. 1A.

FIG. 5 is an enlarged partial perspective view of the lifting actuator of the embodiment of FIG. 4.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

For the purposes of promoting an understanding of the principles of the novel technology, reference will now be made to the embodiments illustrated in the drawings and specific language will be used to describe the same. It will nevertheless be understood that no limitation of the scope of the novel technology is thereby intended, such alterations and further modifications in the illustrated device, and such further applications of the principles of the novel technology as illustrated therein being contemplated as would normally occur to one skilled in the art to which the novel technology relates.

Referring to FIGS. 1A-5, a first embodiment of the present novel technology is illustrated, a system or device 10 for holding, positioning and dispensing spooled cable or wire. The device 10 typically includes a set of wheels or casters 15 which are typically mounted to a pair of spaced, parallel horizontal support members 20, extending therefrom to the ground. A frame 25 is connected to the horizontal support members 20 and extends upwardly therefrom to define a spool holding space 30. The frame 25 is further defined by a pair of spaced vertical support members 35, each member 35 extending from a respective horizontal support member 20, and a horizontally-extending connecting member or spreader 40 extending between the vertical members 35 and spaced from the horizontal support members 20. An axel supporting member 45 is slidably connected to each respective vertical support member 35 and typically includes a frame engaging portion 50, a jack-engaging portion 53, and an axel engaging portion 55. A lifting actuator 60 is typically fixedly connected between each respective axel support member 45 and horizontal support member 20. A cylindrical axel member 65 extends between the two respective axel supporting members 45 and typically includes a central cylindrical portion 70 with a pair of support member engaging portions 75 extending from either end of the central cylindrical portion 70. More typically, the support member engaging portions 75 each include bearings 77 operationally connected thereto.

The lifting actuators 60 are typically pneumatic or hydraulic jacks, and are typically manually actuated, but may also be any type of jack 60 and further may be automatically actuated. The support members 20, 35, 45 are typically made of a structural material, and are more typically made of steel; however, any convenient structural material may be used. Likewise, the structural members 20, 35, 40, 45 are typically substantially straight and flat members, but may alternately have any convenient shape. The vertical support members 35 typically include grooves or recesses 90 formed in at least one surface for engaging and guiding the axel support members 45.

In operation, the axel member 65 is extended through the axial core of a cable spool 80 and each support member engaging portion 75 of the axel member 65 is positioned above a respective axel support member 45, such that energization of the respective jacks 60 will urge the axel
support members 45 to slide upwardly along the respective
vertical support members 35 and engage the support member
engaging portions 75 with the axel engaging portions 55.
Further energization of the jacks 60 will urge the axel support members 55 to continue to move upwardly along the vertical
support members 35, thus raising the axel member 70 and
spool 80 to an elevation convenient for transport and unspooling.

[0017] After the spool 80 is lifted into the spool holding
space 30, the support members 45 are typically locked into
place, such as by extending a pin 85 through one or both of the
vertical support members 35 below the axel support members
45, or the like. The device 10 may then be rolled on its
wheels castors 15 to a desired unspooling location, where the
wheels castors 15 are typically locked to prevent unwanted
drifting of the device 10 and the loaded cable spool 80. The
spool 80 may then be unreeled by exerting a force on the end
of the cable and unspooling a desired amount (this is typically
accomplished by one or more workmen pulling the cable to its
desired location). This process is facilitated by the bearings
77 operationally connected to the axel 65 and engaging the
support members 45. When the desired amount of cable has
been extracted, the remaining cable may be left on the spool
80 and the spool 80 transported to the next job site, or the
device 10 may be moved to a suitable storage location, the
axel support members 45 unlocked and lowered, and the cable
spool 80 disengaged from the device 10 and axel 65 for
storage.

[0018] While the novel technology has been illustrated
and described in detail in the drawings and foregoing description,
the same is to be considered as illustrative and not restrictive
in character, it being understood that only the preferred
embodiment has been shown and described and that all
changes and modifications that come within the spirit of the
novel technology are desired to be protected.

We claim:

1. An apparatus for supporting and moving spooled wire or
cable, comprising:
   at least one horizontal support member;
   at least one wheel connected to the at least one horizontal
   support member;
   a frame portion extending upwardly from the at least one
   horizontal support member and defining a spool holding
   space;
   at least one slidable support member slidably connected to
   the frame portion;
   an axel rotatably engaged to the slidable support member;
   a lifting actuator operationally connected to the horizontal
   support member and the slidable support member;
   wherein the axel includes bearings operationally con-
   nected thereto;
   wherein the bearings operationally engage the at least one
   slidable support member;
   wherein actuation of the lifting member urges the at least
   one slidable support member to slide along the frame
   portion and urges the axel member to move into the
   spool holding space.

2. The apparatus of claim 1 wherein the frame portion
further includes top member and at least one vertical support
member extending between and connected to the top member
and the at least one horizontal support member and wherein
the at least one vertical support member further includes a
track formed therein for engaging and guiding the at least one
slidable support member.

3. The apparatus of claim 2 wherein the at least one hori-
zontal support member includes a pair of spaced, generally
parallel structural members; wherein the frame portion fur-
ther includes a pair of spaced vertical support members;
wherein each respective vertical support member extends
between a structural member and the top member.

4. The apparatus of claim 1 and further comprising a lock-
ing member operationally connected to the slidable support
member to prevent it from moving relative to the frame por-
tion.

5. A method for dispensing cable, comprising:
   providing a cable dispensing apparatus including:
   a pair of spaced horizontal support members;
   wheels connected to the horizontal support members;
   a pair of spaced, generally parallel vertical support
   members, each respective vertical support member
   connected to and extending upwardly from a respec-
tive horizontal support member to define a spool holding
   space;
   a slidable support member slidably connected each
   respective vertical support member; and
   a lifting actuator operationally connected to at least one
   horizontal support member and a slidable support
   member;
   inserting an axel member through an axel core of a spool of
cable;
   engaging the axel member to the slidable support mem-
bers;
   energizing the lifting actuator to raise the axel member to
move the spool into the spool holding space;
   moving the cable dispensing apparatus to a desired work
location; and
   unspooling a desired length of cable.

6. The method of claim 5 and further comprising:
   lowering the axel member to place the spool on the ground;
   disengaging the axel member from the slidable support
members; and
   storing the spool for future use.

7. The method of claim 5 and further comprising:
   after energizing the lifting actuator to raise the axel mem-
ber to move the spool into the spool holding space,
   locking the slidable support members into place.

8. A method for dispensing cable, comprising:
   inserting an axel member through an axel core of a spool of
cable;
   engaging the axel member to support members;
   energizing a lifting actuator to raise the support members to
lift the spool off the ground;
   moving the cable to a desired work location;
   unspooling a desired length of cable;
   moving the cable to a desired storage location;
   lowering the axel member to place the spool on the ground;
   disengaging the axel member from the support members;
   and
   storing the spool for future use.

9. The method of claim 8 wherein the support members are
slidably connected to a frame structure; wherein the frame
structure includes roller means for moving the frame struc-
ture; and wherein the lifting actuator is operationally con-
nected to the frame structure and the support members.

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