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DEREELING APPARATUS

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ABSTRACT OF THE DISCLOSURE

A dereeling apparatus for dispensing strand material, for example, wire, wound on a reel. The apparatus comprises a frame, a member and a spindle secured to the frame. The member has a flat surface which is angularly disposed to the horizontal. The spindle extends from the member away from the flat surface and over the frame. The spindle has an axis which is substantially perpendicular to the flat surface of the member, and, also, angularly disposed to the horizontal. A reel can be placed on the spindle with one of its ends contiguous to the aforementioned flat surface. The spindle has a distal end portion which functions to guide a reel onto the spindle without damaging the wire on the reel. The spindle and reel are enclosed by the aforementioned member, a wall element coaxially positioned of the spindle and secured to the frame, and a lid removably attached to the wall element. The lid has an aperture formed therein. When the lid is positioned on the wall element, the aperture is positioned with respect to the spindle such that the axis of the spindle when extended passes through the center of the aperture. Both the wall element and the lid have interior guiding surfaces which guide the wire from a wound condition on the reel, through the aforementioned aperture, and into a payed-out condition. In a specific embodiment, a guide having spaced-apart eyelets is secured to the lid for guiding the wire in the direction desired.

BACKGROUND OF THE INVENTION

Field of the invention

The present invention relates to dereeling apparatus, and more specifically, to an apparatus from which strand material in a wound condition on a reel can be payed-out with less difficulty than from many prior art dereeling devices.

DESCRIPTION OF THE PRIOR ART

Dereeling apparatus of various types have heretofore been proposed. These prior art dereeling devices for the most part have included either a horizontal spindle or a vertical spindle and a friction device for maintaining the payed-out strand material remote from the device in tension.

Several difficulties have been experienced with prior art dereeling apparatus when used to pay out wire from a spool. Occasionally, the wire has become caught between one of the flanges of the spool and a portion of the dereeling apparatus or frictionally engaged with a spool flange and the wire has become broken. Also, wire occasionally has become loose on the spool or collected between the spool and the aforementioned friction device and the wire has become entangled. When using dereeling apparatus in which the spool does not rotate but remains stationary some loosening of the wire on the spool is desirable as the wire is payed-out. In general, sufficient loosening of the wire does not occur in dereeling apparatus incorporating horizontally disposed spindles, and excessive loosening of the wire occurs in dereeling apparatus incorporating vertically disposed spindles. Excessive loosening of the wire on the spool exaggerates the aforementioned two difficulties with prior art apparatus.

Since spools are constantly being positioned on and removed from dereeling apparatus in use, it is highly desirable that the loading and unloading of the apparatus be uncomplicated, convenient and without difficulty. It is essential that a spool of wire be placed on such apparatus without damaging the wire in any respect since damaged wire can also cause entanglements, breakage and other difficulties.

Further, wire which is being payed-out at a relatively high speed, for example, a thousand feet per minute, tends to move outwardly of the spool and conform to the surrounding structure of the dereeling apparatus. A drastic increase in wire tension has occurred when this structure causes the wire to bend rather sharply. Bends even approaching 90° are not desired for this reason. This increased tension in the wire may also cause wire breakage.

For the reasons given above, it is highly desirable to provide an improved dereeling apparatus which is not plagued by the abovementioned difficulties. Further, it is highly desirable to provide an improved dereeling apparatus which is both convenient to use and trouble free in use. The dereeling apparatus of this invention is believed to be a step toward this goal.

SUMMARY OF THE INVENTION

In the broader aspects of this invention, there is provided an apparatus for dispensing strand material wound on a reel comprising a frame and a spindle secured to the frame for removably mounting a reel on the frame. The spindle has an axis which is angularly disposed with reference to a horizontal direction. The length and the shape of the distal end of the spindle are chosen to aid in the positioning of a reel on the spindle and the removal of a reel from the spindle of the apparatus. A reel on the spindle of the apparatus is enclosed by structure having surfaces which guide the strand material on the reel from a wound condition into a payed-out condition.

It is the primary object of this invention to provide an improved dereeling apparatus.

Another object of this invention is to provide an improved wire dereeling apparatus which both is convenient to use and reduces the occurrence of wire entanglements and breakage.

Yet another object of this invention is to provide a wire dereeling apparatus having a spindle of a length and shape which aids the positioning of a reel on the spindle and the removal of the reel from the spindle, said spindle being angularly disposed with respect to the horizontal.

A further object of this invention is to provide an improved wire dereeling apparatus which incorporates structure for guiding the wire from a wound condition on a reel into a payed-out condition remote from the reel without incorporating a device associated with the apparatus for maintaining the wire remote from the apparatus in tension.

The abovementioned and other features and objects of this invention and the manner of attaining them will become more apparent and the invention itself will be best understood by reference to the following description of a specific embodiment of the invention taken in conjunction with the accompanying drawings, wherein:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the exterior of one embodiment of the improved dereeling apparatus of this invention with a reel positioned on the spindle of the apparatus and the apparatus fully assembled;

FIG. 2 is an exploded and perspective view of the improvided dereeling apparatus of this invention shown in FIG. 1, viewed generally in a direction opposite the direction viewed in FIG. 1;