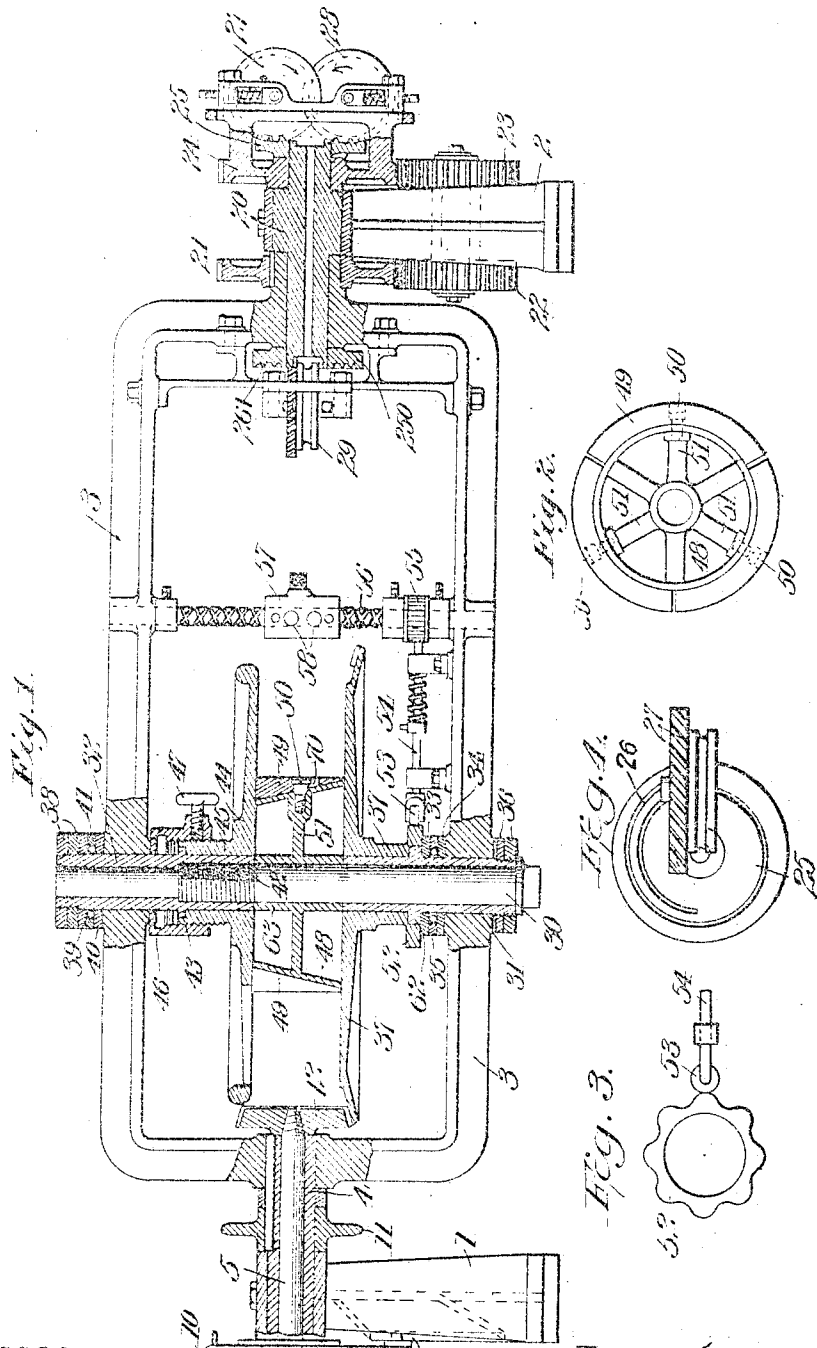


J. A. HEANY.
WINDING REEL.

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960,913.

Patented June 7, 1910.



Witnesses:

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WINDING-REEL.

960,913.

Specification of Letters Patent. Patented June 7, 1910.

Application filed May 1, 1909. Serial No. 493,308.

To all whom it may concern:

Be it known that I, JOHN ALLEN HEANY, a citizen of the United States, residing at York, in the county of York and State of Pennsylvania, have invented certain new and useful Improvements in Winding-Reels, of which the following is a specification.

This invention relates to a mechanism for winding wire upon a reel and is particularly adapted for use in connection with machines for applying coverings to wire such as are shown in my prior U. S. Patent No. 825,123, patented July 3, 1906.

The invention will be fully understood from the following description, taken in connection with the accompanying drawings, in which:—

Figure 1 is an elevation, parts of the device being shown in section; Fig. 2 is a detailed view of the drum on which the wire is wound; and Figs. 3 and 4 are plan views of further details.

Referring to the drawings, 1 and 2 are standards mounted upon a table or frame, (not shown); which may be such as is shown in my prior patent above referred to. Mounted in journals on the standards 1, 2 is a flier frame 3 which carries the reel on which the wire is wound. The frame 3 is supported at one end by a sleeve 4 to which it is keyed, the sleeve 4 passing through the journal on the standard 1. Supported within the sleeve is an arbor 5 having secured at the end within the flier frame a bevel gear 12, and having at its outer end a friction disk 6, which is surrounded by a split band 7, secured at its lower portion to a pin 8, which is fixed to a bracket 9 carried by the standard 1. The two ends of the split band 7 are connected by an adjustable bolt 10, by turning which the band 7 may more or less tightly engage the disk 6. The arbor 5 is thus normally held from rotation by the frictional engagement of the band 7. Keyed to the sleeve 4 is a sprocket wheel 11 driven by a sprocket chain from any suitable driving means. The flier frame 3 is mounted at its other end on a fixed arbor 20 carried by the standard 2. To the extension or hub at the end of the flier frame is secured a spur gear 21 which by means of the gears 22 and 23, carried on a shaft mounted in the standard 2, drives a gear frame 24, carried on and rotating about the arbor 20. Secured to the outer end of the arbor is a disk 25 hav-

ing on its outer face a spiral cam rib 26 (see Fig. 4) with which engage the teeth of the gear-rolls 27, 28, carried by the rotating gear frame 24, whereby the feed-rolls are rotated in the direction indicated by the arrows, this mechanism being substantially the same as that shown in Figs. 6 and 7 of my Patent No. 825,123, above referred to. As shown in Fig. 4 each of these gear-rolls comprises a gear and a feed-roll having a groove therein for engaging the wire. At the inner end of the arbor and within the rotating frame 3, is a second disk 250, having on its face a spiral rib 261, with which engage the teeth of the gear-rolls 29, 29 (only one being shown) arranged in a plane at right angles to that of the gear-rolls 28, 28, and carried on a frame 80 secured to the flier-frame 3. By means of the gears 21, 22, 23, the flier-frame 3, and the gear-frame 24 are connected to rotate at the same speed and the gear-rolls 27, 28, and 29, 29, correspondingly rotate in synchronism with each other.

Mounted transversely of the flier frame 3 is a through bolt 30, surrounding which are sleeves 31, 32. The sleeve 31 is provided with a ring 62 between which and the side of the flier frame and surrounding the sleeve are bearing rings 33, 34 of hard metal, and located between these rings is a ball-containing ring 35. The outer end of the sleeve 31 is screw-threaded and provided with lock-nuts 36. Secured by a drive fit to this sleeve 31 is a bevel crown-gear 37 engaging the gear 12. The sleeve 32 is screw threaded at its outer end and has lock nuts 38 between which and the side of the frame are secured hard rings 39 and 40, and between these rings is a ball-containing ring 41. At an intermediate point in its length the through bolt 30 is provided with a screw thread 42 which engages with a corresponding screw thread on the sleeve 32. A shoulder 43 on the sleeve 32 serves to hold in place a disk 44 provided with a screw threaded hub 45 fitted to the sleeve 32. A hollow safety cap 46 screws onto the hub 45 and is adjustably held in place by a screw threaded fastening pin 47. Surrounding the bolt 30 and located between the gear 37 and the disk 44 is a frusto-conical drum 48, having a hub 63, on the exterior surface of which are secured three sector-shaped pieces 49, having outer cylindrical surfaces, their

inner surfaces being frusto-conically inclined to fit onto the exterior surface of the drum 48. Each of these sector-shaped pieces 49 is provided with an axially-extending slot 70, through which passes a screw 50 extending into a screw-threaded socket in a spoke 51.

Secured to the sleeve 31 is a cam ring 52 having a corrugated surface on which rolls a roller 53 carried on a spring-pressed rod 54 which operates a pawl, (not shown), which engages a ratchet-wheel 55, which in turn rotates a shaft 56, the exterior surface of which is provided with reversely cut threads or grooves by which a reciprocating motion is imparted to the feed block 57, in a well known manner. The block 57 is provided with guiding pins or rollers 58, between which the wire passes.

The operation of the device is as follows: By the rotation of the flier frame about its longitudinal axis, rotation is imparted to the gear 37 through its engagement with the normally stationary gear 12. The rotation of the gear 37 rotates the drum about which the wire is to be wound, the wire being threaded through the feed-wheels 27, 28, the hollow arbor 20, the feed-wheels 29, between the pins 58, 58, and onto the winding drum. In case the tension should become too great the gear-wheel 12 can rotate about its axis against the friction of the band 7 and thereby relieve the excessive strain. To remove the drum from the flier frame, first release screw pin 47, screw inwardly safety cap 46 on hub 45 of disk 44; then remove bolt 30, permitting the drum 48 with the sectors 49 and the coil of wire to be removed from the machine. Then a blow from a hammer on the hub of the drum 48 will cause drum 48 to slip out of sectors 49 to the limit of slot 70, thereby permitting the sectors 49 to approach each other and fall freely from the coil of wire. The parts may be re-assembled by performing these operations in reverse order.

By the reciprocating motion imparted to the rod 54 from the corrugated cam 52 the "Yankee screw" mechanism lays the wire smoothly and evenly on the drum in the well known way.

By the rotation of the feed rolls 27, 28, 29 wire is fed uniformly onto the drum on which it is wound smoothly and evenly under a tension which can be regulated to any desired degree.

I claim:

1. In a reeling mechanism, a frame, sleeved disks mounted in the sides of the frame, a bolt passing through the sleeves, a drum on said bolt and between the disks, and means for securing the bolt and disks together.

2. In a reeling mechanism, a frame, sleeved disks mounted in the sides of the frame, a bolt passing through the sleeves, a drum

having a collapsible rim on said bolt and between the disks, and means for securing the bolt and disks together.

3. In a reeling mechanism, a support, a main frame rotatably mounted thereon, a fixed arbor in the support, a disk on the arbor within the frame and having a spiral rib thereon, a gear-rolls-carrying-frame secured to the main frame, gear rolls on said carrying-frame arranged to be rotated by said spiral rib, a second spiral-ribbed-disk on said arbor, a gear-rolls-carrying-frame rotatably mounted on said arbor, gear-rolls on said carrying-frame arranged to be rotated by the spiral rib, and gearing connecting the second gear-rolls-carrying frame and the main frame.

4. In a winding mechanism, a rotatable frame, a bolt mounted therein, a sleeve surrounding the bolt and having a disk secured thereto, a second sleeve screwed to the bolt and a disk secured thereto, a drum mounted on the bolt between the disks, and means for securing the bolt to the frame.

5. In a winding mechanism, a rotatable frame, a bolt mounted therein, a sleeve surrounding the bolt and having a disk secured thereto, a second sleeve screwed to the bolt and a disk secured thereto, a frusto-conical drum having a collapsible rim mounted on the bolt between the disks, and means for securing the bolt to the frame.

6. In a winding mechanism, a rotatable frame, a bolt mounted therein, a sleeve surrounding the bolt and having a disk with a gear at its rim secured thereto, a second sleeve screwed to the bolt and a disk secured thereto, a drum mounted on the bolt between the disks, and means for securing the bolt to the frame.

7. A reel comprising a frusto-conical drum, a rim therefor composed of several parts having cylindrical outer faces and frusto-conical inner faces, and means for connecting the parts of the hub to the drum, said connecting means arranged to permit longitudinal movement of the hub parts.

8. In a winding mechanism, a rotatable frame, a bolt mounted therein, disks mounted therein, a drum secured between the disks, and a safety-cap screwed to the hub of one of the disks and located between the hub and the side of the frame.

9. In a winding mechanism, a reel comprising a shaft, shouldered sleeves on said shaft, disks having hubs engaging the shoulders, a drum on the shaft between the disks, and means for securing the parts together.

10. In a winding mechanism, a rotatable frame, a headed bolt passing through the sides thereof, nuts for securing the bolt to the frame, a winding drum mounted on said bolt, and anti-friction bearings between the bolt and the sides of the frame.

11. In a winding mechanism, a rotatable

frame, a headed bolt, a flanged sleeve 31
surrounding the bolt, a disk mounted on
said sleeve and having its hub in engage-
ment with the flange, a second flanged sleeve
5 screwed to the bolt and having a screw-
threaded end, a second disk having its hub
in engagement with the flange, and a nut
engaging the screw-threaded end of the
sleeve.

10 12. In a winding mechanism, a rotatable
frame, a headed bolt, a flanged sleeve 31
surrounding the bolt, a disk mounted in said
sleeve and having its hub in engagement
with the flange, a second flanged sleeve

screwed to the bolt and having a screw- 15
threaded end, a second disk having its hub
in engagement with the flange, a nut en-
gaging the screw-threaded end of the sleeve,
and anti-friction bearings between the side
of the frame and the nut and between the 20
flange on the first-mentioned sleeve and the
other side of the frame.

In testimony whereof, I affix my signa-
ture in presence of two witnesses.

JOHN ALLEN HEANY.

Witnesses:

BERNARD C. BECKER,
F. A. R. HOFFEDITZ.