

No. 614,203.

Patented Nov. 15, 1898.

V. E. EDWARDS & R. L. MORGAN.

WIRE REEL.

(Application filed Aug. 25, 1897.)

(No Model.)

2 Sheets—Sheet 1.

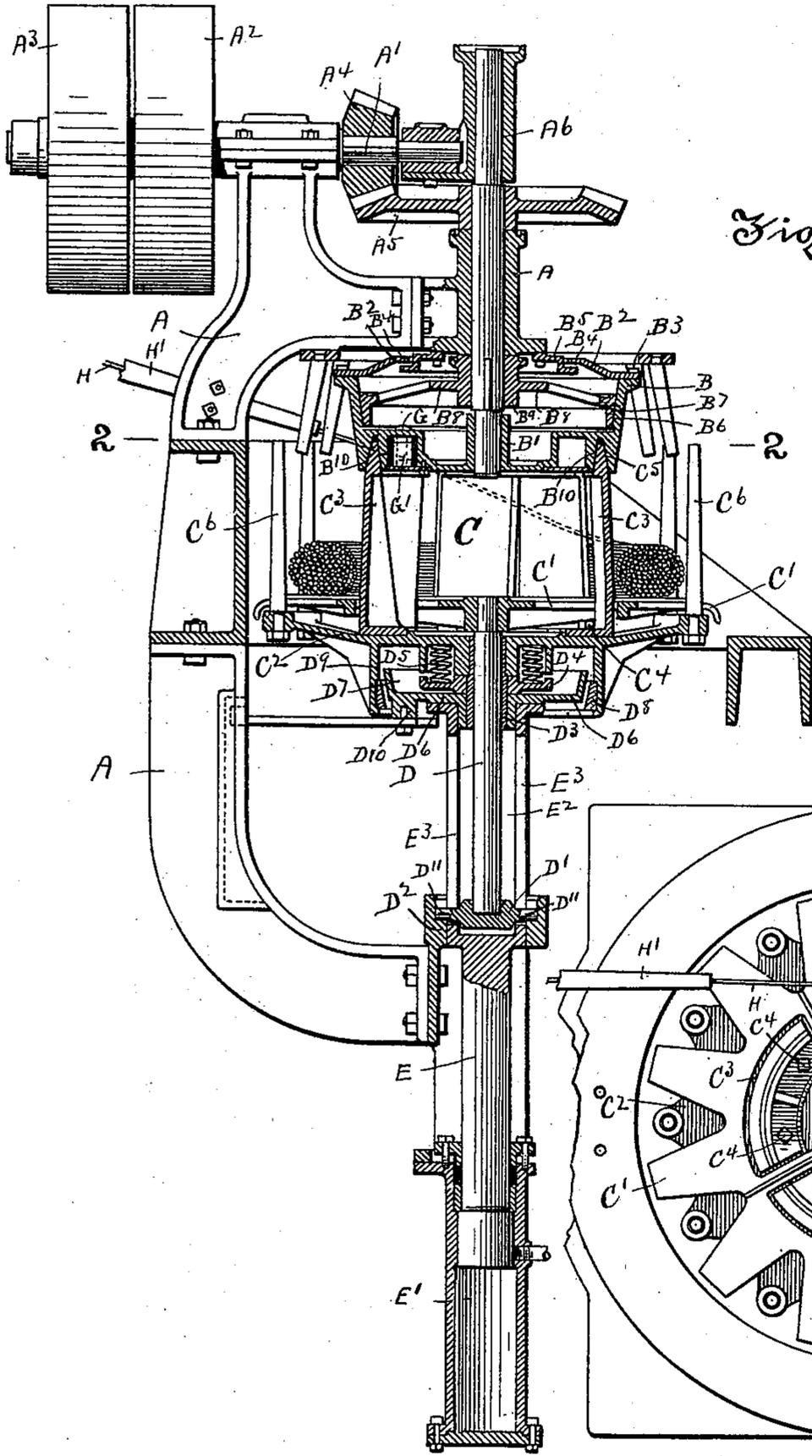


Fig. 1.

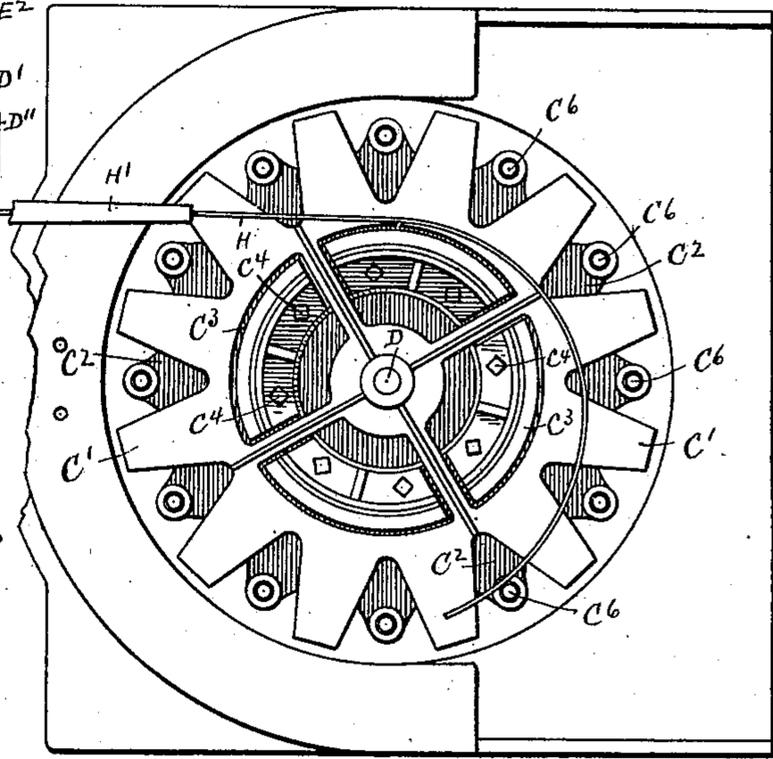


Fig. 2.

Witnesses

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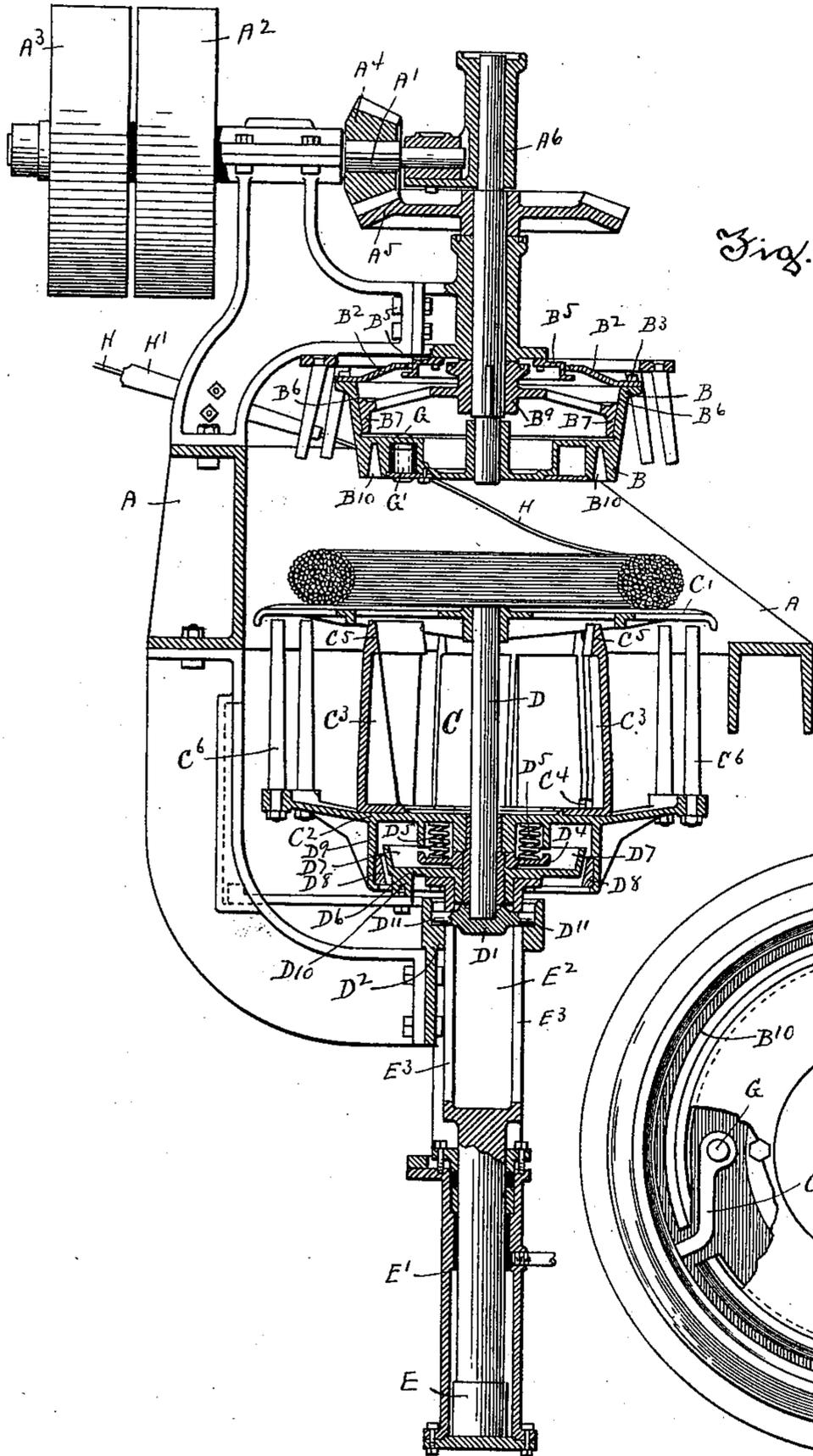


Fig. 3.

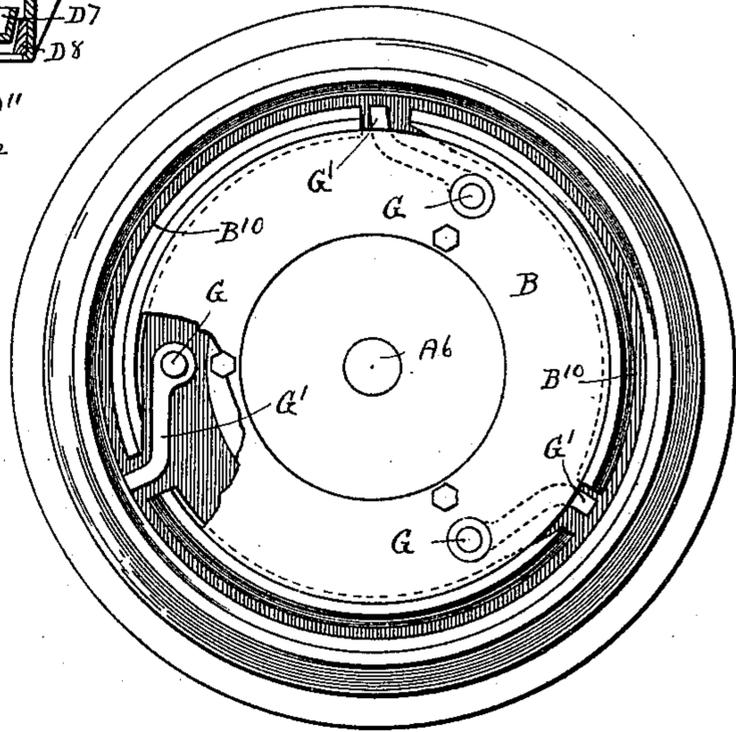


Fig. 4.

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UNITED STATES PATENT OFFICE.

VICTOR E. EDWARDS AND RALPH L. MORGAN, OF WORCESTER, MASSACHUSETTS, ASSIGNORS TO THE MORGAN CONSTRUCTION COMPANY, OF SAME PLACE.

WIRE-REEL.

SPECIFICATION forming part of Letters Patent No. 614,203, dated November 15, 1898.

Application filed August 25, 1897. Serial No. 649,471. (No model.)

To all whom it may concern:

Be it known that we, VICTOR E. EDWARDS and RALPH L. MORGAN, citizens of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Wire-Reels, of which the following is a specification, reference being had to the accompanying drawings, forming a part of the same, in which—

Figure 1 represents a side elevation of a reel embodying our invention, with the operative parts of the reel shown in central vertical sectional view, with the reel raised in its operative position. Fig. 2 is a plan view of that portion of the reel lying below the broken line 2 2, Fig. 1, shown on a scale of two-thirds that of Fig. 1. Fig. 3 represents a side elevation with the operative parts of the reel shown in central vertical sectional view, the same as shown in Fig. 1, but with the reel in its lowest position; and Fig. 4 is a bottom view of the rotating drum B with a portion broken away in order to disclose one of the pivoted latches arranged to have their free ends thrown outward by centrifugal force to engage the wire-reel.

Similar letters refer to similar parts in the different figures.

Our invention relates to a reel for coiling wire rods as they are delivered from a rolling-mill; and it has for its object to provide improved means for driving the reel, for controlling the rod, for delivering the coil from the reel, and for increasing the efficiency of the reel, and these objects are attained by the construction and arrangement of parts, as hereinafter described, and specifically set forth in the annexed claims.

Referring to the drawings, A denotes the framework, which supports the operative portions of the reel.

A' denotes a horizontal driving-shaft provided with tight and loose pulleys A² and A³ and a beveled pinion A⁴, which engages a beveled gear A⁵, attached to a vertical shaft A⁶, journaled in the framework A. At the lower end of the vertical shaft A⁶ is a drum B, having tapering sides and provided with an internal hub B', which is journaled upon

the lower end of the vertical shaft A⁶. The drum B is provided with an annular cover B², attached by bolts B³ and having its inner edge B⁴ overlapping a flange B⁵, attached to the frame A, so that when the drum B is allowed to drop into its lowest position it will be supported upon the flange B⁵.

The drum B is provided with the inner tapering sides B⁶, which correspond with and inclose the tapering face of a driving-ring B⁷, carried upon the ends of arms B⁸, which project from a hub B⁹, keyed to the vertical shaft A⁶.

Below the drum B is a reel C, comprising a platform C', upon which the rod is coiled, a disk C², carrying the blades C³, curved concentrically with the axis of the reel and attached to the disk C² by bolts C⁴. The curved blades C³ extend upwardly from the disk C² and are provided with beveled tips C⁵, adapted to enter an annular tapering recess B¹⁰ in the drum B. Outside the blades C³ is a row of vertical pins C⁶, arranged concentrically with the axis of the reel. The platform C' is carried upon the upper end of a vertical spindle D, which is supported at its lower end upon the yoke D', held in a bracket D², attached to the frame A. The disk C² is attached to a sleeve D³, which incloses the spindle D and is capable of sliding thereon. Beneath the disk C² and held loosely upon the sleeve D³ is a disk D⁴, which forms a support for the spiral springs D⁵, which rest upon the disk D⁴ and enter recesses in the under side of the disk C², with their tension applied to separate the disk C² and the disk D⁴.

Below the disk D⁴ and concentrically with the sleeve D³ is a disk D⁶, provided with a tapering flange D⁷, adapted to be brought into frictional contact with an annular brake-ring D⁸, attached to a flange D⁹, extending downwardly from the disk C². The disk D⁶ carries an arm D¹⁰, which engages the frame A in order to hold the disk D⁶ from rotating. The disk D⁶ is supported upon the flanged upper end of a hydraulic piston E, which is actuated by water under pressure in a cylinder E'. The upper end of the hydraulic piston is tubular to inclose the spindle D, which supports the platform C', and the tubular sec-

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tion E² of the piston is provided with slots E³ E³ to allow gudgeons D¹¹ D¹¹ of the yoke D' to pass through and be supported by a bracket D², which is attached to the frame A, thereby
 5 allowing a rising-and-falling motion to be imparted to the disk C², while the platform C' is held in the same vertical position and independently of the reel.

When the reel C is lowered and the beveled tips C⁵ of the curved blades C³ are withdrawn from the annular recess B¹⁰ in the drum B, the tension of the spiral springs D⁵ will raise the disk C² relatively to the disk D⁶, so as to bring the annular brake-ring D⁸ into
 15 contact with the tapering non-rotatable flange D⁷, thereby stopping the rotation of the reel. The drum B will also drop by its own weight until the inner edge B⁴ of the annular cover B² is caught by the flange B⁵, thereby carrying the annular tapering sides B⁶ out of contact with the rotating driving-ring B⁷. By
 20 lowering the reel C sufficiently to carry the tips of the curved blades C³ and the vertical pins C⁶ below the platform C' the coil F which has been deposited on the platform, can be removed.

When the reel is to be put in operation to coil the rod, the hydraulic piston E is raised, thereby lifting the disk C² and carrying the
 30 beveled tips C⁵ into the annular recess B¹⁰ of the drum B to lift the drum and carry its inner tapering sides B⁶ into contact with the rotating ring B⁷, as shown in Fig. 1, causing the rotation of the ring B⁷ to be imparted to the drum B. Hinged upon pins G, held in the drum B, are latches G', arranged to have their free ends thrown out by the centrifugal motion of the drum into the annular recess B¹⁰, so as to engage the tips of the curved
 40 plates C³ and cause the rotation of the drum B to be imparted to the reel C.

The rod H as delivered from the rolls of the mill is fed through a spout H' and delivered into the annular space between the
 45 curved blades C³ and the outer row of pins C⁶, where it is coiled by the rotation of the reel. As the last end of the rod leaves the rolls of the mill the bight of the rod around the outer tapering sides of the drum B causes it to be drawn into the reel, and as the end is delivered through the spout H' the coil or coils of rod which have been formed around the drum B will be released by their own weight, owing to the tapering sides of the drum, and
 55 allowed to fall upon the coil resting upon the platform C'.

What we claim as our invention, and desire to secure by Letters Patent, is--

1. The combination with a rotatable reel upon which the wire rods are coiled, said reel being capable of a vertical movement, of a rotating driving mechanism placed above said reel, and means for raising said reel into operative engagement with said driving mechanism whereby said reel is rotated, substantially as described.

2. The combination with a rotatable reel,

capable of a vertical movement, of a driving mechanism placed above said reel comprising a frictional driving-ring, a drum arranged to be carried into engagement with said driving-ring by the upward movement of said reel, clutching mechanism between said drum and said reel, and means for vertically moving said reel into engagement with said drum, substantially as described.

3. The combination with a rotatable reel of a rotating shaft having its axis in alignment with the axis of said reel, a driving-ring carried by said shaft, a drum adapted to be engaged by said driving-ring, a fixed support for said drum, means for moving said reel into engagement with said drum and carrying said drum into engagement with said driving-ring, substantially as described.

4. The combination of a rotating driving-ring, a drum suspended from the fixed framework of the machine concentrically with said driving-ring and adapted to be engaged thereby, a rotatable reel below said drum, means for engaging said reel and said drum and means for raising said reel into engagement with said drum and lifting said drum by the upward movement of the reel into engagement with said driving-ring whereby the rotary motion of said driving-ring is imparted to the reel, substantially as described.

5. The combination of a vertical rotating shaft, a driving-ring attached to said shaft and having an outer beveled frictional driving-surface, a drum suspended from the fixed framework of the machine and having an interior beveled frictional driving-surface adapted to be carried into engagement with said driving-ring by the upward movement of said drum, a reel below said drum, means for clutching said drum and said reel, means for raising said reel into engagement with said drum and means for guiding a rod into said reel in the plane of said drum, substantially as described.

6. The combination with a drum and means for rotating the same, said drum having an annular recess on the under side, a rotatable reel capable of a vertical movement and located below said drum, blades projecting upwardly from said reel and having tips adapted to fit said annular recess and means for raising said reel into engagement with said drum, substantially as described.

7. The combination with a drum and means for rotating the same, said drum having an annular recess on its under side, of a rotatable reel capable of a vertical movement and located below said drum, blades projecting upwardly from said reel and provided with tips adapted to enter into frictional contact with the sides of said annular recess, clutching mechanism carried by said drum for engaging said blades and imparting a rotary motion to said reel, substantially as described.

8. The combination with a drum and means for rotating the same, a rotatable reel capable of a vertical movement and located below said

drum, blades projecting upwardly from said reel, means for raising said reel and carrying said blades into engagement with said drum and a pivoted latch carried by said drum and adapted to be carried by centrifugal force into engagement with said blades, substantially as described.

9. The combination of a reel, means for driving said reel located above the reel, means for raising said reel into engagement with the driving mechanism, means for checking the motion of said reel and located immediately beneath it, and means for lowering said reel into engagement with the reel-clutching mechanism, substantially as described.

10. In a wire-reeling mechanism, the reel, comprising a rotatable platform held in a fixed position vertically, a rotatable disk below said platform, a series of upwardly-projecting blades carried by said disk and an outer series of pins carried by said disk and means for raising said disk, substantially as described.

11. The combination in a reel of a hydraulic plunger, a disk D^6 mounted on said plunger and held from rotation, a rotatable disk C^2 supported on said disk D^6 , upwardly-projecting pins and blades carried by said rotatable disk and inclosing a space to receive the coil, and means for actuating said rotatable disk, substantially as described.

12. The combination in a reeling mechanism, of a tubular hydraulic plunger provided with slots, a spindle inclosed in said plunger, a yoke supporting said spindle and provided with gudgeons projecting through the slots in said plunger, means for supporting said gudgeons, a platform mounted on said spindle and a reel mounted on said plunger, substantially as described.

13. A reeling mechanism comprising the following instrumentalities: a rotatable platform held in a fixed position vertically, a rotatable disk located below said platform and

provided with mechanism to receive and wind the coil, means for rotating said disk located above said platform and means for raising and lowering said disk, substantially as described.

14. A wire-reeling mechanism comprising the following instrumentalities; a rotatable platform held in a fixed position vertically, a rotating mechanism for coiling a rod on said platform and means for raising and lowering said coiling mechanism relatively to said platform, substantially as described.

15. The combination of a tapering drum having its smaller end the lowest, means for rotating said drum, a reel located below said drum, means for rotating said reel and means for raising or lowering said reel relatively to said drum and means for delivering a rod to said reel in the plane of said tapering drum, substantially as described.

16. The combination of a non-rotatable disk, means for raising and lowering the same, mechanism adapted to receive and wind the coil supported on said non-rotatable disk and springs interposed between said disk and said coiling mechanism, substantially as described.

17. The combination of a non-rotatable disk having a tapering frictional surface, means for raising and lowering the same, mechanism adapted to receive and wind the coil and having a beveled frictional surface and springs interposed between said coiling mechanism and said disk to separate the same and carry said frictional surfaces into contact, substantially as described.

Dated this 23d day of August, 1897.

VICTOR E. EDWARDS.
RALPH L. MORGAN.

Witnesses:

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M. C. PRICE.