(No Model.)

S. W. ROBINSON.

MECHANISM FOR WINDING WIRE, &c.

No. 334,809. Patented Jan. 26, 1886.

Fig: 1.

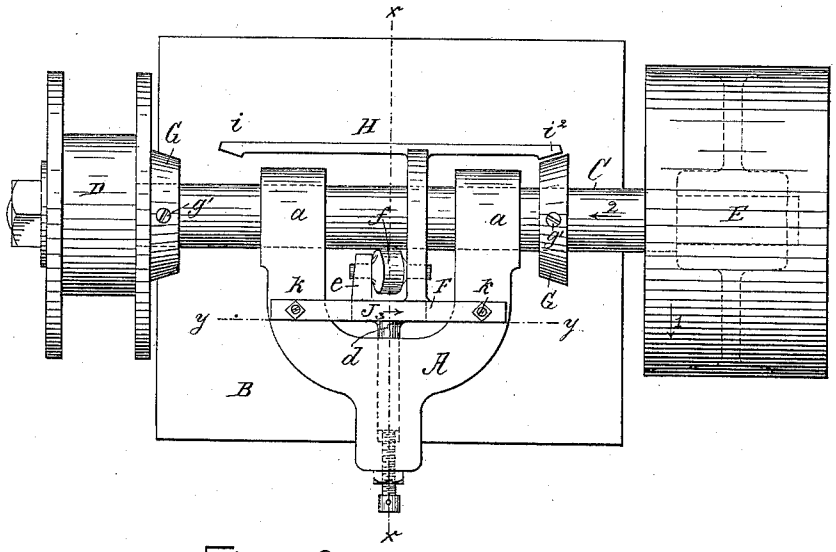


Fig: 2.

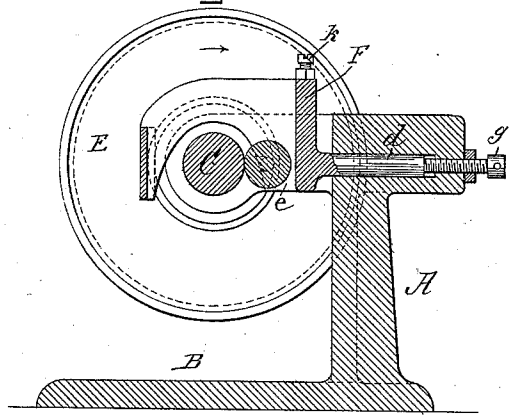
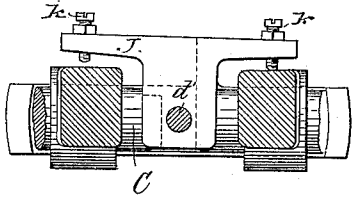


Fig: 3.



Witnesses.

Arthur Lippertson.

John F. C. Breinderth

Inventor.

Stillman W. Robinson.

by Crosby & Gregory Attys.

N. PETERS. Photo-Lithographer. Washington, D. C.

UNITED STATES PATENT OFFICE.

STILLMAN W. ROBINSON, OF COLUMBUS, OHIO.

MECHANISM FOR WINDING WIRE, &c.

SPECIFICATION forming part of Letters Patent No. 334,809, dated January 26, 1886.

Application filed October 20, 1884. Serial No. 145,987. (No model.)

To all whom it may concern:

Be it known that I, STILLMAN W. ROBINSON, of Columbus, county of Franklin, State of Ohio, have invented an Improvement in Mechanism for Winding Wire, &c., of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to provide a new and improved mechanism for winding wire, cordage, &c., on bobbins or spools in regular tiers or layers. To this end I provide the bobbin-shaft, which has a rotary movement and is capable of being moved axially, with a pair of stops or friction devices, which co-operate with a rocker supported in position intermediate of the friction-stops and provided with a friction-roll, which is held in frictional contact with the periphery of the bobbin-shaft, the said rocker, or "roll-oscillator," as I shall call it, having an arm adapted to alternately engage one or the other of the pair of friction devices on said bobbin-shaft, to thereby rock or throw the friction-roll in opposite directions and cause it to be presented obliquely with relation to the bobbin-shaft and induce axial movement thereof in alternate directions. When the axis of the roll is parallel with the axis of the bobbin-shaft, the said shaft will not be moved axially in its bearings; but on the other hand, when through the operation of the rocker the roll, while in frictional contact with the shaft, is presented obliquely to the shaft, the latter will be caused to slide in its bearings, the said shaft at such time rotating the roll at the same surface-speed with itself, the path of movement of the oblique roll as described on the shaft being in the form of a helix. The bobbin-shaft can have a greater or less longitudinal movement in opposite directions by the adjustment of the friction-stops, as will be seen, and the endwise speed or movement of the said bobbin-shaft may be increased or diminished, as will be seen hereinafter.

The nature of the invention is more fully set forth in the following description, and is particularly pointed out in the claims.

Figure 1 shows in plan mechanism for winding wire in accordance with my invention. Fig. 2 is a transverse section thereof on line *x x*, Fig. 1; and Fig. 3 is a detail to be referred to, said figure being taken on line *y y* of Fig. 1.

A standard, A, of any suitable size and shape, and having the bed-plate B, is provided with bearings *a a*, for the support of the bobbin-shaft C, which is adapted to move axially in said bearings. In the present instance the bobbin-shaft receives a bobbin, D, at one end and a pulley, E, at its other end, said pulley being provided to receive a slip or friction belt from any suitable driving-shaft, (not shown,) to give the requisite rotary movement to the bobbin-shaft. The rocker F has a stem, *d*, socketed in the standard A, and is provided with slotted bearings *e*, to receive a friction-roll, *f*, which is kept in frictional contact with the bobbin-shaft C by means of an adjusting-screw, *g*, passing through a screw-threaded orifice in the standard A, and abutting the end of the stem *d*, as shown. The rocker is further provided with an arm, H, arranged substantially parallel with the bobbin-shaft, and in the present instance at the side of said shaft opposite to that with which the friction-roll is in contact, said rocker-arm having beveled friction-feet *i i'*, one at each end, which are brought in contact with a pair of beveled friction-collars, G, adjustably secured on the bobbin-shaft by means of the set-screws *g'*, the said collars being farther removed from each other than the distance between the friction-feet on the arm H, the difference representing the amount of end-play of the bobbin-shaft. By adjusting the collars nearer to or farther from each other the end-play of the bobbin-shaft may be decreased or increased to suit the size or width of bobbin used. A lever, J, is secured to the rocker, and is provided at its free ends with adjusting-screws *k*, which, in the movement or oscillations of the rocker, are alternately brought into contact with portions of the standard A, to limit the throw or rocking movement of said rocker. The greater the throw or oscillation of the rocker the more the obliquity of the friction-roll with relation to the bobbin-shaft, and the consequent increased speed of the end movement of said shaft. Viewing Fig. 1, and assuming the shaft as rotating in the direction of the arrow 1, the friction-roll held obliquely

in the direction of arrow 3, in frictional contact with the rotating bobbin-shaft, as set forth, will cause said shaft to be moved axially in its bearings in the direction of arrow 2, until the friction-collar next the pulley is brought into frictional contact with the foot i^2, when that end of the arm H will be raised, whereupon the rocker will be oscillated or partially rotated on its stem, and the friction-roll will be reversed in its obliquity to the shaft C. As soon as this change is made the shaft will be caused to travel endwise in the opposite direction until the collar nearest the bobbin will have been brought in frictional contact with the foot *i*, when a second change in the endwise movement of the bobbin-shaft will occur. In such movement of parts the friction-roll is rotated by the bobbin-shaft and has no other movement, and in the traverse of the said bobbin-shaft the roll describes a helical path on the periphery of the shaft.

It is evident that instead of the friction collars and feet one could use a pair of stop-pins secured to the bobbin and adapted to engage or strike the ends of the arm H to depress the same, and thereby oscillate the rocker, without departing from the spirit of my invention. It is also evident that when beginning to wind upon a bobbin less length of the material being wound is required for a turn than when the bobbin is nearly full. To provide for this the belt is allowed to slip either upon the driven pulley *e* or upon its driving-pulley. (Not shown.)

I claim—

1. The combination, with a bobbin-shaft adapted to have rotary and axial movement, as described, and provided with a pair of stops, of a rocker provided with a roll in frictional contact with the periphery of the bobbin-shaft, and an arm attached to the rocker and adapted to be engaged by the stops on the shaft to oscillate the said rocker, as and for the purpose set forth.

2. A bobbin-shaft adapted to have rotary and endwise movement, and provided with friction-stops adapted to be secured to the shaft at various points, combined with a rocker having a pivotal stem, an arm adapted to be engaged by the stops on the shaft, and a friction-roll held in frictional contact with the bobbin-shaft, substantially as and for the purpose set forth.

3. A bobbin-shaft adapted to have rotary and endwise movement, combined with a rocker adapted to have a rocking or oscillating movement and provided with a roll held in frictional contact with the periphery of the bobbin-shaft, and a lever rigidly attached to the rocker and provided with adjusting-screws, to limit the throw or oscillating movement of the rocker, and thereby cause the speed of the endwise movement of the bobbin-shaft to be increased or diminished, substantially as set forth.

4. The standard A, having bearings *a* for the bobbin-shaft, and provided with the stem-socket and the adjusting-screw, as specified, and the rotating bobbin-shaft, combined with a rocker provided with the slotted roll-bearings and the friction-roll, substantially as set forth.

5. The combination, with the bobbin-shaft provided with friction-collars, of a rocker provided with the friction-roll, the arm having friction-feet to engage the friction-collars, and the lever attached to the rocker and having adjusting-screws, as specified, and a shaft and rocker-supporting standard, substantially as and for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

STILLMAN W. ROBINSON.

Witnesses:
G. W. GREGORY,
H. P. DE VOL.