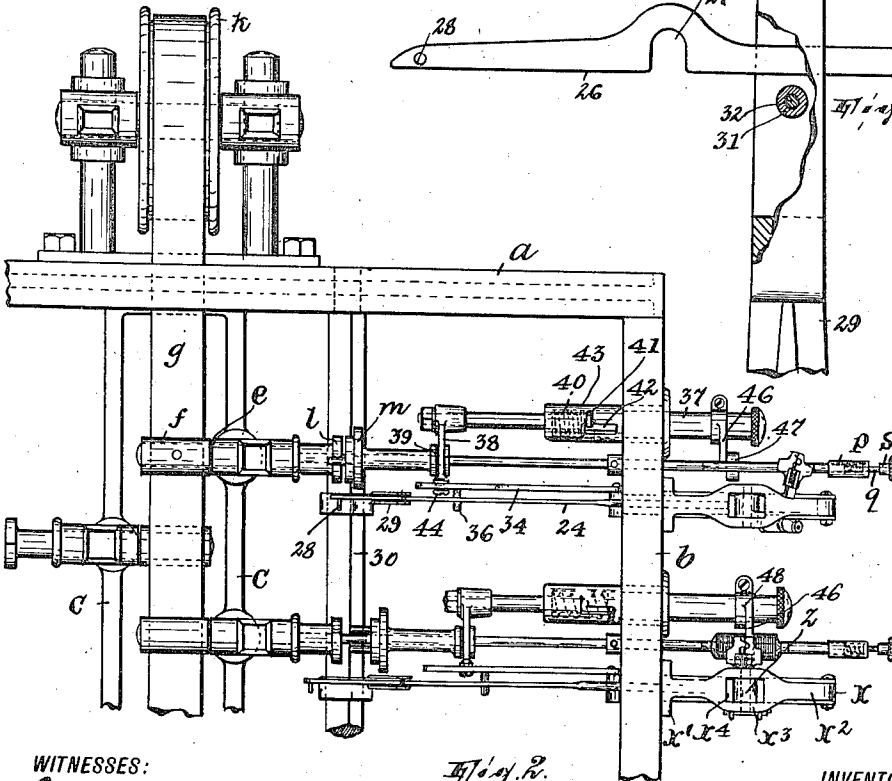
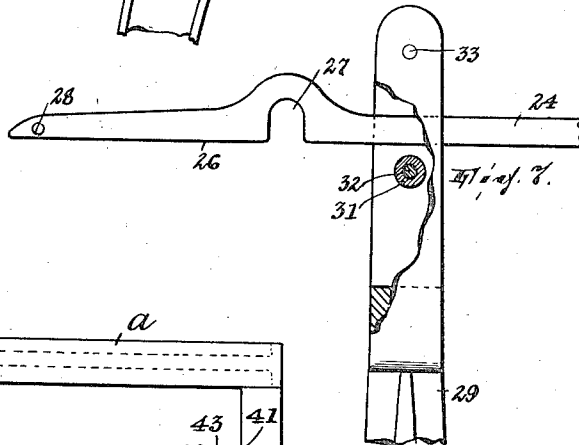
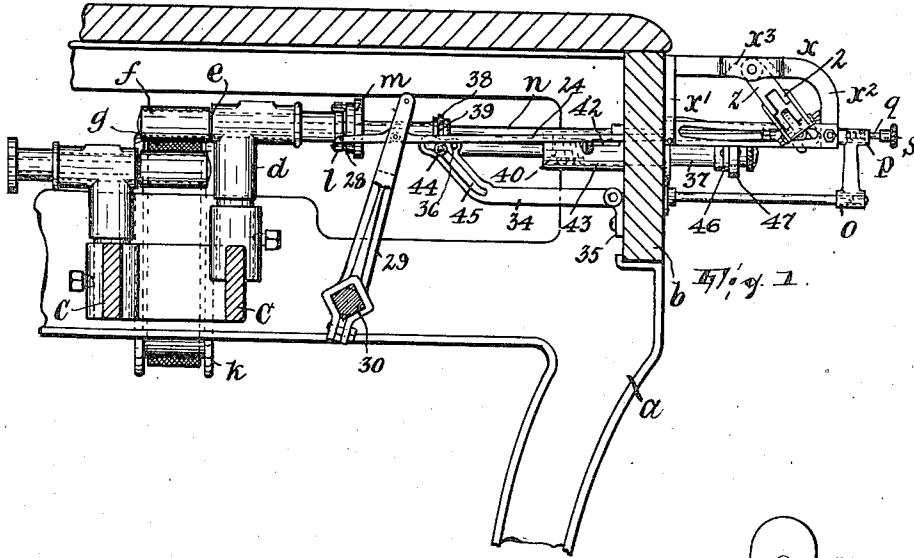


G. ADSIT.
QUILLING MACHINE.
APPLICATION FILED AUG. 24, 1910.

1,063,235.

Patented June 3, 1913.

3 SHEETS—SHEET 1.



WITNESSES:

Wm. Drell.
Elmer Kaufmann

Fig. 2.

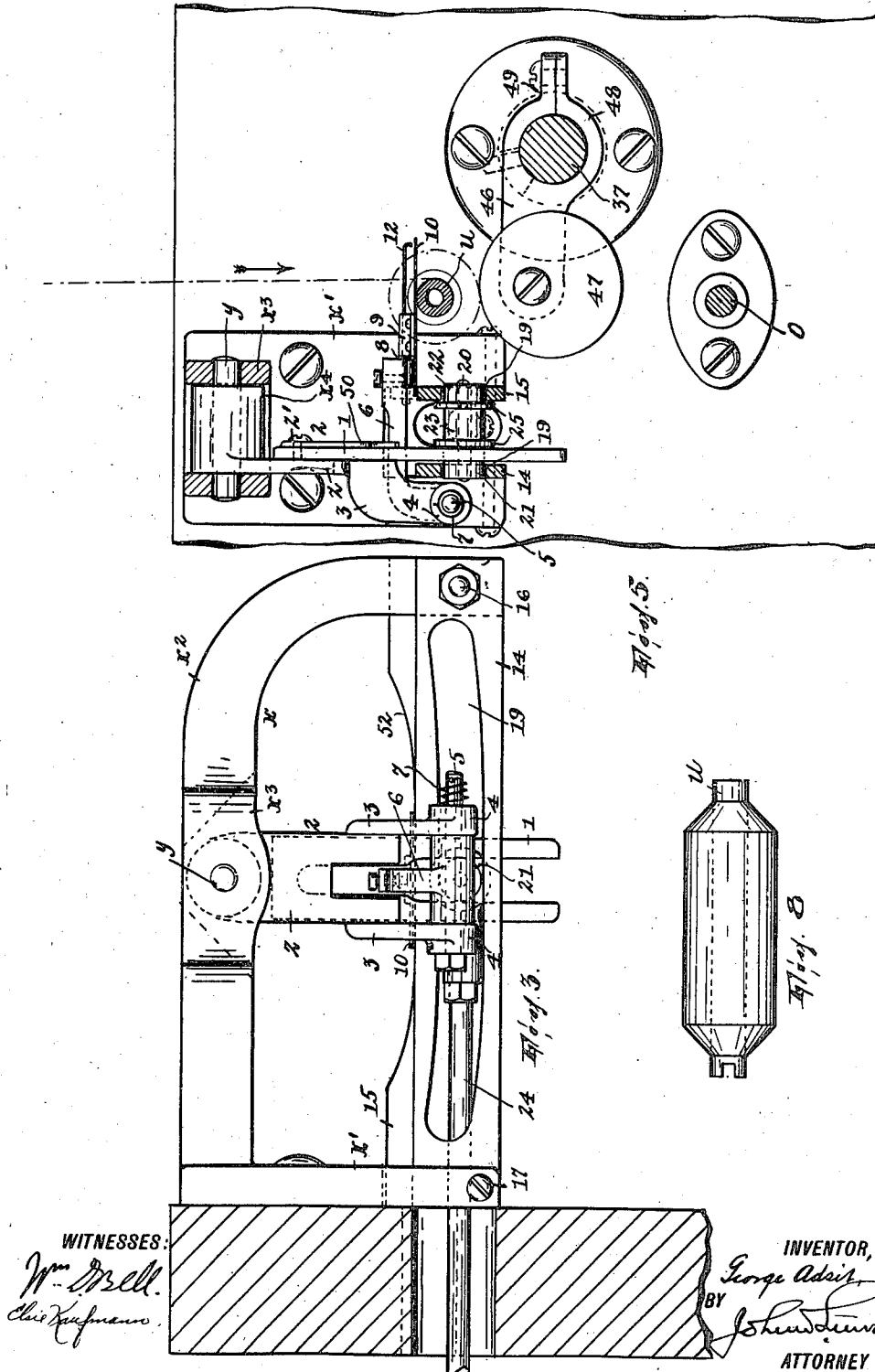
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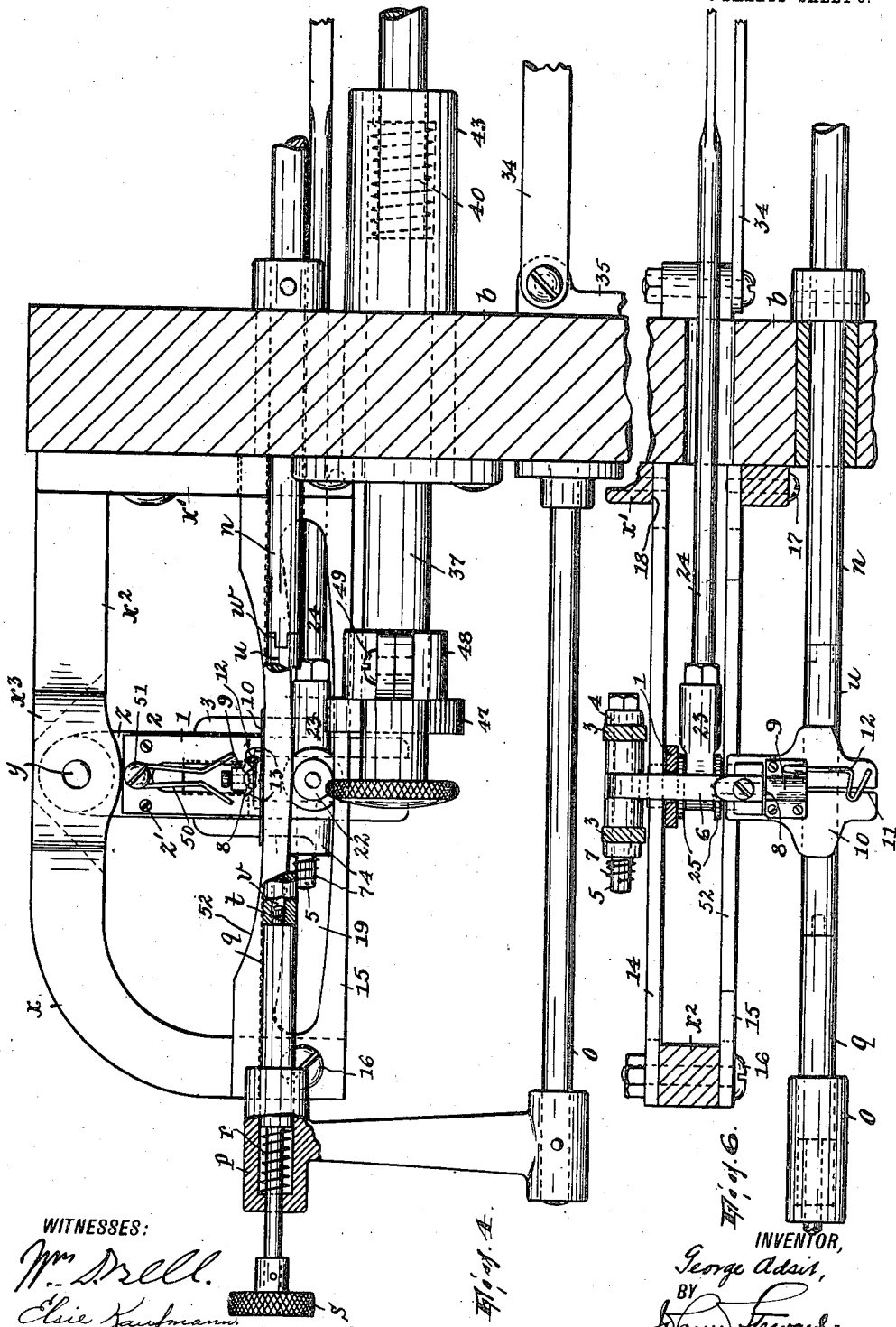


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UNITED STATES PATENT OFFICE.

GEORGE ADSIT, OF PATERSON, NEW JERSEY, ASSIGNOR TO BENJAMIN EASTWOOD COMPANY, OF PATERSON, NEW JERSEY.

QUILLING-MACHINE.

1,063,235.

Specification of Letters Patent.

Patented June 3, 1913.

Application filed August 24, 1910. Serial No. 578,676.

To all whom it may concern:

Be it known that I, GEORGE ADSIT, a citizen of the United States, residing in Paterson, Passaic county, State of New Jersey, have invented certain new and useful Improvements in Quilling-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

15 This invention relates to the winding of cops and the like and particularly to that class of machines for accomplishing this work in which the layers or series of coils are all approximately coextensive in length with the length of the cop, although successively diminishing in length somewhat from the axis to the exterior surface of the cop with the result that the ends of the cop are tapered or substantially conical. A 20 cop of the kind just indicated is illustrated in one of the figures of the drawings hereof.

The principal object of my present invention is so to construct and arrange the parts of a machine adapted for the winding 30 of cops or other similar wound packages of the kind indicated as to improve the quality of the product, making it more substantial, less subject to a disarrangement of its outer windings in the handling thereof, particularly at its ends, and yet nicely responsive to the unwinding medium in whatever connection it may be used.

Other objects are to construct and arrange the parts of such a machine in a way 40 calculated to simplify the same and reduce the cost of operation and maintenance.

My invention consists, generally stated, in a novel combination of parts going to make up a mechanism whose principle elements are 45 a spindle or other rotary member forming the axis of winding and means for guiding the thread or other filament in such manner that it will be laid in successive series of coils or layers around the axis of winding 50 in the manner characteristic (as above explained) of the particular type of package in view.

In the accompanying drawings, Figure 1

is a vertical sectional view of a machine (commonly known as a quilling machine) 55 constructed in accordance with this invention, only so much thereof being shown as is necessary for the purpose of this description; Fig. 2 is a plan view of what appears in Fig. 1; Fig. 3 is a view of the 60 thread-controlling mechanism, as seen from the same side as it appears in Fig. 1; Fig. 4 is a view of the mechanism appearing in Fig. 3, together with the other adjoining parts of a single winding unit, as seen from 65 the side opposite to that appearing in Fig. 1, certain parts being broken away; Fig. 5 is a vertical sectional view substantially in the vertical plane of the pin 20; Fig. 6 is a horizontal sectional view substantially in 70 the plane corresponding to the top of the arm 6; Fig. 7 is a fragmentary side elevation, partly broken away, of the means for effecting the traverse of the mechanism controlling the thread; and, Fig. 8 shows the 75 package produced by the machine. Figs. 3 to 8 are substantially full-sized views.

The upright *a*; side rail *b*; intermediate rails *c*, carrying the bolsters *d* forming bearings for shafts *e* carrying whirles *f* which 80 engage the upper stretch of an endless belt *g* extending around pulleys *k* (only one of which is shown), from above and below; the clutch members *l* on said shafts engaging clutch members *m* on the spindles *n* journaled in said shafts and the rails *b* are or may be all substantially arranged and constructed the same as in my U. S. Patent No. 757081, and others, excepting that each 90 spindle does not have an integral part thereof adapted to receive the windings which form the cop or package but is constructed and coöperates with other parts in the support of a suitable core for the cop as follows: A fixed support *o* projects from the rail *b* 95 under the spindle and has a bearing *p* aligned with the spindle. In this bearing is arranged a plunger *q* which is normally pressed toward the spindle by a spring *r* housed in the bearing, the plunger having 100 a suitable milled head *s* at its outer end and a stud *t* at its inner end. The pirn *u* upon which the windings to form the package are wound has a hole *v* in its outer end receiving the stud *t* and it is suitably clutched (as at 105 *w*) with the spindle *n* at its inner end.

Secured to the rail b at one side of each spindle is a bracket x comprising a plate x' and an arm x^2 extending from the upper end of said plate and having a swell x^3 which, in plan, appears orificed, as at x^4 , the free end of said arm x^2 being bent downwardly. A pin y is journaled in the swell x^3 , horizontally, traversing the orifice, and fixed to this pin, its upper end snugly fitting the orifice, is a pivoted arm z to which is attached by means of the screws z' a forked plate 1. The slots of the forked arm z and forked plate 1 coincide, so that the two parts together form what I shall hereinafter designate a fork 2. The part z of this fork has the parallel cheeks 3 projecting therefrom and in bearings 4 of these cheeks is journaled a pin 5 to which is fixed an arm 6 which projects through the fork 2 as best seen in Fig. 5 and has its free end normally pressed downwardly by a spiral spring 7 coiled about the pin and suitably fixed at one end thereto and at the other end to the adjoining bearing 4.

The arm 6 terminates in a stud 8 on which is pivoted a block 9 to the under side of which is fixed a flat blade 10. This blade will overlie the pirn u when the same is supported by the spindle and plunger q . When the fork 2 is oscillated around its pivot at y , on account of the universal joint connection between the blade and the fork 2 (afforded by pivoting the arm 6 in the fork and the blade 10 in the arm 6 on axes at right angles to each other) the blade will not only tend to rest upon the pirn u but will always remain in flatwise relation thereto. The blade 10 serves as a guide for the thread, which is supplied from a suitable superposed holder, and to this end it is provided with a slit 11 which stands at right angles to the spindle, 12 being a wire clip serving to retain the thread in the slit. Gravity tends to maintain the blade substantially horizontal, that is, in pendant relation to its axis of movement in the pin 8; to insure against its becoming accidentally inverted by handling during the period when a filled pirn is removed and a fresh one fitted in position, the end of the arm 6 has the inclined faces 13 forming stops against which the inner part of the blade will impinge.

The bracket x comprises two plates 14 and 15 arranged in parallel vertical planes, their outer ends being secured by a bolt 16 to the outer end of the arm x^2 of the bracket (receiving the same between them) and their inner ends being respectively secured by screws 17 to the inner faces of a recess 18 formed in the plate x' . These plates are formed bent slots 19 which substantially coincide with each other, both following an arc of a circle whose center is above the pin y ; the purpose of the curvature of these slots will appear later. The slotted plates 14 and

15 form a guide for a cross-head comprising a pin 20 on the ends of which are journaled rollers 21 and 22, said rollers being arranged to travel in the slots of the plates 14 and 15, respectively. The rollers 21 and 22 are spaced by the head 23 of a hook 24 and have flanges 25 confining them against outward movement on the pin. The roller 21 receives, between the plate 14 and its flange 25, the forked plate 1 of the fork 2, the fork thus straddling the cross-head. In view of the foregoing it will be apparent that upon hook 24 being reciprocated and the pirn rotated the result of these two movements will be to wind the thread controlled by the blade 10 around the pirn and at the same time effect a traverse so that the thread will be laid upon the pirn in a succession of layers or series of coils. The hook 24, during the winding, is coupled with a rocking arm 29 on shaft 30. The raising of the hook to uncouple it from said arm and the forward shifting of clutch member m to uncouple the latter from clutch member l and so stop the rotation of the spindles are simultaneously effected as follows: As in my patent referred to I employ a push rod 37 having a fork 38 engaging a peripheral groove 39 in clutch member m and a pin 44 engaging a slot 45 in a lever 34 having a pin 36 underlying the hook 24. The push rod, spring-pressed forward to separate clutch members m and l , and, through lever 34, elevate hook 24 out of coupled engagement with arm 29 but locked back by its pin 41 engaging the lateral portion of a slot 42 in the shell 43 in which the push rod slides, is released by rotating it thus: The push rod carries an arm 46 provided with an eccentric 47 which, when peripherally engaged by the growing cop, rotates, displacing the arm downwardly (Fig. 5).

The mechanism of which parts 24 and 34 and that of which parts 46 and 47 are principal elements are not claimed herein, they being the subject of my application filed August 4th, 1911, Serial No. 642276.

It will be understood that any suitable means may be employed for driving the belt q and rocking shaft 30, for instance, such as is shown in my said prior patents. The spindle being in rotation, rotating the pirn, and the thread guide being reciprocated by the carrier means therefor, the thread will be wound on the pirn in a succession of series of coils or layers, as already stated; these series of coils or layers successively shorten as the winding proceeds, because the thread guide (which is held by gravity against the windings and incidentally serves to smooth and compact the cop) is gradually raised around the axis 5 toward the axis of movement (pin y) of its carrier means, so that the resultant package will be shaped as shown in Fig. 8. It will be observed that

the thread-guide always lies flat against the windings, whatever its position in the length of the cop, on account of its pivot at 8. The object of the curvature of the guideway formed by the slots 19 is to increase the speed of the thread-guide at the ends of its stroke beyond what it would otherwise be, whereby to give the desired pitch to the windings at the ends of the cop, it being remarked that a relatively steep pitch is desired at the ends in order to reduce the susceptibility of the windings to displacement, in handling, etc.

In order that the thread-guide may be held up out of the way in changing the pirns, I provide a V-shaped spring wire clip 50 which is held to the face of the forked plate 1 by the screw 51, the arm 6 being adapted to be gripped thereby when raised.

It will be noticed that the top edge of the plate 15 is concave, its surface 52 rising at points corresponding with the ends of the stroke of the thread-guide; the purpose of this is to insure the thread-guide being raised out of possible undesired engagement with the joints between the ends of the pirn and its supporting media when the spindle and thread-controlling means are running without thread.

I wish it to be understood that I am not limited to the precise arrangement and construction of parts herein shown and described as the same are susceptible of changes coming within the scope of my invention.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In combination, with a suitable support, a rotary spindle journaled therein, a carrier pivoted in the support on an axis crossing the spindle axis, means for moving the carrier back and forth on its axis, and a thread guiding means resting against the cop being wound and movable with the carrier and having its thread guiding portion pivoted in the carrier on an axis crossing the axis of the spindle, substantially as described.

2. The combination of a suitable support, a rotary spindle journaled therein, a carrier means pivoted in the support to move in a plane substantially parallel with the spindle, a thread-guide means pivoted in the carrier means on an axis extending transversely of the axis of the carrier means, said thread-guide means being normally movable toward the axis of the spindle and having its thread-guide portion pivoted on an axis parallel with that of the carrier means, means for rotating the spindle and means for oscillating the carrier means, substantially as described.

3. The combination of a suitable support, a rotary spindle journaled therein, a thread-guide normally movable toward the spindle

axis, an actuating member for the thread-guide movable back and forth in a plane substantially parallel with the spindle axis, means, affording a universal joint connection between the thread-guide and said member, for causing the thread-guide to move back and forth with said member, said thread-guide being adapted to rest against the windings of the cop being formed, means for rotating the spindle and means for causing the back and forth movements of said member, substantially as described.

4. The combination, with a support, a rotary means on which to deposit the windings, a thread-guiding means, one of said means being reciprocatory longitudinally of the axis of winding, and means for actuating the reciprocatory means including a part for varying one of the constants of the reciprocating stroke, of means for controlling said part having a bent guideway engaged by the latter, substantially as described.

5. The combination of a suitable support, a rotary horizontal spindle journaled therein, thread-guiding means comprising a pivoted member movable in a vertical plane, another member also movable in a vertical plane and having a sliding connection with the pivoted member, a guideway for the second member having parts thereof differently distanced from the horizontal plane of the spindle axis, means for rotating the spindle and means for reciprocating the second member, substantially as described.

6. The combination of a suitable support, a rotary spindle journaled therein, a carrier means pivoted in the support, a thread-guiding means movable with the carrier means and toward and from the pivot thereof, means for rotating the spindle and means for oscillating the carrier means, said thread-guiding means having its thread-guiding portion pivotally movable around an axis substantially parallel with the axis of the carrier means, substantially as described.

7. The combination of a suitable support, a rotary spindle journaled therein, thread-guiding means comprising a pivoted member movable beside the spindle, a power-transmitting member movable back and forth beside the spindle and having a sliding connection with the pivoted member, a guideway for the power-transmitting member having parts thereof differently distanced from the spindle axis, means for rotating the spindle and means for causing the back and forth movements of the power-transmitting member, substantially as described.

8. The combination, with a support, of a rotary means on which to deposit the windings, a thread-guiding means, one of said means being movable back and forth during the winding substantially parallel with the axis of winding, means for effecting

the back and forth movement of the movable one of said means and means, including a bent guideway engaged by a part of the aforesaid movable means, for guiding
 5 the latter in its movement, substantially as described.

In testimony, that I claim the foregoing,

I have hereunto set my hand this 23rd day of August, 1910.

GEORGE ADSIT.

Witnesses:

JOHN W. STEWARD,

WM. D. BELL.