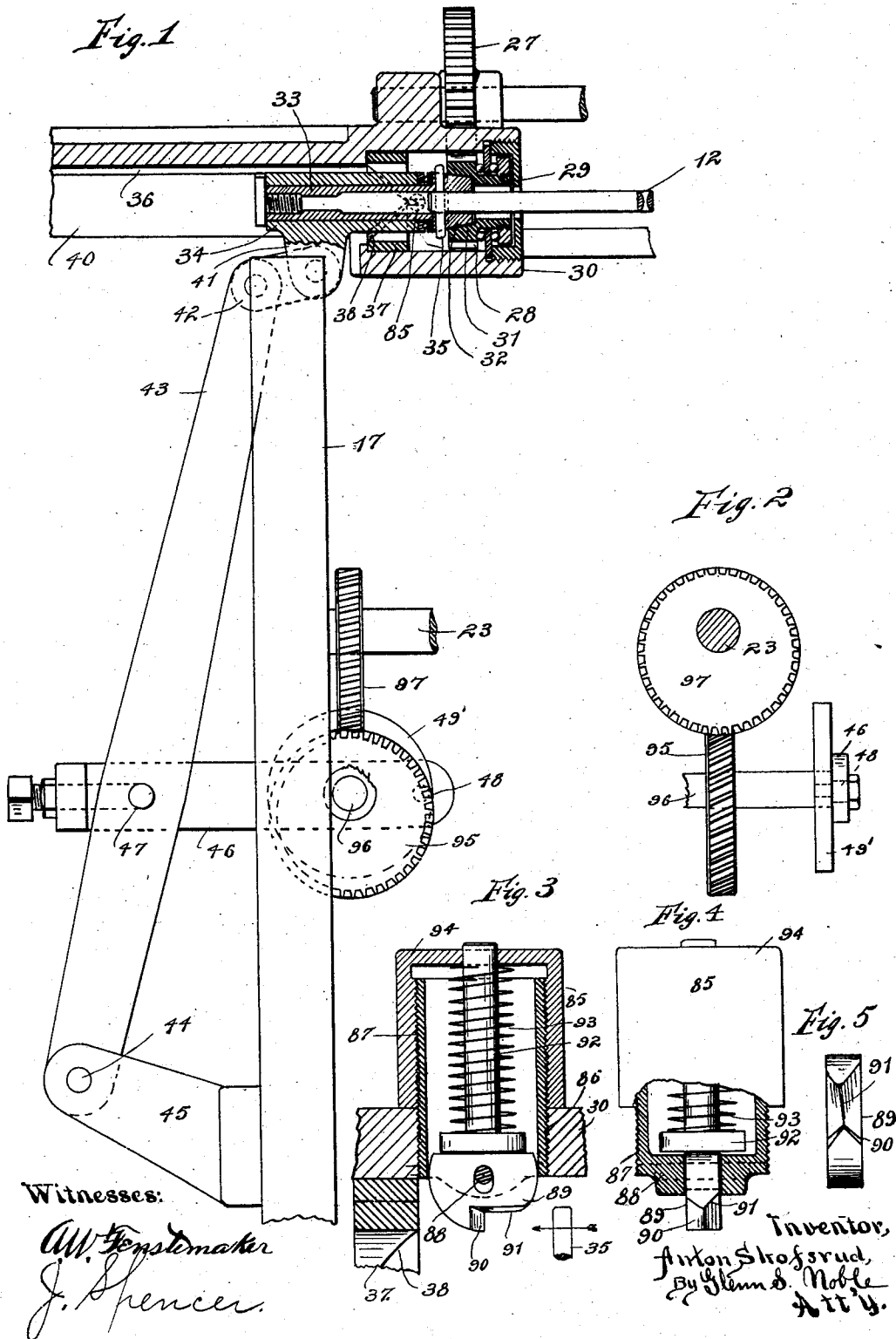


A. SKOFSRUD.
 REEL OR WINDING MACHINE.
 APPLICATION FILED MAY 25, 1910.

992,692.

Patented May 16, 1911.

2 SHEETS—SHEET 1.



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2 SHEETS-SHEET 2.

Fig. 6.

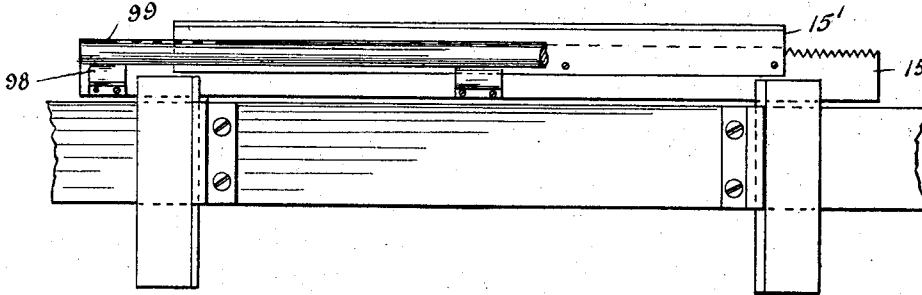
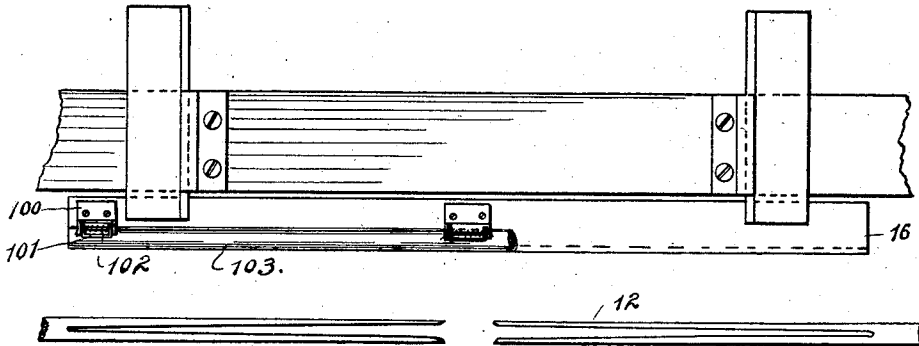
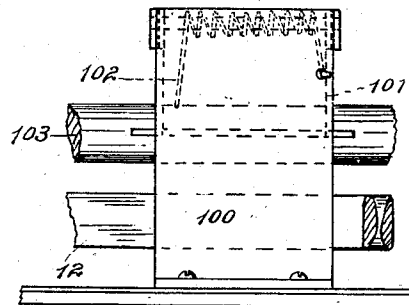
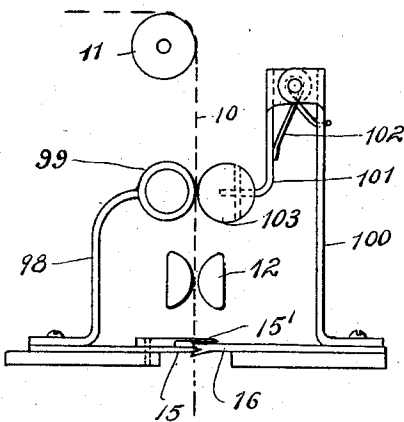


Fig. 7

Fig. 8



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J. Spencer.

Inventor.

Anton Skofsrud
 By *Glenn S. Noble*
 Att'y

UNITED STATES PATENT OFFICE.

ANTON SKOFSRUD, OF CHICAGO, ILLINOIS.

REEL OR WINDING-MACHINE.

992,692.

Specification of Letters Patent.

Patented May 16, 1911.

Application filed May 25, 1910. Serial No. 563,257.

To all whom it may concern:

Be it known that I, ANTON SKOFSRUD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Reels or Winding-Machines, of which the following is a specification.

While certain features of this invention may be adapted for various purposes, yet it is particularly applicable to a machine of the character shown and described in my United States Letters Patent No. 952,282, granted March 15, 1910, and will be described with particular relation to such machine. Its objects are to perfect certain parts and mechanisms forming a part of, or used upon, such machine, and to provide such advantages and novel features as will be fully described and explained hereinafter.

For convenience, certain parts of the apparatus shown in my former patent are used for the accompanying drawings illustrating this invention, and such parts will be designated by the same numerals used in said patent.

In these drawings Figure 1 is a sectional detail of one of the spindle-operating devices, parts being broken away or omitted as may be necessary for convenience in drawing; Fig. 2 is a side view of the driving gears; Fig. 3 is a sectional detail of an improved form of key or pin-guiding device intended to replace the form of device shown in said former patent; Figs. 4 and 5 are further details of the same; Fig. 6 is a plan view showing a modified form of paper or fabric cutter and guide for such paper or fabric; Fig. 7 is an end view of the same; and Fig. 8 is a side view of the same.

In a machine of this character, which is intended for reeling or winding up paper, cloth, or other material, the fabric is preferably wound upon slotted spindles 12, only one of such spindles being shown in the drawing. This spindle is rotated by means of a gear 27, driven in any suitable manner, which gear meshes with a pinion 28 formed integrally with a revoluble sleeve 29 which is preferably mounted with ball bearings in the head 30 of the main frame 17 of the machine. This sleeve or rotatable member 29 is provided with a conical recess 31 adapted to receive the conical clutch member 32. The cone or clutch member 32 is

on the end of a trunnion or hollow shaft 33 which engages with a slidable bearing member 34. The clutch member 32 carries one of the split or forked spindles 12, the opposite spindle being supported in a similar manner in the opposite end of the machine.

In accordance with my preferred form of machine, it is necessary to bring the spindles 12 into such position that the opening between the forks will be in vertical position, ready to receive the material to be wound, when the spindles move inwardly to engage with the material. In order to accomplish this, the clutch members 32 are provided with keys or pins 35, which extend out beyond the sides of the bearings 34 so that either end of the pins may engage with the slots 36 in the head piece 30 when the spindles are reciprocated to withdraw them from the roll and to move them inwardly for engagement with the material. In order to insure engagement of one or the other end of the pin 35, with the slot 36, a collar 37 is provided, having inwardly projecting cam faces 38 adapted to engage with the ends of the pin 35. One of the novel features of the present invention consists in the means provided for preventing the end of the pin from striking the edge where these surfaces unite and resting against the same, which would be liable to break some portion of the machine, or at least to stop the same. Immediately in front of the edge or meeting point of these surfaces, I provide a deflecting device for the pin, which is designated as a whole by the numeral 85, this device being shown in detail in Figs. 3 to 5, inclusive. Through the side of the head 30 is a hole 86, which is threaded to receive a tube 87 having a bearing at its inner end for a pivot 88.

The pin-deflecting or guiding member proper 89 is rotatably and slidably mounted on the pivot 88, being provided with a slotted hole for this purpose. The edges of the deflecting member 89 are preferably curved so that it may rock freely upon the pivot, and its inwardly projecting portion, which is adapted to be engaged by the key or pin 35, is cut away to form a longitudinal, V-shaped or wedge-shaped portion 90 and also a somewhat similar lateral portion 91. The edge of the lateral portion is preferably arranged at a slight angle to the sides of the deflecting member, as indicated in Fig. 5. The deflecting member 89 is held

in normal position by means of a plunger 92, a spring 93 and a cap 94, as clearly illustrated in Figs. 3 and 4. The cap 94 is provided with an opening for the end of the plunger 92, and is threaded to engage with the tube 87, so that when it is screwed into position, it serves to both give a tension to the spring and also to lock the tube in the wall of the head 30. The longitudinal, V-shaped portion 90 lies directly in front of the edge of the meeting cam surfaces 38. When the slidable bearing member is moved to the left to withdraw the spindle 12, it will be noted that, as soon as the clutch is disengaged, the spindle will cease revolving, and it is possible that one end of the key or pin 35 will stop directly in front of the edge formed by the meeting surfaces of the cams 38, and then, as the slide 34 moves still further, such end would engage with this edge. However, with this improved deflecting device, if the pin 35 stops in such position, then, as indicated in Fig. 3, as soon as it strikes the sides of the lateral deflecting faces 91, it will tend to be thrown to one side or the other and, upon its striking the V-shaped portion 89, will be positively turned so that it will not strike the edge formed by the cam surfaces 38. On account of the peculiar manner in which the member 89 is mounted, if the pin 35 should happen to strike directly against the edge of the portion 90, then the member will rock upon the pivot or be pressed inwardly until it is turned to such position as to cause the pin to be thrown to one side or the other. I have found in practice that this deflecting device operates with great efficiency and certainty to direct the pin 35 onto the cam surface 38, and as soon as the pin strikes such surface, it will ride upon the same until it reaches a vertical position, which brings the spindle 12 in proper position, to engage the fabric. The slides or bearings 34 move in slideways 40 in the heads 30, and are provided with lugs 41 which are connected by means of links 42 with the upper ends of the arms 43. These arms are pivoted at 44 to brackets 45 on the end members of the frame 17. The arms 43 are moved in and out to reciprocate the spindle by means of crank arms 46 pivoted at 47 to said arms and at 48, to crank wheels or disks 49'. The wheels 49' are driven by means of novel gears, which form another particular feature of the present invention. Eccentric spiral gears 95 are securely mounted on the stub shafts 96, which also carry the crank wheels or disks 49', these stub shafts being mounted in suitable bearings from the main frame. Meshing with the gears 95 are eccentric spiral gears 97 mounted on the driving shaft 23. It will be noted that these eccentric gears are arranged to properly intermesh so that when

the driving shaft 23 is driven at a uniform speed, an irregular movement will be given to the shaft 96 and consequently to the crank arm 46 and the lever 43. The particular object of this is to give the spindles 12 a rapid outward movement, that is, when they start to be withdrawn from the roll, and then, as they reach their outermost position, to check the speed to a certain extent in order to give the roll time to drop and the cutting-off devices sufficient time to act, and the spindles time to again engage with the fabric. So far as I am aware, such eccentric, spiral gears have heretofore never been used for any purpose, and I consider this construction as one of the important features of the present invention. I arrange the driving shaft 23 at right angles to the driven shaft and place the eccentric gear 97 with its center of rotation directly above the center of the gear 95, and form the teeth of the respective gears so that they will intermesh properly and also have sufficient clearance so that the gears will coast without undue friction.

As illustrated in Figs. 6, 7 and 8, another feature of this invention consists in the improvement of the cutting-off mechanism. As shown in these figures, the cutting-off knives or perforating devices 15 and 16, such as described in my former patent, are not intended to completely sever the fabric so that the roll would be fully released, and in order to completely sever the fabric through the major portion of its length, I have added an auxiliary knife or blade 15', which will completely sever the fabric to within a short distance of each end, leaving such ends only for holding the fabric 10 preparatory for the next reeling operation. I have also discovered that it is desirable to provide means immediately adjacent to and above the spindles 12 to hold the fabric while such spindles are moving inwardly to engage the same, such holding devices preferably again releasing the fabric as soon as the spindles are in operative position. To this end, upon the slide carrying the knife 15, I arrange brackets 98 which carry a guide or clamp member 99, such member preferably being made of light tubing. On the slides carrying the coasting cutting-off members 16, I provide stands or brackets 100 to which are pivoted the arms 101, such arms being pressed inwardly by means of springs 102. These arms carry a second guide or clamp member 103, which may be conveniently made of wood, and which coacts with the first-named member 99. The operation of this guide or clamp member will be readily understood from Fig. 7. When the cutting-off members 15 and 16 move inwardly to cut off the fabric 10, they carry the clamp members 99 and 103 with them, such members engaging with the fab-

ric immediately above the spindles 12 to hold said fabric securely in its vertical position until the spindles move inwardly to engage with the same. Then, as the cutting-off members are withdrawn, the clamp members 99 and 103 will be separated so that the fabric will be released and will run freely to the winding spindles.

Having thus described my invention, which I do not wish to limit to the exact details of construction or purposes herein set forth, except as specified in the appended claims, what I claim and desire to secure by Letters Patent is:

1. In a reel or winding machine, the combination of a driving shaft, an eccentric spiral gear mounted on said shaft, a second shaft, an eccentric spiral gear mounted on said second shaft and intermeshing with said first-named gear, a crank disk driven by said second named shaft, a crank arm, a lever actuated by said arm, a slide connected with said lever, a rotatable member mounted in said slide, a projecting key or pin in said rotatable member, a cam ring adapted to be engaged by said pin to turn the rotatable member to predetermined position, and a spring-pressed slidably and pivotally mounted, bevel-edged deflecting member arranged adjacent to said cam ring for directing said pin onto the cam surfaces.

2. In a reel or winding machine, the combination of a spindle, a rotatable support for said spindle, a pin projecting laterally from said support, a slide carrying said support, a ring having cam surfaces for engagement with said pin to turn the spindle to predetermined position, means for reciprocating said slide, a tubular member arranged adjacent to the meeting edge of the cams of said ring, a deflector pivotally and slidably mounted in said tubular member, said deflector having its inwardly projecting edge beveled both longitudinally and laterally, said beveled surfaces being adapted to engage the pin to turn it to one side or the other, a plunger resting against said deflector, a spring pressing against said plunger, and a cap having an aperture therethrough for the plunger and also serving as an abutment for said spring.

3. The combination with a rotatable and reciprocable spindle having a projection thereon of a deflecting device of the character set forth, comprising a supporting member, a pin mounted in said member, a segmental deflector having a slotted hole therethrough for engagement with said pin, whereby said deflector may be rocked or depressed, the engaging portion of said deflector being provided with beveled deflect-

ing surfaces, and means for holding said deflector yieldingly in normal position.

4. In an apparatus of the character set forth, the combination of a slide, a lever for operating said slide, a crank arm for operating said lever, an eccentric gear for operating said crank arm, an eccentric driving gear for driving said first-named gear, said gears being arranged so that the lever will be given a rapid movement during a portion of its travel and a slow movement during another portion of its travel.

5. In a reeling apparatus, the combination with a reciprocating spindle, of means for reciprocating the same, said means including an eccentric spiral gear and a second eccentric spiral gear arranged in a plane at right angles to the plane of said first-named gear, said gears being provided with suitable teeth whereby one may be driven by the other.

6. In a reel or winding machine, the combination of reciprocating slotted spindles for winding the fabric coacting cutting devices adapted to partially sever the fabric through its entire length, and an auxiliary cutting device adapted to completely sever the fabric through a portion of its length.

7. In a reel or winding machine, the combination of reciprocating slotted spindles for winding the fabric severing devices arranged adjacent to said spindles and adapted to be moved toward and away from each other, and guides or clamping members connected with said devices and adapted to engage the fabric simultaneously with said severing devices.

8. In a reel or winding machine, the combination with a reciprocating, forked spindle and severing devices arranged to operate adjacent to said spindle, of means for temporarily clamping and holding the fabric in position to be engaged by said spindle.

9. In a reel or winding machine, the combination of a spindle, a slidable severing member arranged to engage the fabric beneath said spindle, supports on said slidable severing member, a clamp or guide carried by said supports, a second severing member adapted to coact with said first-named member, supports on said second member, spring-pressed arms pivotally mounted to said supports, and a second guide or clamping member carried by said arms, said guides or clamping members being adapted to engage with the fabric above said spindle.

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Witnesses:

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