Nov. 7, 1933. L. H. HILDEBRANDT ET AL 1,934,541

ADJUSTABLE STOP MECHANISM FOR YARN MEASURING SPOOL WINDERS

Filed Aug. 23, 1929 2 Sheets-Sheet 1

Fig. 1.

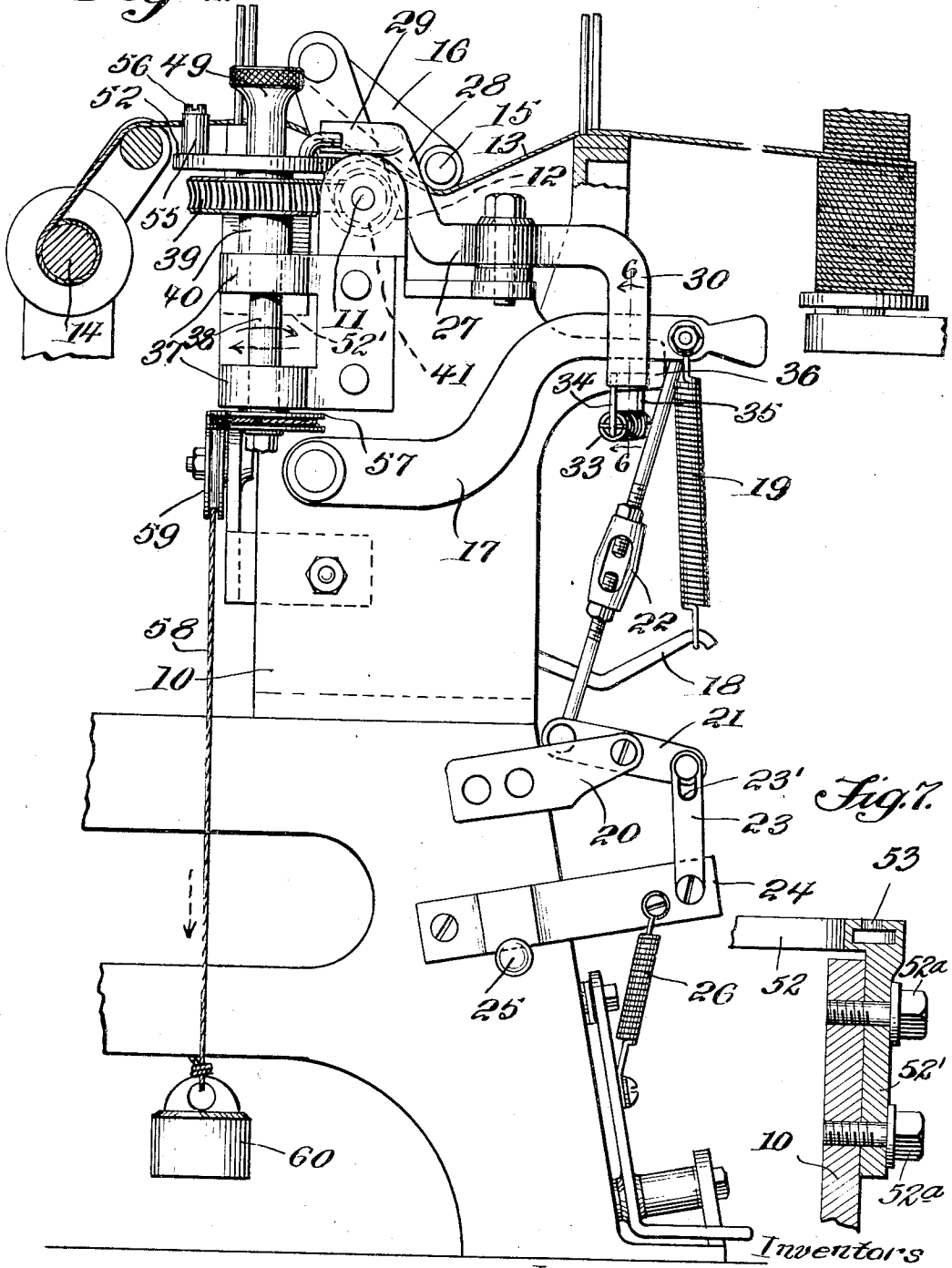


Fig. 7.

Inventors
Louis H. Hildebrandt
John K. Schwartz
Edward A. Seager ATTORNEY

Nov. 7, 1933. L. H. HILDEBRANDT ET AL 1,934,541

ADJUSTABLE STOP MECHANISM FOR YARN MEASURING SPOOL WINDERS

Filed Aug. 23, 1929 2 Sheets-Sheet 2

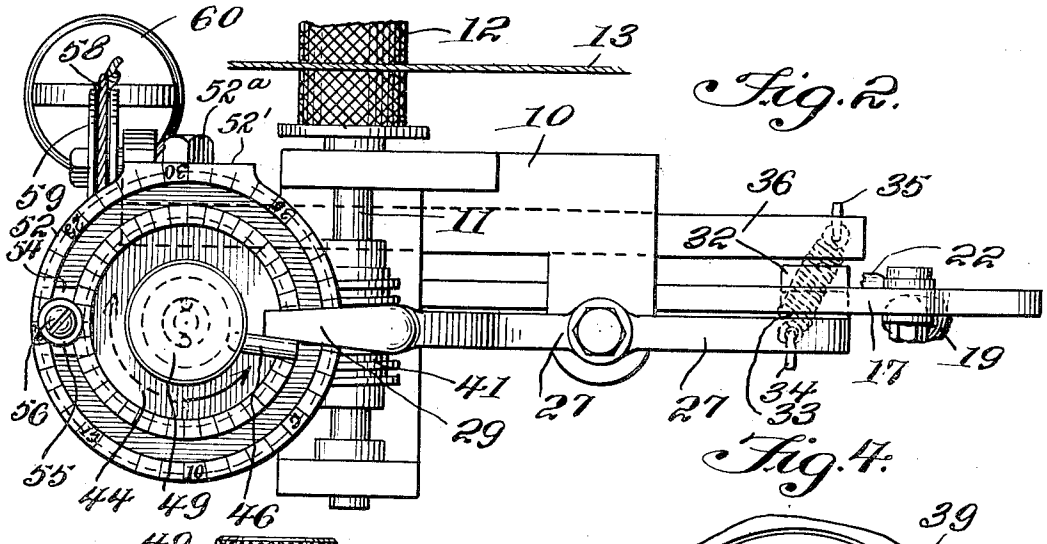


Fig. 2.

Fig. 4.

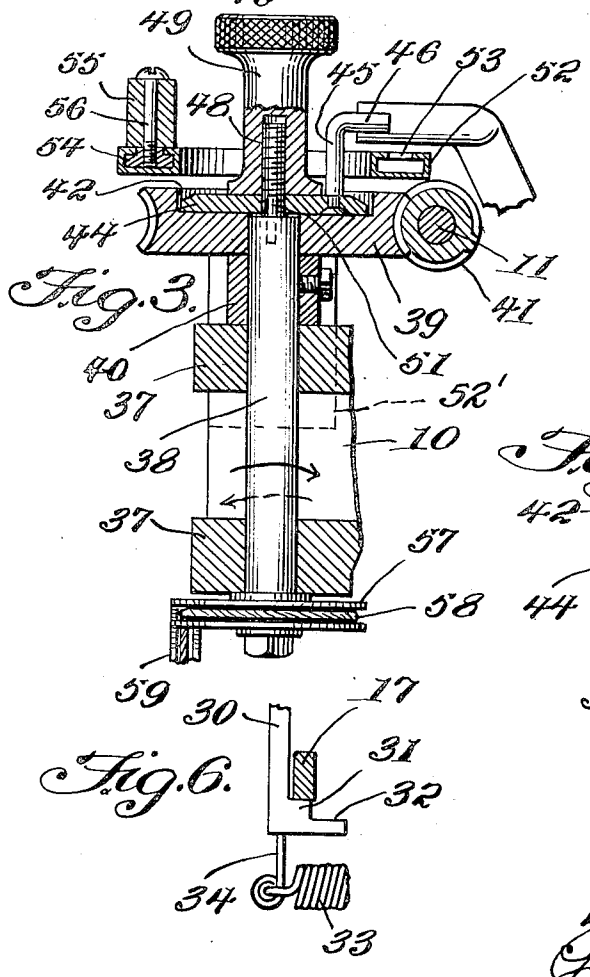


Fig. 3.

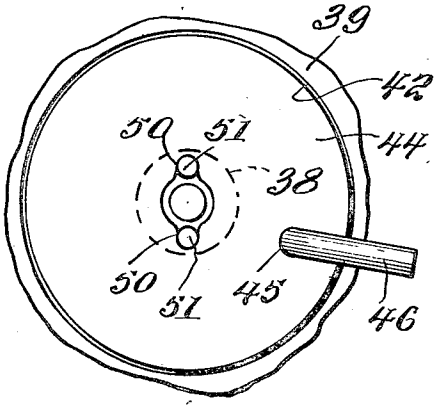


Fig. 6.

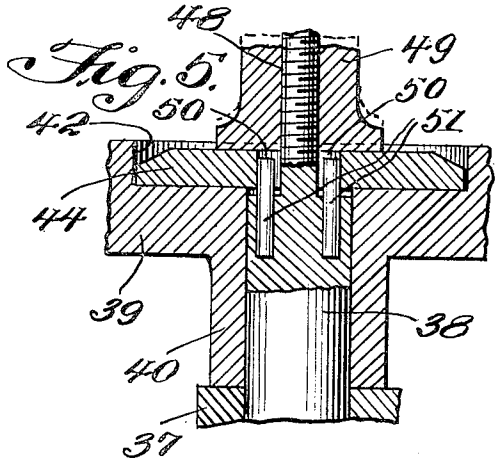


Fig. 5.

Inventors
Louis H. Hildebrandt
John K. Schwartz
By Edward N. Seager ATTORNEY

Patented Nov. 7, 1933 1,934,541

UNITED STATES PATENT OFFICE

1,934,541

ADJUSTABLE STOP MECHANISM FOR YARN MEASURING SPOOL WINDERS

Louis H. Hildebrandt and John K. Schwartz, Amsterdam, N. Y., assignors to Collins Loom Works, Inc., Amsterdam, N. Y., a corporation of New York

Application August 23, 1929. Serial No. 388,001

3 Claims. (Cl. 33—132)

The present invention relates to an adjustable stop mechanism for yarn measuring spool winders, by means of which the winding mechanism is automatically stopped after a predetermined amount or length of yarn is wound thereon.

One of the chief characteristics of the instant invention resides in the provision of a mechanism for the above mentioned purpose, which is not only positive and accurate in operation, but one which can be easily and quickly manipulated by the operator of the machine.

In carrying out our invention we provide a novel construction of means whereby the mechanism can be quickly and conveniently adjusted to operate with any particular or desired length of yarn, after which the mechanism requires no further attention on the part of the operator, as it performs its function to automatically stop the winding mechanism at a predetermined interval.

Another important object of the invention resides in the fact, that subsequent to each operation of the mechanism for the purpose mentioned, the adjusting means is automatically returned to normal position, whereupon the mechanism can again be used for yarns of the same or different lengths.

The nature and advantages of the invention will be better understood when the following detail description is read in connection with the accompanying drawings, the invention residing in the construction, combination and arrangement of parts as claimed.

In the drawings forming part of this application like numerals of reference indicate similar parts in the several views and wherein:

Figure 1 is a side elevation of the mechanism constituting the subject matter of the present invention.

Figure 2 is a top plan view.

Figure 3 is an enlarged fragmentary sectional view through the adjusting means for the mechanism.

Figure 4 is a top plan view of the rotatable disk and pin carried thereby.

Figure 5 is an enlarged fragmentary sectional view showing the mounting of the disk and the means for holding the latter fixed with relation to the gear.

Figure 6 is a sectional view on line 6—6 of Figure 1.

Figure 7 is a detail view showing how the hollow channel-like ring member is supported on the standard of the machine.

Referring to the drawings in detail 10 indicates a part of the frame of the spool winding machine, upon which is journaled the shaft 11 of a measuring roll 12. The roll is preferably knurled, but may of course be otherwise suitably roughened to insure proper contact of the yarn 13 therewith. It is of course understood that the roll is rotated by contact with the yarn being wound upon the spool 14, and in order to hold the yarn in effective engagement with the roll 12, a tension bar 15 rests upon the yarn, and is supported by a suitable arm 16.

The mechanism forming the subject matter of the present invention, for automatically stopping the starting and stopping mechanism (not shown) of the machine, includes in accordance with the specific embodiment of the invention herein illustrated an arm 17 pivoted at one end upon the frame 10 of the machine as clearly illustrated in Figure 1. Projecting from the frame 10 is a bracket 18 and terminally connected thereto is one end of a coil spring 19, the other end of which is connected with the arm 17 adjacent its outer extremity. This spring is utilized to assist in holding the arm 17 in a set position in a manner to be hereinafter described. Also projecting from the frame 10 is a bracket plate 20 upon which is pivoted at a point between its ends a short lever 21. Connecting the arm 17 with one end of the lever 21 is an adjustable rod including a turn buckle 22. Connected with the other end of the lever 21 is a link 23, the opposite end of which is connected with a bar 24 pivoted upon the frame of the machine and used in conjunction with the shift rod 25 which controls the clutch of the starting and stopping mechanism (not shown) of the machine. As shown in Figure 1 this shift rod is slotted to receive the bar 24 when the mechanism is set and the machine in operation, and the bar 24 is elevated to effect a release of the rod 25 to stop the machine at a predetermined interval. A coil spring 26 is connected with the bar 24 to assist in holding the latter operatively associated or engaged with the rod 25.

Pivoted at a point between its ends upon the frame 10 of the machine is a lever 27, one end of which is extended upwardly as at 28 and terminates to provide an offset extremity 29. The other end of the lever is extended downwardly as at 30, and is formed to provide upper and lower steps 31 and 32 respectively, as clearly illustrated in Figure 6. This lever 27 is employed to support the arm 17 in its elevated position while the machine is in operation, and to effect a release of the arm 17 in order to stop the machine

at a predetermined interval. In other words when the arm 17 is arranged in its normal inactive position, it reposes upon the upper step 31 of the lever 27, and remains in this position until the lever is tripped to release the arm in a manner to be hereinafter described. In order to assist in holding the lever 27 and the arm 17 associated in this manner, a spring 33 is employed, one end of which is connected with a pin 34 depending from the lower end of the lever 27, and its other end connected with a similar pin 35 carried by an extension 36 forming part of the frame 10 of the machine.

Journaled in suitable bearings 37 is a vertical shaft 38, and loosely mounted upon this shaft is a gear 39, reposing upon a collar 40 secured to the shaft in any suitable manner. Meshing with the gear 39 is a worm gear 41 carried by the shaft 11 of the measuring roll 12, so that it is manifest that the gear 39 is rotated incident to the rotation of the roll 12. As clearly illustrated in Figure 3 the gear 39 is formed with an annular recess 42 in the top thereof, and arranged in this recess is a disk 44 from which rises a pin 45 having a right angularly disposed offset extremity 46 adapted to engage and trip the lever 27 at a predetermined interval. The disk 44 is provided with a central opening to receive the threaded extension 48 of the shaft 38, and supported upon this extension is a knob 49, which when tightened holds the disk 44 clamped therebetween and the gear 39, and also fastens the gear 39 to the shaft 38 for rotation therewith. The disk 44 is also provided with a pair of spaced openings 50, each of which receives a pin 51 projecting upwardly from the shaft 38, whereby the disk 44 can be rotated with the shaft independently of the gear 39 in order to automatically reset the mechanism in a manner to be hereinafter described.

Supported in any suitable manner above the gear 39 is a ring 52 of hollow channel-like formation in cross section as clearly illustrated in Figure 3, and the top of this ring is formed with an annular slot 53. The ring 52 is preferably provided with an extension 52' which is bolted to the frame 10 by bolts 52A. Movable within the ring is a block 54 which has associated therewith in any suitable manner a stop 55 to limit the rotation of the disk 44 and pin 45 in one direction. In other words the ring 52 is graduated as illustrated in Figure 2, and the stop 55 is adjustable about the ring and given a predetermined position, depending of course upon the amount or length of yarn to be wound. The stop 55 is preferably connected with the block 54 by a headed screw 56, which can be easily loosened to permit the stop in its entirety to be adjusted on the ring in either direction.

For instance if it is desired to wind 20 feet of yarn upon the spool, the stop 55 is adjusted upon the ring 52 until it is brought to the numeral 20 and then held fixed relatively to the ring by tightening the fastening element 56. The disk 44 is then rotated upon the gear 39 until the pin 45 engages the stop. For this purpose it is necessary to loosen the knob 49, to allow the disk 44 to rotate upon and independently of the gear 39, and in this manner the mechanism is set to automatically stop the machine after 20 feet of yarn has been wound upon the spool. When the machine is put in operation, the knob 49 is tightened to hold the disk 44 fixed with relation to the gear 39 to rotate therewith as a unit, and also fasten the gear upon the shaft 38. Consequently when 20 feet of yarn has been wound upon the spool 14, the pin 45 will have traveled from its given initial position against the stop 55 to the position illustrated in Figure 2, namely in contact with the lever 27 to shift the latter on its pivot in one direction.

When the lever 27 is shifted by the movement of the pin 45, the lower end of the lever is moved away from the arm 17, allowing the latter to be moved by the spring 19 from the uppermost step 31 of this lever onto the lowermost step 32. During this operation of the arm 17, the short lever 21 is rocked upon its pivot, thereby lifting the bar 24 out of engagement with the shift rod 25, by reason of its link connection with the lever 21, whereupon the clutch of the starting and stopping mechanism of the machine is released, and the machine automatically stopped. It will be noted that the link 23 is provided with a slot 23' to provide sufficient clearance for the arm 17 to permit the latter to be lifted a slight distance above the uppermost step 31 while being arranged thereon for another operation of the mechanism.

Carried by the lower end of the vertical shaft 38 is a pulley 57 which has secured thereto one end of a cable 58. This cable is trained about the pulley 57, and also passes over a pulley 59 to direct the cable downwardly as shown in Figure 1, the cable supporting a weight of proper size indicated at 60. When the machine is in operation, the shaft 38 is rotated, and thereby winds the cable 58 about the pulley 57, and elevates the weight 60. However, after the machine has been automatically stopped, it is only necessary to loosen the knob 49 to disengage the gear 39 from the shaft 38, whereupon the weight 60 gravitates to its normal position, thereby reversing the rotation of the shaft 38 and the disk 44, automatically returning the pin 45 to its initial starting position.

While it is believed that from the foregoing description, the nature and advantages of the invention will be readily apparent, we desire to have it understood, that we do not limit ourselves to what is herein shown and described and that such changes may be resorted to when desired as fall within the scope of what is claimed.

What is claimed is:

1. An adjustable stop mechanism for a spool winding device having a shifter rod, including a measuring roll rotated by contact with the yarn being wound, a support, a biased arm pivoted on said support, means actuated by said arm to release the shifter rod, means normally holding said arm inactive, but adapted to release said arm after a predetermined amount of yarn has been wound, said means including a pivoted lever, a shaft mounted for rotation, gearing for rotating said shaft from the measuring roll, including a gear loosely mounted on said shaft, a disk supported by said gear and capable of rotation with relation thereto, a trip element carried by said disk for operating said lever, and capable of being set to effect a release of said arm after a predetermined amount of yarn has passed over said measuring roll, and means for holding the disk and gear fixed with relation to the shaft for rotation therewith.

2. An adjustable stop mechanism for a spool winding device having a shifter rod, said mechanism including a measuring roll rotated by contact with the yarn being wound, a support, a biased arm pivoted on the support, means actuated by said arm to release the shifter rod, means

normally holding said arm inactive, but adapted to release said arm after a predetermined amount of yarn has been wound, said means including a pivoted lever, a shaft mounted for rotation, gearing for rotating said shaft from the measuring roll, including a gear loosely mounted on said shaft, a disk supported on said gear and capable of rotation with relation thereto, a knob threaded on the shaft and utilized to hold said gear and disk fixed with relation thereto for rotation therewith, a trip element carried by said disk for operating said lever and effecting a release of said arm, and capable of being set by said disk to release said arm after a predetermined amount of yarn has passed over said measuring roll, and means for reversing the rotation of said shaft and disk after each operation thereof.

3. An adjustable stop mechanism for a spool winding device having a shifter rod, said mechanism including a measuring roll rotated by contact with the yarn being wound, a support, a biased arm pivoted on the support, means actuated by said arm to release the shifter rod, means normally holding said arm inactive, but adapted to release said arm after a predetermined amount of yarn has been wound, said means including a pivoted lever, a shaft mounted for rotation, gearing for rotating said shaft from the measuring roll, including a gear loosely mounted on the shaft, a disk supported on said gear and capable of rotation with relation thereto, a trip element carried by said disk for operating said lever and capable of being set by said disk to release said arm after a predetermined amount of yarn has passed over said measuring roll, an adjustable stop for limiting the movement of said disk to its set position, and means for holding the disk and gear fixed with relation to the shaft for rotation therewith.

LOUIS H. HILDEBRANDT.
JOHN K. SCHWARTZ.