Dec. 10, 1929. L. STASTNEY 1,739,265

WINDING APPARATUS

Original Filed June 6, 1922 2 Sheets-Sheet 1

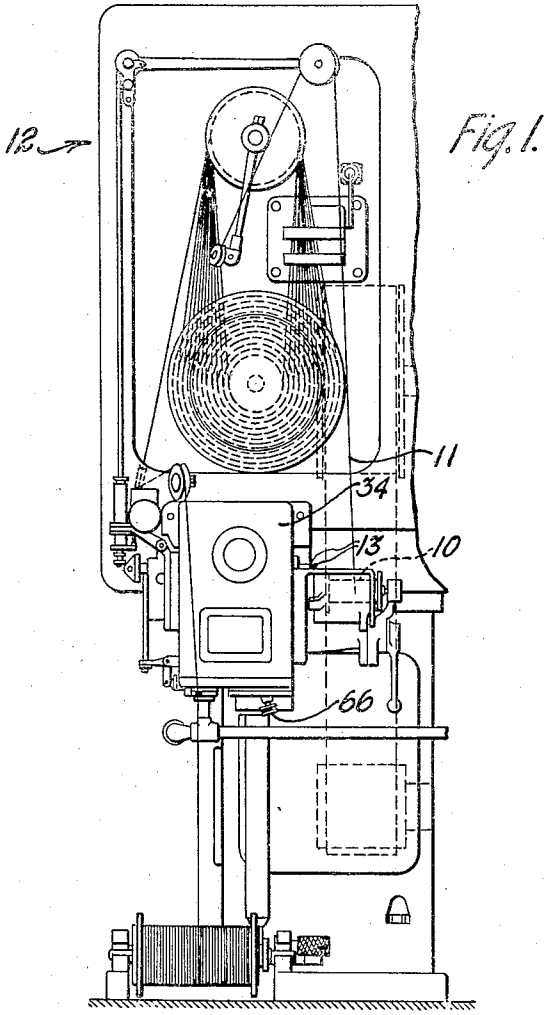


Fig. 1.

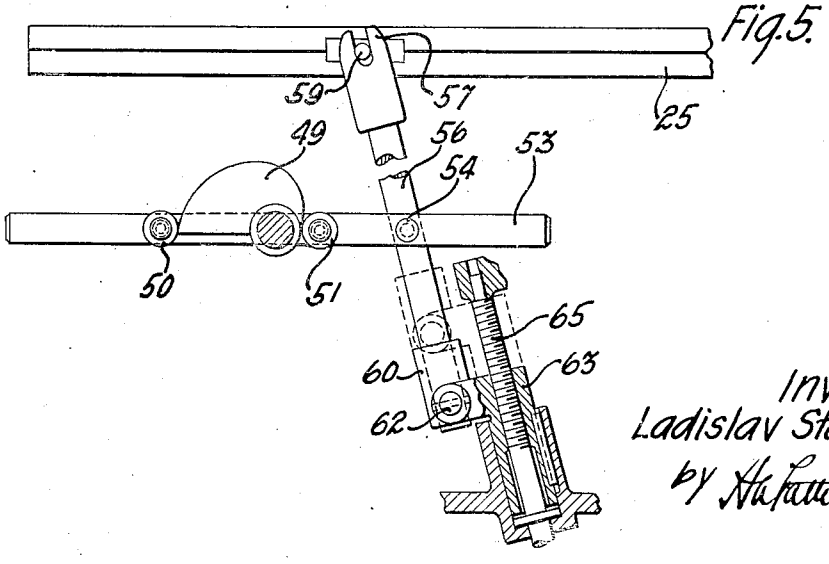


Fig. 5.

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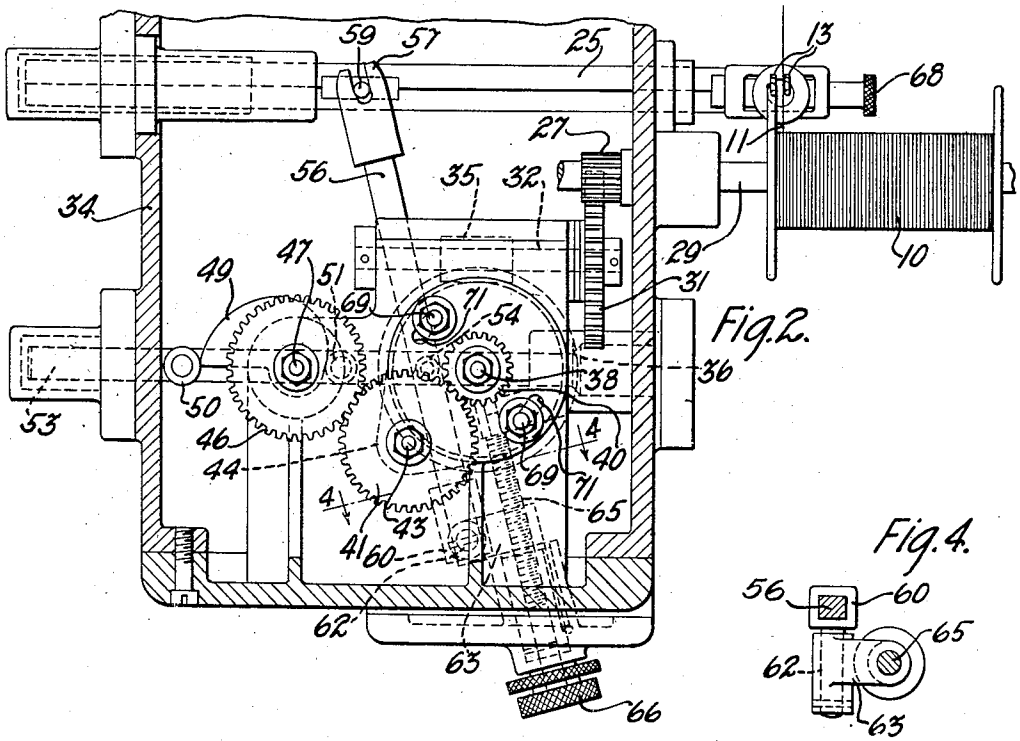
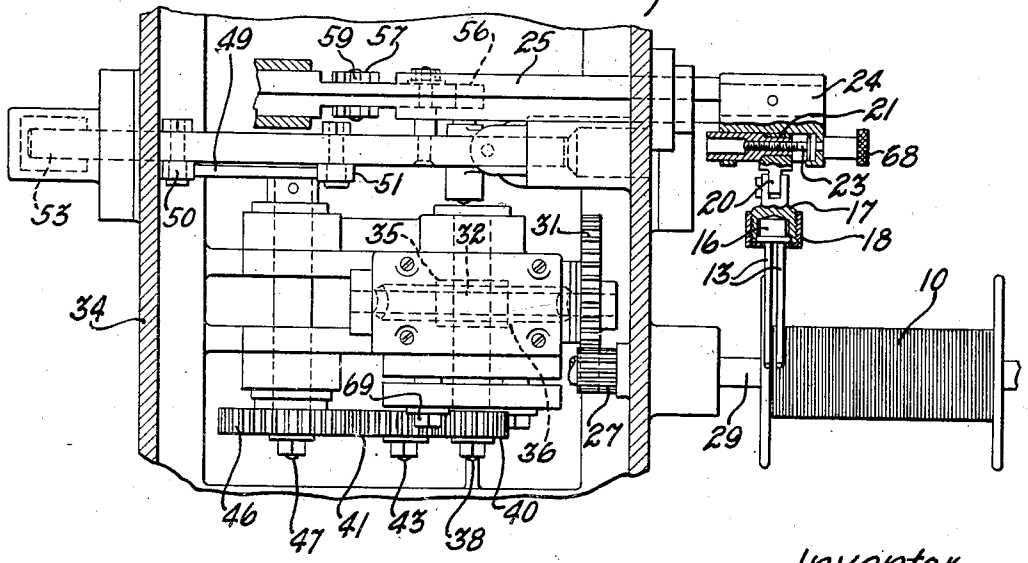


Fig. 2.

Fig. 4.

Fig. 3.



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Patented Dec. 10, 1929 1,739,265

UNITED STATES PATENT OFFICE

LADISLAV STASTNEY, OF CICERO, ILLINOIS, ASSIGNOR TO WESTERN ELECTRIC COMPANY, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

WINDING APPARATUS

Original application filed June 6, 1922, Serial No. 566,213. Patent No. 1,706,754, dated March 26, 1929. Divided and this application filed February 28, 1927. Serial No. 171,390.

This invention relates to winding apparatus, and more particularly to distributing apparatus for storing strand material on a take-up mechanism.

This application is a division of my copending application, Serial No. 566,213, filed June 6, 1922, now Patent 1,706,754, dated Mar. 26, 1929.

The primary object of this invention is to provide a simple, durable and efficient distributing means for strand working machines.

In accordance with the above object, the invention contemplates a unitary distributing and take-up unit which is particularly adaptable to wire drawing machines of the type employed for drawing very fine wire as exemplified in my above mentioned copending application. The distributing unit being provided with an element which is reciprocated by a constantly rotating cam and which is capable of being very exactly adjusted by varying its pivotal point, makes it possible to accurately lay very fine wire, such as No. 40 B. & S. wire gauge, on a take-up spool in layers of closely adjacent coils without tangling the wires or intermingling the coils of one layer with that of an adjacent layer.

Other objects and advantages of this invention will be apparent from the following detailed description taken in connection with the accompanying drawing illustrating one embodiment thereof, in which

Fig. 1 is a fragmentary, elevational view of a wire drawing machine equipped with a distributing mechanism embodying the features of the invention;

Fig. 2 is an enlarged, side elevational view of a distributing mechanism shown in Fig. 1, the casing thereof being broken away to more fully disclose mechanisms otherwise hidden;

Fig. 3 is a top plan view shown partially in section of the mechanism disclosed in Fig. 2;

Fig. 4 is a detailed, sectional view of the lower portion of the pivoted lever taken on the line 4—4 of Fig. 2, and

Fig. 5 is an enlarged skeleton view, partly in section, showing the lever system of the distributing mechanism disclosed in Figs. 2 and 3 and illustrating the manner in which said leverage mechanism may be adjusted to compensate for take-up spools of different lengths.

Referring now to the drawings wherein like numerals have been employed to designate similar parts throughout the various figures, it will be observed that one embodiment of the invention comprises a take-up spool 10 which is driven from a suitable source of power supply (not shown) and which is adapted to receive and store a supply of wire 11 fed thereto from within a wire drawing machine denoted generally by the numeral 12. Two parallel fingers 13 between which drawn wire passes to the take-up spool 10 are secured to a head 16 which is held within a cup-shaped housing 17 by means of a sleeve 18. The housing 17 is pivoted to an arm 20 so as to be adjustable in vertical plane. The arm 20 is integral with a block 21 internally screw threaded to receive a screw 23 carried by a bracket 24 pinned to a reciprocal rod 25. As this rod 25 is reciprocated, by a mechanism hereinafter to be described, the fingers 13 are moved back and forth across the take-up spool 10.

The means for reciprocating the rod 25 comprises a pinion 27 fast on a spindle 29 which carries the spool 10 and meshes with a companion gear 31 carried by a shaft 32 supported by suitable bearings within a machine casing 34 associated with the side frame of the wire drawing machine 12. Also secured on the shaft 32 is a worm 35 which meshes with a worm gear 36 secured to shaft 38. A gear 40 is also secured to the shaft 38 which drives an idler 41 rotatable on a stud shaft 43 carried by a bracket 44. The idler 41 meshes with a gear 46 secured upon a shaft 47 which also has secured to it a cam 49. Cooperating with said cam are anti-friction rollers 50 and 51 carried by a rod 53 reciprocably mounted within suitable bearings carried by the casing 34. Pivoted to the rod 53 at a point 54 is a lever 56, the upper end of which has a bifurcated portion 57 which straddles a pin 59 fast to the reciprocable rod 25. The lower end of the lever 56 fits within an eye 60 (Figs. 2, 4, and 5) which has secured to it a pin 62 pivotally

mounted within a bracket 63 threaded upon a screw 65. As the take-up spool spindle 29 is driven at various speeds, the cam 49 is rotated in synchronism therewith through the train of gears comprising pinion 27, gear 31, worm 35, worm gear 36, gears 40, 41 and 46. As the cam 49 revolves it engages the rollers 50 and 51, alternately causing the rod 53 to be reciprocated. This movement of the rod 53 causes a similar movement of the rod 25 through the lever 56. The reciprocation of the rod 25, as previously described, moves the fingers 13 back and forth across the take-up spool.

The length of the reciprocations of the rod 25 to accommodate different lengths of take-up spools is controlled by turning the screw 65 clockwise or counter-clockwise by means of a serrated knob 66 which serves to raise or lower the bracket 63 as viewed in Figs. 2 and 5, to which a pivotal point of the lever 56 is secured, and thereby lengthen or shorten the arc through which the upper end of said lever moves which, of course, controls the length of the reciprocation of the rod 25.

When this adjustment has been made for spools of a given length and it is found, due to inaccuracies of manufacture, that a spool will not occupy the correct position on the spindle 29, these inaccuracies may be compensated for by adjusting the position of the fingers 13 relative to the bracket 24 by turning the screw 21 clockwise or counter-clockwise by means of a serrated knob 68 attached thereto.

In order to lay the wire on the take-up spool in close adjacent coils on each layer, it is necessary to reciprocate the rod 25 at different speeds, dependent upon the wire to be stored. The speed of reciprocation of the rod 25 is adjusted by substituting gears of various diameters and numbers of teeth for the gear 46. For this reason the bracket 44, upon which the idler 41 is rotatably supported, is adjusted so that the gear 41 may be lowered or raised as a gear having a smaller or larger diameter than the gear 46 is used. The bracket 44 is locked in its adjusted position by means of fixed screws 69 which fit within slots 71 cut in the bracket 44.

Since the distributing mechanism is driven from the spindle of the take-up spool 10 any variation in the speed of rotation thereof will cause a corresponding variation in the speed of the entire distributing mechanism so that it will always be in complete synchronism with the rotation of the take-up spool.

Although the distributing mechanism has herein been described and disclosed in connection with the take-up spool for a wire drawing machine, it will be understood that the invention is capable of other applications and is to be limited only by the scope of the appended claims.

What is claimed is:

1. In a distributing mechanism for strand working machines, a reciprocable driven member, a distributing element carried thereby, a reciprocable driving member and actuating means therefor, an actuating member pivotally secured intermediate its ends to the driving member, the actuating member being connected with the driven reciprocable member and having a pivotal connection with a support at a position oppositely disposed from the intermediate pivotal connection, and means for varying the position of the support with respect to the actuating member to effect variations in the degree of movement thereof.

2. In a distributing mechanism for strand working machines, a reciprocable distributing rod, a distributing element carried thereby, a reciprocable driving rod and actuating means therefor, an actuating lever pivotally secured intermediate its ends to the driving rod, one end of the actuating lever connected with the distributing rod and the other end thereof having a pivotal connection with a support, and means for varying the position of the support to change the position of the pivotal connection with respect to the actuating lever.

3. In a distributing mechanism for strand working machines, a reciprocable distributing rod, a distributing element carried thereby, a reciprocable driving rod, an actuating means therefor including a plurality of meshing gears and a member pivoted coaxially with one of said gears and adjustable to vary the position of the axis of another gear supported thereby, an actuating lever pivotally secured intermediate its ends to the driving rod, one end of the actuating lever connected with the distributing rod and the other end thereof having a pivotal connection with a support, and means for varying the position of the support to change the position of the pivotal connection with respect to the actuating lever.

4. In a distributing mechanism for strand working machines, a driven spool supporting spindle, a reciprocable distributing member, a distributing element carried thereby, means for adjusting the position of the distributing element relative to a spool carried upon said spindle, a reciprocable driving rod and actuating means therefor, an actuating lever pivotally secured intermediate its ends to the driving rod, one end of the actuating lever being connected with the distributing member and the other end thereof having a pivotal connection with a support, and means for varying the position of the support to vary the degree of movement of the distributing member.

In witness whereof, I hereunto subscribe my name this 16th day of February A. D., 1927.

LADISLAV STASTNEY.