June 10, 1941. W. SIEGENTHALER 2,245,305

WINDING MACHINE INCLUDING A PLURALITY OF WINDING SPINDLES ARRANGED ON A COMMON ROTATABLE SUPPORTING MEMBER

Filed Dec. 14, 1939 3 Sheets-Sheet 1

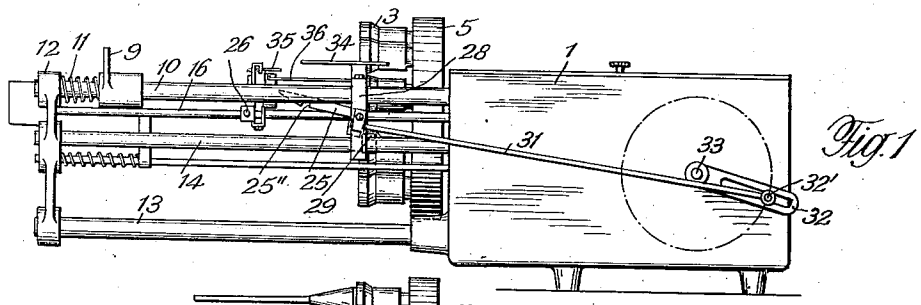


Fig. 1

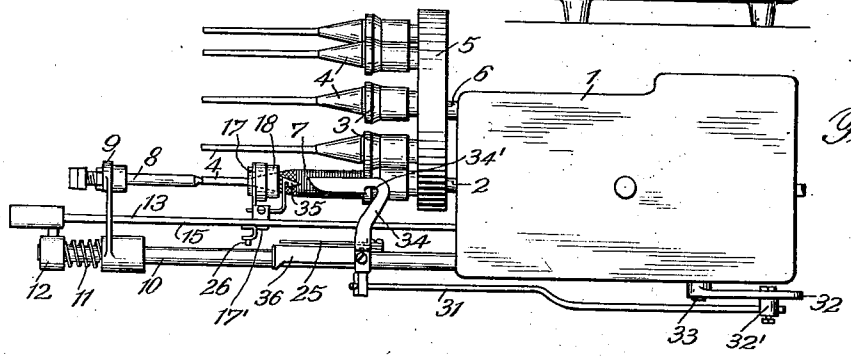


Fig. 2

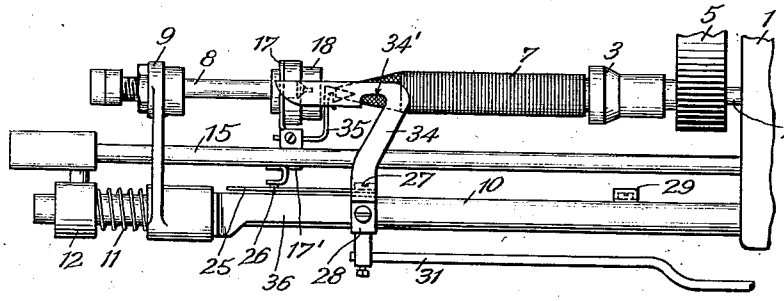


Fig. 3

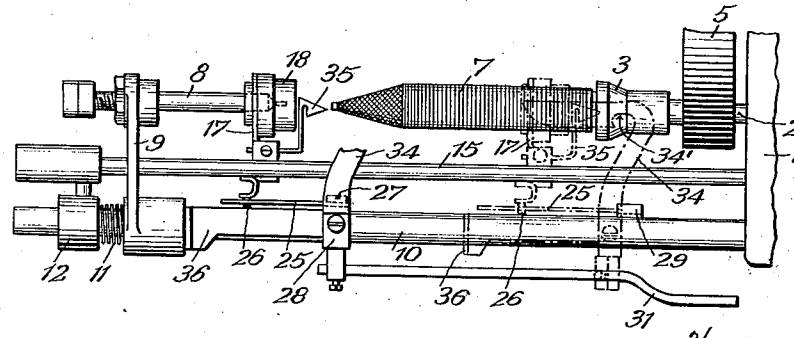


Fig. 4

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Filed Dec. 14, 1939 3 Sheets-Sheet 2

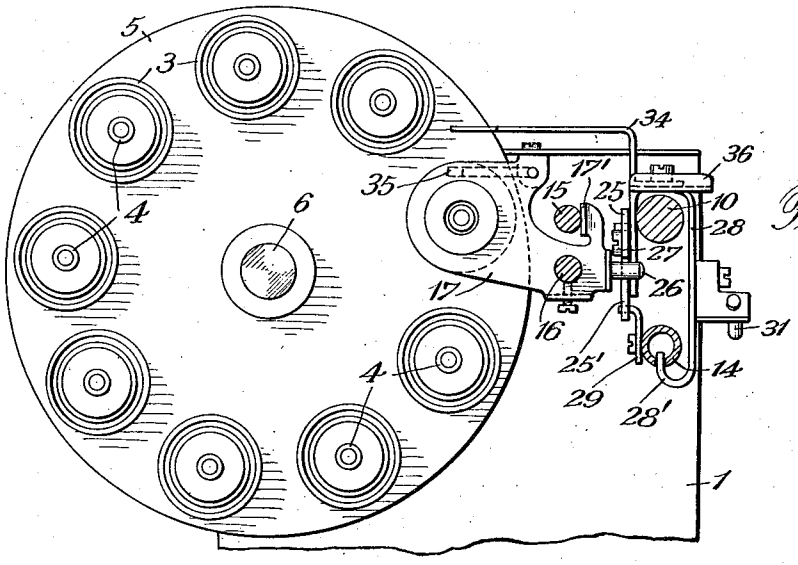


Fig. 5

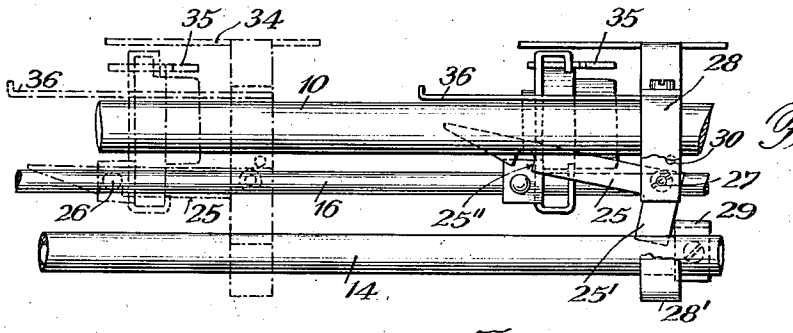


Fig. 6

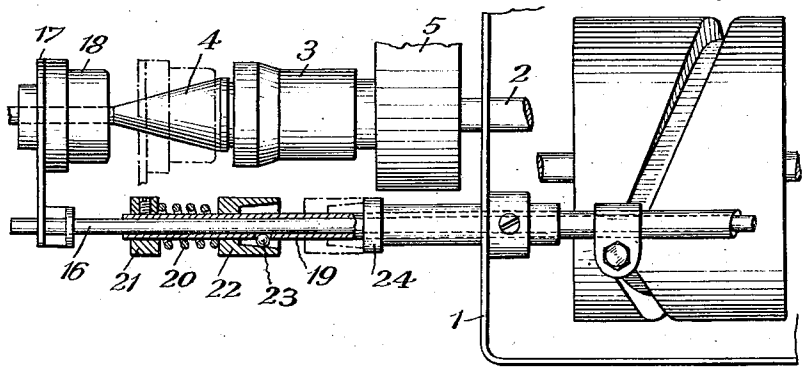


Fig. 7

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WINDING MACHINE INCLUDING A PLURALITY OF WINDING SPINDLES ARRANGED ON A COMMON ROTATABLE SUPPORTING MEMBER

Filed Dec. 14, 1939 3 Sheets-Sheet 3

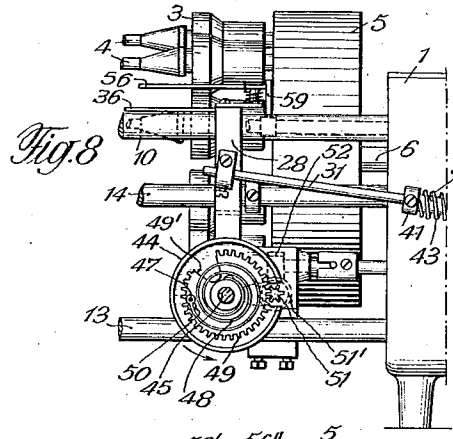


Fig. 8

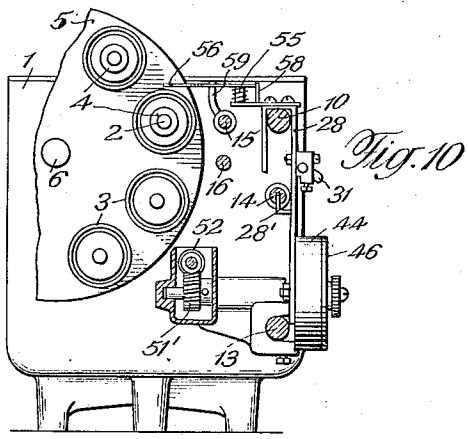


Fig. 10

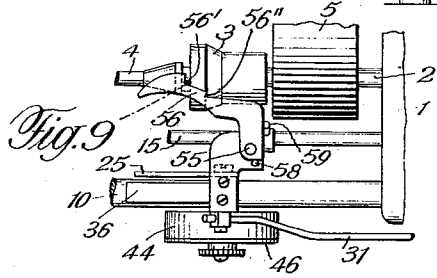


Fig. 9

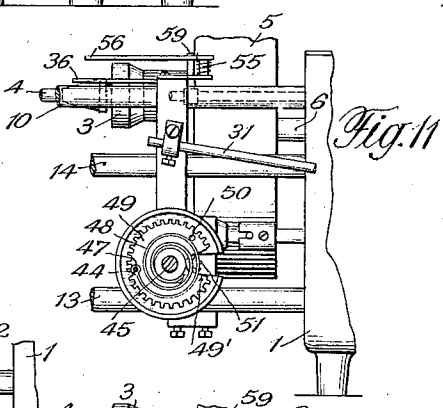


Fig. 11

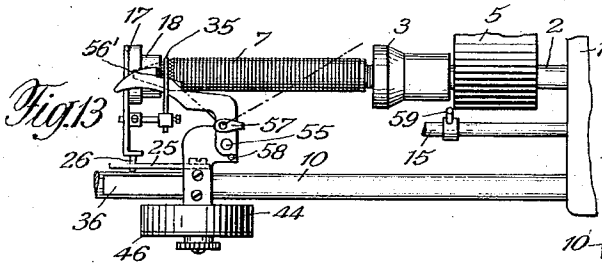


Fig. 13

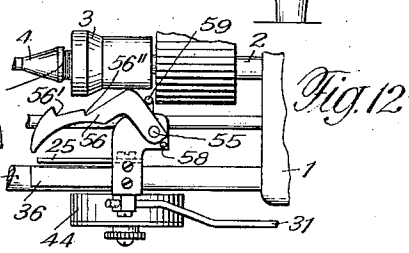


Fig. 12

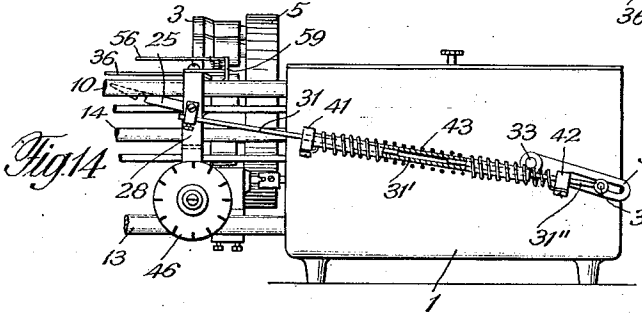


Fig. 14

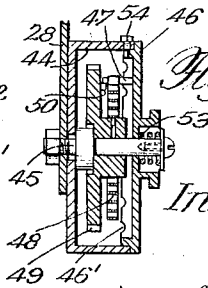


Fig. 15

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UNITED STATES PATENT OFFICE

2,245,305

WINDING MACHINE INCLUDING A PLURALITY OF WINDING SPINDLES ARRANGED ON A COMMON ROTATABLE SUPPORTING MEMBER

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Application December 14, 1939, Serial No. 309,296
In Switzerland March 1, 1939

14 Claims. (Cl. 242—27)

This invention relates to winding machines including a plurality of winding spindles arranged on a common rotatable supporting member automatically fed in the direction of rotation for supplying an empty bobbin to the winding position each time after a bobbin has been wound.

According to the invention, for the bobbin supplied to the winding position a counter holding member and a winding feeler member are provided which members are rendered inoperative by means of a slide each time after the winding of a bobbin is completed and are rendered operative again on the said rotatable supporting member having been fed.

In consequence thereof, in a winding machine of the kind hereinbefore described the arrangement of a single counter holding member suffices for securing the bobbins to be wound, which counter holding member cooperates only with the bobbin dwelling in the winding position and which can be rendered operative and inoperative again in simple manner.

In constructing the machine as a cop winding machine, advantageously, by means of the slide, each time a winding feeler member and a thread guide are simultaneously moved out of the range of the completely wound cop tube, as required, and are then moved within the range of the cop tube to be wound. The slide thus has several functions; for effecting the movement of the slide, advantageously, a crank pin is provided.

In the accompanying drawings two embodiments of the invention each representing a cop winding machine are illustrated by way of example only, in which

Fig. 1 shows an elevation of a first embodiment;

Fig. 2 is a top plan view thereof,

Figs. 3 and 4 each show on a larger scale a detail view corresponding to Fig. 2 with the thread feeler member in different positions;

Fig. 5 is a partial sectional front view of the machine;

Fig. 6 shows a partial elevational view corresponding to Fig. 1;

Fig. 7 is a partial sectional top plan view of the machine;

Fig. 8 shows an elevation of a second embodiment in working condition for the formation of a thread reserve;

Fig. 9 is a top plan view;

Fig. 10 shows a sectional front elevation of Fig. 8;

Figs. 11 and 12 show an elevation and a plan view respectively with the parts in different positions compared with Figs. 8 to 10, that is, with the slide and accessories thereto completely retracted;

Fig. 13 shows an elevation of the slide in advanced position;

Fig. 14 shows an elevation serving for explaining certain driving means for the slide, and

Fig. 15 is a larger scale section of a casing comprising actuating means for producing a thread reserve.

In the first embodiment, the machine frame, which is designated by 1, is provided with a projecting spindle 2, which serves for driving the winding spindle being in the winding position and having a head 3 which head serves for the reception of a bobbin, that is, a cop tube 4. On a disc 5 having a circumferential rim and being firmly mounted on a shaft 6, in this instance, nine winding spindles are arrayed in a circle. On the completion of the winding 7 on the winding spindle, dwelling in the winding position and being coupled to the driving spindle 2, the disc 5 constituting a rotatable supporting member is, advantageously, automatically intermittently fed by one step from the drive of the machine, with the aid of means not shown, so that the next following winding spindle of the row is moved into alignment with the driving spindle 2 and is then locked in coupling engagement therewith. The prior unlocking of the coupling engagement of the winding spindle dwelling in the winding position with the driving spindle 2 and the subsequent coupling of the winding spindle next moved into winding position with the driving spindle is, advantageously, automatically effected by correspondingly axially shifting the driving spindle 2 from the drive of the machine.

The bobbin 4 being in the winding position is held at its end removed from the driving spindle 2 by a counter holding member 8 formed by a bolt which is axially adjustably arranged in a bracket 9. The bracket 9 is displaceably arranged on a rod 10 and is normally acted upon by the pressure of a coil spring 11 surrounding this rod in the direction toward the machine casing 1 for forcing the counter holding member 8 against the bobbin 4 to be wound. The end of the rod 10 remote from the casing 1 is received by a head piece 12 which is connected with rods 13, 14 and holds a guide rod 15 (Fig. 5) and a further rod 16. During the winding operation the thread feeler member 17 slides along the guide rod 15, a rotatable ring 18 of this member cooperating with the cop winding in progress of formation, in a known manner. As evident from

Fig. 5, the thread feeler member 17 cooperates with the guide rod 15 by means of a stop lug 17'. The rod 16 is firmly connected with the thread feeler member 17 (Fig. 7). This thread guide control rod 16 is partly inserted in a hollow rod 19 which is reciprocated by the drive of the machine and is surrounded by a compression spring 20 one end of which abuts against a set ring 21 and the other end of which acts on a locking sleeve 22 which also surrounds the hollow rod 19, as shown in Fig. 7. This locking sleeve 22 cooperates by means of its conical inner surface with clamping balls 23 which are distributed over the circumference of this surface and are located in holes in the hollow rod 19 and adapted to be so forced against the thread feeler control rod 16 that this rod is operatively connected with the hollow rod 19.

An, advantageously, axially displaceable stop 24 is arranged on the machine casing 1 for cooperation with the clamping sleeve 22 while the hollow rod 19 reciprocates in the axial direction. If the hollow rod 19 is displaced in that direction in which the thread feeler, that is, the winding feeler 17, 18 moving therewith, is approached on the machine casing 1, the feeler ring 18 is moved toward the thread winding 7 formed on the bobbin in order to occasionally contact therewith, and consequently to feed the thread feeler 17 by one step by shifting the rod 16, in a manner known per se. To this end the clamping sleeve 22 must hit the stationary stop 24 so as to be forced backwardly against the action of the compression spring 20, thereby relieving the clamping balls 23 from the pressure exerted thereon by the clamping sleeve 22, in consequence of which the thread feeler control rod 16 is released for being fed by one step.

Thereupon, the clamping sleeve 22 is shifted in the direction toward the casing 1 under the influence of the compression spring 20, as the hollow rod 19 moves in the opposite direction to that mentioned above, and is caused to cooperate with the clamping balls 23 again for accordingly exerting a clamping effect on the rod 16 and thus on the thread feeler 17 which is effective in the direction of the feed movement. Therefore, the feeding of the thread feeler 17 is effected only, when the clamping effect of the clamping sleeve 22 is released, and this sleeve is thus rendered inoperative by hitting the stationary stop lug 24, that is, in mechanical fashion.

The resistance opposed by the clamping sleeve to the shifting of the thread guide 17 can, however, be mechanically released also in other manner. For this purpose a locking pawl 25 is brought into cooperation with a stud 26 arranged on the thread feeler 17 (Figs. 5, 6). The locking pawl 25 is mounted, by means of a bolt 27, on a slide 28 which is guided by the rods 10, 14, the slide 28 engaging into a longitudinal slot in the hollow rod 14 by means of a projection 28' (Fig. 5). The locking pawl 25 is provided with a depending arm 25' by means of which it is adapted to hit an adjustable stop member 29 on the rod 14 so as to be retained in the position shown in Fig. 6, in which position a notch 25'' provided on the locking pawl 25 is maintained out of engagement with the stud 26 on the thread feeler 17. A pin 30 provided on the slide 28 limits the rocking movement of the locking pawl 25, when the slide 28 moves out of the terminal position shown in Fig. 6.

A traversing bar 31 engages with the slide 28 which bar is adjustably arranged, by means of a crank pin 32', on a slotted lever arm 32 (Fig. 1) which is fastened to a shaft 33 and adapted to intermittently perform one revolution in automatic fashion during the operation of the machine. The slide 28 is provided with a guide arm 34 (Fig. 3) which serves for the purpose of passing over the winding thread from the full bobbin to the empty bobbin being moved into winding position, when the exchange of bobbins takes place. During the winding operation the winding thread is held by a guide 35 arranged on the thread feeler 17. In the course of the winding operation the thread feeler 17 is fed step by step until the thread coil is wound into the proper length, as previously explained. Thereupon the slotted lever arm 32 performs one revolution whereby the slide 28 is advanced in the direction toward the bobbin counter holding member 9, 8 and subsequently retracted into inoperative position again. Within the end portion of the advancing movement of the slide 28 a cantilever arm 36 secured thereto hits the bobbin counter holder 9, 8, thereby displacing the latter against the influence of the compression spring 11 associated therewith whereby this counter holder 9 is rendered inoperative, as evident from Fig. 3. In the course of this advance movement of the slide 28 the locking pawl 25 rides up on the pin 26 on the thread feeler 17 by means of a front oblique face, whereupon the pawl interengages with the pin 26 by means of the notch 25''. Thereupon, the locking pawl moves the thread feeler 17 in unison therewith while continuing its travel so that the feeler is moved out of the embrace of the completely wound bobbin, as shown in Fig. 4.

As the slide 28 advances, the guide arm 34 meets with the winding thread still passing through the thread guide 35, whereupon the thread is guided out of the thread guide 35 by the respective guide surface and is inserted in a cavity 34' of the arm 34 (Fig. 3). The disc 5 serving as a bobbin magazine is then fed by one step for the exchange of cop tubes in the winding position, whereupon the slide 28 returns into the chain-dotted position of rest shown in Fig. 4 by moving the thread feeler 17 along by means of the pawl 25. In the end phase of this return movement the locking pawl 25 is disengaged from the slide 28 by means of the stop member 29, and then the winding thread is retracted from the cavity 34' of the guide arm 34 and is reinserted in the thread guide 35.

As the slide 28 returns, the contilever arm thereof releases the bobbin counter holder 9, 8 again which then cooperates with the cop tube having been moved into the winding position. The operation of winding this tube is then begun in the manner previously explained. During the return movement of the slide 28 the thread feeler control rod 16 can readily be shifted, due to the fact that the clamping sleeve 22 is ineffective as long as this movement keeps on, so that for returning the slide no locking means or the like need be released.

The second enbodiment exemplifies a construction in which the slide which renders the counter holder for the bobbin and the winding feeler inoperative, after the bobbin winding is completed, is provided with auxiliary means which permit a thread reserve to be produced on the individual bobbin.

By this means the range of applicability of the machine is correspondingly increased with the aid of relatively simple means.

In this embodiment the traversing bar 31 engaging with the slide 28 is connected with an extension 31'' (Fig. 14) by means of a tube 31' pushed thereon, the extension also intruding in this tube. The tube 31' is firmly connected with the traversing bar 31 by a part 41. A set ring 42 is provided on the extension 31'' and is connected with the part 41 by a coil spring 43, thereby forming an elastically resilient connection between the traversing rod 31 and the extension 31''. The extension 31'' is adjustable by means of a crank pin 32' relatively to a slotted lever arm 32 which is secured to a shaft 33 and intermittently performs one revolution during the operation of the machine, in automatic manner.

In the course of the winding operation the thread feeler 17 is fed step by step until the thread coil is wound into the proper length, as explained in connection with the first embodiment. Thereupon the lever arm 32 performs one revolution for displacing the slide 28 back and forth. If, during the displacing of the slide 28 in the direction toward the bobbin counter holder this displacing movement should be resisted by foreign matter obstructing the way, the extension 31'' is shifted in the tube 31' relatively to the traversing bar 31 against the action of the spring 43, so that jamming and damage that might result therefrom is prevented. The operations explained in connection with the first embodiment take place while the slide 28 is displaced back and forth.

The slide 28 carries a casing 44 secured on an axle 45 and having a cover 46 (omitted from Figs. 8 and 11) to which one end of a spiral spring 48 is connected by means of a stop bolt 47 (Fig. 15). The other end of the spiral spring 48 is secured to the hub of a gear wheel 49 which is rotatably mounted on the axle 45 and has a lateral stop stud 50 which in meeting with a complementary stop bolt 47 on the cover 46, as shown in Fig. 8, determines the inoperative position of the gear wheel 49 influenced by the spiral spring 48 and provided with a circumferential recess 49'.

In the end phase of the return movement of the slide 28 the gear wheel 49 in the casing 44 intermeshes with a pinion 51 ((Fig. 8) which is mounted on the axle of a wheel 51' (Fig. 10) and thus firmly mounted on the machine frame and is driven from the drive of the machine through the intermediary of a wheel 52 cooperating with the wheel 51'. The casing 44 is provided with an aperture through which the gear wheel 49 and the pinion 51 can enter into intermeshing engagement with each other.

As soon as the gear wheel 49 meets with the pinion 51 in the course of the return movement of the slide 28 this return movement of the slide 28 is stopped, but the lever arm 32 completes nevertheless a full turn, thereby energising the spring 43 provided on the sectional traversing bar 31. After the gear wheel 49 and the pinion 51 have entered into mesh the gear wheel 49 is turned, by the pinion 51 acting as a driving gear, in the direction of the arrow shown in Fig. 8 to such an extent, while at the same time the spiral spring 48 is energised, that the recess 49' in the gear wheel 49 registers with the pinion 51, whereupon the slide 28 is fully retracted into initial position under the influence of the spring 43 arranged on the sectional traversing bar 31, as shown in Fig. 11.

In the time during which the return movement of the slide 28 is interrupted, due to cooperation of the gear wheel 49 arranged in the casing 44 with the pinion 51 firmly mounted on the machine frame, a thread reserve is produced by means of the winding thread at the base of the empty bobbin 4 having been moved into the winding position shortly before. After the slide 28 has been fully retracted into the initial position thereof the normal winding operation begins in the course of which the winding feeler 17, 18 is advanced step by step. If on the completion of the winding the slide 28 is advanced again by the slotted lever arm 32, the gear wheel 49 moves out of the embrace of the pinion 51 within the initial portion of this displacing movement, whereupon this gear wheel 49 turns back into the previous position under the influence of the spiral spring 48 being de-energised, namely, until the stud 50 of the gear wheel 49 meets with the complementary bolt 47 arranged on the casing cover 46 and acting as a stop for said stud. As thereupon the slide 28 moves back the gear wheel 49 is compelled to cooperate with the rotating pinion 51 again, so that on the empty bobbin, having been moved into the winding position in the meantime, a thread reserve is produced and only afterwards the normal winding is formed.

The angular range through which the gear wheel 49 moves between the inoperative position thereof up to the time of cooperation of the edge of the recess 49' with the pinion 51 can be varied with a view to producing a thread reserve of more or less length, by readjusting the bolt 47 provided on the cover 46 by turning the cover 46, so that by cooperation of the stop stud 50 provided on the gear wheel 49 an accordingly varied position of rest for the gear wheel 49 is obtained. The cover 46 can be turned only after having been pushed outwardly against the influence of a spring 53 surrounding the axle 45 to such an extent that the flange of the cover provided with rests 46' is moved out of the range of a stop screw 54 arranged on the casing 44 (Fig. 15).

By the flange of the cover 46 interengaging with the stop screw 54 by means of one of the rests 46' rotational displacement of the cover 46 bearing against the casing is prevented. On the circumference of the flange of the cover 46 a plurality of such rests 46' is formed in conformity with a division which is arranged on the outside of the cover 46, as indicated in Fig. 14, and is provided with appropriate numerals. By means of this division the cover 46 can be adjusted relatively to a fixed mark provided on the slide 28 commensurate with the length of the desired thread reserve, as will be readily understood.

On the slide 28 is further mounted by means of a bolt 55 a lever 56 which is provided with two setbacks 56', 56'' (Fig. 12) serving for the reception, that is, for guiding the winding thread. This thread guide lever 56 is influenced by a torsion spring surrounding the bolt 55 and operates to guide the winding thread by means of its foremost shoulder in an appropriate manner for producing the thread reserve. The winding thread after having been grasped by the thread guide lever 56 by means of the setback 56'' from out of a slot in the thread guide 35 is guided toward the next spindle head having arrived in the winding position for the threading up, for which purpose this head is provided with appropriate means (not shown). In threading up, the thread is pulled out of the setback 56'' and then passed into the setback 56' of the thread guide lever 56 for the purpose of producing a thread reserve on the empty bobbin having been moved into the winding position. Above this bobbin a thread

guide orifice 57 is arranged (Fig. 13) which functions to initiate the stopping of the machine on thread breakage.

From Fig. 9 it will be seen that the position of the thread guide lever 56 is defined by this lever resting against two studs 58, 59, the former being arranged on the slide 28 and the latter on the machine frame. On the slide 28 continuing, that is, completing its return movement after having come to rest for the production of the thread reserve, the thread guide lever rocks against the action of the associated torsion spring from the positions shown in Fig. 9 into the position shown in Fig. 12 by cooperation with the stop pin 59, thereby releasing the thread for being used for the normal winding operation.

In order that after the starting of the machine on the bobbin to be initially wound a thread reserve is also formed the slide 28 is advanced by hand to such an extent while the length of its sectional traversing bar is varied, that the recess 49' is moved out of the range of the pinion 51 and the spring influenced gear wheel 49 rocks back into position of rest. Thereupon, the gear wheel 49 is moved into mesh with the pinion 51, by accordingly adjusting the slide 28, for the purpose of producing the thread reserve.

The pinion 51 turning the gear wheel 49 arranged on the slide 26 for the purpose of producing the thread reserve may be arranged, together with the pair of cooperating gear wheels 51', 52 for driving this pinion, on a slide which is reciprocated through a short range by means of an eccentric. This short range reciprocatory movement is transmitted to the slide 28 in consequence of which the thread is accordingly wound on the bobbin for the production of the thread reserve.

What I claim is:

1. In a winding machine, a supporting member carrying a plurality of winding spindles each for exchangeably carrying a bobbin, said member being mounted for stepwise rotation to bring the spindles successively into winding position and into position for exchanging a full bobbin having been wound in said winding position for an empty bobbin, a counter holder for the empty bobbin supplied into said position, a winding feeler associated with said holder for cooperation with the winding in progress of formation, and slide means for rendering said holder and said winding feeler inoperative on the completion of said winding and rendering said holder and feeler operative again on said supporting member having been fed by a step.

2. In a winding machine, a supporting member carrying a plurality of winding spindles each for exchangeably carrying a bobbin, said member being mounted for stepwise rotation to bring the spindles successively into winding position and into position for exchanging a full bobbin having been wound in said winding position for an empty bobbin, a counter holder for the empty bobbin supplied into said position, a winding feeler associated with said holder for cooperation with the winding in progress of formation, a slide for rendering said holder and said winding feeler inoperative on the completion of said winding and rendering said holder and feeler operative again on said supporting member having been fed by a step, and means for automatically displacing said slide.

3. In a winding machine, a supporting member carrying a plurality of winding spindles each for exchangeably carrying a bobbin, said member being mounted for stepwise rotation to bring the spindles successively into winding position and into position for exchanging a full bobbin having been wound in said winding position for an empty bobbin, a counter holder for the empty bobbin supplied into said position, a winding feeler associated with said holder for cooperation with the winding in progress of formation, a thread guide associated with said winding feeler, and a slide for rendering said holder inoperative and operative again, respectively, and for alternately displacing said winding feeler together with said thread guide out of the range of said winding on the completion of the latter and moving said winding feeler and thread guide within the range of the empty bobbin next to be wound.

4. In a winding machine, a supporting member carrying a plurality of winding spindles each for exchangeably carrying a bobbin, said member being mounted for stepwise rotation to bring the spindles successively into winding position and into position for exchanging a full bobbin having been wound in said winding position for an empty bobbin, a counter holder for the empty bobbin supplied into said position, a winding feeler associated with said holder for cooperation with the winding in progress of formation, a thread guide associated with said winding feeler, a slide for rendering said holder inoperative and operative again, respectively, and a locking pawl provided on said slide for alternate automatic cooperation with said winding feeler for accodingly shifting said feeler for displacing said feeler together with said thread guide out of the range of said winding on the completion of the latter and moving said feeler and guide within the range of the empty bobbin next to be wound.

5. In a winding machine, a supporting member carrying a plurality of winding spindles each for exchangeably carrying a bobbin, said member being mounted for stepwise rotation to bring the spindles successively into winding position and into position for exchanging a full bobbin having been wound in said winding position for an empty bobbin, a counter holder for the empty bobbin supplied in said exchange position, a winding feeler associated with said holder for cooperation with the winding in progress of formation, a control rod carrying said winding feeler, an axially reciprocating hollow rod guiding said control rod with its bore for relative shifting movement of said rods for feeding said winding feeler step by step by said control rod, a clamping mechanism interposed between said rods for temporarily operatively connecting said rods, a thread guide associated with said winding feeler, and a slide for rendering said holder inoperative and operative again, respectively, and for alternately displacing said winding feeler together with said thread guide out of the range of said winding on the completion of the latter and moving said feeler and guide within the range of the empty bobbin next to be wound.

6. In a winding machine, a supporting member carrying a plurality of winding spindles each for exchangeably carrying a bobbin, said member being mounted for stepwise rotation to bring the spindles successively into winding position and into position for exchanging a full bobbin having been wound in said winding position for an empty bobbin, a counter holder for the empty bobbin supplied into said position, a winding feeler associated with said holder for cooperation with the winding in progress of formation, a thread guide associated with said winding feeler,

a slide for rendering said holder inoperative and operative again, respectively, and for alternately displacing said winding feeler together with said thread guide out of the range of said winding on the completion of the latter and moving said feeler and guide within the range of the empty bobbin next to be wound, and a guide arm on said slide for grasping up the winding thread from said thread guide prior to said exchanging of bobbins in said winding position and for holding said thread until after said exchanging is completed.

7. In a winding machine, a supporting member carrying a plurality of winding spindles each for exchangeably carrying a bobbin, said member being mounted for stepwise rotation to bring the spindles successively into winding position and into position for exchanging a full bobbin having been wound in said winding position for an empty bobbin, a counter holder for the empty bobbin supplied into said position, a winding feeler associated with said holder for cooperation with the winding in progress of formation, a thread guide associated with said winding feeler, a slide for rendering said holder inoperative and operative again, respectively, and for alternately displacing said winding feeler, together with said thread guide out of the range of said winding on the completion of the latter and moving said feeler and guide within the range of the empty bobbin next to be wound, and a periodically actuated crank for displacing said slide.

8. in a winding machine, a supporting member carrying a plurality of winding spindles each for exchangeably carrying a bobbin, said member being mounted for stepwise rotation to bring the spindles successively into winding position and into position for exchanging a full bobbin having been wound in said winding position for an empty bobbin, a counter holder for the empty bobbin supplied into said position, a winding feeler associated with said holder for cooperation with the winding in progress of formation, a slide for rendering said holder and said winding feeler inoperative on the completion of said winding and rendering said feeler and guide operative again on said supporting member having been fed by a step, and means attached to said slide for temporarily stopping said slide, during which stoppage a thread reserve is wound on the individual bobbins.

9. In a winding machine, a rotatable winding spindle supporting member for individually supplying a plurality of exchangeable bobbins into a winding position and exchanging the full bobbins for empty bobbins, a bobbin counterholder for the winding being formed, a winding feeler associated with said holder, an automatically reciprocable slide for rendering said holder and said feeler inoperative on the completion of said winding and operative on said supporting member having been fed, a thread guide mounted on said slide adjacent said holder, a spring-loaded gear wheel mounted on said slide, a stationary driving gear entering into mesh with said gear wheel as said slide returns, thereby arresting said slide and the thread guide while said gear wheel rocks and energizes its loading spring and a thread reserve is formed on the bobbin being wound, said gear wheel having a recess in its circumferential portion which thereupon aligns with said driving gear, whereupon said slide returns completely, and in the course of the subsequent advance of said slide said gear wheel rocks back into inoperative position by spring effort after having been moved out of the range of said driving gear.

10. In a winding machine, a rotatable winding spindle supporting member for individually supplying a plurality of exchangeable bobbins into a winding position and exchanging the full bobbins for empty bobbins, a bobbin counter holder for the winding being formed, a winding feeler associated with said holder, an automatically reciprocable slide for rendering said holder and said feeler inoperative on the completion of said winding and operative on said supporting member having been fed, a thread guide mounted on said slide adjacent said holder, a spring-loaded gear wheel mounted on said slide, a stationary driving gear secured to a carrier slide entering into mesh with said gear wheel as said reciprocable slide returns, thereby arresting said reciprocable slide and the thread guide while said gear wheel rocks and energizes its loading spring and a thread reserve is formed on the bobbin being wound in accordance with the shifting of said carrier slide, said gear wheel having a recess in its circumferential portion which thereupon aligns with said driving gear, whereupon said reciprocable slide returns completely, and in the course of the subsequent advance of said slide said gear wheel rocks back into inoperative position by spring effort after having been moved out of the range of said driving gear.

11. In a winding machine, a rotatable winding spindle supporting member for individually supplying a plurality of exchangeable bobbins into a winding position and exchanging the full bobbins for empty bobbins, a bobbin counter holder for the winding being formed, a winding feeler associated with said holder, an automatically reciprocable slide for rendering said holder and said feeler inoperative on the completion of said winding and operative on said supporting member having been fed, a thread guide mounted on said slide adjacent said holder, a spring-loaded gear wheel mounted on said slide, a stationary driving gear entering into mesh with said gear wheel as said slide returns, thereby arresting said slide and the thread guide while said gear wheel rocks and energizes its loading spring and a thread reserve is formed on the bobbin being wound, said gear wheel having a recess in its circumferential portion which thereupon aligns with said driving gear, a stop on said gear wheel, an adjustable complementary stop on said slide, said stop means when coinciding determining said inoperative position of said gear wheel, and means for adjusting said complementary stop for varying the range of rocking of said gear wheel from said inoperative position to said point of alignment for accordingly varying the length of said thread reserve.

12. In a winding machine, a rotatable winding spindle supporting member for individually supplying a plurality of exchangeable bobbins into a winding position and exchanging the full bobbins for empty bobbins, a bobbin counter holder for the winding being formed, a winding feeler associated with said holder, an automatically reciprocable slide for rendering said holder and said feeler inoperative on the completion of said winding and operative on said supporting member having been fed, a thread guide mounted on said slide adjacent said holder, a casing on said slide having a circumferentially adjustable cover, a spring-loaded gear wheel mounted in said casing, a stationary driving gear entering into mesh with said gear wheel as said slide returns, there-

by arresting said slide and the thread guide while said gear wheel rocks and energizes its loading spring and a thread reserve is formed on the bobbin being wound, said gear wheel having a recess in its circumferential portion which thereupon aligns with said driving gear, a stop on said gear wheel, a complementary stop on said cover, said stop means when coinciding determining said inoperative position of said gear wheel, and said cover permitting said complementary stop to be adjusted for varying the range of rocking of said gear wheel from said inoperative position to said point of alignment for accordingly varying the length of said thread reserve.

13. In a winding machine, a rotatable winding spindle supporting member for individually supplying a plurality of exchangeable bobbins into a winding position and exchanging the full bobbins for empty bobbins, a bobbin counter holder for the winding being formed, a winding feeler associated with said holder, an automatically reciprocable slide for rendering said holder and said feeler inoperative on the completion of said winding and operative on said supporting member having been fed, a thread guide mounted on said slide adjacent said holder, a spring-loaded thread guide lever having two setbacks mounted on said slide, a spring-loaded gear wheel mounted on said slide, a stationary driving gear entering into mesh with said gear wheel as said slide returns, thereby arresting said slide and the thread guide while said gear wheel rocks and energizes its loading spring and a thread reserve is formed on the bobbin being wound, means for automatically so adjusting said guide lever that the winding thread is guided for threading up the bobbin to be wound by one of said setbacks and is guided for producing said thread reserve by the other setback after having passed from the former to the latter setback, and said gear wheel having a recess in its circumferential portion which thereupon aligns with said driving gear, whereupon said slide returns completely, and in the course of the subsequent advance of said slide said gear wheel rocks back into inoperative position by spring effort after having been moved out of the range of said driving gear.

14. In a winding machine, a rotatable winding spindle supporting member for individually supplying a plurality of exchangeable bobbins into a winding position and exchanging the full bobbins for empty bobbins, a bobbin counter holder for the winding being formed, a winding feeler associated with said holder, a reciprocable slide for rendering said holder and said feeler inoperative on the completion of said winding and operative on said supporting member having been fed, a thread guide mounted on said slide adjacent said holder, a sectional traversing bar for periodically displacing said slide and thread guide, a spring interposed between the parts of said spring and permitting the length of said bar to be varied, a spring-loaded gear wheel mounted on said slide, a stationary driving gear entering into mesh with said gear wheel as said slide returns, thereby arresting said slide and the thread guide while said gear wheel rocks and energizes its loading spring and a thread reserve is formed on the bobbin being wound, hand-operable adjusting means for so varying the length of said traversing bar that a thread reserve is formed also on the bobbin first wound as the machine is started, and said gear wheel having a recess in its circumferential portion which thereupon aligns with said driving gear, whereupon said slide returns completely, and in the course of the subsequent advance of said slide said gear wheel rocks back into inoperative position by spring effort after having been moved out of the range of said driving gear.

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