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WINDING MACHINE FOR MAKING LARGE SOFT COPS

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Prior Art

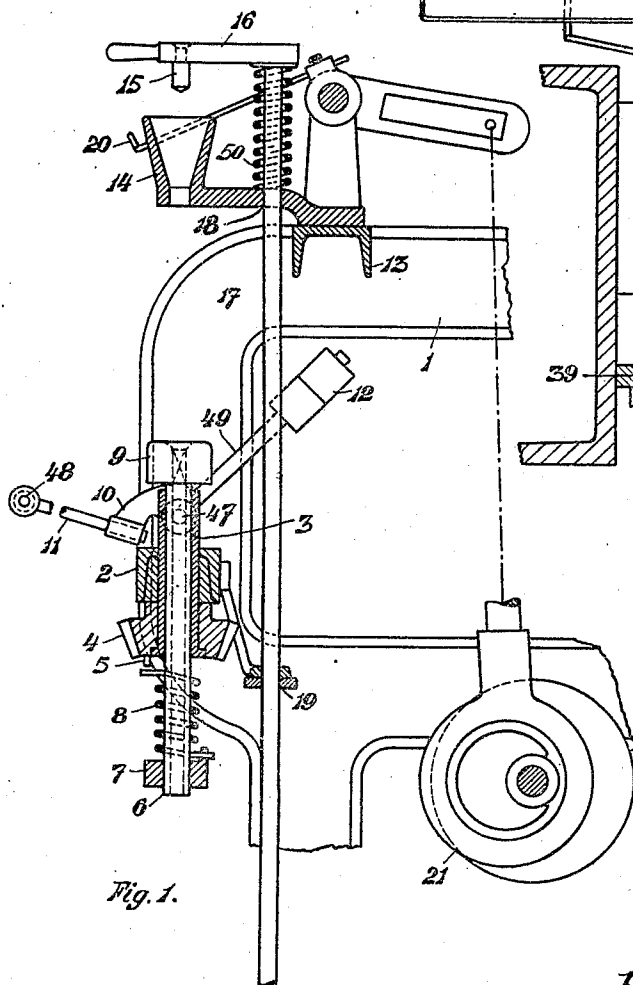


Fig. 1.

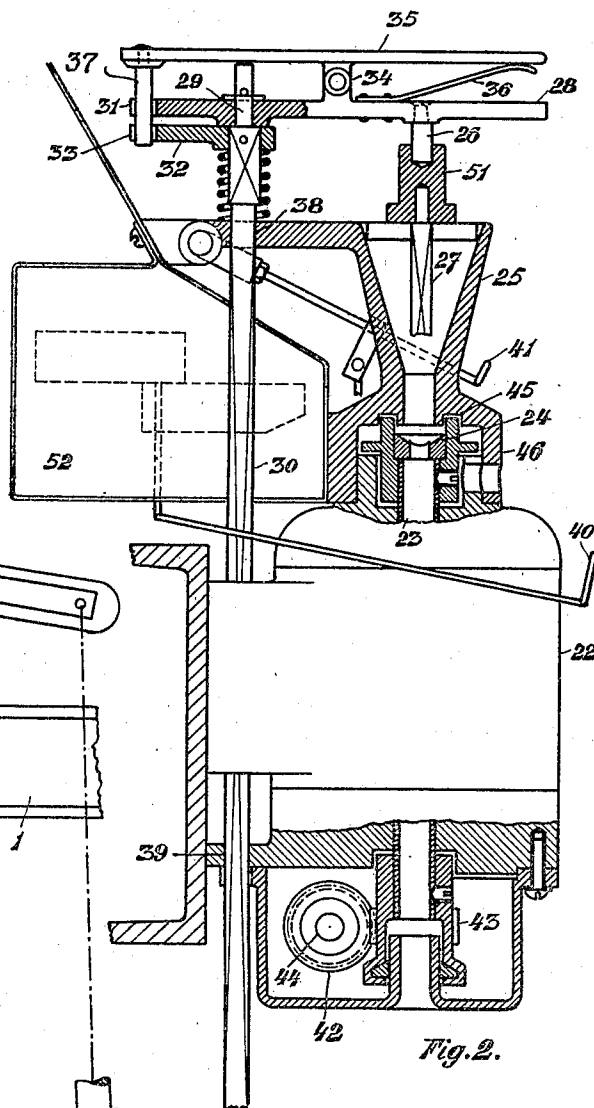


Fig. 2.

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WINDING MACHINE FOR MAKING LARGE
SOFT COPS

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7 Claims. (Cl. 242—34)

In the winding machine for making large soft cops as heretofore known, a great number of spindles arranged in series are driven by one shaft.

5 In the drawing, Figure 1 shows such known arrangement. 1 is the frame of such known machine. In the support 2 of the frame is fixed a sleeve 3, on which is loosely mounted a cog wheel 4, which is rotated. In the sleeve 3 is fastened
10 a hollow shaft 6 adapted to be turned and displaced longitudinally, and to the bottom of which is fixed the coupling member 7. This coupling member and, consequently, the hollow shaft 6 are rotated when the driven cog wheel 4 en-
15 engages the coupling member 7. This is effected by fastening to this coupling member 7 the lower end of a spiral spring 8, the upper end of which is offset so as to project, and to the cog wheel 4 is also secured a finger 5, which will drive the
20 upper end of the spring when the hollow shaft 6 together with the coupling member 7 and the spiral spring 8 slightly move upwardly. This upward movement is effected due to the fact that the upper end of the hollow shaft 6 merges into
25 a driving head 9 and that adjacent to the bottom face of said head is arranged an eccentric segment 10 adapted to rotate about a fixed axle 47.

At one side of said segment 10 is fastened a lever 11 through the extremity of which a thread 48 is threaded and on the other side of 10 is arranged a lever 49 provided with counter-weights 12. If now the guide-thread is slightly lifted, the eccentricity of the said segment 10 will cause
35 the driving head 9 to be lifted, whereby the cog wheel 4 will engage the hollow shaft 6, so that the latter will be rotated. Tearing or slackening of the thread, the tension of which will balance the excess of weight of the left part of the double
40 lever 11, 10, 49, will effect disengagement.

On the support 13 and fixed to the frame of the machine 1 is mounted a funnel 14. The spindle of the large soft cop (not shown in the drawing) projects through the hollow shaft 6 and engages therewith within the driving head 9. The
45 upper end of the cop spindle is centered by a pivot 15 serving as a bearing. The said pivot is fixed within an arm 16 secured to a rod 17, which is adapted to be displaced in the direction of the axle and is rotatably located at 18 and 19. Lest the arm 16 strike the funnel, a spiral spring 50 is provided to act as shock absorber. The thread-
50 guide 20 is driven from an eccentric body 21. The cop is formed in a known way on the bobbin spin-

dle by means of the funnel 14, the rod 17 being lifted as the length of the cop increases.

Now, this known arrangement involves the disadvantage that the eccentric segment 10 as well as the bottom face of the driving head 9 resting
5 thereon, will soon wear out, whereupon the stop-motion will refuse to work and the coupling member 7 will have to be readjusted. After some time, such wear will have increased so much that the parts must be renewed. A further disadvantage
10 is that the centering of the funnel and spindle is imperfect and therefore must be readjusted from time to time. Assemblage of the respective parts or readjustment thereof will require the activity
15 of a skilled operator.

According to the invention, the said disadvantages are removed by that each spindle is driven by an electro-motor of its own, through the hollow shaft of which projects the spindle. Thereby it is rendered possible to mount the funnel upon
20 the casing of the motor and center it there in a reliable and lasting manner. On its top, the motor may be provided with a labyrinth-packing which will prevent its becoming dirty through penetrating fibre. Such labyrinth-packing as
25 well as the driving head may be surrounded by a shoulder of the funnel, which shoulder will simultaneously serve for centering the funnel on the motor casing. The choice of an individual electric drive will allow to switch the motor on and
30 off in a simple and sensitizing manner, for example, by means of a mercury switch, whereby the rapid wear occurring in the former embodiment of the coupling means, the finger 5 and upper end of spring 8 will not take place. Such
35 device will work quietly, and in a reliable manner, so that the objectionable noise of the machine is reduced to a minimum.

In the drawing (Figure 2) an embodiment of a winding machine for making large soft cops according to the invention is shown by way of example. 22 is the electro-motor adapted to be driven at a low voltage and the hollow shaft of which is shown at 23. Through the hollow shaft
40 passes the spindle 27 (broken off in the drawing). At 24 is shown a driving head connecting the hollow shaft to the spindle. Centering of the funnel 25 within the motor casing is ensured by means of the shoulder 46 secured thereto. A labyrinth-packing 45 will prevent the motor from becoming
45 dusty. Such packing as well as a driving head 24 are inserted in the shoulder 46. The upper end of the angular spindle is fixed within a tie-piece 51 located within the pivot 26 secured within the arm 28. This arm is pivoted within the cylindric
50 55

part 29 of a guide-rod 30, the remaining part of which is angular, and rod 30 is guided in its turn at 38, 39. The left end of arm 28 is forked at 31, that is, provided with a slot. To the guiding rod 30 below the arm 28 is fastened an arm 32, the end 33 of which is forked in the same way as end 31. Through the two superposed slots of arms 28 and 32 projects a cylindric bolt 37 secured to the end of a double arm 35 linked at 34 to the arm 28. A spring 36 secured to the arm 28 forces the right hand end of the double arm 35 upwardly. If the bearing block 26 is to be lifted from a tie-piece 51, in order to disengage the spindle, the right hand end of the double arm 35 is forced downwardly against the action of spring 36, whereby the bolt 37 will release the slotted ends of arms 28 and 32. The pivot being lifted, arm 28 will now allow to be pivoted around its fulcrum pin. Due to this arrangement and in contradistinction to former embodiments which allowed pivoting of the spindle about the axle of the rod 17, the spindle is securely guided and the length of the cop is thus unlimited.

The thread-guide mechanism is actuated by a helical gear 43 mounted on the hollow motor shaft 23, which gear engages a wheel 42. By the shaft 44 of wheel 42 the guide thread mechanism 41 is driven in any suitable way (not shown) for example, by a crank, eccentric or the like. At 40 is shown a contact or feeler lever influenced by a thread, which lever in the case of breakage or slackening of the thread operates a mercury switch (known per se) located in a casing 52.

What I claim is:

1. In a winding machine for making large soft cops, an electro-motor, a casing therefor, a hollow drive shaft in said motor, a spindle extending through said shaft and driven thereby, and a funnel within which the cop is formed, said funnel being mounted coaxial with said spindle on the casing of said motor.

2. In a winding machine for making large soft cops, an electro-motor, a casing therefor, a hollow drive shaft in said motor, a spindle extending through said shaft and driven thereby, a funnel within which the cop is formed, said funnel being mounted coaxial with said spindle on the casing of said motor, and a labyrinth packing around the shaft of the electro-motor to keep the motor free of fibre.

3. In a winding machine for making large soft cops, an electro-motor, a casing therefor, a hollow drive shaft in said motor, a spindle extending through said shaft and driven thereby, a funnel within which the cop is formed, said funnel being mounted coaxial with said spindle on the casing of said motor, a journal for the upper support of said spindle, a horizontally piv-

oted arm for receiving said journal, and releasable means for locking said arm in a predetermined position whereby said journal is coaxial with said spindle.

4. In a winding machine for making large soft cops, an electro-motor, a casing therefor, a vertical hollow drive shaft in said motor, a spindle extending through said shaft and driven thereby, a funnel within which the cop is formed, said funnel being mounted coaxial with said spindle on the casing of said motor, and a labyrinth packing around the shaft at the upper part of the electro-motor to keep the motor free of fibre.

5. In a winding machine for making large soft cops, an electro-motor, a casing therefor, a vertical hollow drive shaft in said motor, a spindle extending through said shaft and driven thereby, a funnel within which the cop is formed, said funnel being mounted coaxial with said spindle on the casing of said motor, a journal for the upper support of said spindle, a horizontally pivoted arm for receiving said journal, means for mounting said arm whereby the same is vertically movable, and releasable means for locking said arm in a predetermined position whereby said journal is coaxial with said spindle.

6. In a winding machine for making large soft cops, an electro-motor, a casing therefor, a vertical hollow drive shaft in said motor, a spindle extending through said shaft and driven thereby, a funnel within which the cop is formed, said funnel being mounted coaxial with said spindle on the casing of said motor, a journal for the upper support of said spindle, a horizontally pivoted arm for receiving said journal, means for mounting said arm whereby the same is vertically movable, releasable means for locking said arm in a predetermined position whereby said journal is coaxial with said spindle, said releasable means comprising a lever pivoted on said arm, a notched portion on the mounting means for said arm, said notched portion being vertically but not pivotally movable, and a latch member on said lever adapted to engage said notched portion and said arm to hold the arm in position.

7. In a winding machine for making large soft cops, an electro-motor, a casing therefor, a hollow drive shaft in said motor, a spindle extending through said shaft and driven thereby, and a funnel within which the cop is formed, said funnel being mounted coaxial with said spindle on the casing of said motor, a switch for controlling power to said electro-motor, and thread guide means connected to said switch whereby the switch is responsive to thread tension on said machine.

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