Feb. 20, 1940. F. E. ANDERSON 2,190,760

SEWING MACHINE SPOOLER DRIVE RELEASE MEANS

Filed May 15, 1939

Fig. 1.

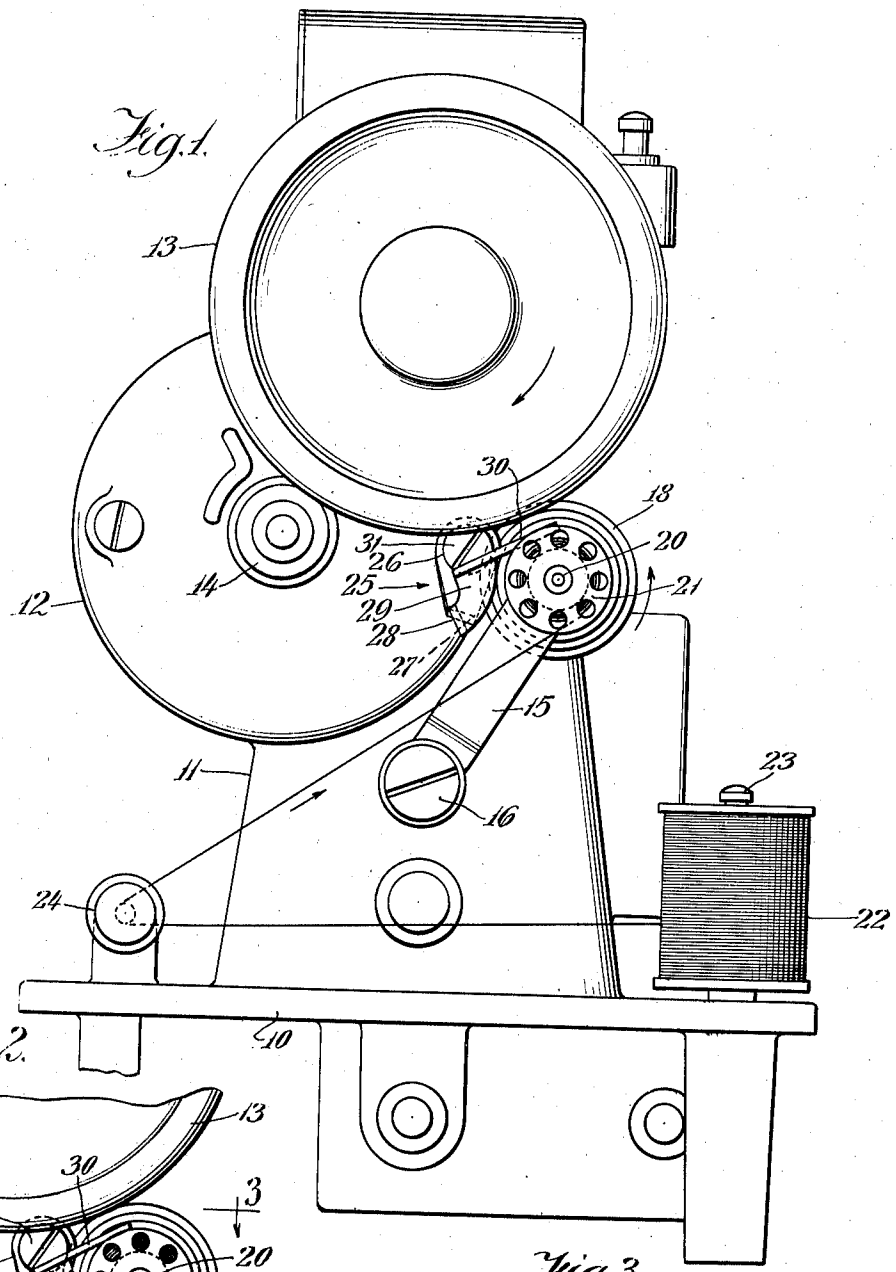


Fig. 2.

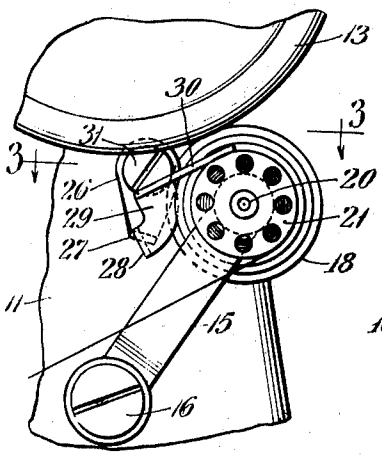
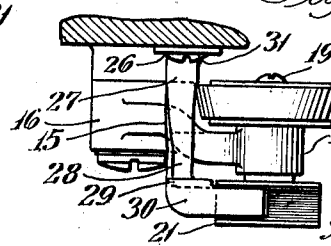


Fig. 3.



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Patented Feb. 20, 1940 2,190,760

UNITED STATES PATENT OFFICE

2,190,760

SEWING MACHINE SPOOLER DRIVE RELEASE MEANS

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Application May 15, 1939, Serial No. 273,595

2 Claims. (Cl. 242—22)

This invention relates to sewing machines and particularly to means for automatically releasing the spooler drive.

The object of the invention is to provide a one piece rigid angular arm adapted to be connected rigidly to the upright standard of a sewing machine, in position to bear automatically on the thread wound on a spool when a predetermined quantity of thread has been spooled. After contact has been made between the rigid arm and the spooled thread, continued winding of a limited quantity of the thread causes the spooler pulley gradually to move out of engagement with the fly wheel, whereupon the winding automatically ceases.

This construction is exceedingly simple and durable. The spooler drive release means heretofore known have required the use of several parts, usually spring or cam controlled. My invention is not only economical but is absolutely dependable and free of parts which collect threads and lint and cause other spooler drive release means to get out of order.

In the drawing:

Fig. 1 is an end elevation of a motor driven sewing machine head embodying my invention, showing the spooler pulley in driving contact with the fly wheel.

Fig. 2 is an elevational view of part of the construction shown in Fig. 1, the spooler pulley having been moved automatically out of driving contact with the fly wheel.

Fig. 3 is a horizontal sectional view, taken in the plane of the line 3—3 of Fig. 2.

In that embodiment of my invention shown in the drawing, the invention is embodied in a motor driven machine, but obviously it is applicable to manually operated sewing machines.

On the bed plate 10 of the sewing head is an upright standard 11, on which is mounted a motor 12 and fly wheel 13, driven by the motor shaft pulley 14. A spooler lever 15 is pivotally mounted at 16 on the standard 11. The pivotal connection 16 consists of the sleeve-like lower portion of the lever 15 marked 16 in Fig. 3 which is frictionally mounted on the headed stud marked 16 in Figs. 1 and 2. The lever 15 is curved, as shown in Fig. 3, to position its upper sleeve end 17 in proper relation to the fly wheel 13. A pulley 18 is fixed to a pin 19 rotatably mounted in the sleeve 17. The pin 19 projects at 20 from the sleeve 17 on the side opposite the pulley 18, and is adapted to hold frictionally the spool 21 on which thread is to be wound. The spool 21 rotates with the pin when the pulley 18 is in contact with the fly wheel 13. Thread is fed to the spool 21 from a spool 22 on a holder 23, through a tension device 24.

The spooler drive releasing means of my invention consists of a one piece rigid angular arm indicated as a whole at 25. It comprises an apertured ear 26, substantially vertically disposed, a bar 27 which is horizontally disposed adjacent the ear 26, but slightly twisted between its ends so that the portion 28 has its flat sides inclined downwardly, as shown. The outer portion of the bar 27—28 merges with a vertical, upwardly projecting member 29 and the latter merges with an upwardly inclined contact member 30.

The arm 25 is rigidly fastened to the standard 11 by a screw 31 extending through the ear 26. The arm is proportioned so that the contact member 30 extends upwardly over the spool 21, between the spool flanges, a predetermined distance from the axis of the spool. The distance is equal to the thickness of the volume of thread intended to be wound on the spool. When less than the predetermined quantity of thread is on the spool, the spooler arm 15 and pulley 18 may be moved manually to the position shown in Fig. 1, with the fly wheel 13 and pulley 18 in driving engagement, and the contact member 30 is partly within the peripheral edges of the flanges of the spool 21. The lever 15 is frictionally mounted at 16 so that it remains in this position until forced away from the contact member 30 as will be explained. After a certain quantity of thread has been wound on the spool 21, its outer turns come into contact with the contact member 30 of the rigid arm 25, and continued winding of a limited quantity of thread causes the spool 21 and consequently the lever 15 and pulley 18 to move gradually downwardly about the pivotal connection 16, to a slight extent, but sufficient to release the driving engagement between the fly wheel 13 and pulley 18, as shown in Fig. 2, where the contact member 30 is outwardly of the peripheral edges of the flanges of the spool 21 due to the presence of thread on the spool and consequent movement of the spool 21 and spooler parts from the release arm 25.

Changes may be made in details of construction without departing from the scope of my invention. For example, the rigid arm 25 as shown and described, and as preferably constructed, is an integrally formed, one piece member. However, it could be made of more than one piece and still provide the fixed contact member 30 which cooperates with the thread containing spool to effect the spooler drive release.

I claim:

1. A sewing machine comprising a sewing head having an upright standard, a fly wheel rotatably mounted on the standard, a pivot parallel with the axis of the fly wheel mounted on the standard below the fly wheel, a spooler arm on said pivot, a pin rotatably mounted in the spooler arm, a pulley fixed on the pin, a spool frictionally mounted on the pin, the spooler arm and all the parts mounted thereon being located between vertical planes tangent with the periphery of the fly wheel, and said spooler arm being manually movable to place the pulley into engagement with the fly wheel, and spooler drive releasing means comprising a rigid arm fixedly mounted on the standard between the fly wheel and spooler arm pivot, said arm having a contact member which contacts the thread on the spool when a predetermined quantity has been wound on the spool.

2. A sewing machine comprising a sewing head having an upright standard, a fly wheel rotatably mounted on the standard, a pivot parallel with the axis of the fly wheel mounted on the standard below the fly wheel, a spooler arm on said pivot, a pin rotatably mounted in the spooler arm, a pulley fixed on the pin, a spool frictionally mounted on the pin, the spooler arm and all the parts mounted thereon being located between vertical planes tangent with the periphery of the fly wheel, and said spooler arm being manually movable to place the pulley into engagement with the fly wheel, and spooler drive releasing means comprising a rigid arm fixedly mounted on the standard between the fly wheel and spooler arm pivot, said arm having a contact member which contacts the thread on the spool when a predetermined quantity has been wound on the spool, said release arm consisting of an integrally formed vertically disposed ear bearing on the upright standard, a horizontally disposed bar extending outwardly from the standard, and an upwardly inclined contact member extending laterally from said bar toward the spool.

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