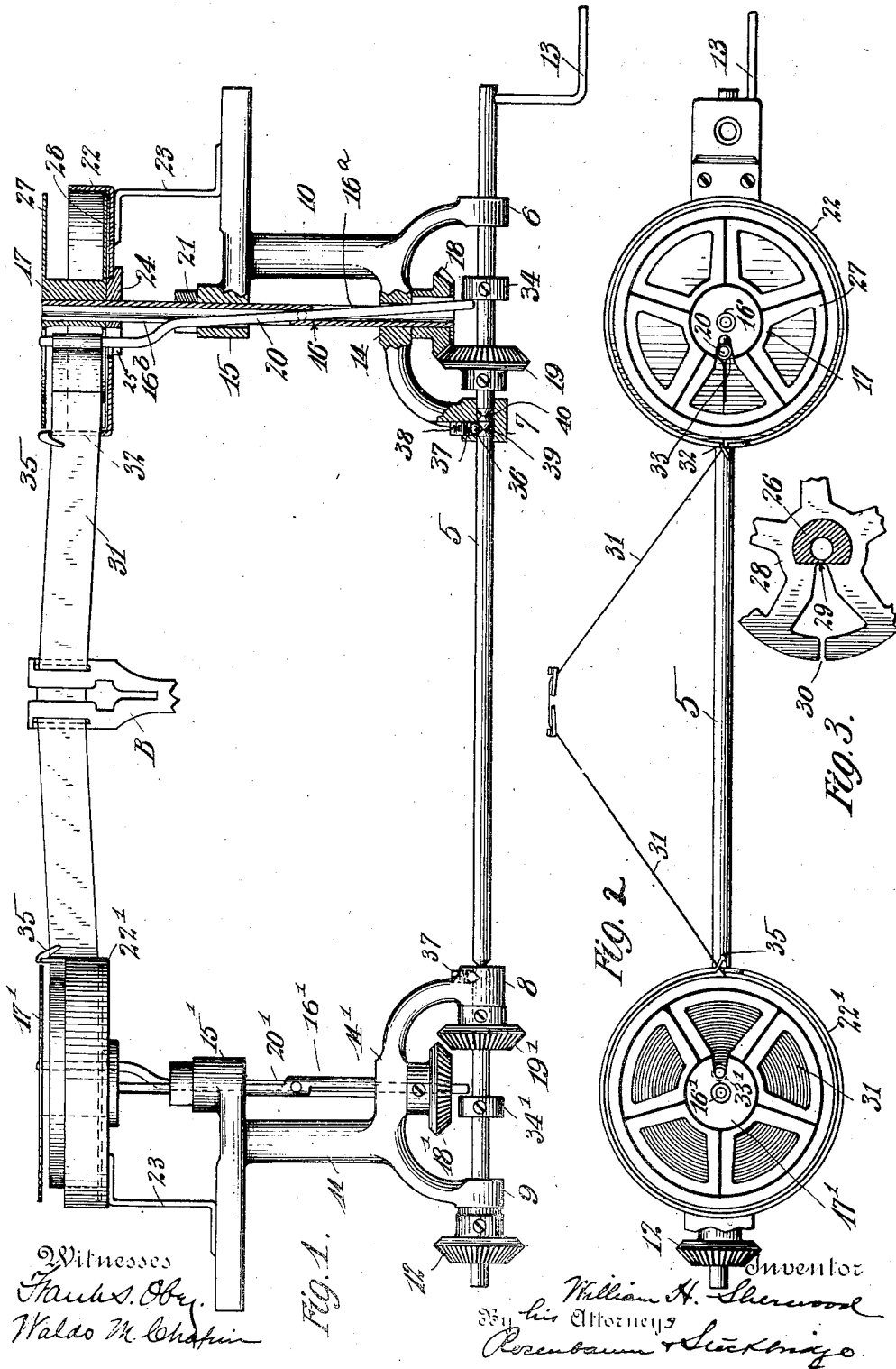


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W. H. SHERWOOD.
RIBBON FEED FOR TYPE WRITERS.

APPLICATION FILED FEB. 23, 1905.



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RIBBON-FEED FOR TYPE-WRITERS.

No. 822,993.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM H. SHERWOOD, a citizen of the United States, residing at the city of New York, in the borough of Brooklyn and State of New York, have invented certain new and useful Improvements in Ribbon-Feeds for Type-Writers, of which the following is a full, clear, and exact description.

This invention relates to ribbon-shifting mechanism for type-writers, and has special reference to those of the visible-writing class. Hitherto it has been difficult to provide an automatic reverse of the ribbon in this class of machines and specially one which will permit the ribbon-spools to be removed from the machine when necessary to be renewed or for any other purpose.

A further object is to provide an improved form of such device that shall be extremely simple in construction and operation and composed of a minimum number of parts.

According to my invention I provide a single member movable by the ribbon when unwound on one of the spools, which itself directly engages a fixed piece on the shaft driving the spools alternately, and thereby shifts the shaft into driving engagement with the spindle carrying such spool. According to my invention I further arrange such shifting member so as to be attached to the end of the ribbon, whereby the direct pull of the ribbon when entirely unwound swings the member, and which arrangement further serves as the means of attachment of the ribbon to the winding spool or drum and by means of which the spool is made readily removable.

In the accompanying drawings, illustrating a ribbon-shift mechanism embodying my invention, Figure 1 is a front elevation. Fig. 2 is a plan view; and Fig. 3 is a broken horizontal section through the middle part of one of the spools, showing the slot in the lower disk of the spool and the reduced hub.

The driving-shaft 5 is supported in suitable bearings 6, 7, 8, and 9 in a pair of suitable brackets 10 and 11, secured to any convenient part of the frame of the machine. (Not shown.) The shaft can be rotated by a gear 12 from a movable part of the machine by any of the usual means and can also be turned by a hand-crank 13 when desired. The bracket 10 is provided with bearings 14 15, in which is journaled a spindle 16, carrying a ribbon-spool 17 and rotated from the

driving-shaft 5 by a bevel-gear 18, fixed on the spindle, that meshes with a bevel-gear 19, fixed on the shaft 5 when the shaft is in the position shown in Fig. 1. A spindle 16' 60 is similarly journaled in bearings 14' 15' on the bracket 11 and carries a ribbon-spool 17' and a gear 18', arranged to mesh with a gear 19', fixed on the shaft 5, but shown out of mesh in the drawings. By shifting the shaft 65 endwise either one or the other of the gears on the shaft meshes with its gear on one of the spindles.

Each of the spindles carries a shifting member movable thereon and engaged by 70 the ribbon on the spool when unwound and moved, the movable member having its other end arranged to engage a fixed detent on the shaft and shift the same from engaging the other spool-spindle to engage this spindle 75 and rewind the ribbon on its spool.

The movable shifting member is shown as a rod or lever 20, pivoted at its middle part in the spindle 16, that is made tubular therefor. At the lower part the spindle has a slot 80 16^a, into which the lever moves when swung to engage the piece or collar 34 on the shaft 5. In the upper part of the spindle is a slot 16^b, through which the bent end portion 20^a of the lever projects, being inclined outward 85 and then extending substantially parallel with its main part to the extremity. Endwise movement of the spindle 16 is prevented by the gear 18 engaging the bearing 14 and a collar 21 set on the spindle engaging the journal 90 15.

The ribbon-spool 17 rotates in a cup 22, supported by a bent arm 23, the cup having an opening in the bottom, in which turns the reduced part of a disk 24, secured on the 95 spindle 16. A slot 25 is made in the disk 24, through which passes the lever 16.

The spool 17 comprises a hub 26, having two head or disk portions 27 28. The bore of the hub is formed to fit snugly on the spindle 100 16, when the hub will rest on the disk 24, the lower head being just free of the cup. The hub 26 has a segment portion 29 cut away, and the lower head has a slot 30 extending outward from the hub at this part, as indicated in Fig. 3. The lever 20 projects through this slot in the lower head, and as the lever is carried around as the spindle rotates it will move the spool with it, as if fast on the end of the spindle. The ribbon 31 passes 105 through a slot 32 in the cup 22 and has a loop 33 at its end, that secures it to the end of the

lever 16. The loop is first put over the lever and the ribbon slid into the slot 32, and then the ribbon-spool is slid on the spindle, the ribbon and lever passing through the slot 30 in the head, that is extended to the periphery for this purpose. The turning of the spindle will now carry the end of the ribbon around, as if secured directly to the hub of the spool, and the end of the lever will be pressed against the hub by the layers of the ribbon, and it will be also rocked to this position by the detent on the shaft when the latter is shifted by the other spindle device.

When the ribbon becomes unwound from the spool 17, it will assume a radial position therein, as shown in the drawings, and upon tension being put thereon from the other winding-spool it will draw the end of the lever 20 outward from the spindle. This will rock the lever on its pivot, and the other end of the lever will engage the detent or collar 34 on the shaft and shift it, moving its gear 19 into mesh with the gear 18 on the spindle 16, as shown in Fig. 1, and moving the gears 18' and 19' out of engagement.

The spindle 16', carrying spool 17' in cup 22', and lever 20 are arranged and operate in precisely the same manner as those parts above described, and the other end of the ribbon 31 is attached by a loop 33' to the end of the lever 20', and upon the ribbon becoming unwound from this spool 17' the lever 20' is swung, and its other end will engage the collar 34' and shift the shaft again from meshing with the other spindle-gear 18 to now mesh with the gear 18'.

The device is shown as operating with the ribbon moving in a vertical plane and passing through a shifting-bar B, by which it is raised to the printing-point at each operation of a key and normally held below such place. Where such disposition is made of the ribbon, I provide on the upper edge of the cup 22 a finger or hook 35, extending across the top edge of the ribbon and then bent downward, preventing the ribbon from being drawn vertically upward, yet leaving an open space through which the ribbon can be passed to put on and remove.

In order to hold the shaft 5 in its two positions to which shifted by the levers, I arrange a small ball 36 in an opening in the journal 7, that is pressed by a coil-spring 37, lying between it and a screw 38, tapped into the opening into one of two grooves 39 40 in the shaft, that are located so as to be engaged by the ball when in its two said positions.

While the ribbon-spool spindles are shown arranged vertically, it is obvious that they can be disposed on a horizontal axis and also that the ribbon can be passed over guide-pulleys, yet the device operate in the same manner as herein set forth.

Having described my invention, I claim—

1. The combination of a spindle carrying a

ribbon-spool, a shaft shiftable to have a driving engagement with the spindle, and a member movably supported on the spindle and having one end extending into engagement with the ribbon on the spool whereby when the ribbon is unwound the member is moved on the spindle, said member having its other end arranged to engage and shift the shaft into driving engagement with the spindle upon said movement of the member by the ribbon.

2. The combination of a spindle carrying a ribbon-spool, a shaft shiftable to have a driving engagement with the spindle, and a member movably supported on the spindle, and having one end extending into the spool and engaging the end of the ribbon whereby when the ribbon is unwound, the member is moved on the spindle by the ribbon, said member having its other end arranged to engage and shift the shaft into engagement with the spindle upon said movement of the member by the ribbon.

3. The combination of a spindle carrying a ribbon-spool, a gear on the spindle, a driving-shaft having a gear fixed thereon, the shaft being shiftable to move the gear into and out of mesh with the spindle-gear, a detent fixed on the shaft, a lever pivoted on the spindle and having one end arranged to engage said detent, and having its other end projecting into the spool and arranged to be engaged by the ribbon when unwound and thereby rocked, causing its other end to engage the detent and shift the shaft to engage said gears.

4. The combination of a spindle carrying a ribbon-spool, a gear on the spindle, a driving-shaft having a gear fixed thereon, the shaft being shiftable to move the gear into and out of mesh with the spindle-gear, a detent fixed on the shaft, a lever pivoted on the spindle and having one end arranged to engage said detent, and having its other end projecting into the spool and connected to the end of the ribbon whereby when the ribbon is unwound, the lever is thereby rocked, causing its other end to engage the detent and shift the shaft to engage said gears.

5. The combination of a spindle, a driving-shaft, a shifting member movable on the spindle to shift the shaft into position to drive the spindle, the member having one end disposed in proximity to the end of the spindle, a ribbon secured to said end of the shifting member, and a spool having a slot in one head whereby when inserted on the spindle the ribbon end portion will pass through the slot into the spool and the ribbon-engaging end of the shifting member will project through the slot.

6. The combination of a tubular spindle carrying a ribbon-spool, a driving-shaft arranged to operate the spindle, a lever pivoted inside the spindle, the spindle having a slot in its lower end portion through which the lower

end of the lever swings and has a shifting engagement with the shaft, the spindle also having a slot in its upper part through which the lever projects, the spool having an opening into which said lever projects and is engaged by the ribbon, when unwound, and thereby swung to shift said shaft into position to operate the spindle.

7. In a type-writer, the combination of a spindle carrying a ribbon-spool, a shaft shiftable to engage and drive the spindle, and a single member movable on the spindle and having one end portion arranged to engage and shift the shaft, and having its other end secured to the end of a ribbon and holding the same on the ribbon-spool, said member being also arranged to be moved by the ribbon, when unwound, and thereby shift said shaft to engage and drive the spindle.

8. A type-writer ribbon-spool comprising a hub having a disk portion at each end thereof, the hub having a segment portion cut

away at one side, and one of the disk portions having a slot extending from its periphery to the hub at said cut-away portion, substantially as set forth.

9. In a ribbon mechanism, a spindle, a lever connected thereto, ribbon-reversing means and connections from said lever to said means, and a spool adapted to removably engage said spindle and lever, said spool having a slot extending through the periphery in a side wall thereof.

10. A ribbon mechanism comprising a reversing device and a spindle having an axially-arranged transversely-movable member therein adapted to engage the end of the ribbon.

In witness whereof I subscribe my signature in the presence of two witnesses.

WILLIAM H. SHERWOOD.

Witnesses:

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