T. I. FORT.

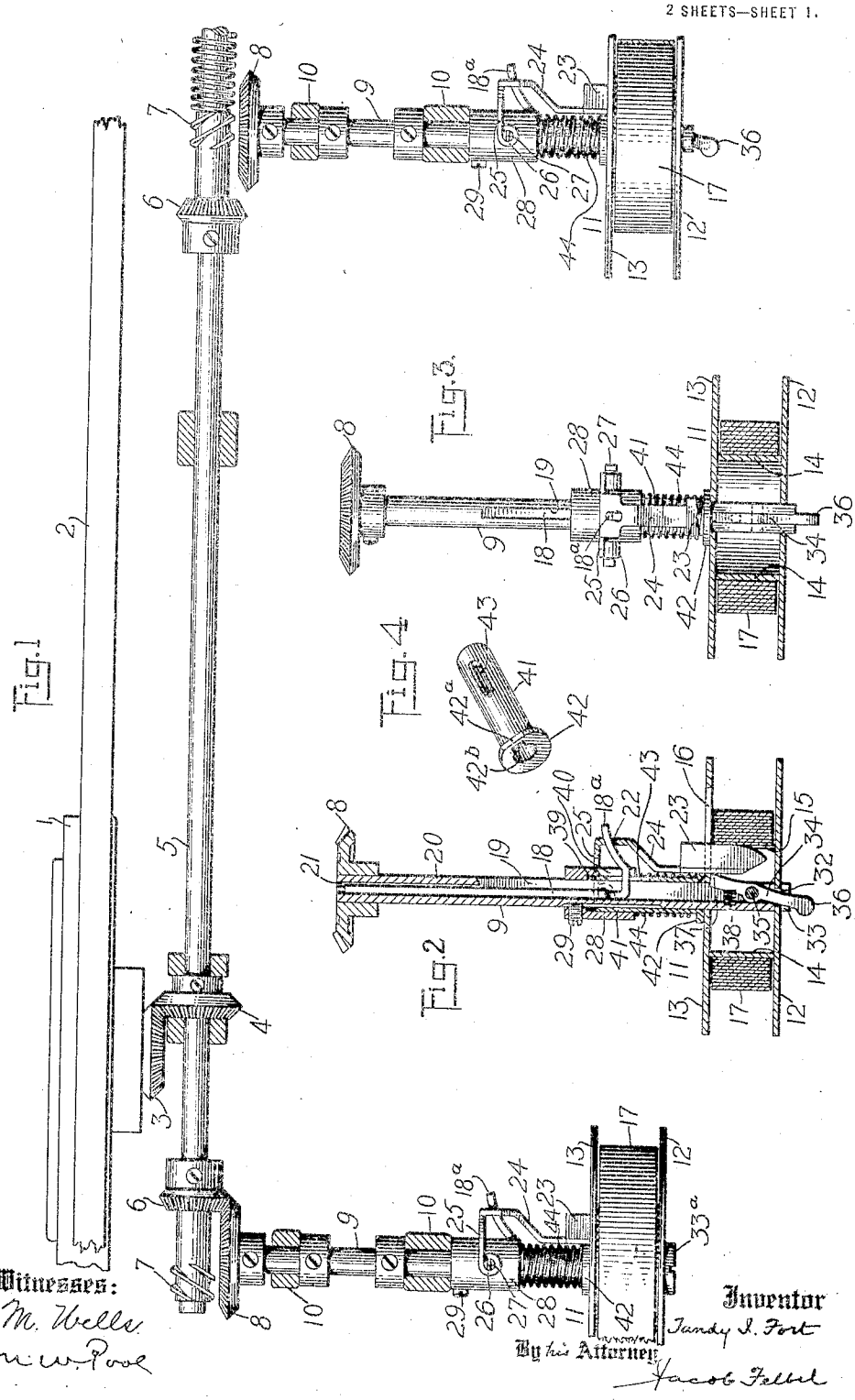
TYPE WRITING MACHINE.

APPLICATION FILED OCT. 1, 1918.

1,309,403.

Patented July 8, 1919.

2 SHEETS—SHEET 1.



Witnesses:
E. M. Wells
M. W. Pool

Inventor
Jandy I. Fort
By his Attorney
Jacob Fehl

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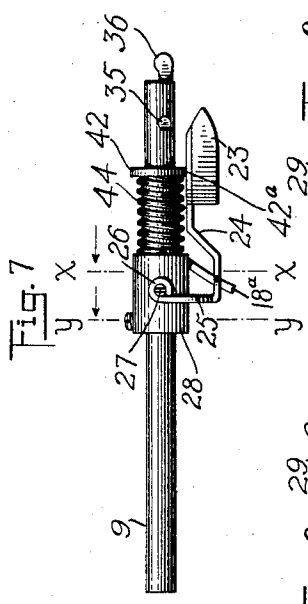


Fig. 7

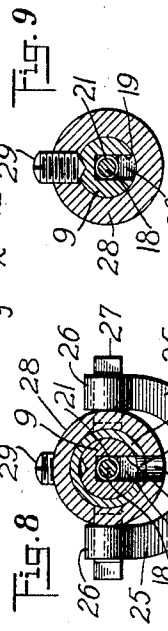


Fig. 8

Fig. 9

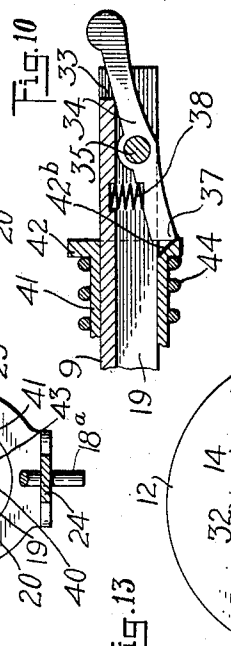


Fig. 10

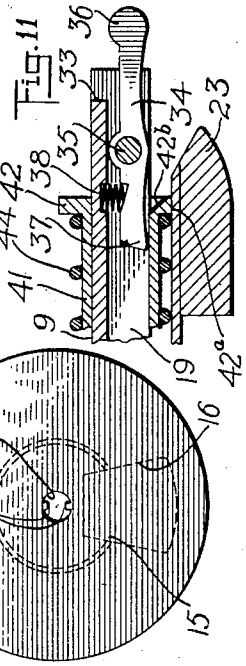


Fig. 11

Fig. 13

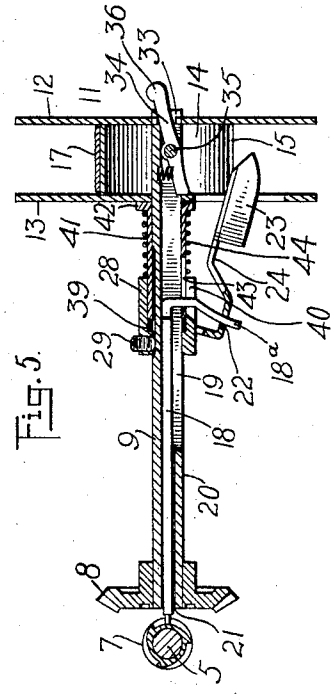


Fig. 5

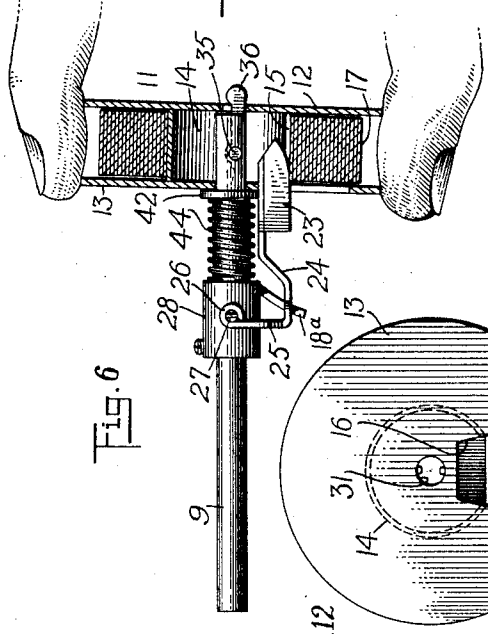


Fig. 6

Fig. 12

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THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

TANDY I. FORT, OF DALLAS, TEXAS, ASSIGNOR TO REMINGTON TYPEWRITER COMPANY, OF ILION, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

1,309,403. Specification of Letters Patent. Patented July 8, 1919.

Application filed October 1, 1918. Serial No. 256,387.

To all whom it may concern:

Be it known that I, TANDY I. FORT, citizen of the United States, and resident of Dallas, in the county of Dallas and State of Texas, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My present invention relates to ribbon mechanism for typewriting machines and a main object is to provide devices for automatically controlling the ribbon reverser, which is usually a weight, when the ribbon spool with which it is associated is removed from and replaced on its support or shaft.

To the above and other ends which will hereinafter appear, my present invention consists in the features of construction, combinations of devices and arrangements of parts hereinafter described and particularly pointed out in the claims.

In the accompanying drawings which illustrate the preferred form of my invention applied to a No. 10 Remington typewriting machine,

Figure 1 is a fragmentary plan view, partly in section, illustrating the ribbon feeding and reversing mechanism of said machine with my invention applied thereto.

Fig. 2 is a sectional view taken axially through one of the ribbon spools and its shaft.

Fig. 3 is a fragmentary plan view, the ribbon spool being shown in section, the section being taken on a plane at right angles to the plane of Fig. 2.

Fig. 4 is a perspective view of one of the parts of my invention.

Fig. 5 is a sectional view taken axially through a ribbon spool and its supporting shaft and showing the relationship of the parts when the ribbon has been entirely unwound from said spool.

Fig. 6 is a view showing the relationship of the parts as they appear during the operation of removing or replacing a ribbon spool on its shaft.

Fig. 7 is a side view of a ribbon spool shaft and associate parts as they appear after the ribbon spool has been removed.

Figs. 8 and 9 are transverse sectional views taken respectively on planes indicated by the dotted lines *x x* and *y y* in Fig. 7 and looking in the direction of the arrows at said lines.

Figs. 10 and 11 are detail operating views showing especially a mode of control of the latch for holding the ribbon spool in place on its shaft.

Figs. 12 and 13 are face views of a ribbon spool taken from opposite sides.

As will be understood from Fig. 1, the carriage, which is not shown herein but is or may be of the usual Remington construction, is connected to its motor or spring drum 1 by a band or strap 2. During leftward movements of the carriage the spring drum turns a bevel gear wheel 3 which intermeshes with a bevel gear wheel 4 that is mounted on a ribbon driving shaft 5, the mounting being such that the shaft may slide endwise back and forth in its bearings on the machine frame without affecting said gear wheel 4 but is always compelled to turn when the gear wheel 4 is turned. Fixed to the shaft 5 near its opposite ends are bevel pinions 6, the shaft being also provided with worms 7 outside said pinions. The pinions 6 are so spaced along the shaft that they are adapted to mesh alternately with bevel gear wheels 8 fixed to the rear ends of horizontal spool carrying shafts 9. The shafts 9 extend toward the front of the machine, being adapted to turn in fixed bearing lugs 10, and at their forward ends have mounted ribbon spools 11. Each ribbon spool comprises a front flange 12, a rear flange 13 and a hollow core piece 14 that is partly cut away to provide an opening or slot indicated at 15, the rear flange being cut out as indicated at 16 in register with said opening 15 (see Figs. 2, 5 and 12). A ribbon 17 is wound on said spools and is guided between the spools in the usual way, the central feed portion of the ribbon being threaded through a ribbon carrier or vibrator, which is not shown herein but which is adapted to be vibrated at the type strokes as is usual in a No. 10 Remington machine or in any other suitable manner.

Ribbon reversing mechanism is provided for effecting a longitudinal back and forth movement of the driving shaft 5 so as to cause the driving pinions 6 to mesh in alternation with their associate gear wheels 8, the result being that the ribbon will be wound automatically on one spool and unwound from the other, and vice versa. Said reversing mechanism comprises for each ribbon spool a rod 18 which is housed or mounted within its associate ribbon spool

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shaft 9, said shaft being provided with a longitudinally extending slot 19 which receives said rod. Said slot 19 stops short of the rear end of the shaft, leaving a rear portion 20 perforated as indicated at 21, the perforation 21 providing a rear bearing for the rod 18. The front end of the rod 18 is provided with a radially extending angular finger 18ª that engages in an opening, indicated at 22, formed in a reverser device comprising a reverser or weight proper 23 and an angular shank or stem 24 to which the weight is affixed. The weight 23, which is oppositely beveled at its free end, is normally housed within the hollow core 14 of the ribbon spool with which it is associated, said weight being adapted to play or move in the opening or way formed by the cut-outs 15 and 16. The rear end portion of the stem 24 is angularly disposed and is forked or bifurcated to embrace loosely the shaft 9. The bifurcated portions 25 are curled at their ends, as indicated at 26, to provide bearings which engage with screw pins 27 that project outwardly from opposite sides of a collar 28 that is secured by a set screw 29 to the shaft 9. The weight 23 is normally retained within the core 14 by the coils of the ribbon 17 but when the ribbon is completely unwound from the spool said weight will be free to swing outward or downward under the influence of gravity to the position shown in Fig. 5. This outward movement of the weight operates on the finger 18ª to cause the rod 18 to slide rearwardly in its bearing, the result being that the reduced rear end or tip of said rod is projected into engagement with the associate worm 7 on the ribbon driving shaft. Following such engagement of the rod with the worm a slight further rotary movement communicated to the shaft will cause it to be wormed or moved longitudinally so as to disengage the engaged driving pinion 6 from its gear wheel 8. Devices not shown assist to complete the full longitudinal movement of the shaft and cause the other driving pinion 6 near the opposite end thereof to engage with the gear wheel 8 on the associate spool shaft. As a result of this operation one of the ribbon spools is disconnected from the source of power and the other ribbon spool is connected therewith so that the direction of longitudinal feed of the ribbon will be reversed. It will be understood that the projected rod 18 will be retracted within its housing as the ribbon starts to rewind on the bared ribbon spool, the first ply or fold of the ribbon passing over the dropped weight 23 and forcing said weight back within the core of the spool, this backward swinging of the weight acting through the finger 18ª to withdraw or restore the rod 18. In other words, the gravity operated weight is thereafter prevented from dropping out of the spool by the ribbon plies, said weight normally resting on the ribbon where it bridges the gap or opening in the spool core made by the slot or cut-out 15. It will be understood, of course, that in order to effect a reversal of the ribbon feed and a winding of the ribbon on and off the spools, each spool is provided with a train of automatic reversing devices such as has been described so as to project the rods 18 into position to coöperate with their associate worms 7 and also to withdraw said rods from such coöperation, thus effecting a back and forth endwise movement of the driving shaft 5.

The ribbon spools are detachably supported on their shafts 9, being held in place thereon by suitable devices and being forced when thus held in place to turn with their shafts by locking or shaft engaging devices, the construction of which devices will be described in connection with Figs. 2, 3 and 10 to 13. The spool flanges 12 and 13 are centrally perforated, as indicated respectively at 30 and 31, in order properly to fit over the shafts 9. The opening or perforation 31 in each rear flange 13 is a plain circular hole. The opening 30 in the forward flange 12 is also circular but is provided with inwardly projecting locking lugs or tits 32 which are diametrically opposite each other so as to enable one of said lugs to fit between the walls at the forward end of the slotway 19 while the opposite lug is adapted to engage with a notch 33 cut in the forward end of the shaft 9. This construction effects an interlocking engagement of the ribbon spool with its shaft when the ribbon spool is in place so that said spool will be forced to turn with its shaft. In the Remington machine the left-hand spool is held on its shaft by a headed screw 33ª that is threaded into the end of the shaft, while the right-hand spool is held in place by latching devices now to be described. This construction is preferred so that the operator in renewing ribbons will only detach and handle one spool, namely, the right-hand one. However, it will be understood that if desired both spools may be latched or otherwise suitably secured. Latching devices for insuring the retention of a spool, in the present instance the right-hand spool, on its shaft comprise a pawl or latch proper 34 which is arranged within the slot 19 near the forward end of the shaft 9 and is pivoted on a cross pin 35 which bridges said slot. One end or arm of the latch 34 is provided with a finger piece 36 which projects outward or forward beyond the end of the shaft and the face or flange of the ribbon spool, the rear arm of said latch being provided with a locking nose 37 which coöperates with the inner wall of the flange 13. Said locking nose is constantly under pressure of a coiled spring 38 which is arranged within the slot

19, being seated at its ends respectively in the bottom wall of said slot and in the opposite face of the rear arm of the latch 34. Said spring 38 tends constantly to press the nose 37 of the latch outward into locking engagement. In order to unlatch the spool preliminary to withdrawing it from its shaft, it is necessary to press on the finger piece 36 so as to overcome the spring and force the nose back into the slot-way 19, thus freeing the spool.

It will be understood that from time to time it may become necessary, as for instance when it is desired to renew the ribbon, to withdraw one or both of the ribbon spools from and replace them on their supports or shafts 9. Prior to my present invention, as soon as the ribbon spool was withdrawn the weight 23 was free to drop or swing away from the shaft 9. Consequently if, when the ribbon spool was replaced or a new ribbon spool was to be placed in position, the operator neglected to press the weight 23 inward before putting the ribbon spool on, the end of the weight would strike against the plies of the ribbon where they were exposed in the opening or cut-out 16, with the result that the ribbon plies were disarranged and the proper mounting of the ribbon spool in place was prevented. It would then be necessary for the operator to withdraw the ribbon spool and begin the operation all over again after having first pushed the weight 23 in toward the shaft and holding it there until the beveled end of the weight had entered the opening 16 above the ribbon plies so that when the operator released his hold it could rest partly on the ribbon. In order to overcome these objections I provide automatic devices for controlling the ribbon reversing weight so that when the ribbon spool has been removed from the shaft, as in Fig. 7, the weight will nevertheless be automatically held latched in its normal position close to the shaft, but in the course of putting a spool on the shaft my novel devices are automatically effected so that when a spool has been fully replaced my novel latch has become inoperative and the releasing weight is under the control of the ribbon plies.

In constructing my novel automatic latching devices in the present instance I provide a collar 28, heretofore referred to, which is somewhat different in construction from the collar that has hitherto been employed as a support for the ribbon reversing weight. The collar 28, best illustrated in Figs. 2, 5, 8 and 9, is somewhat longer than the old collar and is formed with an internal depression or counterbore, indicated at 39, so as to provide, in coöperation with the shaft 9 on which it is mounted, an annular seat or opening. Also said collar is formed with a slot indicated at 40 through which passes the finger 18^a. Bearing on the shaft 9 is a sleeve 41 shown detached in Fig. 4, said sleeve being provided at its front end with a head or flange 42. The rear end portion of the sleeve is housed within the collar 28, the depression 39 (Figs. 2 and 5) being provided for this purpose. The sleeve 41 is formed with an elongated hole, indicated at 43, which when the parts are assembled is in register with the slot 40 in the collar 28, said hole 43 affording a passageway for the finger 18^a. A coiled spring 44 surrounds the exposed portion of the sleeve and is confined between the flange 42 and the front end of the collar 28. In assembling the parts it is desirable to pass the finger 18^a through the slot 43 in the sleeve 41 and then to mount these parts in place on the associate shaft 9 before the latch or pawl 34 and its pivot 35 are mounted in place. It may be found in practice desirable to employ for the pawl 34 a screw pivot which may be readily removed and replaced. After the rod 18, finger 18^a and sleeve 41 have been assembled on the shaft, the latch 34 may be introduced into the slotway 19 and the pivot 35 put in place, the other parts, including the collar 28, weight 23 and pivots 27, being assembled as is usual, it being necessary of course to put the spring 44 on its sleeve before the collar 28 is applied to the shaft. It will be understood that said spring tends normally when the spool is in place on its shaft to maintain the flange 42 in contact with the rear face or flange 13 of said spool, as will be understood from Figs. 2 and 5. At this time the forward end of the sleeve is close to but not in contact with the bottom of the depression 39 and the parts are so related that the normal operations of the reversing weight 23, its carrier 24, 25, the finger 18^a and the rod 18, are not interfered with during the ribbon reversals but may act in the usual or ordinary way; that is, when the ribbon is entirely unwound from the spool the weight 23 is free to swing outward away from the spool shaft about the pivots 27, moving the finger 18^a and sliding the rod 18 into operative engagement with its worm 7, as in Fig. 5. The re-winding of the ribbon on its spool causes a retraction of the weight and a forward movement of the finger 18^a and the rod 18. The rearward and forward movements of the finger 18^a at this time are free to take place, the finger moving back and forth in the slot 40 of the collar 28 and in the slot 43 of the sleeve 41, said sleeve not being affected by such movements of the finger. When it is desired to remove the ribbon spool the finger piece 36 is pressed in opposition to the spring 38, causing the latch or pawl 34 to swing on its pivot until the nose 37 disengages from the inner face of the spool flange 13,

whereupon the spool may be pulled forward off its shaft. As the forward movement of the spool begins it is followed up by the sleeve 41, the head or flange 42 whereof is maintained in contact with the spool flange 13 by the spring 44, as will be understood from Fig. 6, which shows the spool in the course of removal. Just prior to the time when the ribbon is drawn out of contact with the straight horizontal face of the weight 23 and engages with the rounded or beveled portion, the rear end of the slot 43 will be brought in contact with the finger 18^a, thus coming into control of said finger and through it of the weight 23. The result is that when the spool is entirely removed the weight will be prevented from dropping by reason of the fact that the finger 18^a will be held against rearward movement by the sleeve 41. The parts are preferably so related that the finger will be pressed slightly forward by the closed end of the slot 43 in said sleeve, this slight movement being communicated through the forward closed end of the slot or opening 22 to the weight, pressing the weight, or the stem portion 24 to which it is directly secured, into contact with the flange 42. This flange is slightly slabbed off or cut away, as indicated at 42^a, and it is with this flat portion 42^a that the weight contacts, as shown in Fig. 7. The spring 44 will maintain the weight in the Fig. 7 position as long as the spool is off the shaft. Adjacent the flat portion 42^a the flange 42 is cut away or beveled, as indicated at 42^b, to provide a cam surface that is adapted to coöperate with the nose 37 of the latch or pawl 34. This coöperation takes place as the sleeve nears the end of its forward movement, which is determined by contact of the weight 23 with the face 42^a. The effect of the cam 42^b on the latch will be understood from consideration of Figs. 10 and 11. Fig. 10 shows the parts as the sleeve is nearing the end of its movement and just as the cam engages with the nose. Following such engagement, further forward movement of the sleeve will cause the cam, acting against the nose, to swing the latch around its pivot in opposition to its spring 38 until said latch becomes substantially parallel with the shaft 9 when the sleeve is finally arrested, as illustrated in Fig. 11. In other words, the latch 34 is automatically controlled by the sleeve when the ribbon spool is removed, with the result that the finger piece 36, instead of projecting slightly crosswise of the shaft 9, is in line with said shaft and will therefore facilitate the putting on of the spool to some extent, the spool not having to be applied at a slight angle to the shaft as heretofore to enable the holes 30 and 31 to pass freely over the finger piece 36, but instead said spool may be put on straight or at right angles to the axis of the shaft, since this finger piece is now substantially in line with the shaft, as in Fig. 11, instead of projecting angularly outside the shaft, as in Fig. 10. When a spool is put on the shaft the sleeve will be pressed back and the latch 34 released so that it will automatically operate to secure the spool in place. In returning the ribbon carrier or spool or applying a new one to the shaft, the weight 23, being held up automatically by the spring pressed sleeve or device 41, will pass readily into the opening 16 above the ribbon plies. As thereafter the carrier or spool is pushed farther back, the rear flange 13, contacting with the head 42, will force the sleeve 41 rearward on the shaft, compressing the spring 44 and freeing the finger 18^a from the control of said sleeve so that when the spool has been pushed back into place and latched by the pawl 34, the finger will be free and the weight 23 will be completely restored to the control of the ribbon alone, the automatic controlling device 41 being held in ineffective position, as shown in Figs. 2 and 5, by the ribbon spool itself. Of course when the ribbon spool is next removed the spring 44 will again expand, forcing the device 41 forward and said device will resume control of the weight 23 which passes automatically from the control of the ribbon to the control of the device 41. It will be understood that preferably my novel automatic weight latching devices are applied to both spool shafts as shown in Fig. 1.

When it is desired to renew the ribbon in the Remington machine it is the common practice to wind the ribbon entirely on the right-hand spool and off the left-hand spool and then to remove the full or right-hand ribbon spool and replace it with another ribbon spool provided with a new ribbon, the free end of which, after being passed over the guides and through the vibrator, is attached to the empty or left-hand spool. In the course of this operation there will be practically no movement of the right-hand reversing weight which is maintained close to the spool shaft by the spring pressed slide, sleeve or latch 41 at all times when said weight is out of the control of the ribbon plies. It may be desired, however, for some reason, to remove the empty or left-hand spool or to remove the right-hand spool at some time while it is bare of the ribbon or when only a few plies still remain wound on the spool to be removed. In such case it will be understood that the ribbon weight 23 may have swung down partly or to the full extent about its pivots away from the ribbon spool shaft. If a ribbon spool should be removed when the weight is partly or wholly down, said weight will be picked up by the

latch or slide 41 and automatically moved toward the spool shaft, being held close to said shaft in the Fig. 7 position until the spool is replaced or another one substituted. In other words my invention is effective whether it is a full spool or an empty spool or a partly wound spool that is removed, for it will be noted that the spring mechanism will operate in one case or another to insure that the position of the reversing device is such that a fresh or wound spool may be readily attached or slipped on to the shaft without being interfered with to the slightest extent by any part of the reversing devices.

Various changes may be made without departing from my invention.

What I claim as new and desire to secure by Letters Patent, is:

1. In a typewriting machine, the combination with ribbon reversing mechanism including a gravity operated weight associated with a detachable spool, of means for automatically controlling said weight independently of the ribbon reversing operation, said means becoming effective when said spool is detached to hold said weight in inoperative position.

2. In a typewriting machine, the combination with ribbon reversing mechanism including a gravity operated weight associated with a detachable ribbon carrier, of a latch for said weight, and means for automatically taking control of said latch during the operation of detaching said spool.

3. In a typewriting machine, the combination with ribbon reversing mechanism including a reversing device and a detachable ribbon carrier, of means for automatically assuming control of said device when said carrier is detached.

4. In a typewriting machine, the combination with ribbon reversing mechanism including a reversing device controlled by the plies of the ribbon, of means for automatically controlling said device when said ribbon is withdrawn from a position where it has a controlling effect on the reversing device.

5. In a typewriting machine, the combination of ribbon mechanism including a reversing device that is automatically controlled by the ribbon itself, and other means for controlling said device so that said device is brought automatically into control of said means when the ribbon is brought to a position where it loses control of said reversing device.

6. In a typewriting machine, the combination with ribbon reversing mechanism, of a pivotally mounted reversing weight that is controlled by the plies of ribbon, a latch for said weight that is normally ineffective, and means for rendering said latch automatically effective when the ribbon is brought to a position where it loses control of said reversing device.

7. In a typewriting machine, the combination of detachably mounted ribbon spools, reversing devices one for each spool controlled by the ribbon, latches for said devices, said latches being normally ineffective, and means operating automatically to render said latches effective when the associate ribbon spools are detached from their mountings.

8. In a typewriting machine, the combination of ribbon spool shafts, ribbon spools thereon, reversing mechanism comprising weights pivotally connected to said shafts and controlled by the ribbon, and spring pressed latches for said weights, said latches being held normally in ineffective positions by said spools but becoming automatically operative when said spools are detached.

9. In a typewriting machine, the combination of a detachably mounted ribbon carrier, a reversing mechanism including a device controlled from said carrier, and means for preventing said reversing device from being affected when the ribbon carrier is detached.

10. In a typewriting machine, the combination of a detachably mounted ribbon carrier, a reversing mechanism including a device controlled from said carrier, and means for preventing said reversing device from affecting said reversing mechanism when the ribbon carrier is detached, said reversing device passing automatically into the control of said means as it leaves the control of said ribbon carrier.

11. In a typewriting machine, the combination of a detachably mounted ribbon carrier, a reversing mechanism including a device controlled from said carrier, and means for preventing said reversing device from affecting said reversing mechanism when the ribbon carrier is detached, said means operating automatically.

12. In a typewriting machine, the combination of a detachably mounted ribbon carrier, a reversing mechanism including a device controlled from said carrier, and means for preventing said reversing device from affecting said reversing mechanism when the ribbon carrier is detached, said means comprising a latch for said reversing device and a spring for pressing said latch in one direction.

13. In a typewriting machine, the combination of a detachably mounted ribbon carrier, a reversing mechanism including a device controlled from said carrier, and means for preventing said reversing device from affecting said reversing mechanism when the ribbon carrier is detached, said means comprising a slidably mounted part and a spring for pressing it in one direction, the ribbon carrier during the attaching operation op-

erating to overcome said spring and hold said part in ineffective position.

14. In a typewriting machine, the combination of a ribbon carrier, a shaft on which said carrier is detachably mounted, a reversing mechanism including a device controlled from said carrier, and means for preventing said reversing device from affecting said reversing mechanism when the ribbon carrier is detached, said means comprising a flanged sleeve slidably mounted on the carrier shaft, and a spring confined between the flange of said sleeve and the flange of the carrier.

15. In a typewriting machine, the combination of a ribbon spool shaft, a ribbon spool detachably mounted thereon, a collar fixed to said shaft, a reversing weight pivotally connected to said collar and controlled from said ribbon spool, a slide rod having an extension connected to said weight, a sleeve slidable on said shaft and having a loose connection with said extension, and a spring that normally maintains said sleeve in engagement with said ribbon spool.

16. In a typewriting machine, the combination of a spool shaft, a ribbon controlled reversing device thereon, a detachable spool, and means for automatically moving the reversing device toward the spool shaft when the spool is detached.

17. In a typewriting machine, the combination of a spool shaft, a ribbon controlled reversing device thereon, a detachable spool, and means for automatically moving the reversing device toward the spool shaft when the spool is detached and holding it there while the spool is removed.

18. In a typewriting machine, the combination of a spool shaft, a ribbon controlled reversing device thereon, a detachable spool, means for automatically moving the reversing device toward the spool shaft when the spool is detached, and means for automatically releasing the reversing device during the attachment of a spool.

19. In a typewriting machine, the combination of ribbon mechanism, reversing devices, a detachable ribbon spool, and means controlled by the spool for affecting the reversing devices when the spool is detached, so as to insure that said devices will be in such position that a fresh or wound spool may be attached without interference by any of the reversing devices.

20. In a typewriting machine, the combination of ribbon mechanism, reversing devices, a detachable ribbon spool, means controlled by the spool for affecting the reversing devices when the spool is detached, so as to insure that said devices will be in such position that a fresh or wound spool may be attached without interference by any of the reversing devices, and means whereby the action of the first-named means is nullified during the attachment of a spool.

21. In a typewriting machine, the combination of ribbon mechanism, reversing devices, a spool shaft, and means actuated by the putting on and taking off of a spool for operating the reversing devices first in one direction and then in the opposite direction.

22. In a typewriting machine, the combination of ribbon mechanism, reversing devices, a spool shaft, and spring operated means connected to actuate the reversing devices in opposite directions by the act of putting on and taking off of a spool.

23. In a typewriting machine, the combination of ribbon mechanism including a shaft and a spool thereon, reversing devices including a weight, and means connected to the weight so as to raise it when the spool is slipped off the shaft.

24. In ribbon mechanism, the combination of reversing devices including a pivoted weight, a spool shaft, and means connected to the weight so as to raise it when the spool is slipped off the shaft; the construction being such that when the spool is slipped on to the shaft said means is moved to lose control of the weight and the latter is adapted to drop when the ribbon runs off the spool and its direction of travel is to be reversed.

25. In ribbon mechanism, the combination of reversing devices including a pivoted weight, a spool shaft, a spring pressed device adapted to raise the weight when a spool is slipped off the shaft, the said spring pressed device being movable against the tension of its spring in the opposite direction when a spool is slipped on to the shaft thereby releasing the pivoted weight from the control of said spring pressed device.

26. In ribbon mechanism, the combination of reversing devices including a pivoted weight, a spool shaft on which said pivoted weight is supported, a spring pressed device connected to said weight and adapted to raise it when the spring is permitted to expand, and a ribbon spool on said shaft holding said spring under compression, the construction being such that when the spool is detached the spring is permitted to expand and the spring pressed device is caused to raise said pivoted weight.

27. In ribbon mechanism, the combination of reversing devices including a pivoted weight and a sliding pin having an arm connected to said weight, a spring pressed device connected to said arm so as to operate it and the weight only when said spring pressed device is permitted to operate under the expansive force of said spring, and a detachable spool which when in working position holds the spring under compression and the spring pressed device inoperative.

28. In a typewriting machine, the com-

bination of a ribbon spool shaft, a ribbon spool mounted thereon, a pivotal latch for retaining said spool on said shaft, a ribbon reversing weight controlled from said spool, and a weight latch effective automatically to control said weight when said spool is detached, said weight latch operating automatically to hold said first recited latch in ineffective position after the ribbon spool is detached.

29. In a typewriting machine, the combination of a ribbon spool shaft, a ribbon spool mounted thereon, a pivotal latch for retaining said spool on said shaft, a ribbon reversing weight controlled from said spool, and a weight latch effective automatically to control said weight when said spool is detached, said weight latch operating automatically to hold said first recited latch in ineffective position after the ribbon spool is detached, said first recited latch becoming automatically effective when the ribbon spool is replaced.

Signed at Dallas, in the county of Dallas and State of Texas, this 23rd day of September, A. D. 1918.

TANDY I. FORT.

Witnesses:
GUY E. BOOTH,
A. F. HUNT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."