

J. ALEXANDER.

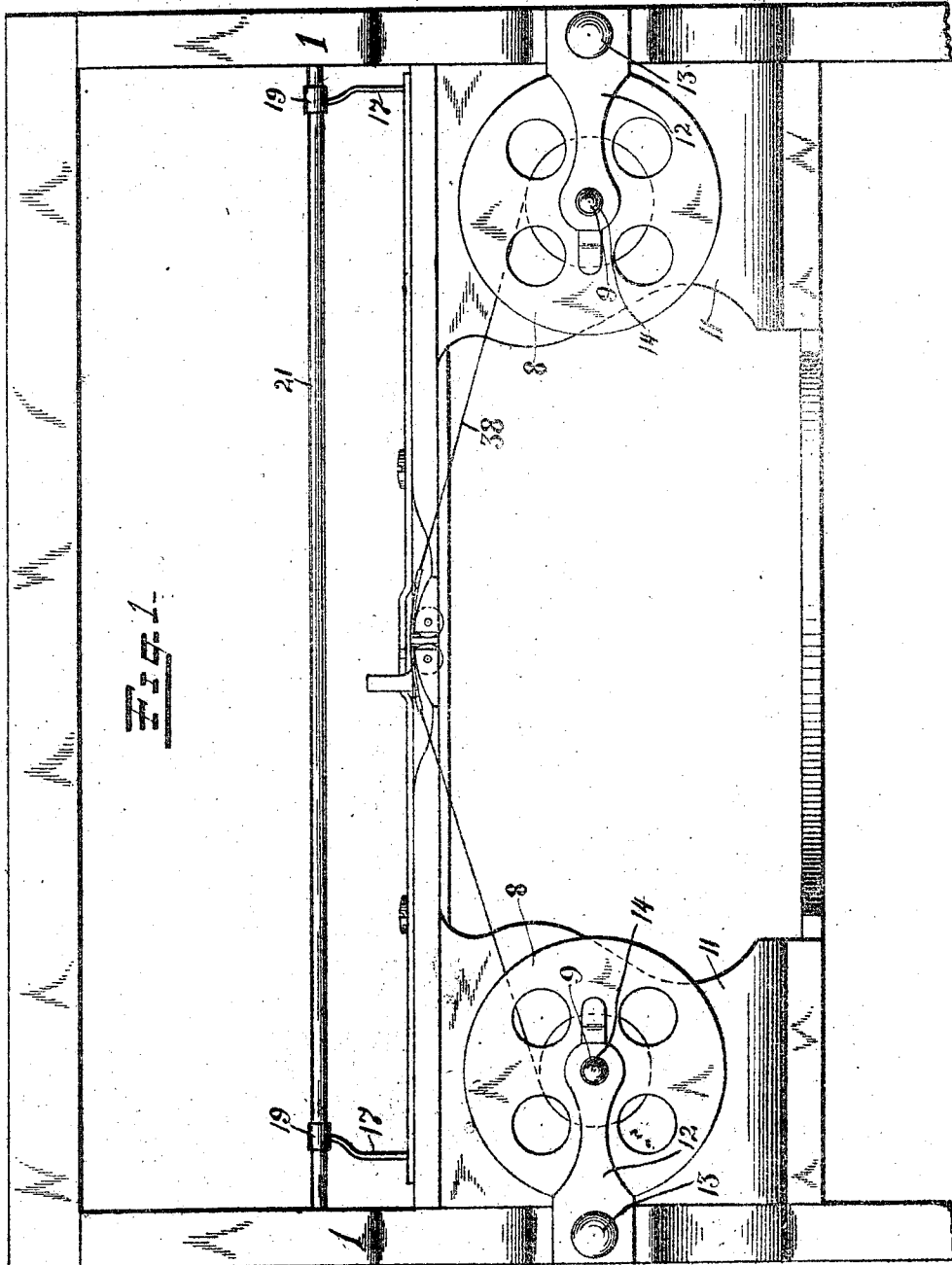
TYPE WRITER RIBBON MECHANISM.

APPLICATION FILED NOV. 17, 1908. RENEWED OCT. 19, 1911.

1,013,095.

Patented Jan. 2, 1912.

4 SHEETS-SHEET 1.



Witnesses:
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Chas. A. Reed

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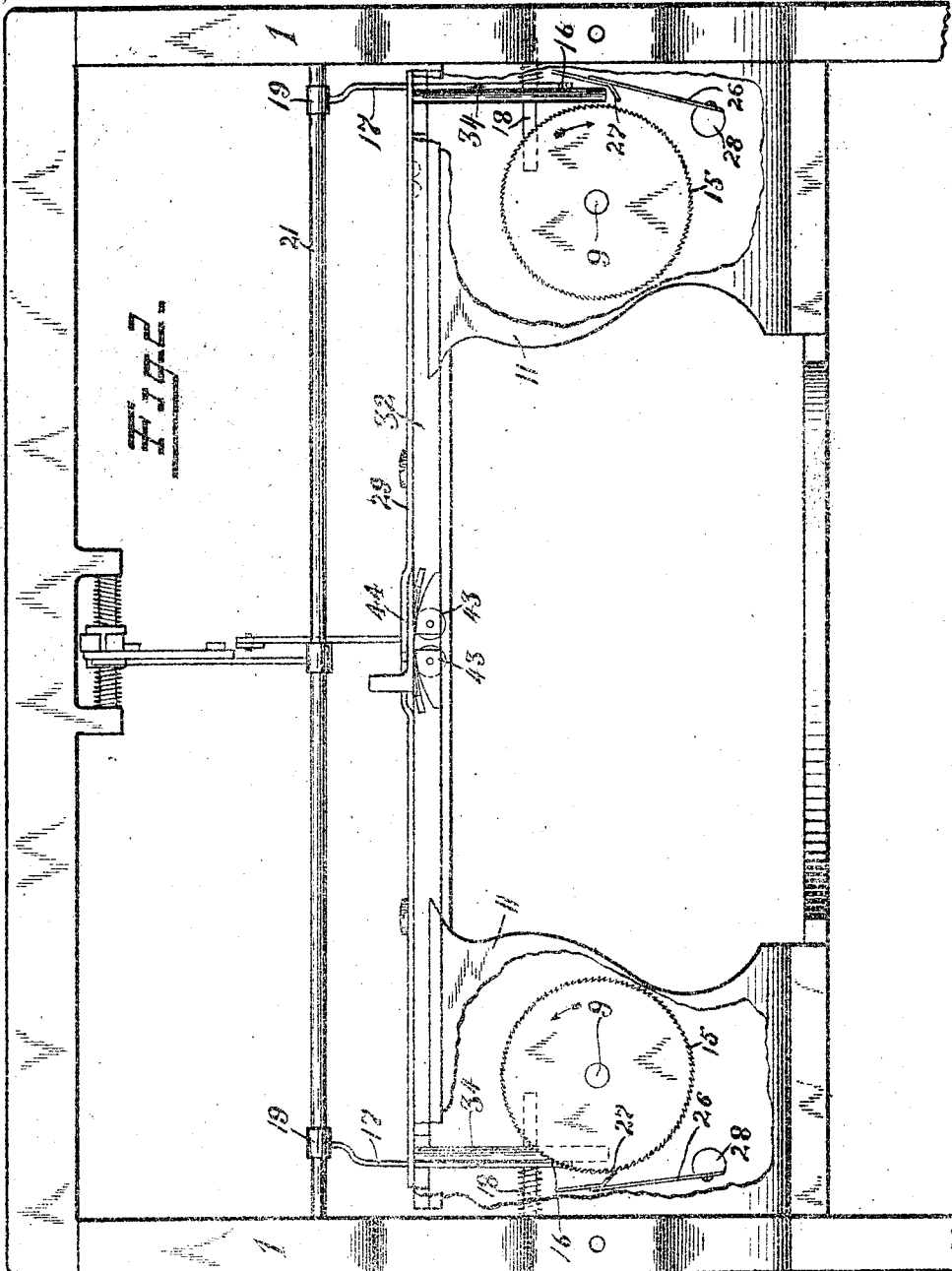
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4 SHEETS-SHEET 2.



Witnesses:
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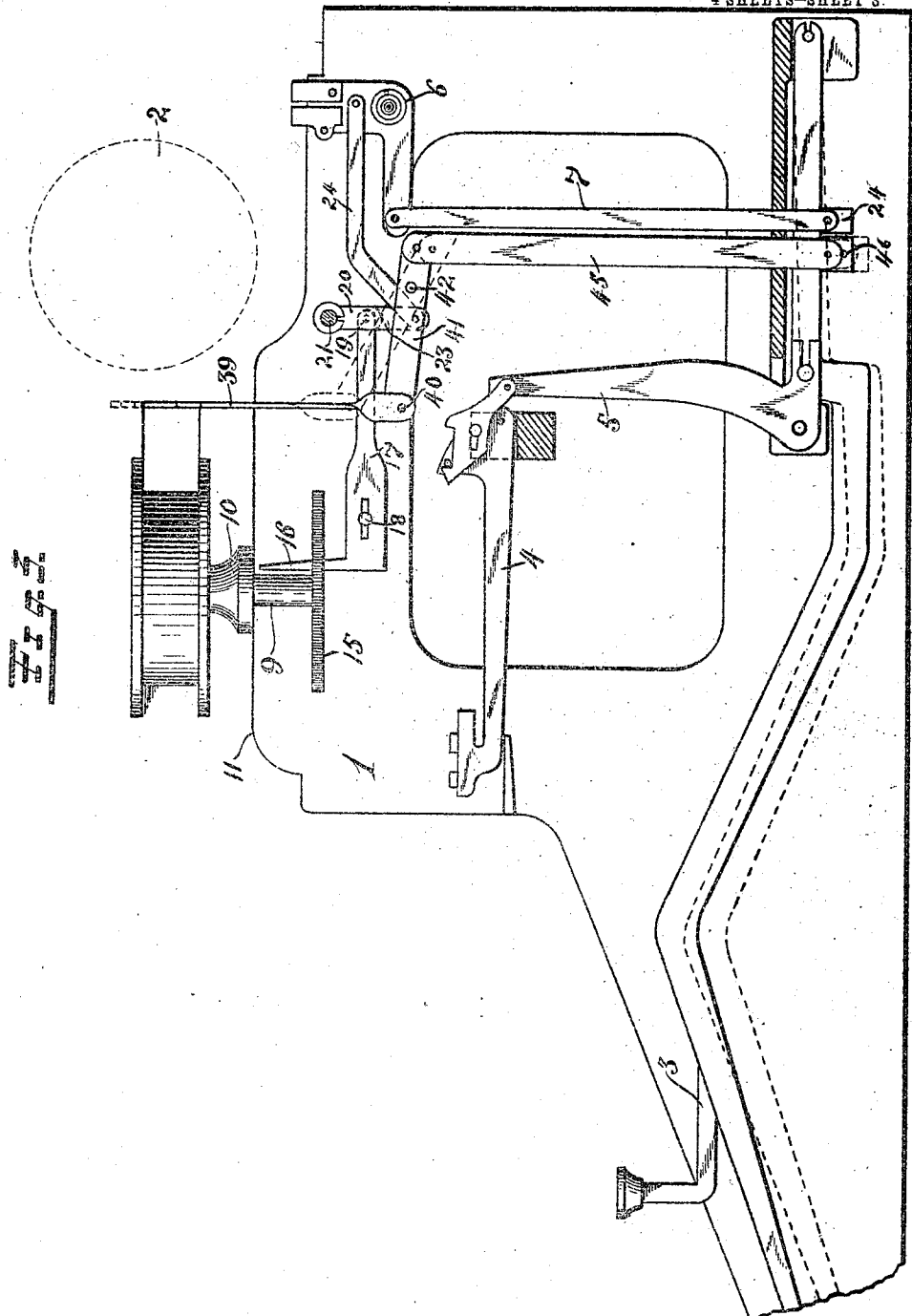
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4 SHEETS-SHEET 3.



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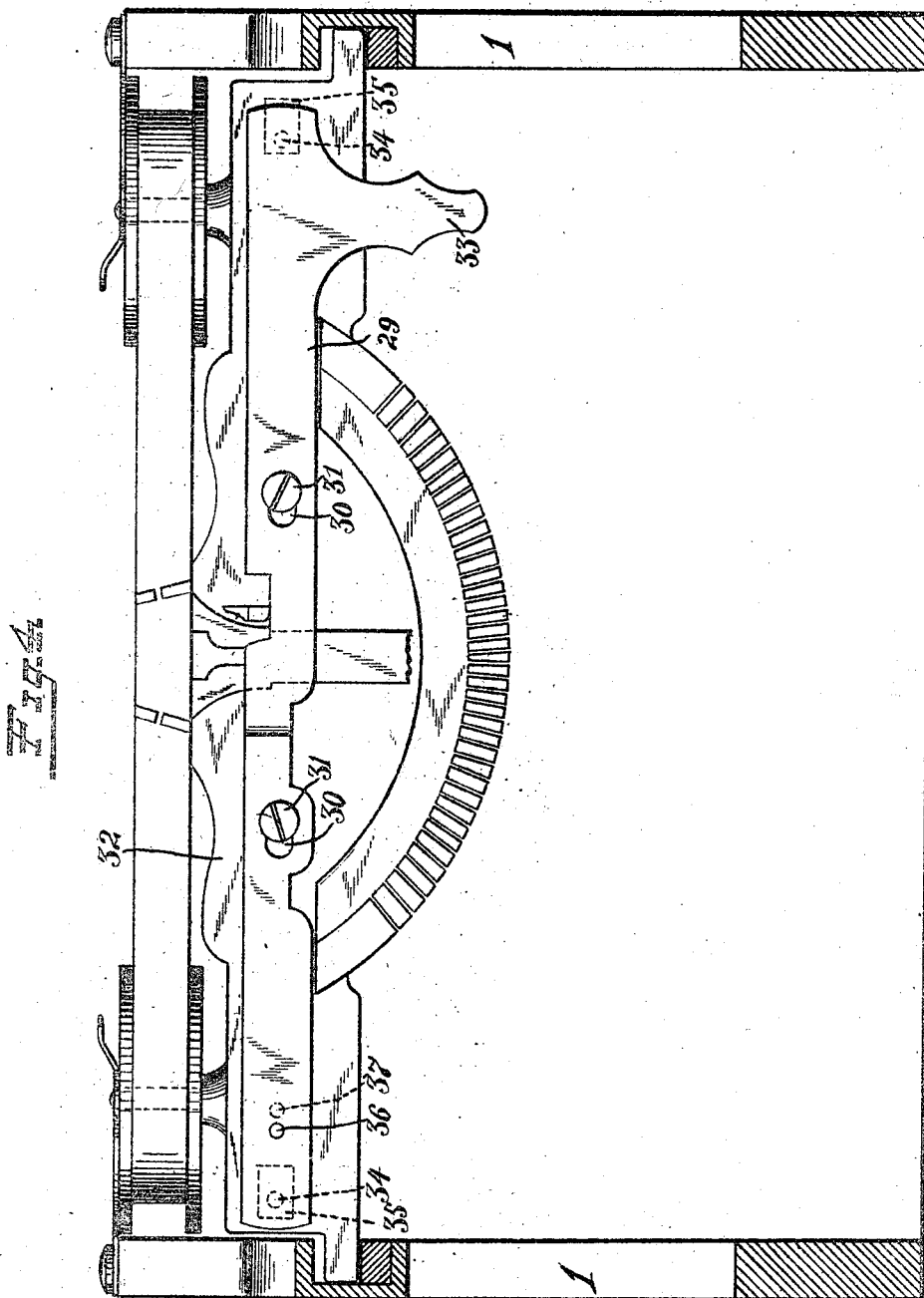
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4 SHEETS-SHEET 4.



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UNITED STATES PATENT OFFICE.

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TYPE-WRITER RIBBON MECHANISM.

1,013,095.

Specification of Letters Patent.

Patented Jan. 2, 1912.

Application filed November 17, 1908, Serial No. 462,989. Renewed October 19, 1911. Serial No. 655,636.

To all whom it may concern:

Be it known that I, JESSE ALEXANDER, a citizen of the United States, residing at Brooklyn, county of Kings, State of New York, have invented certain new and useful Improvements in Type-Writer Ribbon Mechanism, of which the following is a full, clear, and exact description.

My invention relates to a typewriter mechanism and is particularly concerned with improvements in the ribbon operating mechanism of so-called visible writing machines.

The object of the invention is to simplify the ribbon mechanism, both in respect to means for causing the ribbon to travel from side to side across the printing point, to change the point of impact upon the ribbon to secure a clear impression, and in the means for shifting the ribbon out of the line of print to effect the so-called "visible" writing function.

A further object is to provide for the easy replacement of the ribbon when the same is worn out in use, and in general to reduce the mechanism to the fewest number of parts consistent with effective operation.

With these and other objects in view, the invention consists in the construction and arrangement of parts, a preferred embodiment of which is illustrated in the accompanying drawings, in which,

Figure 1 is a plan view of so much of the machine as illustrates the ribbon spools, the ribbon support and the arrangement of the ribbon therein. Fig. 2 is a view similar to Fig. 1, parts being removed or broken away for clear illustration of the spool operating mechanism. Fig. 3 is a central vertical section of the machine, and Fig. 4 is a rear view of parts shown in Fig. 1.

In the embodiment of my invention herein selected for illustration, the same comprises the usual machine frame 1, the platen 2, key levers 3, type bars 4, operating connections therefor 5, feed dog 6 and its operating connections 7. The ribbon spools proper 8 are mounted upon suitable spindles 9 journaled in the bearings 10, which are secured to plates 11 on each side of the machine frame, which plates are made detachable in any desired manner in order to give access to the spool actuating mechanism. The spools are detachably secured to the shafts by means of a suitable spline connection and are locked in position by spring locking

arms 12 pivoted at 13 upon the sides of the machine frame, the outer ends of which arms are provided with apertures 14 adapted to take over the upper ends of the spool spindles or shafts 9. Upon the lower ends of the shafts 9 are mounted the ratchet wheels 15, the ratchet teeth of which are adapted to be engaged by an actuating finger 16 of an actuating bar 17, which is slidably mounted on the side members of the machine frame by means of pin and slot connections 18. The rear ends of the actuating bars 17 are pivoted at 19 to depending lever arms 20 secured to either end of an oscillating bar 21, which, as shown in Fig. 2, is mounted for oscillation in the side plates of the machine frame. The oscillation of the bar 21 is effected through a depending lever 23 preferably mounted at the center of said bar and connected by a link 24 with the feed dog 6. The actuating link 7 of the feed dog is connected with a universal bar 25. Fig. 3, located beneath the key levers, whereby upon each depression of said levers said parts will be actuated and the movement thereof will be communicated by means of the mechanism and connections described to the actuating fingers 16, whereby at each printing stroke of the key levers the ribbon spools 8 will be revolved a short distance determined by the point of engagement of the actuating finger 16 with the ratchet wheel 15 upon the spool shafts 9.

In order to prevent overthrow of the ribbon spools, ratchet pawls 26 are provided having intumed ends 27 adapted to engage the teeth of the ratchet wheels 15, which pawls are mounted upon suitable lugs or posts 28 depending from the plates 11 in which the shafts 9 are journaled. In addition to preventing overthrow of the ribbon spool, said pawls serve to hold the spools in their rotated positions after each actuation thereof, by the finger 16, whereby the ribbon is kept taut across the printing point.

In order to reverse the movement of the ribbon when it has reached the limit of its travel in one direction, means are provided to disengage the actuating finger 16 at one side of the machine from its corresponding ratchet wheel and to cause the finger at the opposite side to simultaneously engage the corresponding ratchet wheel upon that side. To this end a slide bar 29 is provided (see Figs. 2 and 4) having slots 30 which slid-

ably engage screws 31 tapped into the cross bar 32 of the machine frame. Said reversing bar 29 is provided with a depending finger piece 33, which projects in convenient position to be grasped by the operator to shift said bar to reverse the ribbon movement. Projecting forwardly from either end of the reversing bar 29 are the reversing rods or fingers 34, which are arranged to engage with the actuating fingers 16 which actuate the ratchet wheels 15 connected to the ribbon spools, slots 35 being provided in the cross bar 32 to permit the passage of said reversing fingers 34. To hold the reversing fingers in adjusted position upon one side or the other, the bar 29 is provided with a slight indentation 36 adapted to engage corresponding projections 37 on the rear of the cross bar 32.

As will be seen from an inspection of Fig. 2, the reversing fingers 34 serve not only to disengage the actuating fingers 16 from their corresponding ratchet wheels 15, but inasmuch as the spring pawls 26 lie outside of said fingers 16, the disengaging movement of one of said fingers by the reversing arm 34 will serve at the same time to disengage the corresponding spring pawl from the same ratchet wheel.

By the above described construction simple and efficient means are provided for producing and reversing the travel of the ribbon, for while the actuating fingers will both be actuated at each stroke of the key levers, obviously only that ratchet and spool will be actuated thereby with which one of said fingers is at the time engaged.

In order to provide for the guiding of the ribbon 38 across the printing point a vertical support or finger 39 is suitably mounted in suitable guides (not shown) on the machine frame opposite said printing point which support or finger is pivoted at its lower end at 40 to an actuating lever 41 pivoted at 42 upon the machine frame. The ribbon support 39 may if desired be provided with suitable friction rolls 43, Fig. 2, between which and a guide plate 44 the ribbon is carried. In normal position or when at rest, the ribbon at the printing point lies just below said point and is arranged to be actuated to a position over the printing point at the moment of the printing stroke. To this end lever 41 which is connected to the bottom of the ribbon support 39 is connected by a link 45 to a universal bar 46 located beneath the key levers 3 so that when any of said key levers are depressed to actuate the type-bars the ribbon support 39 carrying the ribbon will be simultaneously lifted to bring the ribbon opposite the printing point.

While I have herein described a particular embodiment of my invention, it is to be understood the same may be altered in de-

tail and relative arrangement of parts without departing from the spirit or scope thereof.

What I claim is:

1. A ribbon mechanism for typewriting machines comprising a pair of ribbon spools, a carriage feed dog rocker, a rock shaft, a separate actuating finger for actuating each of said ribbon spools respectively connected with said shaft to cause the ribbon to travel across the printing point and operative connections between said rock shaft and said feed dog rocker to cause the actuation of said spools.

2. A ribbon mechanism for typewriting machines comprising a pair of ribbon spools, a feed dog rocker, a ratchet wheel connected with each spool, an actuating finger adapted to engage each ratchet wheel, a rock shaft connected with said fingers, manually operable means for disengaging one of said fingers from its wheel and simultaneously engaging the other finger with its wheel and operative connections between said rock shaft and said feed dog rocker for actuating said fingers.

3. A ribbon mechanism for typewriting machines comprising a pair of ribbon spools, a support for said ribbon located opposite the printing point, a ratchet wheel connected with each of said spools, a spool actuating finger adapted to engage each of said wheels, a pawl also adapted to engage each wheel and means for causing a simultaneous disengagement of one finger and pawl from its wheel and engagement of the other finger and pawl with its wheel.

4. A ribbon mechanism for typewriting machines comprising a pair of ribbon spools, a support for said ribbon located opposite the printing point, a feed dog rocker, a ratchet wheel connected with each of said spools, actuating fingers adapted to engage each of said ratchet wheels respectively, operating connections between said fingers and said feed dog rocker to cause the actuation of said spools, and means for simultaneously disengaging one of said fingers and the corresponding pawl from one spool, and engaging the other finger and pawl with the other spool.

5. A ribbon mechanism for typewriting machines comprising a ribbon spool, a support for said ribbon located opposite the printing point, a ratchet wheel connected with said spool, an actuating finger adapted to engage said ratchet wheel, a stop pawl also adapted to engage said ratchet wheel, means to disengage said finger from its ratchet wheel, said finger and said pawl being so relatively arranged that said disengaging movement will also cause the disengagement of said pawl from said ratchet wheel.

6. A ribbon mechanism for typewriting

machines comprising a pair of ribbon spools, a ribbon support located opposite the printing point, ratchet wheels attached to said spools, actuating fingers adapted to engage 5 said ratchet wheels to actuate said ribbon across the printing point, a rock shaft, connections between said rock shaft and said fingers, a feed dog rocker, and actuating means between said rocker and said rock 10 shaft whereby said fingers will be operated by the actuation of said rocker. a ribbon support located opposite the printing point, ratchet wheels connected with said 15 spools, actuating fingers adapted to engage said ratchet wheels to rotate said spools, a rock shaft having rock arms connecting with said fingers, a feed dog rocker, and operative connections between said rocker and 20 said rock shaft whereby the actuation of said rocker will serve to actuate said fingers.

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Witnesses:

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7. A ribbon mechanism for typewriting machines comprising a pair of ribbon spools,