

G. A. SMITH.
 RIBBON MOVEMENT FOR TYPE WRITERS.
 APPLICATION FILED DEC. 17, 1906.

979,583.

Patented Dec. 27, 1910.

3 SHEETS—SHEET 1.

Fig. 1.

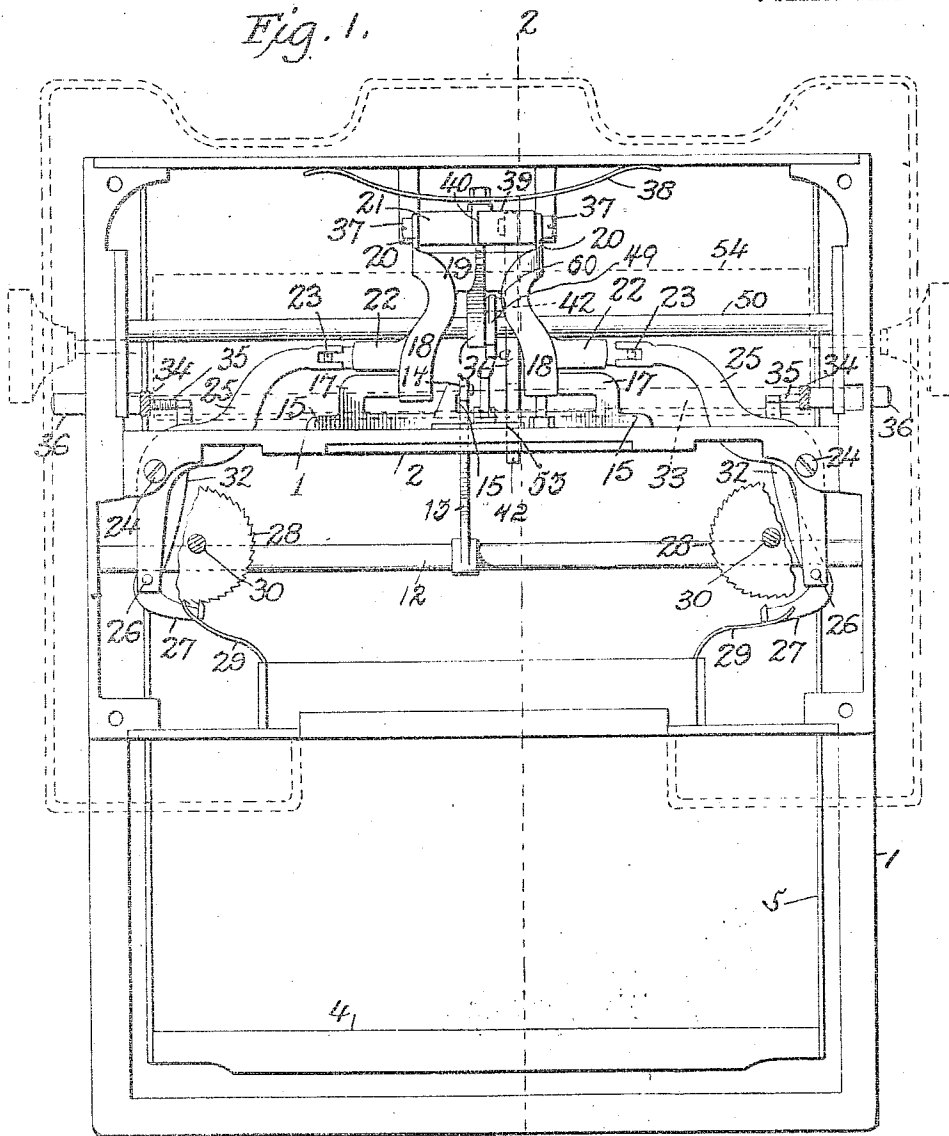


Fig. 3.

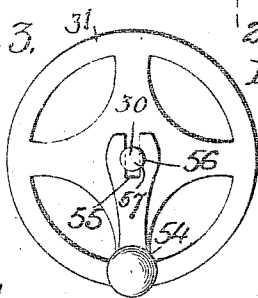
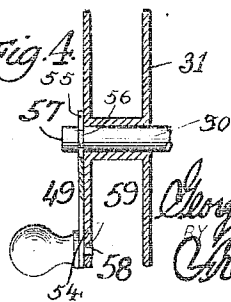


Fig. 4.



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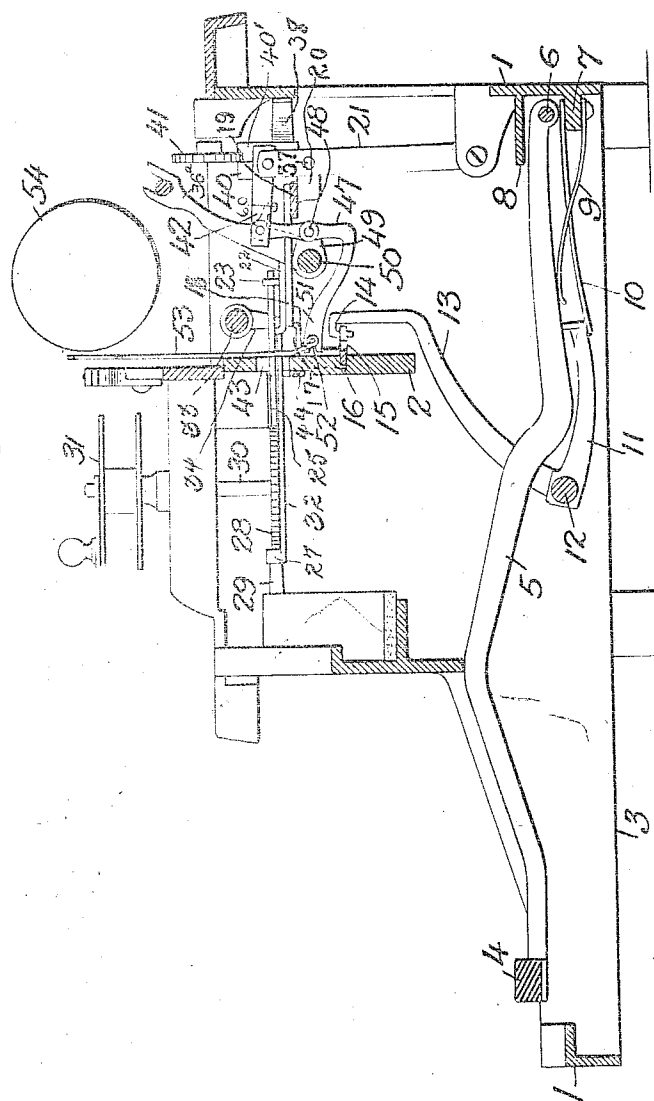
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3 SHEETS-SHEET 2.

Fig. 2.



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3 SHEETS-SHEET 3.

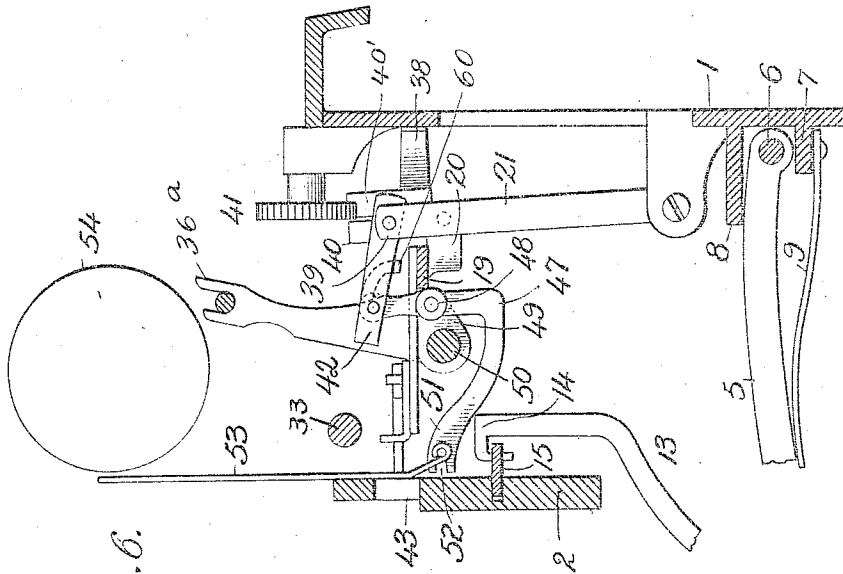


Fig. 6.

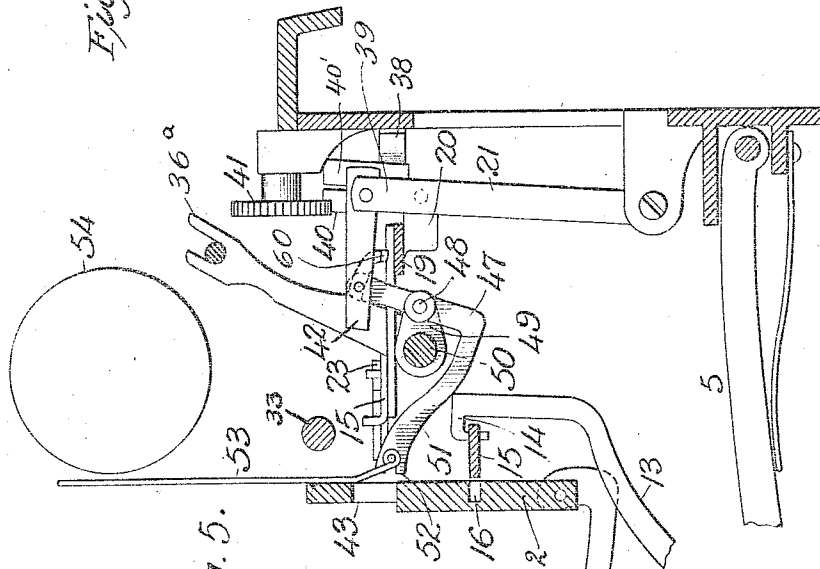


Fig. 5.

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UNITED STATES PATENT OFFICE.

GEORGE A. SMITH, OF NEW YORK, N. Y., ASSIGNOR OF SIXTEEN ONE-HUNDRED AND FOURTHS TO JAMES W. HENNESSEY, OF NEW YORK, N. Y., FORTY-SIX ONE-HUNDRED AND FOURTHS TO ARTHUR LETTS, OF LOS ANGELES, CALIFORNIA, AND TWENTY-ONE ONE-HUNDRED AND FOURTHS TO FREDERICK H. WARD, OF BROOKLYN, NEW YORK.

RIBBON-MOVEMENT FOR TYPE-WRITERS.

979,583.

Specification of Letters Patent.

Patented Dec. 27, 1910.

Application filed December 17, 1906. Serial No. 348,296.

To all whom it may concern:

Be it known that I, GEORGE A. SMITH, a citizen of the United States of America, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Ribbon-Movements for Type-Writers, of which the following is a specification.

My invention relates to typewriters and more particularly to ribbon-feeds for typewriters, having among its objects to provide an efficient ribbon-feed of greater simplicity than those in present use.

A further object of my invention is to provide novel and more efficient means for effecting the elevation of the ribbon and the automatic return of the spacer-bar.

With these and other ends in view, my invention consists in a ribbon-feed involving the novel features and combinations of parts hereinafter described and claimed.

In the accompanying drawing illustrating my invention: Figure 1 is a top view of the improved ribbon-feed. Fig. 2 is a transverse vertical section of the same on line 2, 2 of Fig. 1. Fig. 3 is a top view of my improved ribbon reel showing the improved and simplified form of handle. Fig. 4 is a central sectional view of the same. Fig. 5 is a transverse vertical sectional view of my improved ribbon feed mechanism, said view being similar to Fig. 2 but showing the parts on an enlarged scale and in a different position. Fig. 6 is a similar transverse vertical sectional view of the same parts delineated in a different position in order to more clearly bring out the operative relation of the elements.

Similar characters of reference indicate corresponding parts throughout the several views.

1 denotes the frame which may be of any desirable construction, though preferably supporting a central semi-circular plate 2, and having a forward projection 3 open to permit the arrangement and use of the spacer-bar levers and key-levers. The machine may be provided with any number of key-levers and a pair of space bar levers. For the purpose of clearness in illustration I have shown but two levers, they being the levers carrying the space bar 4 at their front

ends. It will be understood that each key is supported by a lever similar to that designated 5. Said spacer-bar 4 is provided with bent levers 5 extending rearwardly along the sides of the frame and finding a pivot on a transverse rod 6 adjacent to the rear wall of the frame 1; said rod passing through a transverse recess formed by a rib 7 and a flange 8 on said wall. Said rib 7 carries upon its lower surface a series of lever-returning springs 9, while upon its upper surface at each side of the machine is held one end of a spring 10, which maintains the contact of the spacer-levers 5 with a lower rearwardly-extending arm 11, which is securely fastened at its forward extremity to a transverse rod 12, supported in the frame 1, which rod serves to transmit the movement of the spacer-bar to a bent, upwardly-extending hooked arm 13. Above said arm is supported in the main frame the slotted semi-circular plate 2. Bending at a point approximately opposite the lower extremity of said plate 2, the arm 13 extends directly upward having at its extremity a forwardly-extending hook 14. The hooked end 14 of the arm 13 engages or has suitable connection with a universal bar 15, moving in a slot 16 in the semi-circular plate 2, and actuated by the arm 13. Said bar 15 is provided with rearwardly and upwardly extending branches 17 curving toward the center where they are united by a frame composed of horizontal rearward extending parts 18, 18, connected by a plate 19 and having ears 20, 20, embracing and pivoted to a lever 21, said parts 18, 18, having oppositely extending arms 22, 22, provided with pins 23, 23. The object of thus connecting the ears 20 of plate 19 pivotally to lever 21 is obviously to enable the universal bar to operate the lever 21 which bears the escapement mechanism 40, and to which lever 21 the lever 42 is pivoted at the upper end, so that in this manner the lever 42 is operated by the universal bar.

At each side of the machine is pivoted at 24 a horizontal curved lever 25, having its rear end slotted to enable it to form a loose connection with one of the pins 23. At the forward ends of said levers 25, 25, are pivoted, by means of pivots 26, 26, spring-

pressed ribbon-ratchet-actuating pawls 27, 27. Said pawls are held in engagement with the teeth of the horizontal ratchet wheels 28, 28, by springs 29, 29, which are secured to the frame 1 and bear against the pawls 27, 27, normally holding said pawls in contact with said ratchets; the ends of the springs engaging the teeth of the ratchets as a locking-pawl. Fixed to said ratchets 28, 28, are vertical shafts 30, 30, actuated by said ratchets and carried by the frame. Above said frame 1 and secured to the upper ends of said shafts 30, 30, are vertical ribbon spools 31, 31.

In order that one or the other of the ratchet actuating pawls 27 may be set to operative position, the other one at the same time being moved so as to be inactive, the pawls are provided with or have secured to them the arms 32, which are engaged by a shift frame suitably supported in the main frame 1. This frame consists of a rod 33, which is arranged to operate also as a way-rod for the carriage of the typewriter, and a pair of arms 34, 34, extending downward from the rod 33 near its ends and into proximity with the arms 32, 32. In the arms 34, 34, are provided screw-threaded perforations in which are seated the adjustable contact-pins 35, 35, adapted to bear against the arms 32, 32. By screwing these pins more or less into their seats in the arms 34 the adjustment of the pawls with reference to the teeth of the ratchet wheels, so as to cause a greater or less turning of the latter to each reciprocation of the pawls, is effected.

36, 36 indicate finger pieces connected with the shift frame and extending outside the lines of the main frame, as indicated in Fig. 1, in convenient position to be operated. By pressing on the finger pieces the shift frame will be adjusted, as will be readily understood.

Pivoted to the bottom of the rear wall of the frame 1 is the vertical lever 21, which is as I have stated, pivotally connected with the ears 20 on plate 19 that forms a part of the universal bar, the connection thus being made evident between the lever 21 and the bar 15. The lever 21 is actuated by the movement of said bar, 15, and is pressed against the center of an arched spring 38, which acts as an auxiliary, automatically returning to their proper place the universal bar 15 and its connected members. Attached to one side of a head 39 of said lever 21 are the teeth 40 40' of an escapement mechanism operated by the movement of said lever 21, and cooperating with the escapement wheel 41 carried by the frame 1. Pivoted within a transverse slot in said head 39 is the extremity of a forwardly extending arm 42. This arm or lever lies close to the central upward extending arm 36^a of the platen shifting devices—the latter be-

ing carried by the transverse rocking platen-shift rod 50—and is arranged to be engaged by a projection or finger 60 carried by the said arm 36^a; so that when the platen shifting devices are operated to bring the upper case type into operation, the said finger 60 will lift the arm or lever 42, as represented in Fig. 6, in order to move the ribbon into proper position for printing relative to the platen in its said adjusted position. The lever 42 is pivoted to the upper end of the ribbon vibrating lever 47 which is itself pivoted at 48 (see Figs. 5 and 6) to a rearwardly extending arm 49 loosely supported upon the platen shift actuating rod 50. Said ribbon vibrating lever 47 extends below its pivot 48 and bends forwardly to form a fore-arm 51 which extends beneath the platen shift actuating rod 50 and toward the semi-circular plate 2, said fore-arm 51 having in its outer extremity a slot 52. The arm 49 carried by the platen shift actuating rod 50 is loosely supported by the rod in order that it and the parts connected therewith may freely operate in respect to its adjustments for the ribbon without interfering with or interference from the platen shifting devices. Pivoted in said slot 52 of the fore-arm 51 of the lever 47 is a suitable guide frame 53 located between the frame 1 and the platen 54 and having a vertical reciprocating movement incident to the movement of lever 21; said guide frame 53 being provided with suitable means to permit the shifting of the ribbon between the ratchet actuated spools 31, 31.

The spools 31, 31, are provided with resilient handles 54, 54, having longitudinal slots 55, 55, in their inner extremities, engaging grooves 56, 56, in the spool shafts 30, 30, and having upon their lower surfaces projections 58, 58, adapted to enter and lock in perforations 59, 59, in the spools 31, 31.

The operation of my improved and simplified form of ribbon feed is as follows: With the spacer bar in position shown in Fig. 2, by a slight downward pressure of the spacer bar, or by the downward movement of any of the key levers the hooked arm 13 is forced backward, withdrawing the universal bar from the slot 16 in the semi-circular plate 2. Transmitted by the universal bar, the movement is conveyed to the spring-pressed pawls 27 which engage and operate the ratchets rotating the upper vertical ribbon spools. When it is necessary to change the direction of the ribbon movement by a slight pressure on one or the other of the finger pieces 36 the shifting frame is moved and the spring-locked pawls are simultaneously forced respectively in and out of contact with the ratchets on opposite sides of the machine. Further, by each movement of the universal bar, the lever 21 is pressed against the spring 38 and automatically returned,

operating the escapement mechanism. On rearward movement of said lever, the arm 42 is pulled backward and the pivoted arm 51 raised, lifting and guiding the ribbon into operative position through the use of the guide frame 53.

It is to be noted that my device utilizes an improved arrangement of the pivots actuating the ribbon guiding frame, and that improved means are employed for attaching a sectional universal bar, these advantages resulting in a construction capable of being more easily operated, since less resistance is offered the downward movement of the bars, a device more accessible for cleaning, repairing, etc., and a mechanism possessing the positive merit of efficient work produced by marked simplicity of construction.

Having thus described my invention what I claim as new and desire to secure by Letters-Patent, is:—

1. In a type-writer, a universal bar located at the center of the machine, means for operating said bar upon the striking of the keys, outward extending arms carried by said bar, spool-turning means operated by the said outward extending arms, rearward extending arms, spaced apart and carried by the said universal bar, escapement mechanism operated by the said rearward extending arms, a ribbon shifting frame, and means for operating said frame located in the space between the said rearward extending arms,

and connected with the escapement mechanism.

2. In a type-writer, the combination of a universal bar, ribbon spools supported near the sides of the machine, pawls for turning the said spools, and means for throwing one or the other of said pawls into engagement and the other simultaneously out of engagement comprising a transversely arranged sliding rod, downwardly extending arms carried by the said rod, and adjustable contact pins mounted in the said arms and arranged to operate the pawls, whereby a greater or less turning of the spools is secured accordingly as the contact pins are adjusted.

3. In a type-writer, the combination of a platen, a platen-shift rod, an arm loosely mounted on said rod, a lever pivoted to said arm, an escapement-carrying lever, a link connecting the said two levers, a ribbon frame operated by the said lever that is pivoted to the arm on the platen-shift rod, and means for turning the said arm upon the platen-shift rod whenever the platen is shifted.

Signed at New York city this 13th day of December 1906.

GEORGE A. SMITH.

Witnesses:

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C. B. SCHROEDER.