L. R. ROBERTS.

RIBBON MOVEMENT.

APPLICATION FILED AUG. 17, 1917.

1,338,699. **Patented May 4, 1920.**

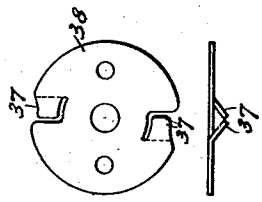


Fig. 4.

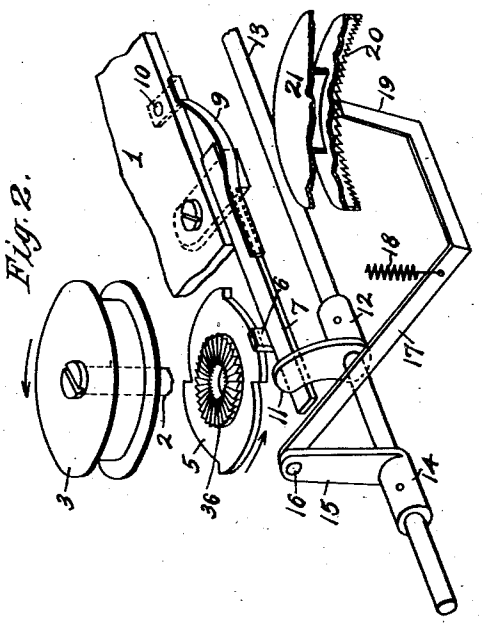


Fig. 2.

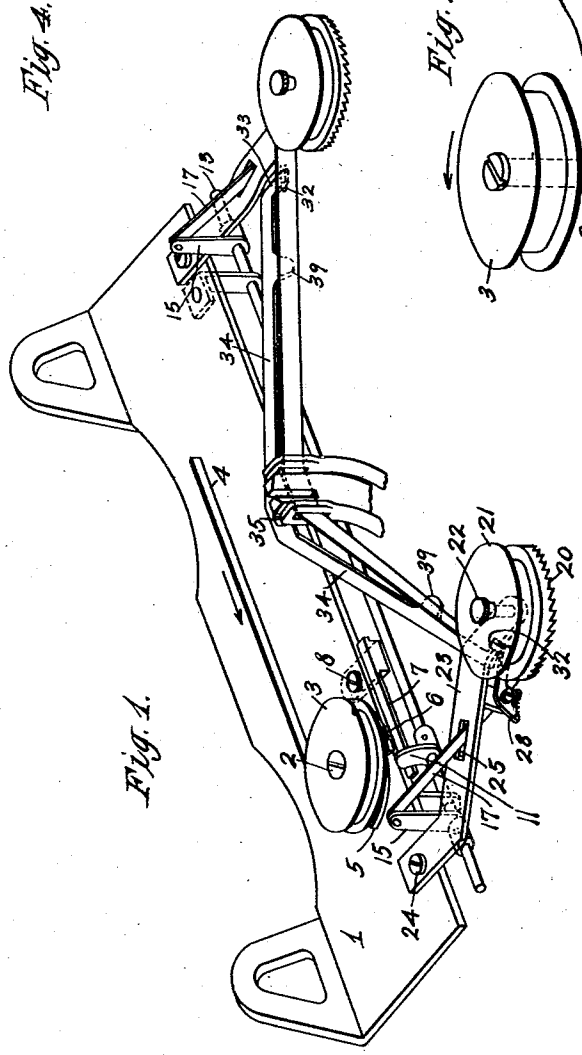


Fig. 1.

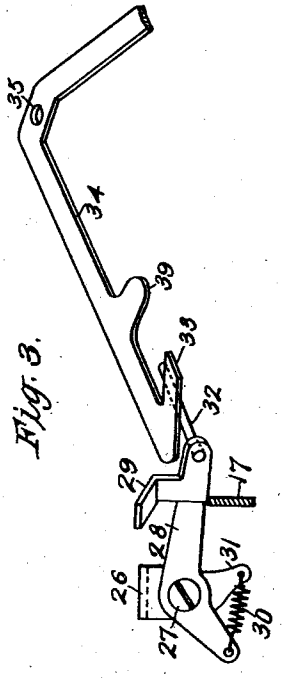


Fig. 3.

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UNITED STATES PATENT OFFICE.

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RIBBON MOVEMENT.

1,338,699. Specification of Letters Patent. Patented May 4, 1920.

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To all whom it may concern:

Be it known that I, LYMAN R. ROBERTS, a citizen of the United States, residing at Rutherford, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Ribbon Movements, of which the following is a specification.

This invention relates to ribbon feed movements for typewriters and has for its primary object to provide an improved construction, combination and arrangement of parts which will not depend upon power from the finger operated key levers, which will be simple in construction and durable and efficient in service. One of the objects of the present invention is to provide improved means for operating the ribbon feed movement directly from the main motor of the typewriter. Other and further objects will appear in the specification and be pointed out in the appended claims, reference being had to the accompanying drawings which exemplify my invention in a preferred embodiment.

In the drawings,—

Figure 1 is a perspective view of a preferred embodiment of my improved ribbon movement;

Fig. 2 is a similar view on an enlarged scale of a portion of the same;

Fig. 3 is a fragmentary detail of the same;

Fig. 4 shows plan and edge views of the cam disk connection for driving the ribbon movement.

Referring more particularly to the drawings, a rigid plate 1 carries a stud 2 which journals a spring motor 3 provided with a spool upon which winds a tape 4 for driving a typewriter carriage. Freely journaled upon the stud 2 is a cam disk 5 (see Fig. 2) which is provided with a plurality of cam lugs which are adapted to operate successively upon a lug or projection 6 carried by a bar 7 which is oscillatably mounted on the plate 1 by means of a stud 8. The bar 7 is acted upon by a leaf spring 9 secured by a rivet 10 to the plate 1. A cam arm 11 has its hub portion 12 keyed to a rock shaft 13 in suitable position to be engaged by the cam bar 7. Also keyed to the rock shaft 13 is a hub 14 of a lever arm 15 to which is pivotally connected at 16 a pawl 17 which is normally drawn upwardly by a spring 18. Said pawl 17 is provided with an upwardly projecting end 19 which is adapted to engage the teeth of a ratchet 20 which is rigid with the ribbon spool 21. The parts numbered 14 to 20 respectively are duplicated on opposite sides of the typewriter, the mechanism being adapted to separately actuate the ribbon spools 21 depending upon the setting of the pawl controlling parts now to be referred to. Each of the spools 21 is journaled upon a pin or stud 22 carried by the outer end of a bracket arm 23 which is riveted at 24 to the plate 1. Intermediately of its ends, the bracket arm 23 is provided with a slot 25 which extends longitudinally thereof and through which extends the shank portion 17 of the ribbon spool operating pawl. The spring 18 tends to draw the pawl 17 against the upper end of the slot 25 in which position when the crank arm 15 is in its rearmost position, and the forward end 19 of the pawl engages the ratchet 20 so that the next forward movement of the rock shaft 13 will impart a movement to the ribbon spool 21. A bracket arm 26 which depends from the bracket arm 23 carries a stud 27 upon which is occillatably mounted a bent lever 28, which carries an offset dog 29 which is adapted to dog the ratchet 20 at such times as the pawl 17, 19 is operating thereon. A spring 30 which connects one end of the lever 28 to a rigid projection 31 of the bracket 26, tends to hold the dog 29 elevated in engagement with the ratchet 20. The pawl 17 extends directly below the dog 29 as shown best in Fig. 3, so that when said dog is in elevated and operating position, the pawl 17 is permitted to be elevated sufficiently by the spring 18 to be brought into engagement with the ratchet 20 during the rearmost portions of its movement. Projecting laterally from the dog 29 is a pin 32 which is adapted to be engaged by the upwardly deflected end 33 of a bent control lever 34 which is pivoted at 35 upon the plate 1. The opposite arms of this lever are so arranged that when the end 33 at one end is moved into position to depress the pin 32 and hence the dog 29 at that end, the dog 29 and pawl 17 at the other end are free to become operative. In the position shown in Fig. 3, however, both the dog 29 and the pawl 17 are depressed out of engagement with the ratchet 20 so that the other reciprocating movements are not affected. The cam disk 5 carries a crown ratchet 36 which is adapted to be engaged by the downwardly deflected portions 37 of a disk 38 which is

interposed between the motor 3 and the cam disk 5. Said portions 37 are therefore adapted to act as pawls in driving the ratchet 36 in one direction, but are free to slide over said ratchet on the return movements of the carriage. The operation of my improved ribbon feed will now be readily understood and briefly described is as follows:

As the cam disk 5 is rotated in the direction shown by the arrow in Fig. 2, the cam bar 7 is periodically oscillated, imparting its movement to the cam arm 11. The movement of the rock shaft 13 thereby reciprocates the pawl 17, 19 and thus feeds the ribbon in one direction or the other, depending upon the conditions referred to above. The control lever 34 may be provided with finger lugs 39 to facilitate its movement manually.

I claim:

1. In a typewriter, a ribbon-feed mechanism including a rock shaft provided with a radial arm, an oscillatory bar engaging said arm, a cam for oscillating said bar, and a motor for operating said cam.

2. In a typewriter, a ribbon-feed mechanism including a rock shaft provided with a radial arm, an oscillatory bar engaging said arm, a cam for oscillating said bar, and a motor for operating said cam, said motor having a ratchet drive connection with said cam.

3. In a typewriter, a pair of ribbon spools, ratchets associated with said spools, pawls for driving said ratchets, a rock shaft for operating said pawls, an arm for oscillating said rock shaft, a bar for swinging said arm, a lug on said bar, a cam disk engaging said lug, a motor, and a driving connection between said motor and said cam disk.

4. In a typewriter, a pair of ribbon spools, ratchets associated with said spools, pawls for drawing said ratchets, a rock shaft for operating said pawls, an arm for oscillating said rock shaft, a bar for swinging said arm, a lug on said bar, a cam disk engaging said lug, a motor, a driving connection between said motor and said cam disk, and means for holding either of said pawls out of operative position.

LYMAN R. ROBERTS.