

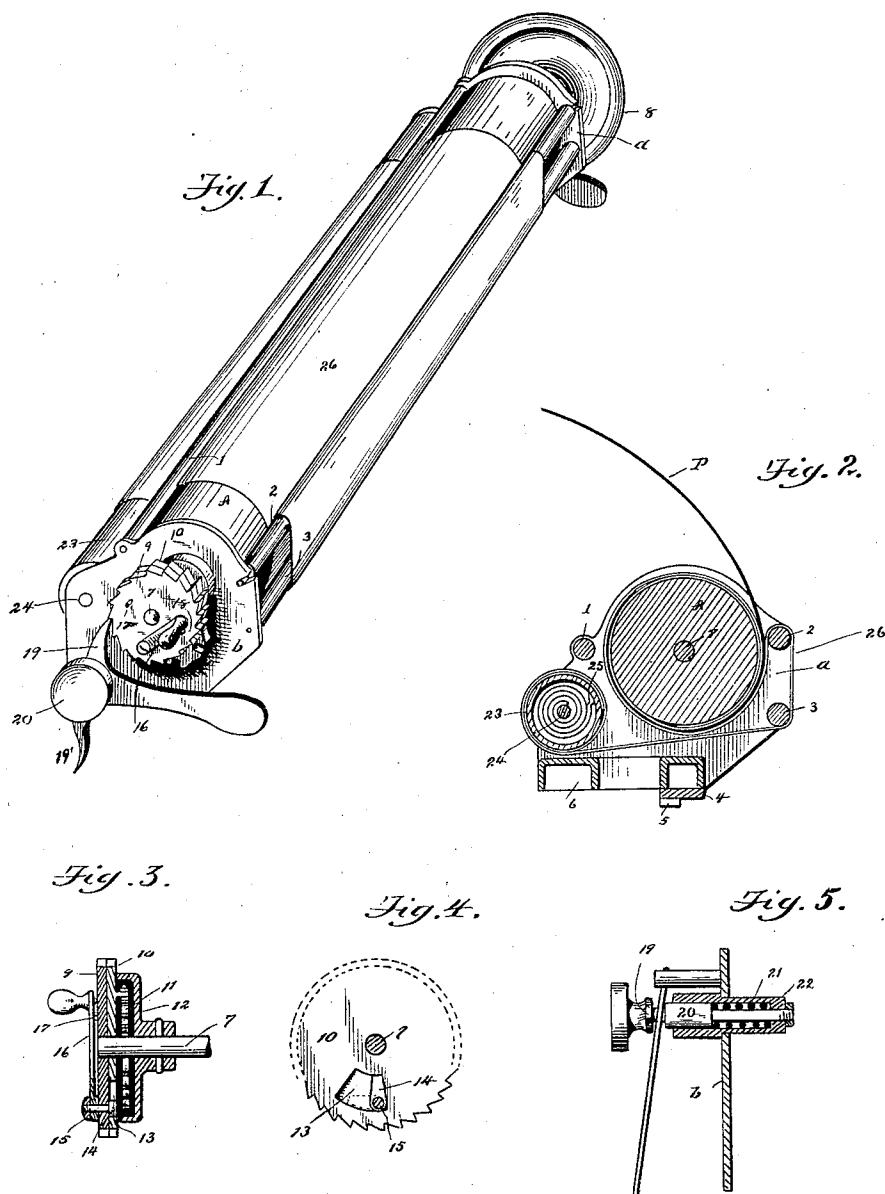
(No Model.)

2 Sheets—Sheet 1.

W. FREDRICK.
CARRIAGE FOR TYPE WRITERS.

No. 579,940.

Patented Mar. 30, 1897.



WITNESSES

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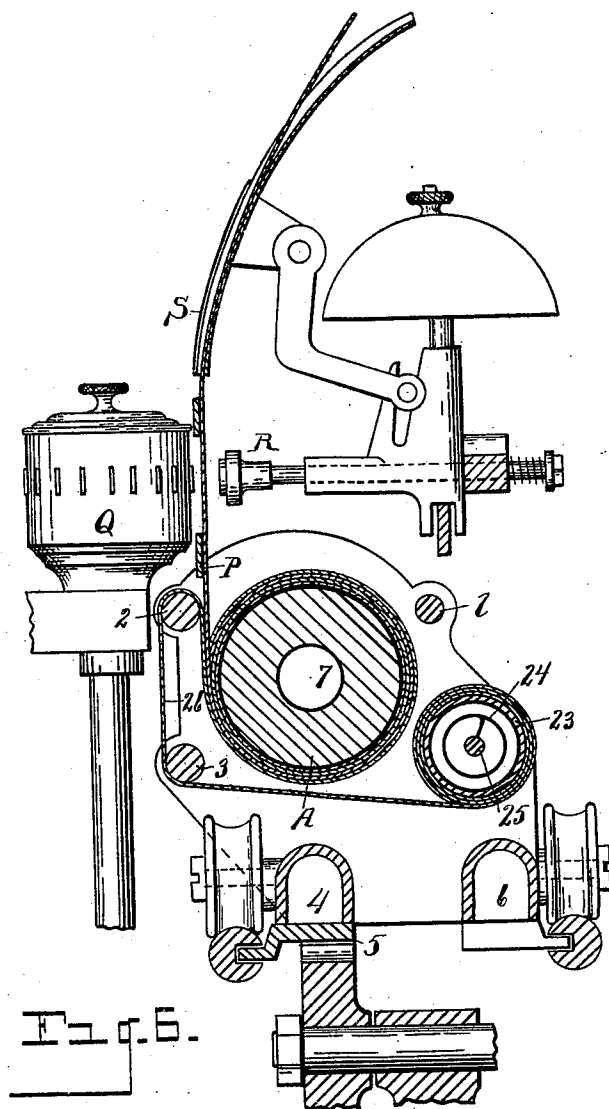
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UNITED STATES PATENT OFFICE.

WILLIAM FREDRICK, OF CLYDE, OHIO, ASSIGNOR TO R. C. FAULCONER,
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CARRIAGE FOR TYPE-WRITERS.

SPECIFICATION forming part of Letters Patent No. 579,940, dated March 30, 1897.

Application filed July 23, 1894. Serial No. 518,293. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM FREDRICK, a citizen of the United States, residing at Clyde, county of Sandusky, State of Ohio, have invented a certain new and useful Improvement in Carriages for Type-Writers; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to type-writers, and has for its object improvements in the carriage of a paper-carrier, by means of which the paper is first placed in the carriage easily and accurately and after having been placed in position is fed up for the successive lines. In this improved device the paper is not fed between two rollers which pinch it or compress it and which frequently in some classes of machines cause one of the sheets of paper to slip over another where two or more sheets of paper are being used with interposed sheets of carbon-paper. A frequent difficulty in machines using the two pinching-rollers arises from the fact that the pinching tension at the one end of the roller is not equal to that at the other end of the rollers, and this results in causing one side of the tape to feed faster than the other side, causing the lines to gradually assume an oblique direction across the paper. The same difficulty is found in machines in which the paper is supported against a single roller by tapes or bands, which, even if they are placed originally in proper tensional adjustment, in the course of time get out of adjustment because one of the bands stretches more than another. These difficulties are all overcome by the improvement shown in the accompanying drawings, in which—

Figure 1 shows the paper-carriage in perspective. Fig. 2 is a cross-section thereof. Fig. 3 is a section along the axis of the shaft of the main roll and indicates the escapement-wheels at the end of the roll. Fig. 4 is an elevation of the inner escapement-wheel and indicates the way in which the spacing is varied. Fig. 5 shows the means for actuating the es-

capement-detent. Fig. 6 is a view partly in vertical section and partly in elevation.

A indicates the main roll, held in the framework B of the carriage. The framework consists of the two end pieces *a b*, the connecting-rods 1, 2, and 3, the connecting-bar 4, on the under side of which is a rack 5, and the connecting channel-bar 6, which is utilized as a guide to direct the carriage across the typewriter. The rack-bar may be varied to suit any one of several machines and does not enter into this invention.

In the center of the roll A is a shaft 7, on one end of which is secured a hand-wheel 8 and on the other end of which is secured the outermost one of two ratchet-wheels 9 10.

On the shaft 7, just inside the ratchet-wheel 9, is loosely mounted the second ratchet-wheel 10, and to a pin projecting inward from its inner face is secured one end of the coiled spring 11, the other end of which is secured to the shaft 7. The spring is covered by a guard 12, that is secured either to the shaft 7, as shown, or to the ratchet-wheel.

Through the wheel 10 is a hole 13, and in this hole turns an eccentric 14, that is mounted on the end of a short shaft 15, and the shaft 15 is journaled in the outer ratchet-wheel 9. To its outer end is secured a short crank or lever handle 16, that is capable of a partial revolution between the stops 17 and 18. The swinging of the crank 16 turns the cam 14 from the position shown in full lines in Fig. 4 to the position shown in dotted lines, for the purpose to be explained hereinafter.

The two wheels 9 10 are both provided with ratchet-teeth and are engaged alternately by a pawl 19, that is mounted on a sliding pin 20. The pin is normally pushed outward by a spring 21, guarded in a barrel 22, that extends through the frame-piece *b*. When pushed outward in its normal position, the pawl 19 is in engagement with the teeth of the ratchet-wheel 9. It is capable of being pushed inward until the point of the pawl 19 passes out of engagement with the teeth of the ratchet-wheel 9 and comes into full engagement with the teeth of the ratchet-wheel 10.

In addition to the main roll A there extends from the frame-piece *a* to the frame-piece *b* a second roll which is hollow and may, perhaps, better be called a "drum" than a "roll."

5 This drum, which is indicated at 23, is hollow, and contains within its interior a coiled spring, one end of which is secured to the shaft 24, and the shaft is secured against rotation to the frame. The other end of the
10 spring 25 is made fast to the interior of the drum. On the exterior of the drum 23 is wound a ribbon or apron, one end of which is secured to the drum and the other end of which passes forward around the rods 3 and
15 2 and is secured to the surface of the roll A. The ribbon 26 should extend lengthwise along the rolls for the greater part of their length, as the paper to be used is wound under the ribbon in the course of the
20 winding of that ribbon on the roll A.

The ribbon wound in the first instance on the drum 23 is wound off from that drum and onto the roll A by turning the hand-wheel 8 in the proper direction, and this operation
25 puts the spring 25 under tension. The reverse winding is prevented from taking place suddenly or completely without cessation by the double ratchet-wheel 9 and 10 and the pawl 19, which permit the intermitting winding
30 in the following way: The ratchet-wheel 10 is permitted to have a small portion of a revolution with respect to the ratchet-wheel 9 and independent of the ratchet-wheel 9, and on the contrary the ratchet-wheel 9 can
35 only have a small portion of a revolution independently of the ratchet-wheel 10. These small independent movements are limited by the size of the hole 13, which in one direction is forced by the spring 11 up against the
40 pin or cam 15 and in the other direction limits the forward movement of the wheel 9 by stopping the pin 15 against the forward wall of the hole 13.

As will be noticed in Fig. 4, the pin 15 is
45 provided with a wing or cam which when turned in one direction allows an independent movement of the one ratchet-wheel on the other equal to the distance of a single tooth. When the wing is turned to the second position
50 the independent movement permitted is equal to two teeth, and the variation is produced by shifting the crank 16 from its position against the stop 18 to a position against the stop 17.

55 The tension on the ribbon produced by the spring 25 holds the ratchet-wheel 9 firmly against the pawl 19. When the pawl is pushed over out of engagement with the ratchet-wheel 9 and into full engagement with the ratchet-wheel 10, the ratchet-wheel 9 and the roll A
60 turn a distance of one or two notches until the further revolution is stopped by the engagement between the pin 15 and the walls of the hole through the ratchet-wheel 10.
65 This rotation of the roll A lifts the sheet of paper P for a new line. Immediately when the pin 20 is released it springs outward, car-

rying with it the pawl 19, which again engages with the ratchet-wheel 9 and leaves the loose ratchet-wheel 10 free to move forward
70 an equal distance with that which has been traversed by the wheel 9. This motion unwinds the spring 11, which had been wound or put under tension by the turning of the shaft 7 and the roll A.

75 The spring 25 must of course be considerably stronger than the spring 11, but it may be an easy spring, as the work which it is called upon to do is comparatively light.

The paper P is carried upward across the
80 printing-point after leaving the roll A adjacent to the type-wheel Q, between it and a reciprocatory hammer R, the paper being guided across the printing-point by a suitable guide S.

85 This style of carriage is especially designed for machines using a type-wheel and hammer, but it may be readily applied to the type-bar class of machines by making the necessary provisions of an anvil over which the
90 paper shall pass at the point of stroke of the type-bars, the application to the various classes of machines being made possible by the great accuracy by which the paper is held and guided, as it, together with the ribbon,
95 rolls and unrolls from the roll A.

The pawl 19 is provided with an oppositely-projecting arm 19', whereby it may be thrown
100 out of engagement with both said ratchet-wheels whenever desired.

What I claim is—

1. In a carriage for type-writers, the combination of a paper-storing roll, a spring-actuated, ribbon-storing drum, a ribbon adapted
105 to wind alternately on the paper-storing roll and the ribbon-storing drum, an escapement mechanism adapted to control the retrieving action of the ribbon-storing drum, and a pivoted eccentric-stop, adapted to be varied in
110 position and thereby to change the relative rotary motion of the parts of the escapement mechanism, substantially as described.

2. An escapement mechanism for regulating the rotary movement of a roll, consisting
115 of two escapement-wheels, a single pawl adapted to engage alternately with each of the said escapement-wheels, means adapted to produce a forward movement of each of said wheels, when not engaged by said pawl, a pivoted eccentric-stop adapted to be disposed in
120 different positions and thereby to regulate the relative rotary motion of said escapement-wheels, substantially as described.

3. In a carriage for type-writers, the combination of a paper-storing roll, a ribbon-storing
125 drum, provided with an interior actuating-spring, a ribbon adapted to wind alternately on said roll and on said drum, and an escapement mechanism adapted to control the retrieving action of the spring-actuated ribbon-storing drum, substantially as set forth.

4. In a carriage for type-writers, the combination of a paper-storing roll, a hollow ribbon-storing drum provided with a shaft, a rib-

bon adapted to wind alternately on the paper-storing roll and on the ribbon-storing drum, a coiled spring within the drum, secured at one end to said shaft, and at the other end to the walls of the drum, to actuate the drum and unwind the ribbon from the paper-storing roll, and means adapted to give to the unwinding movement a step-by-step action, and to change the step length of the movement, substantially as set forth.

5. In a type-writer, a carriage provided with end pieces *a, b*, a main roll *A*, a drum 23 having a tension-spring therewithin, said roll and drum both carried by said carriage, rods connecting said end pieces located in front of the main roll, and an apron 26, all arranged substantially as and in the manner described.

6. In a type-writer, a main roll *A*, provided with a ratchet-wheel 10 loosely mounted on the shaft thereof, constructed with an orifice 13, a spring exerting its tension upon said ratchet-wheel, a ratchet-wheel 9 rigidly

mounted upon said shaft, provided with an eccentric 14, which may be turned in different positions in said orifice, and a movable pawl 19 engageable with either of said ratchet-wheels, substantially as set forth.

7. In a type-writer, a feed-roller provided with ratchet-wheels 9 and 10, a reciprocatory pin or spindle 20, a movable pawl 19 upon said spindle engageable with either of said ratchet-wheels, said ratchet-wheels having a limited movement relatively the one to the other upon the shifting of said pawl, and means whereby the pawl may be thrown out of engagement with both of said ratchet-wheels, substantially as set forth.

In testimony whereof I sign this specification in the presence of two witnesses.

WILLIAM FREDRICK.

Witnesses:

CHARLES F. BURTON,
EFFIE I. CROFT.