E. J. BARKER.

TYPE WRITING MACHINE.

APPLICATION FILED APR. 28, 1915.

1,172,759.

Patented Feb. 22, 1916.

2 SHEETS—SHEET 1.

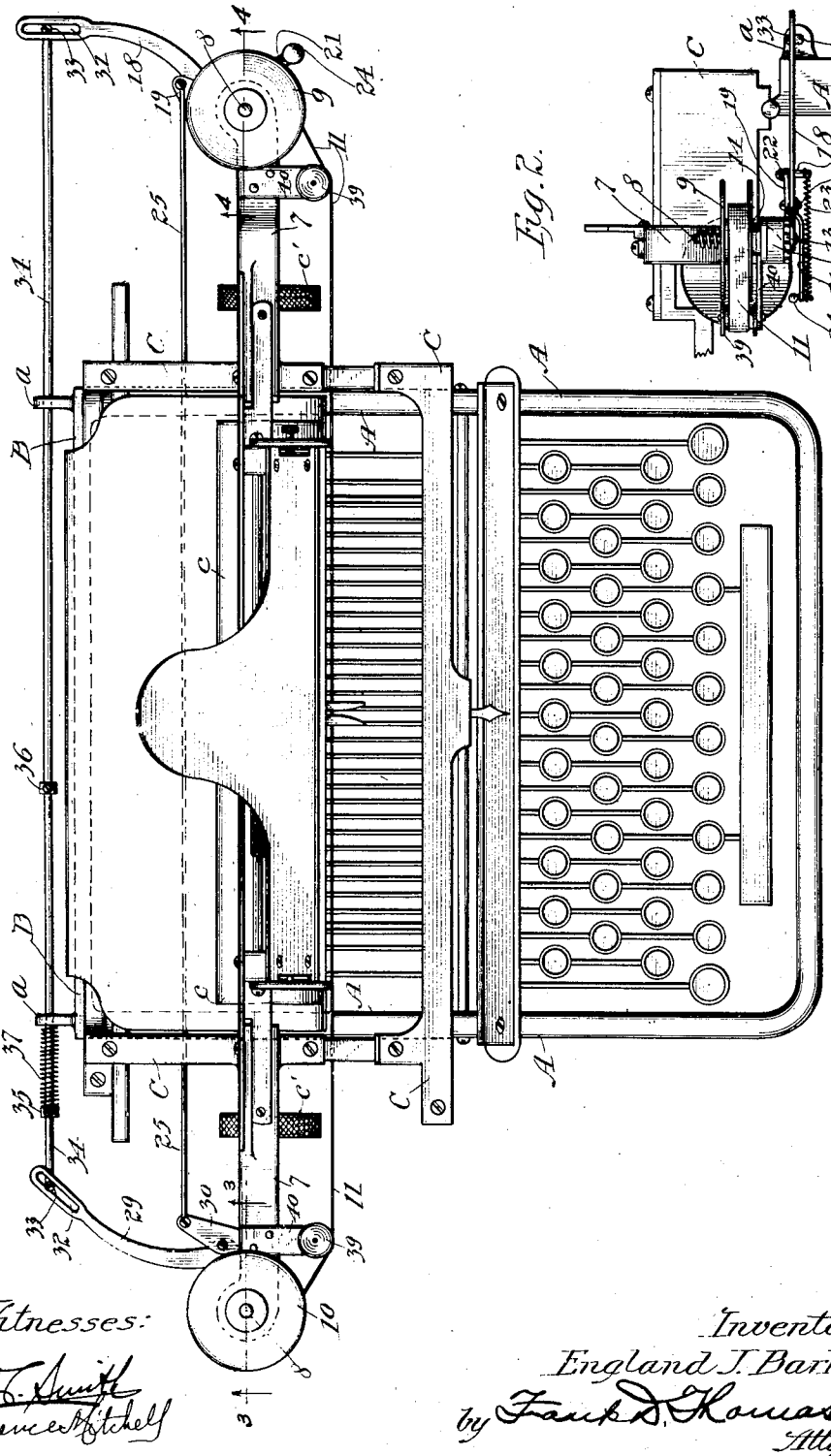


Fig. 1.

Fig. 2.

Witnesses:

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2 SHEETS—SHEET 2.

Fig. 3.

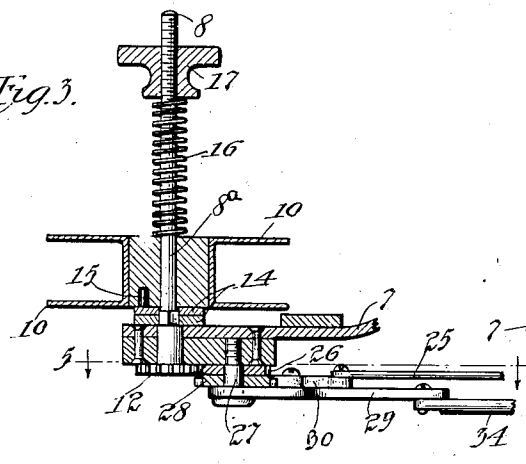


Fig. 4.

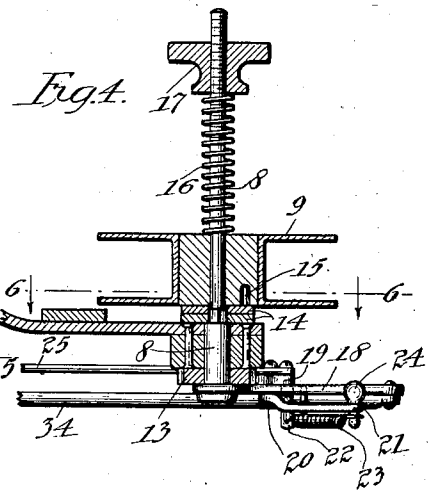


Fig. 7.

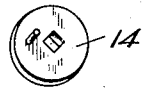
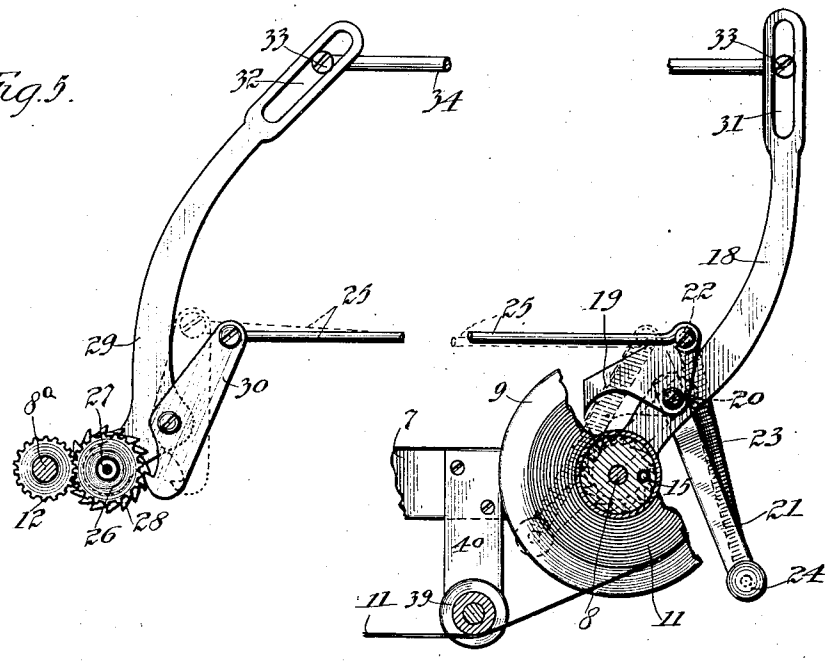


Fig. 6.

Fig. 5.



Witnesses:

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UNITED STATES PATENT OFFICE.

ENGLAND J. BARKER, OF CHICAGO, ILLINOIS.

TYPE-WRITING MACHINE.

1,172,759. Specification of Letters Patent. Patented Feb. 22, 1916.

Application filed April 28, 1915. Serial No. 24,401.

To all whom it may concern:

Be it known that I, ENGLAND J. BARKER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Type-Writing Machines, of which the following is a full, clear, and exact description.

My invention relates to the mechanism for intermittently moving the inking ribbon of typewriting machines as the carriage in which the platen is mounted approaches the limits of its reciprocable throw in a given direction.

My invention more particularly relates to typewriting machines in which the paper, both for the original and carbon copies, is supplied to the platen from continuous rolls, and its principal object is to intermittently turn the ribbon-reels by automatic means supported and movable with the carriage, the operation of which is so easy that the resistance to the movement of said carriage as the mechanism for actuating it comes into play is not appreciable. This and other objects I accomplish by the means hereinafter fully described, and as particularly pointed out in the claims.

In the drawings: Figure 1 is a plan view of a typewriting machine having my improved mechanism applied thereto. Fig. 2 is an end elevation of a fragment of the rear upper portion of the carriage of said machine, and the upper part of the rear standard of the stationary frame of the same upon which said carriage is mounted, disclosing an end view of my improvements. Fig. 3 is a vertical section of a fragmentary portion of the mechanism embodying my improvements, taken on dotted line 3—3, Fig. 1, and drawn to a larger scale. Fig. 4 is a similar view taken on dotted line 4—4, Fig. 1, and drawn to the same scale as Fig. 3. Fig. 5 is a horizontal section taken on dotted line 5—5, Fig. 3, looking in the direction indicated by the arrows. Fig. 6 is a horizontal section taken on dotted line 6—6, Fig. 4, looking in the direction indicated by the arrows. Fig. 7 is a perspective view of a washer used in connection with my improvements.

In the drawings, A represents the stationary frame of a typewriting machine having lugs *a*, *a*, projecting rearwardly from the rear legs or standards thereof, as shown in Fig. 2 of the drawings, or from the ends of a cross-bar B connecting the same, as shown in Fig. 1 of the drawings.

C represents the transversely reciprocable carriage which is suitably mounted upon said frame A, and *c* the rotatable platen whose journals (not shown) have bearings in and extend through the end members of the frame of the carriage and have milled wheels *c'* thereon with which to turn it by hand, when desired.

The end-members of the carriage frame are provided with longitudinally extending brackets 7, 7, which aline with each other and extend horizontally a short distance from said end-members (to which they are secured in any suitable manner) and then bend downward to a horizontal plane just below the lower edge of said end-members, and then extend horizontally a suitable distance. The outer ends of these brackets are provided with bearings for the vertical spindles 8 and 8^a of flanged ribbon-reels 9 and 10, on which a ribbon 11 is wound in such manner that when one reel is winding the ribbon thereon the other reel will unwind the ribbon from the same, and vice-versa. These spindles extend down below their bearings and spindle 8^a of the left hand reel 10 has a suitable pinion 12 secured on its lower extended end, and spindle 8 of the right hand reel 9 has a ratchet 13 secured thereto. Both of these spindles are made square in cross-section immediately above their bearings, and have a couple of disks 14 mounted thereon the upper one of which has a pin 15 projecting upward from its upper face that is adapted to enter a recess made in the lower face of the bosses of reels 9 and 10. The reels derive motion from the spindle through the medium of pins 15, and are held in engagement with the same by the pressure of coil-springs 16 surrounding the upper extended portion of the spindles, the pressure of which is regulated by thumb-nuts 17 screwed onto the upper screw-threaded ends of the same.

Just below ratchet 13 spindle 8 has a lever 18 fulcrumed thereon that projects rearwardly, as shown in the drawings. A short distance from its fulcrum this lever has a pawl 19 pivoted thereto by a pin 20 that has bearings in and extends down through lever 18, and this pin has an arm

21 secured to and projecting forward from its lower end. Pawl 19 is somewhat triangular shaped and has one of its angles extended and shaped to provide a point that engages the teeth of ratchet 13. Its pivotal pin 20 passes through one of its angles and at the other, or rear angle, it has a pin 22 extending vertically through it on the lower end of which one end of a coil-spring 23 is attached that connects it to the lower end of a knob 24, which latter is mounted on the outer end of arm 21 projecting forwardly from the lower end of pivotal pin 20. On the upper end of pin 22 the right-hand end of a connecting-rod 25 is pivotally secured.

Pinion 12 on the lower end of spindle 8^a of the left hand reel 10 is engaged by a suitable gear 26 journaled on the barrel of a stud 27 screwed into and depending from the thickened end of the supporting bracket 7, and this gear has a ratchet 28 secured to its underside and revolves therewith. Below this ratchet the forward end of a lever 29 is fulcrumed upon stud 27, and retained thereon by the head on the lower end of said stud. Lever 29 extends rearwardly from stud 27 and a short distance from its fulcrum it is provided with an elbow to which a pawl 30, mediate its ends, is provided. The forward end of pawl 30 is provided with a hooked point that engages ratchet 28 and its rear extended end is connected by a connecting-rod 25 to the upper end of pin 11 of pawl 19.

The rear end portions of both the levers 18 and 29 are provided with longitudinally extending slots 31 and 32, respectively, and these slots are engaged by studs 33 suitably secured in the ends of and projecting upward from a longitudinally reciprocable bar 34. Bar 34 extends through and slides back and forth in suitable openings in lugs *a* projecting rearwardly from the rear of the stationary supporting frame A of the typewriter and between lever 29 and the nearest lug *a* bar 34 has a collar 35 adjustably secured thereon, and between this collar and the said lug *a* a coil-spring 37 surrounds the bar.

The reel actuating mechanism, hereinbefore described, moves longitudinally back and forth with the carriage, and when the carriage is approaching the limits of its left hand throw, an adjustable stop 36 secured on bar 34 between lugs *a*, *a*, will come in contact with the left hand lug *a* and as the carriage proceeds toward its left hand limit simultaneously moves the levers to the right. The levers will remain in the position to which they are thus moved until the carriage has moved to a position near its right hand throw whereupon stop 36 will engage the right hand lug *a*, and as the carriage continues toward its right hand limit bar 34 will move levers 18 and 29 simultaneously toward the right and pawl 19 will engage ratchet 13 and turn spindle 8 so as to cause the ribbon to wind upon reel 9. When pawl 19 is in position to engage ratchet 13, pawl 30 will be held out of engagement with ratchet 38 by rod 25, and vice-versa.

Supposing pawl 19 to be in engagement with ratchet 13 and it is desired to reverse the movement of the ribbon and wind it on reel 10, arm 21 would have to be moved into the position shown in dotted lines in Fig. 6 of the drawings. By doing this, pawl 19 would be moved independently of lever 18, and pawl 30, through the medium of rod 25 would be brought into engagement with ratchet 28. Under these conditions, when the carriage approaches the right hand limit of its movement and stop 36 engages the right hand lug bar 34 will move the levers, and pawl 30 will, through the medium of ratchet 28 and gear 26, impart such motion to pinion 12 and spindle 8^a as to cause reel 10 to wind the ink ribbon thereon.

The ribbon-reels could be so situated that the ribbon could extend in a straight line from one reel to the other in front of the platen, but I prefer to place the reels so that the forwardmost segments thereof are to the rear of the vertical plane of the forwardmost segment of the platen, substantially as shown in the drawings, and to run the ribbon obliquely forward over the guide-rollers 39, 39, journaled on studs projecting upward from the ends of brackets 40, 40, consisting of flat metal strips whose rear ends are riveted to brackets 7 near the ribbon-reels. Between these guide-rollers 39, 39, the ribbon travels straight and in front of and parallel to the platen.

What I claim as new is:

1. In a typewriting machine, the combination with the transversely reciprocable carriage, the platen mounted thereon, a ribbon-reel carried by and located at each end of said carriage, and vertical spindles on which said reels are respectively mounted, of levers fulcrumed adjacent the lower ends of said spindles, and means for transmitting the motion thereof to said spindles, longitudinally disposed devices connecting said levers, and adjustable devices adapted to engage and actuate said device when said carriage is approaching the end of its reciprocable throw.

2. In a typewriting machine, the combination with the transversely reciprocable carriage, the platen mounted thereon, a ribbon-reel carried by and located at each end of said carriage, and vertical spindles on which said reels are respectively mounted, of levers fulcrumed adjacent the lower ends of said spindles, means including pawls pivotally connected to said levers, and suitable

gearing for transmitting the motion thereof to said spindles, longitudinally disposed devices connecting said levers, and adjustable devices adapted to engage and actuate said device when said carriage is approaching the end of its reciprocable throw.

3. In a typewriting machine, the combination with the transversely reciprocable carriage, the platen mounted thereon, a ribbon-reel carried by and located at each end of said carriage, and vertical spindles on which said reels are respectively mounted, of levers fulcrumed adjacent the lower ends of said spindles, means including connected pawls pivoted to said levers and suitable gearing for transmitting the motion thereof to said spindles, a longitudinally disposed rod connecting said levers, and adjustable devices adapted to engage and actuate said rod when said carriage is approaching the end of its reciprocable throw.

4. In a typewriting machine, the combination with the transversely reciprocable carriage, the platen mounted thereon, a ribbon-reel supported by and located at each end of said carriage, and vertical spindles on which said reels are respectively mounted, of levers having a simultaneous corresponding movement and fulcrumed adjacent to said spindles, and means for transmitting the motion thereof in one direction to said spindles when the carriage is approaching the end of its reciprocable throw in one direction.

5. In a typewriting machine, the combination with the transversely reciprocable carriage, the platen mounted thereon, a ribbon-reel supported by and located at each end of said carriage, and vertical spindles on which said reels are mounted, of levers having a simultaneous corresponding movement and respectively fulcrumed adjacent said spindles, and means including pawls respectively pivoted to said levers and having a simultanous corresponding movement for transmitting movement to said spindles.

6. In a typewriting machine, the combination with the transversely reciprocable carriage, the platen mounted thereon, a ribbon-reel supported by and located at each end of said carriage, and vertical spindles on which said reels are mounted, of levers respectively fulcrumed adjacent said spindles, a rod connecting the outer ends of said levers, and means including pawls respectively pivoted to said levers and having a simultaneous corresponding movement for transmitting movement to said spindles.

7. In a typewriting machine the combination with a stationary supporting frame, the transversely reciprocable carriage, the platen mounted thereon, intermittently rotatable ribbon-reels supported by and located at the ends of said carriage, means carried by said carriage for simultaneously rotating said reels, and elements supported independently by said carriage that engage and are adapted to actuate said means when the carriage approaches the limit of its movement in one direction.

8. In a typewriting machine, the combination with the stationary supporting frame thereof, the transversely reciprocable carriage, the platen mounted thereon, and intermittently rotatable ribbon-reels supported by and located at the ends of said carriage, of levers adapted to actuate said reels, devices connecting the free ends of said levers, and means independent of said carriage that are adapted to engage said devices and to simultaneously move said levers in the same direction.

9. In a typewriting machine, the combination with the stationary supporting-frame thereof, the transversely reciprocable carriage of the same, the platen mounted thereon, and intermittently rotatable ribbon-reels supported by and located at the ends of said carriage, of two levers of the second class, a rod connecting the end portions thereof opposite their fulcrums, a collar thereon, and pawls pivoted thereto between said ends and fulcrums and adapted to actuate said reels; said supporting frame having guide-openings through which said rod slides the margins of which are engaged by said collar.

10. In a typewriting machine, the combination with the stationary supporting frame thereof, the transversely reciprocable carriage of the same, the platen mounted thereon, and intermittently rotatable ribbon-reels supported by and located at the ends of said carriage, of two levers of the second class, a rod connecting the end portions thereof opposite their fulcrums, a collar thereon, and pawls pivoted thereto between said ends and fulcrums and adapted to actuate said reels, a rod connecting said pawls; said supporting frame having guide openings through which said rod slides the margins of which are engaged by said collar.

11. In a typewriting machine the combination with the transversely reciprocable carriage, the platen mounted thereon, a ribbon-reel supported by and located at each end of said carriage, vertical spindles on which said reels are respectively mounted, ratchets for imparting motion to said spindles, levers fulcrumed concentric to the axis of said ratchets and having simultaneous corresponding motion, pawls pivoted to said levers one of which engages the ratchet concentric with the fulcrum of the lever on which it is mounted while the other is out of engagement with its ratchet, and vice versa.

12. In a typewriting machine the combination with the transversely reciprocable carriage, the platen mounted thereon, a rib-

bon-reel supported by and located at each end of said carriage, vertical spindles on which said reels are respectively mounted, ratchets for imparting motion to said spindle, levers fulcrumed concentric to the axis of said ratchets and having simultaneous corresponding motion, pawls pivoted to said levers, and a rod connecting said pawls and when one pawl is in engagement with the ratchet concentric to the fulcrum of the lever to which it is pivoted holds the other pawl out of engagement with the other ratchet.

13. In a typewriting machine, the combination with the transversely reciprocable carriage, the platen mounted thereon, a ribbon-reel supported by and located at each end of said carriage, vertical spindles on which said reels are respectively mounted, ratchets for imparting motion to said spindles, levers fulcrumed concentric to the axis of said ratchets, a rod connecting the ends of said levers opposite their fulcrums, a collar thereon, pawls pivoted to said levers, and a rod connecting said pawls which when one pawl is in engagement with the ratchet concentric to the fulcrum of the lever to which it is pivoted holds the other pawl out of engagement with the other ratchet; said supporting-frame having guide-openings through which said rod slides the margins of which are engaged by said collar.

14. In a typewriting machine, the combination with the transversely reciprocable carriage, the platen mounted thereon, a ribbon-reel supported by and located at each end of said carriage, vertical spindles on which said reels are respectively mounted, and ratchets for imparting motion to said spindles, of levers fulcrumed concentric to the axes of said ratchets, a bar connecting the ends of said levers opposite their fulcrums, a collar thereon, pawls pivoted to said levers, and a rod connecting said pawls of such length that when one pawl is in engagement with its co-acting ratchet the other pawl will be out of engagement with the other ratchet.

15. In a typewriting machine, the combination with the transversely reciprocable carriage, a platen mounted thereon, a ribbon-reel supported by and located at each end of said carriage, and vertical spindles upon which said reels are respectively mounted, or ratchets adapted to impart motion to said spindles, levers having simultaneous corresponding movement, pawls pivotally connected to said levers which when one is in engagement with its ratchet the other will be out of engagement with the ratchet with which it coöperates; one of said pawls being triangular shaped, a rod connecting the angle thereof farthest from said ratchet to the extended end of the other pawl, an arm projecting from the pivotal pin of said triangular pawl, and a spring connecting the outer end of said arm with the angle of said pawl to which said rod is connected.

16. In a typewriting machine the combination with the transversely reciprocable carriage, a platen mounted thereon, a ribbon-reel supported by and located at each end of said carriage, and spindles therefor, of ratchets one of which is securely mounted on one of said spindles, gears to which the other ratchet is attached, a pinion which is securely mounted on the other of said spindles and is engaged by said gear, levers fulcrumed concentric with said ratchets and having simultaneous corresponding movement, pawls pivoted to said levers and engaging said ratchets, and a rod connecting said pawls so that when one is in engagement with its ratchet the other is disengaged from the ratchet it is adapted to actuate.

In witness whereof I have hereunto set my hand and seal this 17th day of April, 1915.

ENGLAND J. BARKER.

Witnesses:
GILBERT J. MILLER,
FRANK D. THOMASON.