No. 812,177. PATENTED FEB. 13, 1906.

E. J. BARKER.

TYPE WRITING MACHINE.

APPLICATION FILED DEC. 19, 1904.

4 SHEETS—SHEET 1.

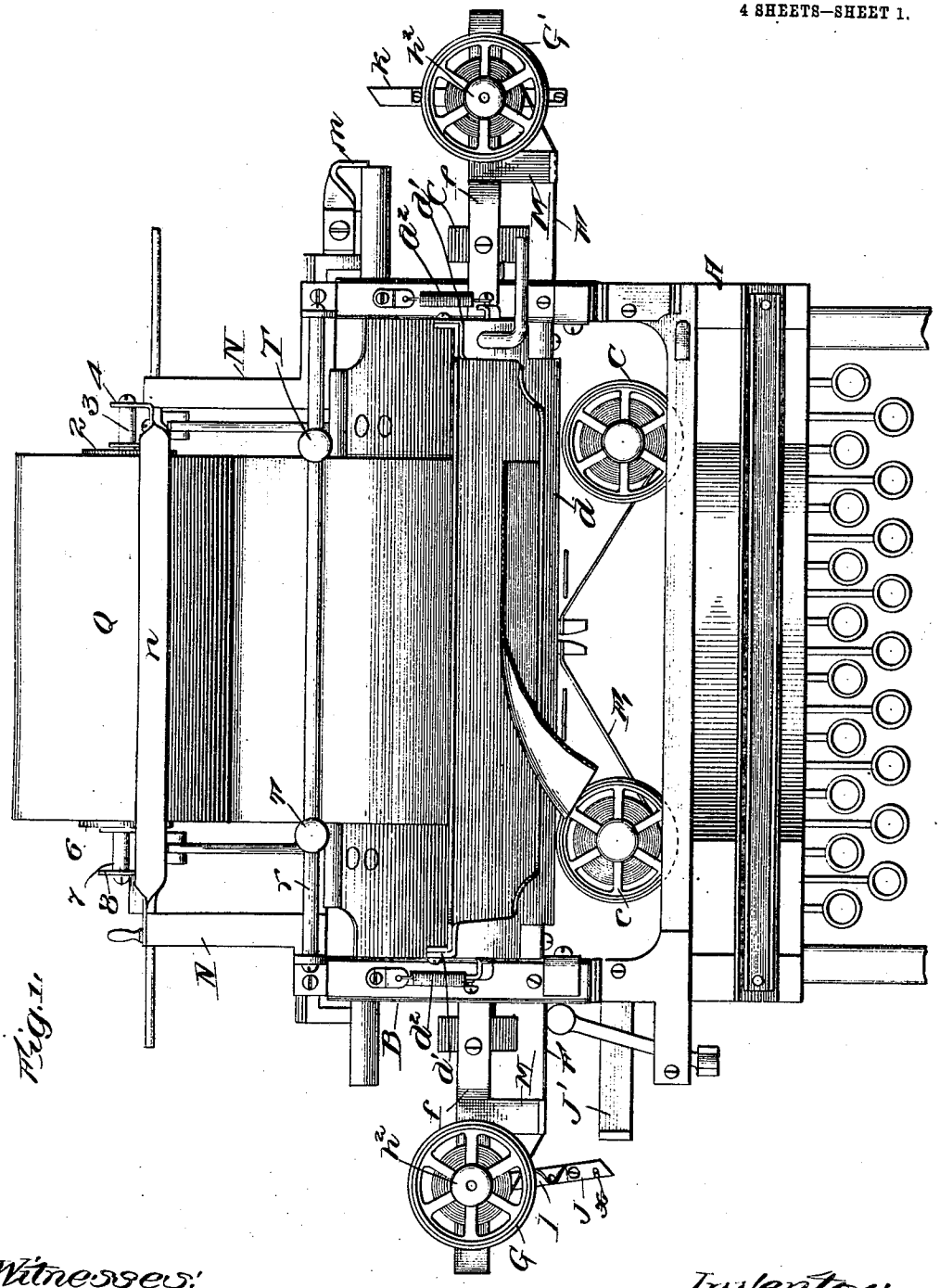


Fig. 1.

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4 SHEETS—SHEET 2.

Fig. 5.

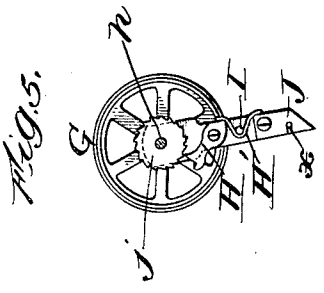


Fig. 6.

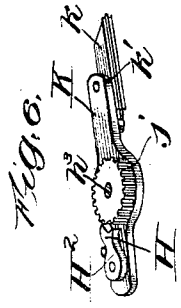
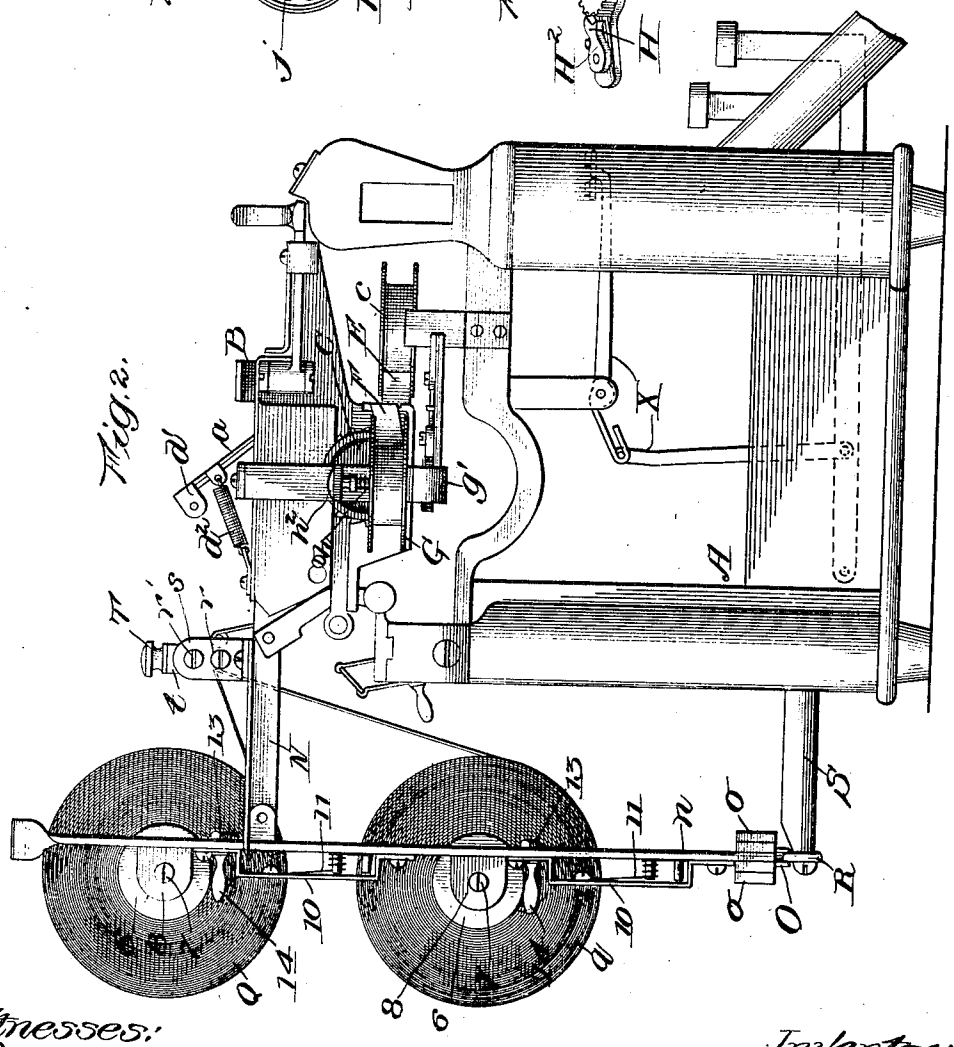


Fig. 2.



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4 SHEETS—SHEET 3.

Fig. 3.

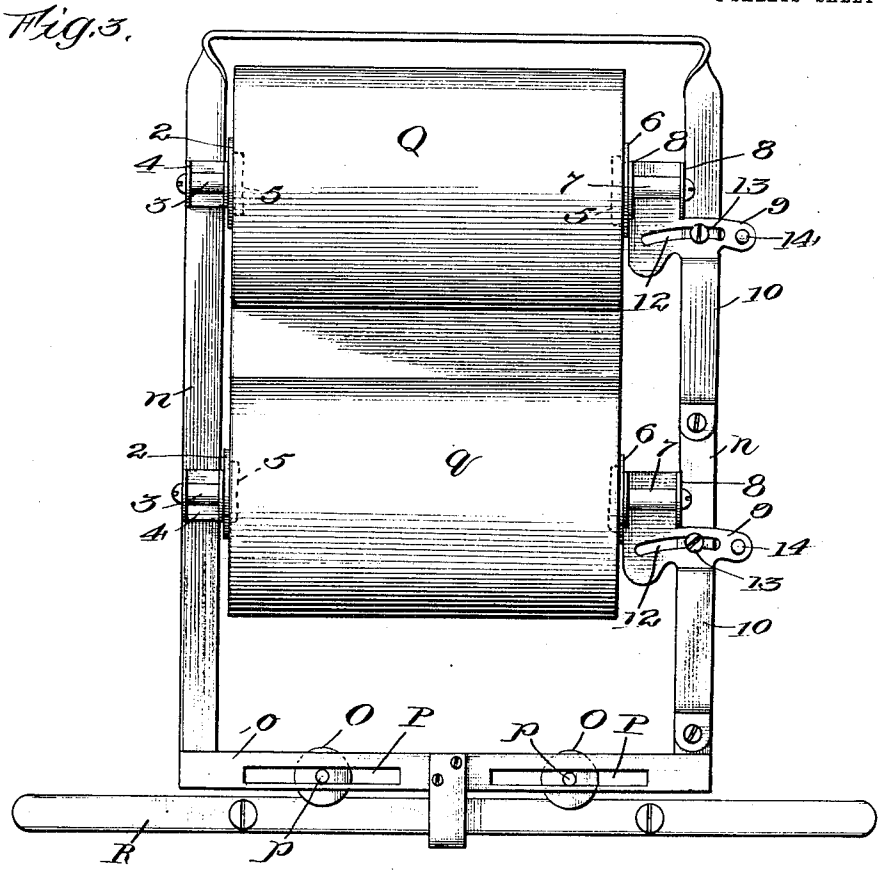
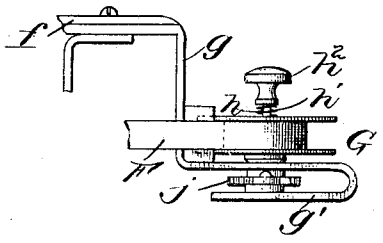


Fig. 4.



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APPLICATION FILED DEC. 19, 1904.

4 SHEETS—SHEET 4.

Fig. 7.

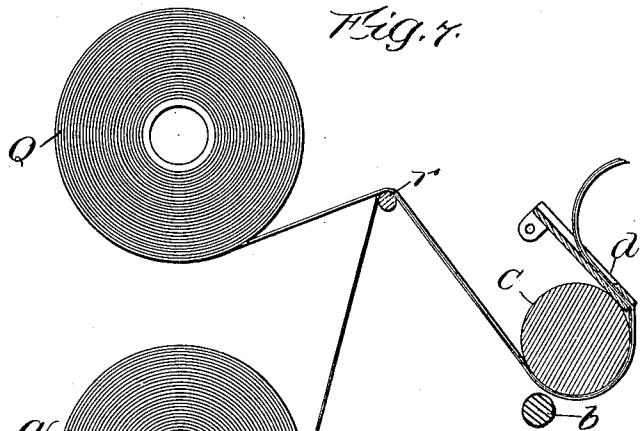
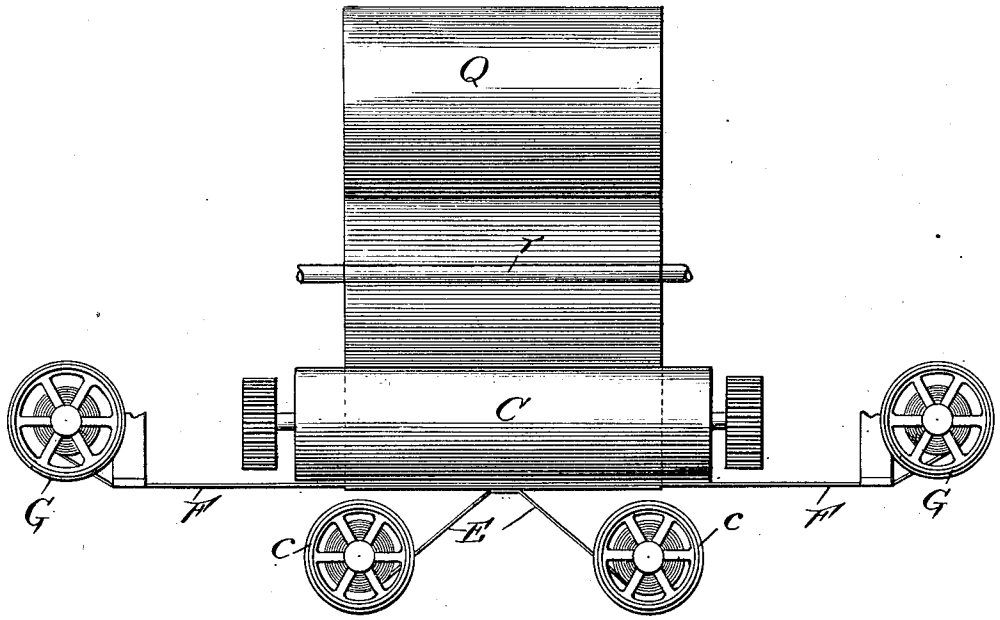


Fig. 8.



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UNITED STATES PATENT OFFICE.

ENGLAND J. BARKER, OF MORGAN PARK, ILLINOIS.

TYPE-WRITING MACHINE.

No. 812,177. Specification of Letters Patent. Patented Feb. 13, 1906.

Application filed December 19, 1904. Serial No. 237,448.

To all whom it may concern:

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

My invention relates more particularly to the paper-feeding devices of a type-writing machine; and its object is to enable the paper to be fed to the printing mechanism thereof from a continuous paper-roll mounted on a suitable reel, which is carried by and moves with the carrier of the machine; and a further object of the invention is to supply the paper for the manifolding of matter printed by the machine in the same manner and to accomplish the registering and alining of both the original and manifolded copies, as well as supplying the carbon-ribbon for manifolding from the mechanism also carried by the carrier of the machine and automatically actuating the said manifold carbon devices at the end of each reciprocation of the said carrier. This 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 well-known and extensively-used type-writing machine with most of the printing mechanism thereof omitted and with my improvements applied thereto. Fig. 2 is a side elevation of the same. Fig. 3 is a rear elevation of the reel-supporting frame of my invention removed from the type-writing machine. Fig. 4 is a detail view of one of the manifolding carbon-ribbon spools and conjunctive devices broken away from the machine. Fig. 5 is a detail view of said spool looking at it from underneath. Fig. 6 is a perspective view of a part of the coöperating mechanism of the spool located at the end of the machine opposite the spool illustrated in Figs. 4 and 5. Figs. 7 and 8 are diagrammatical views showing the manner of threading the paper through the machine.

My invention may be used in connection with any type-writing machine and may either be incorporated as a part of a new machine or applied to an old one. The adoption or application of my improvements does not require any change of the supporting-framework A of the machine nor of the printing devices X thereof, but is attached to and reciprocates with the carrier B of the said machine.

The carrier of most type-writing machines, and particularly that of the machine to which in the drawings my invention is shown to be applied, comprises a rectangular supporting-frame and has an impression-cylinder C journaled in the end bars thereof, around which the paper is passed as it is written upon. This cylinder is provided with suitable stripping or guide plates *a* and roller *b* for retaining the paper against and upon the cylinder, although it will be understood that either or both said guide-plate and roller may be dispensed with without affecting the utility of my improvements. In addition to these features, however, my invention comprises a cutting-blade *d*, which consists of a flat strip of metal of a length corresponding to that of the cylinder, which has pivotal lugs d' d', that are pivoted to the upper corners of the upper straight edge thereof, and it is normally kept in position over the lower portion of the guide-plate *a* (but separated therefrom sufficiently to permit the paper to pass between the two) by means of springs d^2.

The machine is provided with the usual inking devices for making the original impression, which in the type-writer illustrated in the drawings consists of two horizontally-disposed spools *c c*, which are suitably journaled one on one side and the other on the other side of the center of width of the machine between the cylinder C and the front of the machine, and these spools roll up and unroll the inking-ribbon E, which latter extends from said rollers toward the cylinder and contacts with the paper on the latter in a plane midway between the spools. In addition to this ribbon E, I employ a ribbon F for making the manifold impression. This ribbon F extends longitudinally in front of the cylinder in the same plane as ribbon E, where it engages the same, and its ends preferably extend beyond the ends of the carrier-frame and are wound upon the horizontal spools G and G'. Spools G and G' are journaled in suitable brackets made by extending the ends of a longitudinal bar *f*, which preferably extends from one end of the carrier-frame to the other and is suitably fastened to the end rails thereof. These brackets *g* a suitable distance beyond the ends of the carrier are

preferably bent vertically downward a suitable distance and then extend horizontally and have their ends g' bent back under said last-mentioned horizontal portion, forming, as it were, a sort of crook, in the parallel portions of which suitable bearings are provided for the journals of the spindles h of the spools G and G'. The said spools are mounted upon the upper squared portion of said spindles h, extending above the brackets, and are retained in position by means of a spiral spring h', coiled around the spindle above the spool, and a nut h^2, screwed onto the upper screw-threaded end of said spool, so as to compress said springs. One of these spools as the carrier approaches the limit of its movement toward the end of the machine adjacent to which said spool is located is given a slight movement sufficient to shift the manifold-ribbon slightly, so as to present a fresh portion of the same to the action of the type of the machine. I accomplish this intermittent movement of the said spool by means of a suitable ratchet j, which is secured to the spindle h between the parallel portion of the crooked end g', which ratchet is engaged by a suitable pawl H. The pawl H at one end of the machine is pivotally mounted upon a lever I of the second class, and one end of the latter is fulcrumed on the spindle and the other end thereof has a trip J pivoted thereto. This trip J consists of a short strip of metal, preferably of the same width as the lever I, and its unsecured end projects beyond the extremity of said lever and is preferably beveled on one side. Pawl H and trip J are maintained in the normal positions shown in Fig. 5 of the drawings by means of a spring H', and when the carrier is approaching the limit of its movement in the proper direction the straight edge of the trip J will meet the upturned end of an arm J' (the opposite end of which is secured to the supporting-framework A of the machine) and moves independently on its pivot, so as to escape past said arm. When, however, said carrier starts to move in the opposite direction, said trip will engage said arm J' and by means of its engagement with a stop-pin x will not yield independently, but will cause the lever I to move with it, so that the pawl will engage the ratchet j and move the spindle and spool thereon a short distance. When it is desired to move the manifold-ribbon in the opposite direction, the pawl H is disengaged from the ratchet by swinging it away from said ratchet, in which position the spring engages the opposite face of the pawl H, and the movement of the carrier in the opposite direction is utilized to turn the spool G', located at the opposite end of the machine. The spindle h^3 of the spool G' has its ratchet j' engaged by the pawl H^2 at a point diametrically opposite where the pawl H, used in connection with the spindle h, engages the ratchet j. This is necessary in order to reverse the direction of the intermittent movement of the manifold-ribbon. The pawl H^2 is pivotally mounted upon the lever K of the first class, which latter is fulcrumed mediate its ends on the spindle h^3. At the end of the lever K opposite that to which the pawl H^2 is pivoted it is provided with a trip k, which is constructed similar to trip J, hereinbefore referred to, and is kept in a position in which it alines with lever K and projects beyond the extremity of the same by a suitable spring k', substantially as shown in the drawings. When the carrier approaches the limit of its movement toward which the adjacent bracket extends, the end of the trip k engages the laterally-bent extremity of an arm m and moves the lever K on its fulcrum in such direction that the pawl H^2 engages the ratchet j' and moves the spindle h^3 and the spool G', mounted thereon, a slight distance. After the carriage commences to move in the opposite direction the trip k when it strikes against the arm m is free to move on its pivot independently of its lever K and escapes past said arm without affecting said lever.

I do not wish to be confined to the exact construction of the mechanism just described for giving the spindles G and G' an intermittent movement, as it is obvious other mechanism might be employed for this purpose. The ribbon wound on these spools may extend directly therefrom to and longitudinally in front of the cylinder; but I prefer to provide the arms m, which are secured to the bracket and project laterally therefrom and have their outer ends bent vertically to form guides, in front of which the ribbon passes and between which it is maintained in a straight course in front of the cylinder in the proper plane.

Secured to and projecting rearwardly, one from one end of the carrier and the other from the opposite end thereof, are two corresponding bars N, which have their rear ends connected to the upright n of an inverted-U-shaped reel-frame, whose lower ends are secured between the extremities of the longitudinal parallel members o of a suitable truck, which latter is supported by grooved wheels O, that are placed between the said members o and have their journals p extending laterally into horizontally-elongated bearing-slots P in said side members. These slots reduce the friction by permitting the axles of wheels O to carry the weight of the frame and in so doing act in the same manner as ordinary roller-bearings. These wheels travel on a single track R, which is supported by suitable brackets S S, secured to and projecting rearwardly from the lower portion of the supporting-frame A of the machine and are of sufficient length to permit of the travel of the said truck and reel-frame supported thereby back and forth a distance corresponding to the recip-

rocal movement of the carrier and simultaneously therewith.

At a point preferably above the plane of the carrier I journal between the uprights *n* *n* a paper-roll Q, and in a suitable plane below the roll Q, I journal another roll of paper *q*. These rolls of paper supply the machine with the paper to be written upon, and as unwound the paid-out portions extend from said rolls to and between the parallel guide-rods *r r'*, whose ends are suitably secured in standards *s*, secured to and arising from the horizontal bars N at points near where the latter are attached to the carrier of the machine. If desired, guide-blocks *t* may be adjustably mounted on these rods *r r'* to guide and prevent lateral movement of the paper as it passes between them, and these blocks are secured in their adjusted position by set-screws T. From the rods *r r'* the continuous strips of paper extend to and under the impression-cylinder of the machine and then up around and in front of the same in the usual manner. After receiving the type impression the paper passes up between the guide-plates *a* and cutting-blade hereinbefore referred to, and when it is desired to tear off the paper after it has passed around the cylinder all that the operator has to do is to move the portion of the paper upon the above said cutting-blade outward, as shown in Figs. 1 and 7, and then tear it off by bringing it in sharp contact with the upper cutting edge of said blade.

It is desired that the paper-rolls Q and *q* be journaled between the uprights *n* *n* of the truck-frame in such manner as to be easily removed and replaced. This I accomplish by means which are substantially the same for both the rolls, which consists of a centering-disk 2, whose spindle 3 is journaled in the parallel portions of a U-shaped bearing-frame 4, secured to one of the uprights *n*, and whose side opposite said bearings has a concentric circular boss 5 projecting therefrom, which enters the bore of the hollow core upon which the paper is rolled. At the opposite end of the roll I provide a centering-disk 6, which is the same as disk 2, but has its position reversed and has its spindle 7 journaled in parallel bearing-lugs 8, projecting from the contiguous end of a horizontally-disposed segment 9. This segment is made integral with a vertically-disposed arm 10, whose lower end is pivoted to the upright *n*. Arms 10 are kept normally bearing toward the paper-rolls by means of springs 11, one end of which latter is wound upon a stud projecting from the upright *n* back of the outwardly-offset portion of said arms and the other end of which bears against a suitable stud projecting inwardly from the inner surface of the said offset portion. The segment 9 is provided with a segmental slot 12, through which a set-screw 13 is tapped into the upright. By properly manipulating this screw the disk-bearings carried by the arm 10 can be secured, moved to, and maintained at the limit of its movement toward the paper-roll or in any position to which it may be adjusted away from the same. In order to facilitate the handling of this arm 10 and the bearings carried thereby, I have extended the outward end of the segmental portion 9 thereof and have provided the same with a laterally-projecting handle or finger-grasp 14.

What I claim as new is—

1. In a type-writing machine the combination of the carrier and manifold-ribbon spools carried thereby, stationary devices for intermitttently moving said spools, a reel-frame supported independently of but movable with said carrier, and means carried by said reel-frame for supporting a roll of paper.

2. In a type-writing machine the combination of the carrier and manifold-ribbon spools carried thereby, stationary devices for intermittently moving said spools, a reel-frame supported independently of but movable with said carrier, and means carried by said reel-frame for supporting two independent rolls of paper.

3. In a type-writing machine the combination of the carrier, type mechanism, inking devices for making the original impression therefrom, manifold-ribbon spools carried by said carrier, stationary devices for intermittently moving said spools, a reel-frame supported independently of but movable with said carrier, and means carried by said reel-frame for supporting two rolls of paper.

4. In a type-writing machine the combination with the carrier and the ribbon-spools carried thereby, of a reel-frame supported independently of but movable with said carrier, means carried by said reel-frame for removably supporting a roll of paper, consisting of a stationary central boss and an oppositely-disposed pivoted boss normally pressing toward the same.

5. In a type-writing machine the combination with a reciprocal carrier, of a reel-frame supported independently of but movable with said carrier, means carried by said reel-frame for removably supporting a roll of paper, consisting of a stationary central boss and an oppositely-disposed pivoted boss normally pressing toward the same.

6. In a type-writing machine the combination with a reciprocal carrier, of a reel-frame supported independently of but movable with said carrier, means carried by said reel-frame for removably supporting a plurality of independent rolls of paper, said means consisting of a series of stationary central bosses mounted on one side of said frame and a corresponding number of oppositely-disposed pivoted bosses each normally pressing toward the stationary boss on the opposite side of said reel-frame.

7. In a type-writing machine the combination with the carrier, type mechanism, inking devices for making the original impression therefrom, and manifold carbon devices carried by said carrier, of a reel-frame supported independently of but movable with said carrier, means carried by said reel-frame for removably supporting a plurality of independent rolls of paper, said means consisting of a series of stationary central bosses mounted on one side of said frame and a corresponding number of oppositely-disposed pivoted bosses each normally pressing toward the stationary boss on the opposite side of said reel-frame.

8. In a type-writing machine the combination with the carrier and manifold-ribbon spools carried thereby, stationary devices for intermittently moving said spools, a reel-frame supported independently of but movable with said carrier, means carried by said reel-frame for supporting a roll of paper, and bearings in said means in which said roll of paper is removably journaled.

9. In a type-writing machine the combination with the carrier and manifold-ribbon spools carried thereby, stationary devices for intermittently moving said spools, a reel-frame supported independently of but movable with said carrier, means carried by said reel-frame for supporting two independent rolls of paper, and bearings in said means in which said rolls of paper are removably journaled.

10. In a type-writing machine the combination with the carrier, type mechanism, inking devices for making the original impression therefrom, manifold-ribbon spools carried by said carrier, stationary devices for intermittently moving said spools, a reel-frame supported independently of but movable with said carrier, means carried by said reel-frame for supporting two rolls of paper and bearings in said means in which said rolls of paper are removably journaled.

11. In a type-writing machine the combination with the carrier, and manifold-ribbon spools carried thereby, devices for intermittently moving said spools, a reel-frame supported independently of but movable with said carrier, means carried by said reel-frame for removably supporting a roll of paper, consisting of a stationary central boss, and an oppositely-disposed pivoted boss normally pressing toward the same.

12. In a type-writing machine the combination with the carrier and manifold-ribbon spools, carried thereby, devices for intermittently moving said spools, a reel-frame supported independently of but movable with said carrier means carried by said reel-frame for removably supporting a plurality of independent rolls of paper, said means consisting of a series of stationary central bosses mounted on one side of said frame, and a corresponding number of oppositely-disposed pivoted bosses each normally pressing toward a stationary boss on the opposite side of said reel-frame.

13. In a type-writing machine, the combination with a stationary supporting-frame, the reciprocal carrier thereon, and the ink-ribbon spools carried by said carrier, of a truck, reciprocal synchronously with said carrier, a reel-frame supported by said truck and comprising two uprights, a stationary bearing connected to one of said uprights and a movable bearing connected to the other upright, and means for centering a roll of paper comprising centering-bosses mounted on said bearings and arranged opposite each other, one of which is adapted to be moved toward and from the opposite boss.

14. In a type-writing machine, the combination with a stationary supporting-frame, the reciprocal carrier thereon, and the ink-ribbon spools carried by said carrier, of a truck, reciprocal synchronously with said carrier, a reel-frame supported by and connected to said truck and comprising two uprights, a stationary bearing connected to one of said uprights and a movable bearing connected to the other upright, and means for centering a roll of paper comprising centering-bosses mounted on said bearings and arranged opposite each other, one of which is adapted to be moved toward and from the opposite boss.

15. In a type-writing machine, the combination with a stationary supporting-frame, the reciprocal carrier thereon, and the ink-ribbon spools carried by said carrier, of a truck, two uprights secured to and arising from said truck which are connected to said carrier, and means for supporting a roll of paper consisting of a stationary bearing connected to one of said uprights, an arm pivoted to the other of said uprights and bearings connected to and carried by said arm.

16. In a type-writing machine the combination, with the carrier having brackets extending from the ends thereof, manifold-ribbon spools carried thereby, spindles on which said spools are mounted which are journaled in said brackets, and pawl-and-ratchet devices operatively connected to said spindles, of stationary means for actuating said pawl-and-ratchet devices, a reel-frame supported independently of but movable with said carrier, and means carried by said reel-frame for supporting a roll of paper.

17. In a type-writing machine the combination with a carrier having brackets extending from the ends thereof, manifold-ribbon spools carried thereby, spindles on which said spools are mounted which are journaled in said brackets, a ratchet-wheel secured to said spindle, and a lever fulcrumed thereon a pawl pivotally connected to said lever, of stationary means engaged by said levers, a reel-frame supported independently of but mov-

able with said carrier, and means carried by said reel-frame for supporting a roll of paper.

18. The combination with the paper-feed carriage of a type-writing machine; brackets carried thereby having their ends projecting beyond the ends of said carriage; a ribbon-reel mounted on the unsecured ends of said brackets; a ratchet connected to each reel; and disengageable pawls projecting on opposite sides of said brackets and alternately coöperating with said ratchet-disks, whereby the ribbon may be automatically reeled from either of said reels, and coiled upon the other.

In testimony whereof I have hereunto set my hand this 29th day of November, A. D. 1904.

ENGLAND J. BARKER.

Witnesses:

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E. K. LUNDY.