No. 711,070. Patented Oct. 14, 1902.

J. E. POAGE.

RIBBON SHIFTING ATTACHMENT FOR BOOK TYPE WRITERS.

(Application filed Sept. 12, 1901.)

(No Model.) 2 Sheets—Sheet 1.

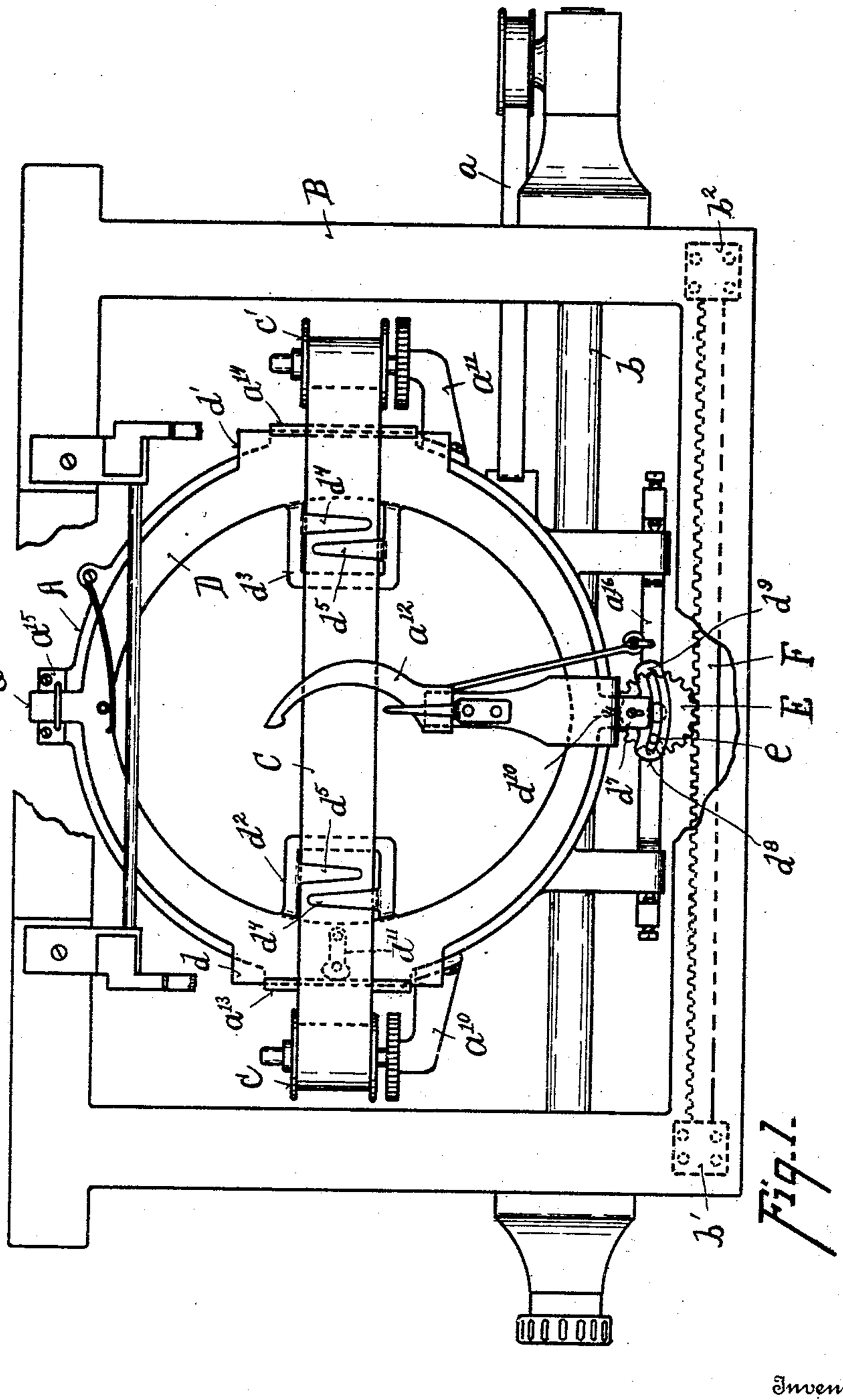

Fig. 1.

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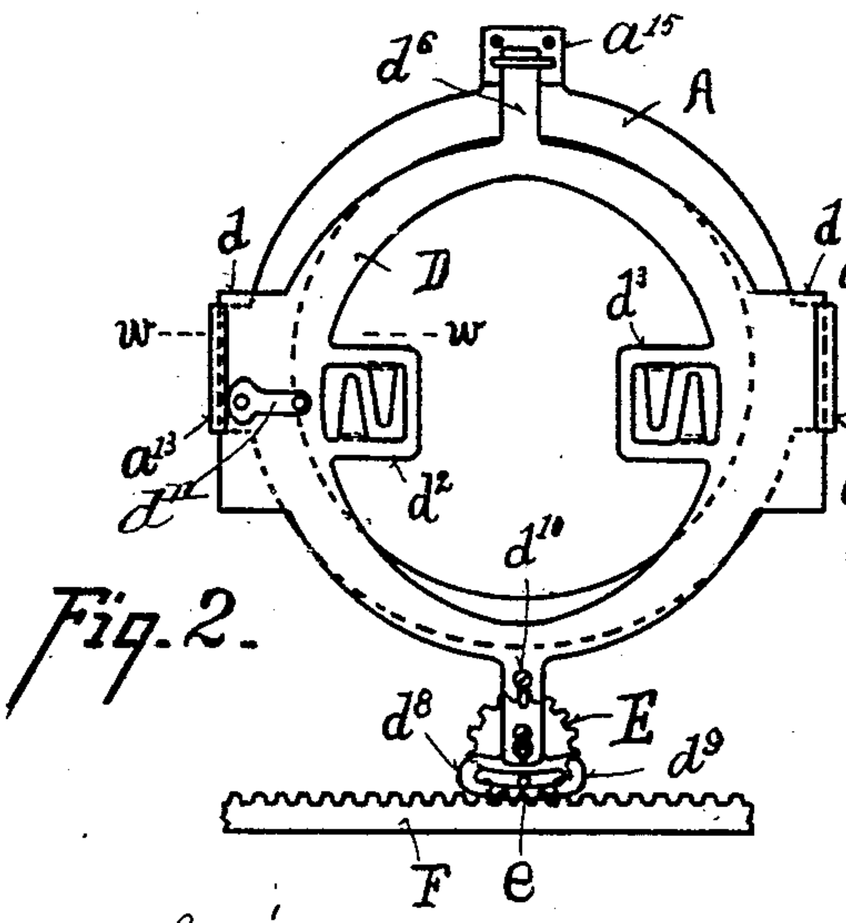

Fig. 2.

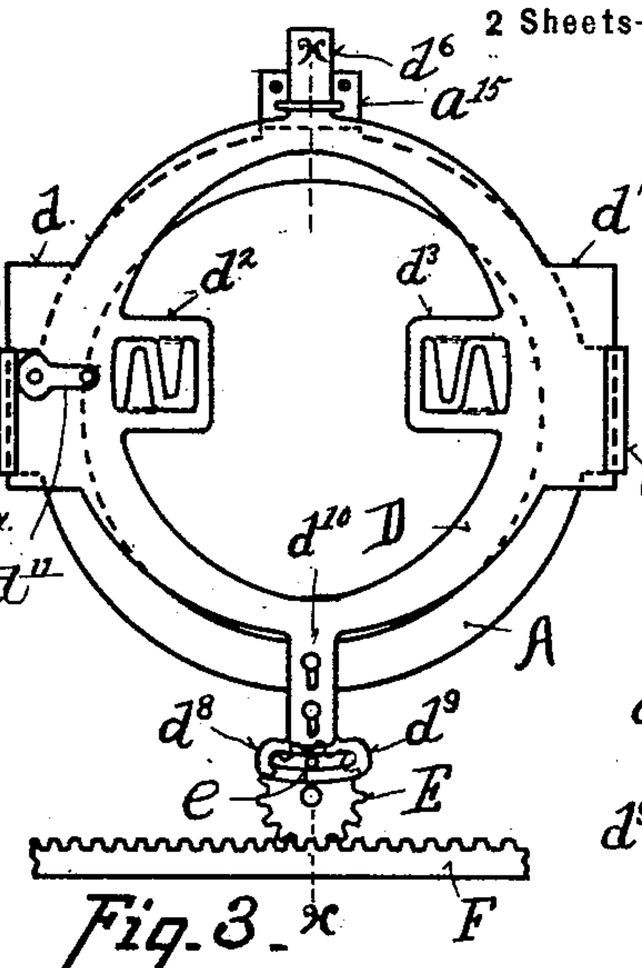

Fig. 3.

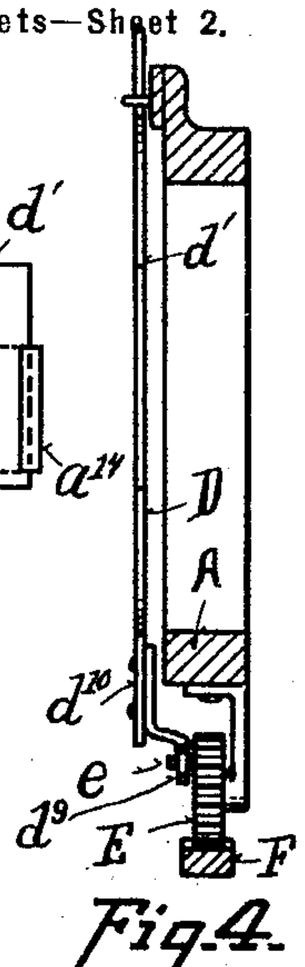

Fig. 4.

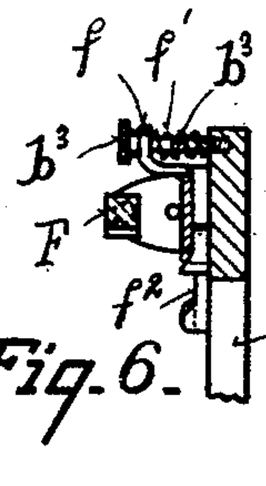

Fig. 6.

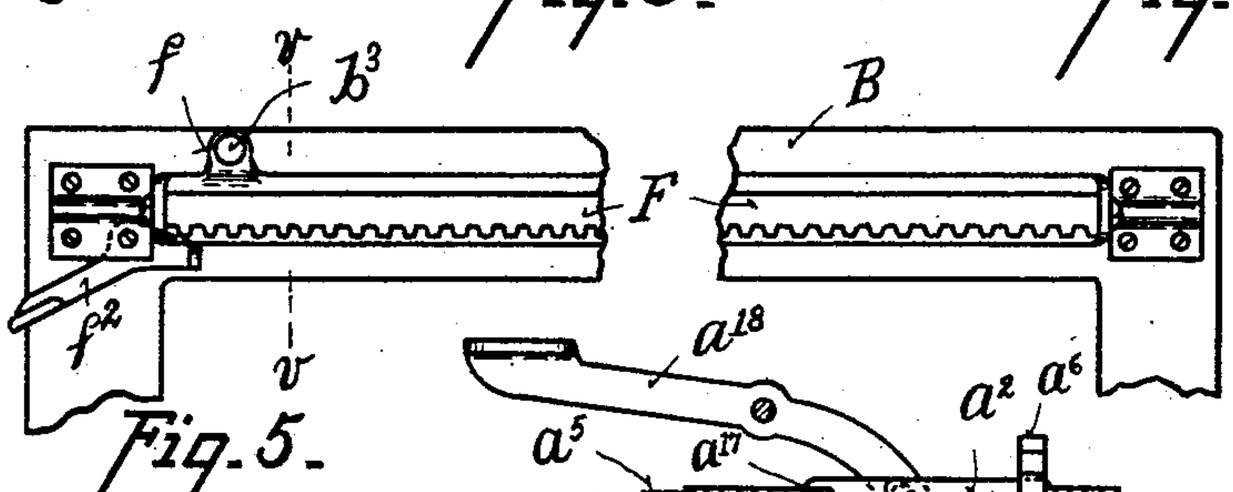

Fig. 5.

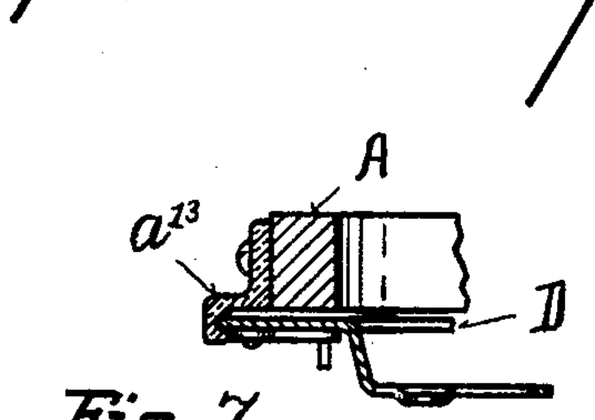

Fig. 7.

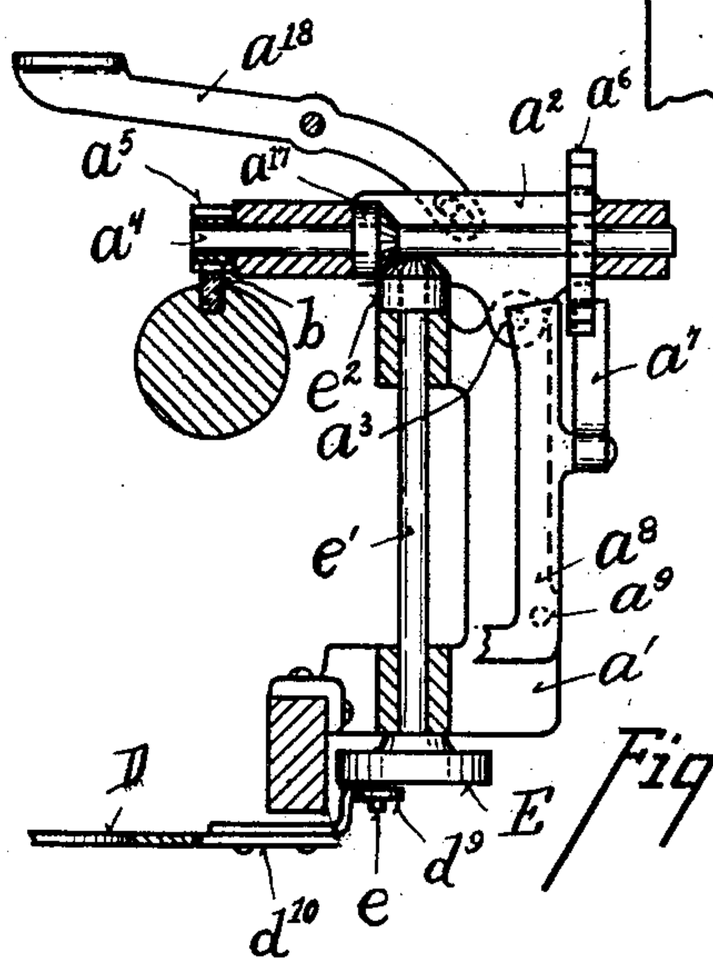

Fig. 8.

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UNITED STATES PATENT OFFICE.

JESSE EDWIN POAGE, OF BROOKVILLE, KENTUCKY.

RIBBON-SHIFTING ATTACHMENT FOR BOOK TYPE-WRITERS.

SPECIFICATION forming part of Letters Patent No. 711,070, dated October 14, 1902.

Application filed September 12, 1901. Serial No. 75,132. (No model.)

To all whom it may concern:

Be it known that I, JESSE EDWIN POAGE, a citizen of the United States of America, and a resident of Brookville, in the county of Bracken and State of Kentucky, have invented certain new and useful Improvements in Ribbon-Shifting Attachments for Book Type-Writers, of which the following is a specification.

The object of my invention is an attachment for book type-writers by which the ribbon while pursuing its longitudinal movement from one spool to the other is shifted transversely, so that the path of contact of the type thereon is zigzag.

In the accompanying drawings, Figure 1 is an inverted plan view of the attachment embodying my invention, only so much of a book type-writer being shown as is necessary to illustrate the mode of mounting my attachment thereon. Figs. 2 and 3 are detail views similar to Fig. 1, upon a reduced scale, showing different positions of the attachment when in use. Fig. 4 is a transverse sectional view taken upon line $x\ x$, Fig. 3. Fig. 5 is a detail view, upon an enlarged scale, of the rack of my attachment. Fig. 6 is a transverse sectional view of the same. Fig. 7 is a detail sectional view taken upon line $w\ w$, Fig. 2. Fig. 8 is a detail sectional view of a modification wherein the longitudinal rack for engaging the wheel which carries the eccentric-pin for actuating the frame which shifts the ribbon is omitted, and in its place said wheel is mounted upon a vertical shaft carrying a bevel-wheel which meshes with a similar wheel which is mounted upon the usual horizontal shaft which carries the pinion that engages the pawl for controlling the step-by-step movement of the carriage.

Referring to the parts, which are indicated by similar reference-letters wherever they occur throughout the various views: In book type-writers carriage A to which the type-levers are attached moves over the surface of the paper which is being written upon. Upon carriage A a constant pull toward the right is exerted by a cable a. Carriage A has a rearwardly-projecting bracket a', Fig. 8, which carries a sleeve a^2 upon a longitudinal shaft a^3, which is secured to the bracket. In sleeve a^2 is journaled a transverse shaft a^4, which carries upon its inner end a pinion a^5, which meshes with a longitudinal rack b, which is secured to a frame B, which carries the longitudinal ways upon which carriage A is reciprocated. Frame B is incapable of any movement along the width of the page that is being written upon, but may be moved down the page from one line to a new one, the mechanism for effecting such movement not being shown because it is that usually employed in machines of this type and has no connection with my invention. Shaft a^4 is normally locked against rotation, thereby locking carriage A from longitudinal movement, by a ratchet-wheel a^6, secured upon its end, which is engaged by a spring-pawl a^7, which is mounted upon the vertical arm of a bell-crank lever a^8, which is mounted upon a fulcrum a^9 in bracket a'. The horizontal arm of lever a^8 is raised by the type-levers which bear the keys when the operator strikes a key, thereby throwing pawl a^7 out of gear with wheel a^6 and allowing cable a to advance the carriage A one step.

When it is desired to return carriage A after it has reached the right-hand limit of its travel, pinion a^5 is raised out of engagement with rack b by pressing down on lever a^{18}, secured to sleeve a^2, thereby rotating shaft a^4 around shaft a^3.

Carriage A has secured upon its sides brackets a^{10} a^{11}, in which are mounted spools $c\ c'$, from one to the other of which ribbon C passes beneath carriage A, said spools being actuated to wind the ribbon in one direction or the other from one to the other continually as the machine is operated. Secured to carriage A and projecting inward across the ribbon is a radial finger a^{12}, which supports the ribbon at the point where the type strike. The parts thus far referred to are those of the well-known book type-writer, and therefore need not be more specifically described.

Upon the sides of carriage A, adjacent to the spools, are mounted brackets a^{13} a^{14}, in which are formed transverse slots, into which fit straight-edged projections $d\ d'$ of a flat cir-

cular frame D. Frame D has upon each side inwardly-projecting brackets d^2 d^3 in alinement with spools c c'. Brackets d^2 d^3 have fingers d^4 d^5 projecting from opposite sides toward each other between which ribbon C slips.

Secured to carriage A half-way between brackets a^{13} and a^{14} is a guide a^{15}, through which projects a finger d^6 upon frame D. Diametrically opposite finger d^6 is a finger d^7, to which is secured a plate d^8, in which is cut an elongated slot d^9. Finger d^7 has slots d^{10}, through which screws pass into plate d^8, so that the frame D may be adjusted transversely. Above finger d^7 to carriage A is secured a bracket a^{16}, upon which is pivoted a toothed wheel E, which has an eccentric-pin e to fit into slot d^9.

Secured to frame B parallel to the path of carriage A and intermeshing with the teeth of wheel E is a rack F, which is journaled at its ends in lugs b' b^2, secured to frame B. Rack F has upon its edge a lug f, (see Fig. 5,) through which a pin b^3 passes into frame B. Upon the pin, beneath the rack, is a coiled spring f', which holds the rack normally in mesh with wheel E. Pivoted to frame B adjacent to the rack F is a bevel-edge lever f^2, by throwing of which the rack may be lifted out of engagement with wheel E.

In use as the carriage moves from left to right along a line of writing wheel E is rotated by rack F and imparts a slow reciprocating motion to frame D transverse to the longitudinal movement of the ribbon from spool to spool, so that the path of contact of the type upon the ribbon is zigzag, thus diffusing the wear over the whole surface instead of concentrating it along a central line, as in the case where the ribbon is not shifted. Rack F is disengaged from wheel E by throwing lever f^2. Should it be desired to cause the path of contact of the type over the ribbon to be along a straight line—as, for instance, along one edge—lever f^2 being left thrown, as aforedescribed, frame D may be locked by means of a lever d^{11}, pivoted to it and having a cam-shaped periphery to bear against bracket a^{13}, so that by rotating the lever the cam may be made to contact the bracket firmly, thereby locking the frame from movement in its ways.

In the modification shown in Fig 8 is a different means of changing the rectilinear motion of the carriage into a rotating one of wheel E. Rack F and bracket a^{16} are omitted. Wheel E is secured upon the lower end of a shaft e', which is journaled in bracket a' and at its upper end carries a bevel-wheel e^2. Upon shaft a^4 is secured a bevel-wheel a^{17}, which meshes with wheel e^2, and as shaft a^4 is rotated by the movement of the carriage transmits the rotation to wheel E, thereby shifting ribbon C transversely, as aforedescribed. When shaft a^4 is raised to return the carriage to the left, wheel a^{17} is lifted likewise out of gear with wheel e^2.

What I claim is—

1. In combination in a book type-writer a reciprocating carriage having ways upon its sides, shafts upon the carriage, ribbon-spools mounted upon the shafts, a movable frame seated in the ways, brackets upon the frame through which the ribbon slips in its movement from spool to spool, and means for transmuting the longitudinal motion of the carriage into a transverse reciprocating motion of the frame, substantially as shown and described.

2. In combination in a book type-writer a reciprocating carriage having ways upon its sides, shafts upon the carriage, ribbon-spools mounted upon the shafts, a movable frame seated in the ways, brackets upon the frame through which the ribbon slips in its movement from spool to spool, a pinion mounted upon the carriage, means for coupling the pinion to the frame, and means for transmuting the rectilinear movement of the carriage into a rotary motion of the pinion to reciprocate the frame, substantially as shown and described.

3. In combination in a book type-writer a reciprocating carriage having ways upon its sides, shafts upon the carriage, ribbon-spools mounted upon the shafts, a movable frame seated in the ways, brackets upon the frame through which the ribbon slips in its movement from spool to spool, a pinion mounted upon the carriage, means for coupling the pinion to the frame, a rod adjacent to the carriage parallel to its path and contacting the pinion to rotate it when the carriage advances, substantially as shown and described.

4. In combination in a book type-writer a reciprocating carriage having ways upon its sides, ribbon-spools mounted upon the sides of its carriage, a frame seated in the ways having an elongated slot therein, brackets upon the frame through which the ribbon in its movement from spool to spool slips, a pinion mounted upon the carriage, an eccentric-pin upon the pinion engaging the slot in the frame and a rack secured adjacent to the carriage parallel to its line of travel and intermeshing with the pinion, substantially as shown and described.

5. In combination in a book type-writer a reciprocating carriage having ways upon its sides, ribbon-spools upon the sides of its carriage, a frame mounted in the ways, brackets upon the frame through which the ribbon slips in its movement from spool to spool, a pinion mounted upon the carriage, means for coupling the frame and the pinion, a rack adjacent to the carriage parallel to its travel and normally intermeshing with the pinion and means for withdrawing the rack from contact with the pinion, substantially as shown and described.

6. In combination in a book type-writer a reciprocating carriage having ways upon its sides, ribbon-spools upon the sides of its carriage, a frame mounted in the ways, brackets upon the frame through which the ribbon slips in its movement from spool to spool, a pinion mounted upon the carriage, means for coupling the frame and the pinion, a rack adjacent to the carriage parallel to its travel and normally intermeshing with the pinion, means for withdrawing the rack from contact with the pinion and means for locking the frame in the ways, substantially as shown and described.

JESSE EDWIN POAGE.

Witnesses:
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W. G. PARSONS.