

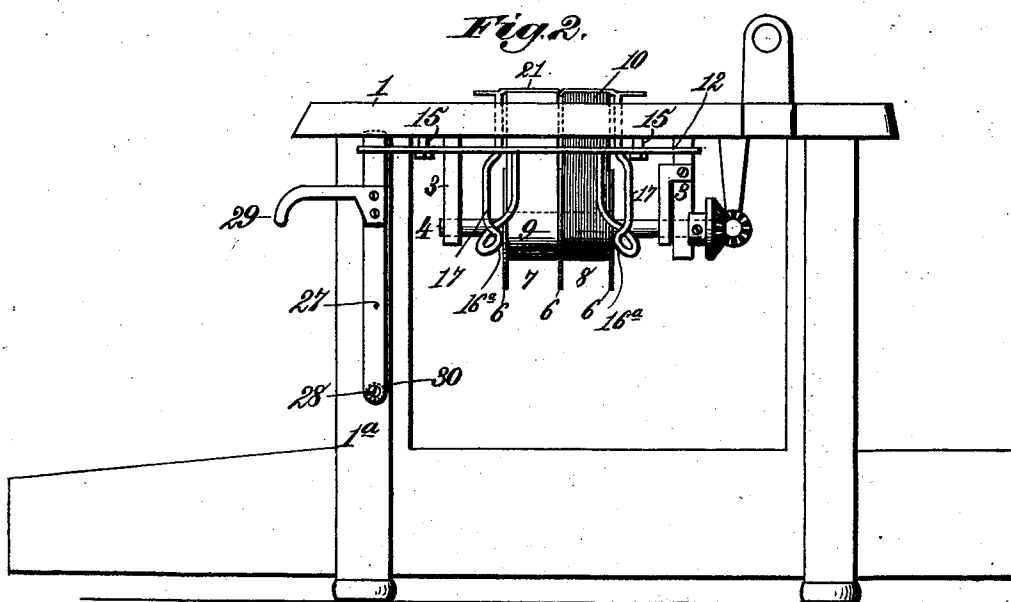
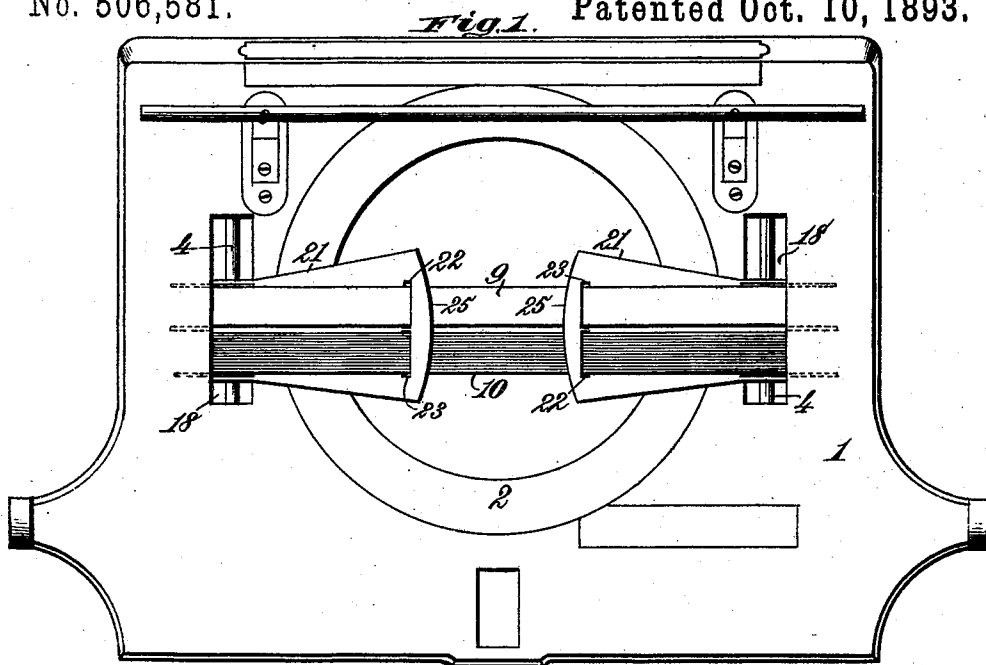
(No Model.)

3 Sheets—Sheet 1.

L. D. BOYCE & J. C. THOMPSON.
RIBBON ATTACHMENT FOR TYPE WRITING MACHINES.

No. 506,581.

Patented Oct. 10, 1893.



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(No Model.)

3 Sheets—Sheet 2.

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Fig. 3.

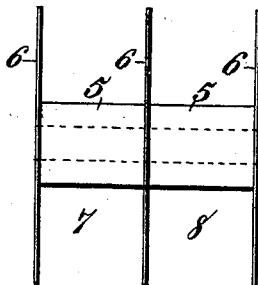


Fig. 4.

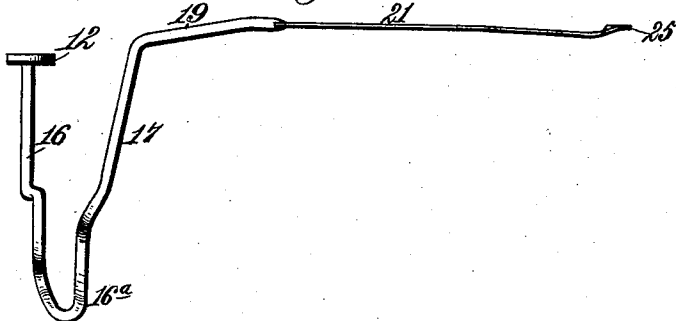
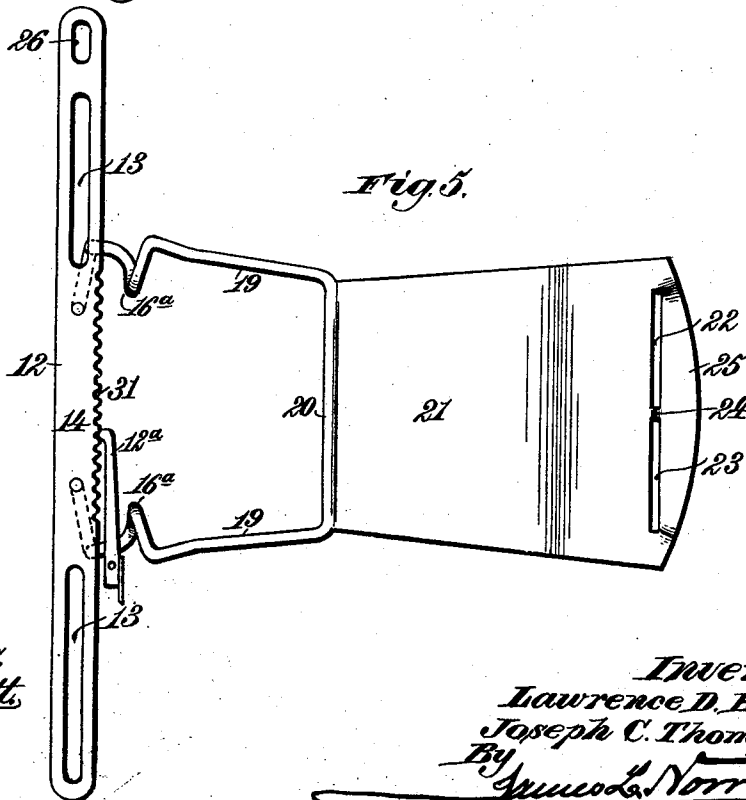


Fig. 5.



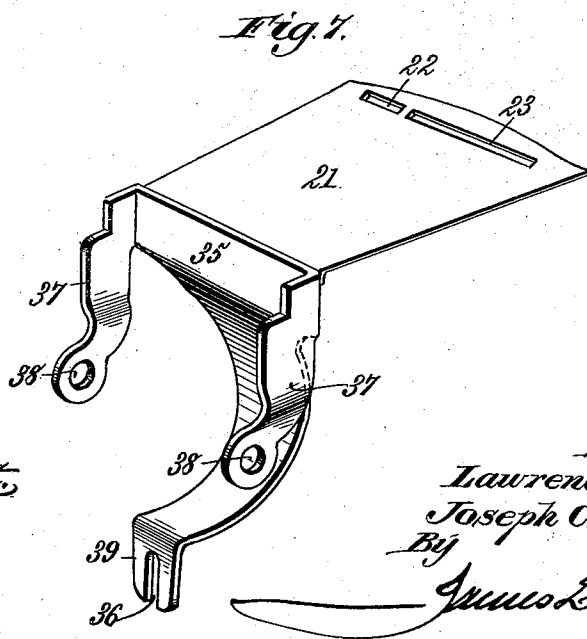
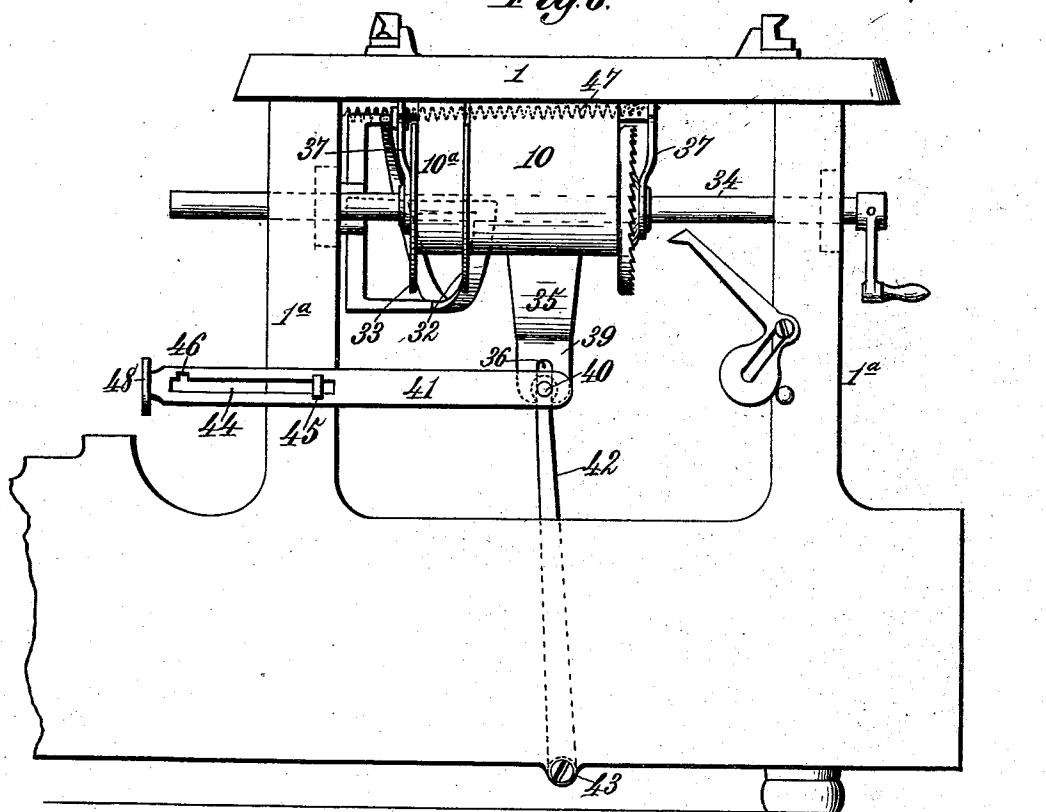
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3 Sheets—Sheet 3.

No. 506,581.

Fig. 6. Patented Oct. 10, 1893.



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UNITED STATES PATENT OFFICE.

LAWRENCE D. BOYCE, OF BUSH RIVER, AND JOSEPH C. THOMPSON, OF
BALTIMORE, MARYLAND.

RIBBON ATTACHMENT FOR TYPE-WRITING MACHINES.

SPECIFICATION forming part of Letters Patent No. 506,581, dated October 10, 1893.

Application filed December 14, 1892. Serial No. 455,142. (No model.)

To all whom it may concern:

Be it known that we, LAWRENCE D. BOYCE, residing at Bush River, in the county of Harford, and JOSEPH C. THOMPSON, residing at Baltimore, Maryland, citizens of the United States, have invented new and useful Improvements in Ribbon Attachments for Type-Writing Machines, of which the following is a specification.

Our invention relates to type-writers, and particularly to that class in which a plurality of ink-ribbons can be employed, each charged with ink of a different color, or character, the ribbon-supports being capable of such adjustment that the ribbon carrying the required ink may be readily brought into proper position for making type-impressions.

It is the purpose of our invention to provide an attachment of this character, capable of being combined with any type-writer wherein the type-bars are arranged in the form of what is ordinarily known as a "type-basket," such, for example, as the Remington and Caligraph machines, the application thereto of said attachment being made without material change and requiring no special skill, time, or labor in applying said attachment. It is our purpose, also, to simplify and improve this class of mechanism, and to provide an efficient ribbon-support and guide, having an extended area and provided with separate slots for the ribbons which are charged, or saturated, with inks of different colors, or qualities, whereby the space within which the type-impressions are made is limited in length and the ribbons are held and guided in their feed-movement without danger of being brought into marginal, or other contact, by which the differently colored inks might be transferred, or absorbed, by either or both ribbons, to such an extent as to seriously impair the brilliancy of the color, or colors, and possibly destroy the distinctive tint entirely.

Our invention consists in the several novel features of construction and new combinations of parts hereinafter fully explained and then particularly pointed out and defined in the claims following this specification.

To enable those skilled in the art to which our said invention pertains to fully under-

stand and to make, construct and use the same, we will now describe the same in detail, reference being had to the accompanying drawings in which—

Figure 1 is a plan-view showing our invention applied to a Remington type-writer. Fig. 2 is an end elevation, of the machine shown in Fig. 1. Fig. 3 is a detail view of the duplex reel shown in Figs. 1 and 2, the ribbons being removed. Fig. 4 is a detail front elevation of one of the reel-adjusting devices. Fig. 5 is a plan view of the same, detached from the machine. Fig. 6 is an end view of part of the frame of a type writer known in the market as the "Smith Premier" machine. Fig. 7 is a perspective view of one of the shifting and ribbon-supporting devices conforming to our invention, with such modifications as are necessary for the special adaptation.

In the said drawings the reference-numeral 1 indicates the upper portion of the frame of the type-writer, within which the type-basket 2 is contained.

As the type-bars, type, and type-impressing devices, as well as the paper-cylinder, the letter-space, and line-feed are all perfectly familiar to those skilled in the art, a description and illustration of said parts is unnecessary for the purposes of the present application.

Depending from the frame 1 at points diametrically opposite each other, or nearly so, are drop-brackets 3 in which are journaled shafts 4, having their axes substantially parallel. Upon these shafts we spline duplex reels, each consisting of a body, 5, preferably formed of wood, and provided with three flanges, or circular plates, 6, of substantially uniform diameter, parallel with each other and concentric with the body 5. Two of these flanges are mounted upon, or near, the extremities of the body 5, and the third is arranged between the end flanges. The body 5 is thus divided into two substantially equal spaces 7 and 8, separated by the central flange 6. In one of these spaces, as 7, is wound a ribbon 9, and in the other, 8, is similarly wound a separate ribbon 10. After crossing the type-basket 2, said ribbons are received by and wound upon a second duplex reel con-

constructed, in all material respects, in the manner already described in connection with the reel shown in Fig. 3. Rotary movement is given to said reels by the mechanism ordinarily used in this class of type-writers. The shafts 4 are of such length that the reels may be adjusted thereon in the direction of the length of the shaft in such manner as to bring either one of the ribbons 7, or 8, into such position that the type-impressions will be made with the ink upon one ribbon, the other being, by the same adjustment, removed entirely from the area within which the type act. The means whereby said ribbons are supported, guided, and prevented from coming in contact, together with the reel-adjusting devices, will now be explained.

Adjacent to the under surface of the upper frame 1 of the machine, and in substantial parallelism with the reel-supporting shafts 4, are arranged narrow bars 12, each provided with longitudinal slots 13, arranged upon opposite sides of an intermediate solid portion 14. Through these slots 13 are inserted screws 15, tapped into the said frame 1, the heads of said screws providing a support for said bars, while the slots 13 permit a longitudinal movement of the same, for a purpose presently to be explained.

From the solid portion 14 of the bar 12, depends a wire 16 the ends of which are rigidly fastened to said bar. From the points of attachment the ends of said wires extend downward a short distance and then toward the front and rear, and then downward, to a point a little below the shaft 4. Said wire is then bent suitably to form angular portions 16^a, which will be closely adjacent to the outer faces of the end-flanges 6. Said wires are then brought upward in front of the bar 12 and at a little distance therefrom, in similar portions 17, which are extended upward through openings 18 in the frame 1, to a point a little above the upper surface of the said frame. Here said wire extends, with an upward inclination, toward the center of the type-basket. At the proper point the said upwardly inclined portions 19 are connected by an integral, transverse portion 20, to which is rigidly attached, by solder or otherwise, a flat, ribbon-supporting and guiding plate 21. This plate lies horizontally, or nearly so, and its end, which projects over the type-basket, is preferably somewhat broader than the end attached to the transverse portion 20 of the wire supporting said plate. The length of the latter is such that its broader end extends about to a point halfway between the center and inner margin of the type-basket. Near the edge of said plate are formed two separate ribbon-slots 22 and 23, separated by an intermediate portion of metal 24. The extreme marginal portion 25 of said plate, is raised, by upwardly inclining those portions which connect the said margin 25 to the main body. The ribbons 7 and 8 are led through said slots 22 and 23, beneath the raised marginal

part 25, and are drawn across the central portion of the type-basket, passed beneath the raised margin 25 of a second and similar supporting-plate, arranged upon the opposite side of the vertical axis of the type-basket, and drawn over the flat surface of said plate. Thence they pass over the transverse portion 20 of the wire support, and are carried downward through the opening 18 in the frame 1, to the reel 5. By this construction both ribbons may be brought closer to the surface of the paper without danger of smutting it, and the ribbons are effectually prevented from contact, either marginal or otherwise, which might easily result in the absorption of ink by one from the other of said ribbons.

In the forward end of the bar 12 is formed a short slot, or opening, 26, in which lies the end of a shifting-lever consisting of a straight bar 27, having its fulcrum 28 at its lower end upon one of the posts 1^a, which support the upper frame 1. From the upper portion of said lever 27 a finger 29 projects toward the front of the type-writer, its end having a curve, or other suitable construction, by which the lever may be operated. By swinging the said lever in either direction, the bar 12 is caused to slide in the direction of its length upon the heads of the supporting screws 15, carrying the ribbon-supporting plates 21 with it and at the same time producing an adjustment of equal extent of the reel 5 upon its shaft 4, by means of the angular portions 16^a of the wire rigidly attached to the slide-bar 12. The length of the adjustment thus made is limited by the length of the slots 13, in the bar 12.

In order that the ribbon-adjustment thus described, may be synchronous upon both sides of the type-basket, the fulcrum 28 of the lever 27, may consist of the end of a rock-shaft 30 journaled in the two front posts 1^a, and extending across the front of the machine, the lever being keyed, or otherwise rigidly mounted, upon the projecting end of the shaft. The lever 27, slide-bar 12, together with its adjuncts, is duplicated upon the other side of the machine, the second lever being connected to the slide-bar 12 in the same manner as the first, and being also keyed upon the end of the rock-shaft 30 whereby the operation of either lever produces a simultaneous operation of the other, also, and to an equal extent. The slide-bars 12 are held, at any point to which they are adjusted, by a spring-latch 12^a, the movable end of which engages a ratch, or series of teeth 31, (see Fig. 5) formed upon the edge of the solid, intermediate portion 14 of each of the slide-bars 12.

In order to illustrate the ease and simplicity of the constructive modifications whereby our invention may be adapted to type-writing machines of other form, we have shown, in Figs. 6 and 7, those parts of the "Smith Premier" machine which are essential to be shown in order to give a clear understanding

of the form, arrangement, and operation of the parts constituting our invention. In the said figures, the reference-numeral 1 indicates, as in the other figures, the upper part of the machine-frame, which is supported upon posts 1^a.

The operative parts of this machine, like those of the Remington, Caligraph, and others, are so well known as to call for no specific description, in this application. Moreover, our invention is not dependent upon any special form of type-impressing mechanism; the sole essential requirement being that the types shall strike successively within a space, or area, lying within the limits of one of the ink-ribbons, when the same is shifted to its operative position.

The machine referred to usually carries an ink-ribbon 10 similar to that shown in Figs. 1 and 2, but of considerably greater width. The method of feeding this ribbon, both longitudinally and laterally, is well known, and plays no part in our invention, and we will therefore make no reference to it.

In order to provide a ribbon carrying ink of a different color, or quality, from that contained in the ordinary ribbon 10, we make an extension, or prolongation, of the ribbon-reel, of such width as to accommodate a comparatively narrow ribbon 10^a, separated from the ribbon 10 by a collar, or flange, 32, and held upon the reel by an end-collar, or flange 33. The reel is carried, or supported, by a reel-shaft 34, having suitable journal-support in boxes upon the posts 1^a, upon each side of the type-basket.

In order to shift the reel, for the purposes of our invention, we provide the ribbon-supporting and guiding plate 21, having the two ribbon-slots 22 and 23, said plate being substantially similar, in all respects, to the ribbon-supporting plate 21, shown in Fig. 5, save in the relative width of the slots 22 and 23. The plate 21, shown in Fig. 7, is mounted upon, or attached, at its narrower end, to the upper edge of a plate 35, which drops, or hangs, a short distance below the point of attachment, and is then curved in such manner as to carry said plate around the inner side of the reel, and beneath the same, at a suitable distance below the said reel, at which point the extremity of said plate, which is diminished to a suitable width, is turned straight downward, or substantially so, and provided with a vertical slot 36, preferably open at its lower end for a purpose presently to be explained.

Upon each side of the plate 35, at its broadest end is formed a bracket-plate 37, turned at right angles, or nearly so, to the plate 35. These plates 37 hang downward and, at their lower ends are brought slightly toward each other, openings 38 being formed in each to receive the reel-shaft 34. The ends containing said openings lie against, or closely adjacent to, the ends of the ribbon-reel, as shown in Fig. 6.

To the lower end 39 of the curved plate 35, is attached, by a pivotal connection 40, lying in the slot 36, the end of a shifting-bar 41, which is supported, and the pivotal connection maintained, by a swinging bar 42, connected at its upper end to the same pivot 40 and at its lower end supported upon a pivot-pin 43. The shifting-bar 41 is provided with a longitudinal slot 44, through which passes a supporting stud, or pin, 45, rigidly fixed in the front post 1^a and provided with a cross-head by which the shifting-bar is held in engagement with said stud. In the forward end of the slot 44, a notch 46 is formed, capable of engaging the stud 45, when the bar is pushed to the rear, whereby the ribbon-reel is held against the tension of the spring 47. A button 48 is mounted upon the shifting-bar 41 to facilitate its operation.

The inking-ribbon, proper, is fed both laterally and longitudinally in this class of typewriters, and the lateral, or transverse feed of the said ribbon is substantially equal to its width, during each line of type-impressions. Our invention does not, in any respect, interfere with this feed, but when the colored ribbon 10^a is to be used, the shifting-bar 41 is operated by pushing it toward the rear until the notch 46 at the forward end of its slot 44 engages the stud 45. By this movement the reel carrying the two ribbons is moved toward the rear far enough to bring the narrow ribbon 10^a into the line of type-impressions. By the engagement of the notch 46 and stud 45 the transverse movement of the spool is prevented and the type are compelled to make impact upon the longitudinal line of the colored ribbon 10^a. As the ribbon 10 is of the ordinary width used in these machines, and inasmuch as the space-feed and the transverse ribbon-feed combined therewith are so graduated that the latter shall cover no more than the width of the ordinary ribbon 10, there is no danger of the colored ribbon 10^a being brought within reach of the type.

Having thus described our invention, what we claim, and desire to secure by Letters Patent of the United States, is—

1. In a type-writer, the combination with parallel shafts upon opposite sides of the type-basket, of duplex ribbon-reels splined and movable upon said shafts, slide-bars arranged in substantial parallelism with said shafts and capable of a longitudinal adjustment, wires depending from said slide-bars and bent to form angular portions lying adjacent to the outer faces of the end-flanges of said reels, and thence rising through and above the upper frame of the machine, flat ribbon-supporting plates rigidly attached to a transverse portion of said wire and projecting to points upon opposite sides of the center of the type-basket between said center and the inner margin thereof, the adjacent ends of said plates being provided with transverse slots, separate from each other, separate ink-ribbons drawn over the flat surfaces of

said plates, through said slots and beneath the raised margins, or ends, of said plates, and means for adjusting the slide-bars, in opposite directions, substantially as described.

- 5 2. In a type-writer, the combination with parallel shafts arranged upon opposite sides of the type-basket, of duplex reels turning with and adjustable longitudinally upon said shafts, slide-bars having slots to receive
10 screws tapped into the lower surface of the upper frame and supporting said slide-bars by their heads, flat ribbon-supporting and guiding plates rigidly connected to said bars by wires dropping below and having parts
15 adjacent to the ends of the reels, their ends being turned upward and rigidly connected to said slide-bars, a plurality of ink-ribbons carried from the separate divisions of one of the duplex reels over the flat upper faces of
20 the ribbon-supporting plates through separate slots formed in the adjacent ends thereof and beneath the raised marginal parts, or ends of said plates which are projected to points between the center and the opposite
25 sides of the type-basket, said ribbons being thence brought down to the other duplex reel, and a lever having its lower end fulcrumed and its upper end lying in a slot in the end of one of the slide-bars, substantially
30 as described.

3. In a type-writer an attachment for carrying, guiding and shifting a plurality of ink-ribbons charged with inks of different color,

or quality, the same consisting of a flat, prolonged plate, rigidly connected at one end to a wire rising somewhat above the upper frame, and its other end provided with separate ribbon-slots, and a raised margin, or end, which lies between the center and side of the type-basket, a slide-bar attachable to and adjustable longitudinally upon the upper frame and forming a support for the ends of the wire supporting the ribbon-plate, said wire being bent at, or near, each angle of said plate, laterally and downward, and thence bent vertically to lie next the ends of a duplex ribbon-reel and carried upward to be attached at its ends to the slide-bar, substantially as described.

4. In a type-writer, a ribbon-supporting and guiding plate, extending horizontally from a point above the duplex ribbon-reel to a point near the center of the type-basket, its end being provided with two separate slots for two separate ribbons carrying different inks, said plate being mounted at its outer end upon a support moving with the duplex ribbon-reel, substantially as described.

In testimony whereof we have hereunto set our hands and affixed our seals in presence of two subscribing witnesses.

LAWRENCE D. BOYCE. [L. S.]
JOSEPH C. THOMPSON. [L. S.]

Witnesses:

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