C. E. SMITH.

TYPE WRITING MACHINE.

APPLICATION FILED JAN. 16, 1912.

1,021,382.

Patented Mar. 26, 1912.

2 SHEETS—SHEET 1.

FIG. 1.

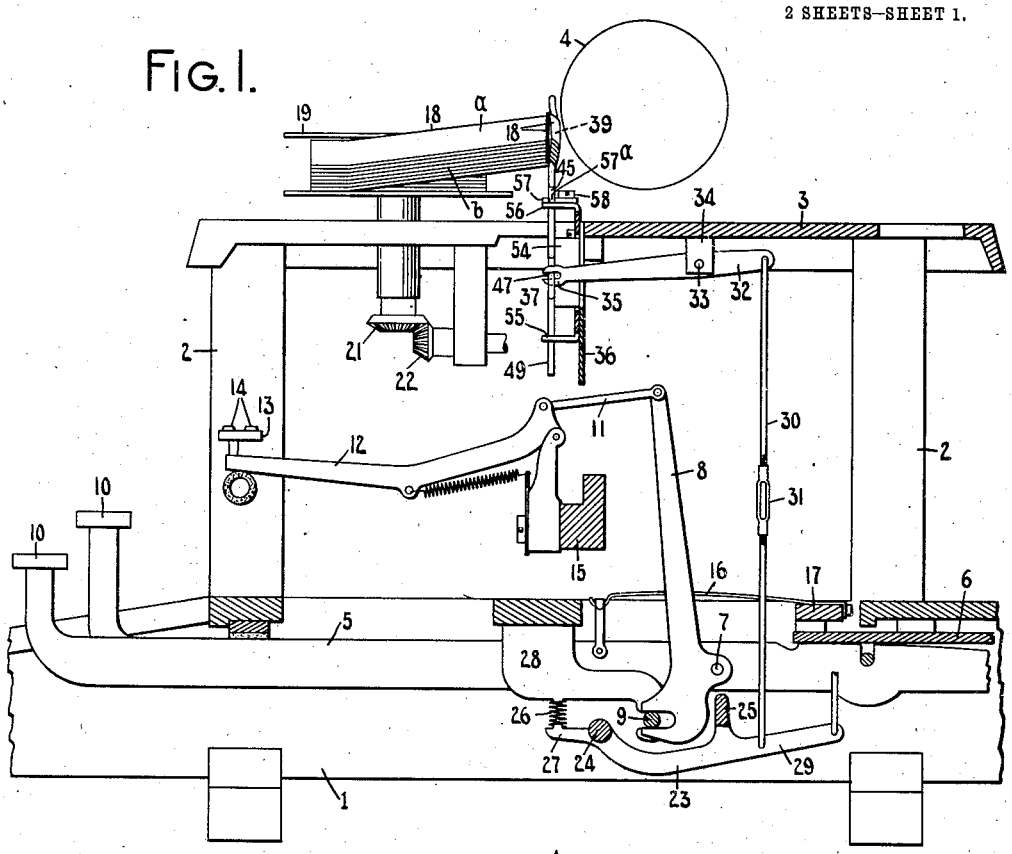
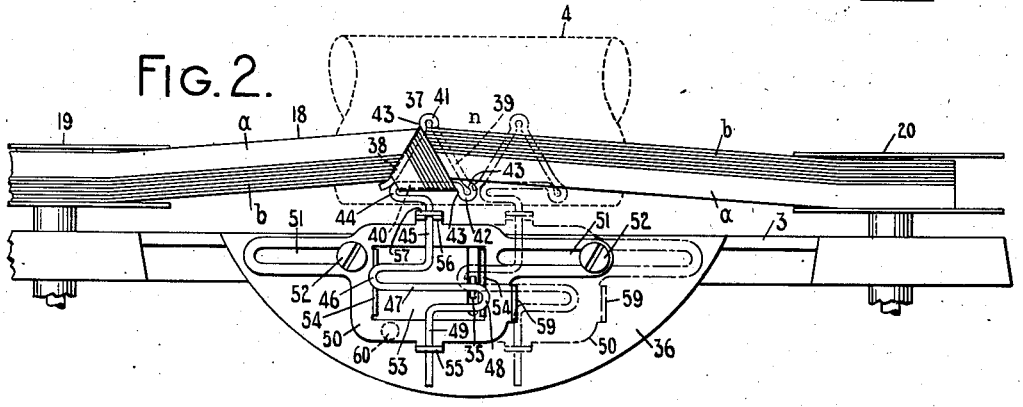


FIG. 2.

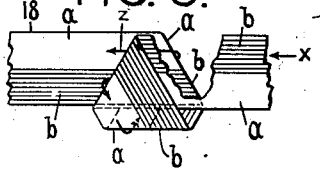


WITNESSES:

E. M. Wells.

L. Nelson.

FIG. 3.



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By James Telbel

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2 SHEETS—SHEET 2.

FIG. 4.

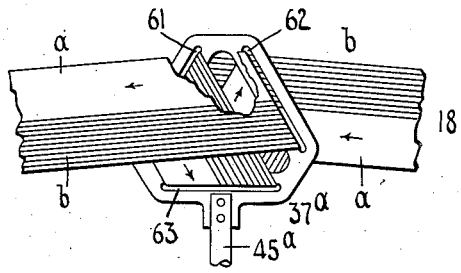


FIG. 5.

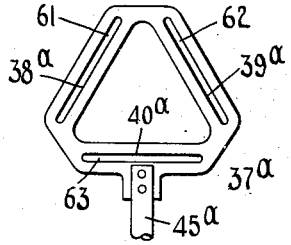


FIG. 6.

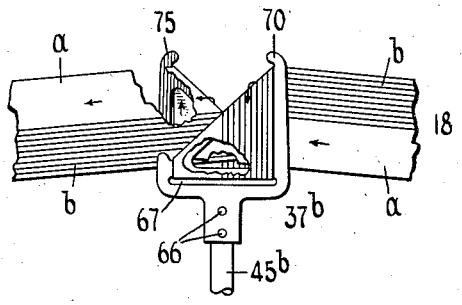
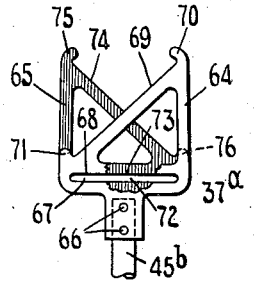


FIG. 7.



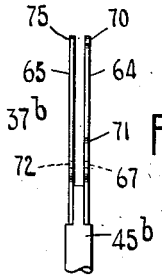
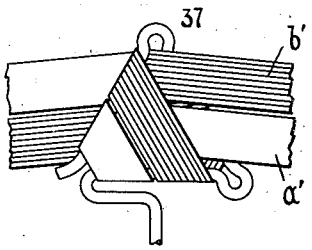


FIG. 8.

FIG. 9.



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UNITED STATES PATENT OFFICE.

CHARLES E. SMITH, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO UNION TYPEWRITER COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

1,021,382. Specification of Letters Patent. Patented Mar. 26, 1912.

Application filed January 16, 1912. Serial No. 671,483.

To all whom it may concern:

Be it known that I, CHARLES E. SMITH, citizen of the United States, and resident of the borough of Brooklyn, city of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to typewriting machines and more particularly to ribbon mechanism for such machines.

The main object of my invention, generally stated, is to provide comparatively simple and efficient means whereby one or another of different widthwise portions of the ribbon may be used at will.

To the above and other ends which will hereinafter appear, my invention consists in the features of construction, arrangements of parts and combinations of devices set forth in the following description and particularly pointed out in the appended claims.

In the accompanying drawings wherein like reference characters indicate corresponding parts in the various views, Figure 1 is a fragmentary, vertical fore and aft, central sectional view of one form of typewriting machine embodying my invention. Fig. 2 is a front elevation of the same showing only the upper portion of the machine. Fig. 3 is a fragmentary detail front view of the ribbon shown folded and turned in substantially the same manner that the ribbon is turned in the rib vibrator. Fig. 4 is a detail fragmentary front view on an enlarged scale showing a modified form of ribbon guide or vibrator made from sheet metal and with the ribbon threaded therethrough. Fig. 5 is a fragmentary detail front view of the vibrator shown in Fig. 4. Fig. 6 is a view corresponding to Fig. 4 but showing still another modified form of construction. Fig. 7 is a detail front view of the vibrator shown in Fig. 6 with parts broken away. Fig. 8 is a side edge view of the same. Fig. 9 is a front view showing a modification.

I have shown my invention embodied in the present instance in a Monarch machine, in which machine the invention may be readily embodied without changing the structural features of said machine as it now exists. It should be understood, nevertheless, that the invention may be incorporated in various styles of typewriting machines, and from certain aspects of the invention it is immaterial whether or not the invention be included in a "visible" machine.

The construction generally stated includes a ribbon guide or vibrating means by which the ribbon is turned as it is fed from one ribbon spool to another, so as to bring opposite edge portions of the ribbon on opposite sides of the guide or vibrating means next to the printing point and preferably into substantial alinement. The ribbon is preferably divided into two longitudinal extending fields having different characteristics, one field at one edge portion of the ribbon being black, for instance, whereas that at the other edge portion of the ribbon may be red, for example; or one of the fields may be copying ribbon and the other record ribbon. By turning the ribbon through the guide or vibrating means in the manner indicated either of two different substantially alined edge portions or fields may be brought to the printing point. In the present instance I shift a ribbon guide or vibrator longitudinally of the platen, or in the direction of the printing line, to determine which field of the ribbon shall be brought to the printing point at each printing operation, and at each movement of the vibrator transversely of the platen and of the printing line, all as will more clearly appear from the following description.

I have illustrated in the accompanying drawings only so much of a Monarch typewriting machine as may be necessary to arrive at an understanding of my invention, in its embodiment therein. Moreover, some of the parts are only conventionally represented, to simplify the showing.

Referring first more particularly to Figs. 1 to 3 inclusive the frame of the machine comprises a base 1, corner posts 2 and a top plate 3. The usual carriage (not shown) carries a cylindrical platen 4, diagrammatically represented in the drawings, which travels with the carriage from side to side of the machine over the top plate. Key levers 5 are fulcrumed against a fulcrum plate 6, and each key lever has pivoted thereto at 7 a sub-lever 8 which coöperates with

a fulcrum rod 9, to produce a vibratory movement of the sub-lever when a finger key 10 is depressed. The upper end of each sub-lever is pivoted to a forwardly extending link 11 which in turn is pivoted to a type bar 12. Each type bar carries a type block 13 provided in the present instance with upper and lower case types 14. The type bars are segmentally arranged on the usual shiftable segment 15 and are adapted to swing upwardly and rearwardly to strike against the front face of the platen 4. A returning spring 16 is operatively connected at one end to a key lever and is fixed at its opposite end to a plate 17.

While I have specifically described the printing instrumentalities it should be understood that these may be widely varied so far as my present invention is concerned.

A ribbon 18 passes from one horizontally disposed ribbon spool 19 at one side of the machine to the opposite spool 20, the ribbon passing substantially horizontally from one spool to the other in the general direction of the length of the platen and of the printing line, as indicated in Fig. 2. Each ribbon spool is operatively connected to a gear 21, which in turn meshes with a gear 22 operatively connected to the spring drum of the carriage in the usual manner, to effect a rotative movement of the operative ribbon spool during the step-by-step feed movement of the carriage.

A universal bar frame 23 has its rock shaft 24 pivoted to the base of the machine. This frame carries a universal bar 25 which extends beneath the various key levers 5, to afford an actuation of the universal bar and its frame at each depression of a finger key. An expansion spring 26 is interposed between an arm 27 on the universal bar frame and a fixed bracket 28. The force of this spring is exerted to return the universal bar frame, and the universal bar carried thereby, to normal position. A rearwardly projecting arm 29 extends from the universal bar frame, and to this arm is connected an upwardly extending link 30, which is preferably a two-part link; the two parts of which are united by a turn buckle 31. The upper end of the link 30 is pivoted to the rear end of a vibrator actuating lever 32 of the first order, pivoted at 33 to a depending lug 34 which projects from the top plate of the machine. The forward end of this vibrator actuating lever is shown bifurcated in the present instance, as indicated at 35, for cooperation with the ribbon vibrator.

The parts thus far described are, or may be, of the usual construction embodied in the Monarch machine.

The usual ribbon vibrator which is connected with the actuating lever 32 is carried by a segmental front plate 36 which constitutes a part of the ordinary equipment. This mechanism is replaced by devices of my invention which are adapted to coöperate with the actuating lever 32. Thus a vertically disposed ribbon guide or vibrator, indicated as a whole by the reference numeral 37, comprises a ribbon guide portion and a supporting portion, all of which are formed from a single piece of wire as the parts are shown in Figs. 1 and 2. The ribbon guiding portion is preferably formed substantially as an equilateral triangle comprising turning bars or substantially triangularly arranged guiding surfaces 38, 39 and 40. The lower bar 40 constitutes the base of the triangle and the altitude of the triangle corresponds substantially to the width of the ribbon. The apex of the triangle, which is uppermost and nearest the printing point, may be slightly enlarged as indicated at 41 and a like enlargement 42 may be formed at the lower right-hand angle. The purpose of these enlargements is to provide bearing shoulders, such as is indicated at 43 for coöperation with the edges of the ribbon to prevent the ribbon from creeping along the bars 38, 39 and 40 around which the ribbon is wound and fed. A continuation of the bar 40 is looped at 44 and extended inwardly substantially parallel to the bar 40 and then downwardly at 45 to form a guiding and supporting stem portion. The stem is formed with a looped portion 46 to the left of the stem and a cross bar 47 extends from this loop to an opposite loop 48. The wire is extended from the loop 48 inwardly again and then downwardly to form a guiding and supporting stem portion 49 which is alined with the stem portion 45. It will be seen that the vibrator 37 comprising the parts 38, 39, 40, 45, 46, 47, 48 and 49, may all be formed from a single piece of wire, and that the triangular ribbon guiding portion of the vibrator is supported from one of the angles thereof, as indicated at 44.

A sheet metal supporting member 50 is slotted horizontally at 51 on opposite sides of the center for the reception of headed guide screws or pins 52, which extend through the slots 51 and take at their threaded ends in tapped openings in the front plate 36, which is secured to the top plate of the machine. The sliding frame or support 50 is thus supported for horizontal movement transversely of the machine, or in the direction of the line of print and longitudinally of the platen. A central rectangular opening 53 is formed in the sliding plate, frame or support 50, and through which opening the forward end of the vibrator actuating lever 32 is adapted to project. At each side of this opening is a forwardly projecting flange 54, formed on the sliding frame and against which the looped portions 46 or 48 of the ribbon guide or vibrator are

adapted to bear, to prevent the vibrator from turning on the supporting frame, but enabling the vibrator to move vertically independently of the frame. The stem 49 is received in a guide opening in a forwardly extending flange 55 formed at the lower edge of the supporting member 50. The upper end of the frame 50 is likewise provided with a forwardly projecting flange 56 which is slotted fore and aft of the machine to receive the stem 49 of the vibrator. A superimposed plate 57 is secured by a screw 58 to the top of the frame 50. This plate 57 is slotted transversely at 57^a to receive the stem 45 of the vibrator. When the plate 57 is secured in position, the bottom of the slot 57^a will register with the rear end of the fore and aft slot in the flange 56 to form a guide opening through which the stem 45 of the vibrator works. The front wall of the slot 57^a overlaps and closes the open end of the slot in the flange 56, so as to retain the vibrator in the guide opening formed in the flange 56.

The cross bar 47 of the vibrator is received in the bifurcated end 35 of the vibrator actuating lever when the parts are mounted in position on the front plate 36.

From an inspection of Fig. 2 it will be understood that the connection between the actuating lever 32 and the vibrator thus established, enables the vibrator to be shifted with the frame 50 from the full line position shown in Fig. 2, to the dotted line position represented in this figure, or vice versa, without disconnecting the vibrator from its actuating lever 32. In other words, the ribbon guide or vibrator is adapted to be shifted to one side or the other of the printing point, which is represented at "n" in Fig. 2, for purposes which will hereinafter more clearly appear.

The ribbon 18 is preferably divided into two longitudinally extending fields *a* and *b* of different characteristics. That is to say, the field *a* may be red and the field *b* black, or the field *a* may be record ribbon and the field *b* copying ribbon, or vice versa. These fields arranged at opposite edge portions of the ribbon and extending longitudinally thereof, are differently disposed on opposite sides of the vibrator. Thus, it will be seen that the field *b* or say, black field on the right-hand side of the ribbon vibrator is uppermost, or nearest the printing point, but as the ribbon is threaded and fed through the vibrator it is turned so that this field *b* is lowermost on the left-hand side of the vibrator or farthest from the printing point. The field *a* on the left-hand side of the vibrator is in substantial alinement with the field *b* on the right-hand side thereof, opposite edge portions of the ribbon being brought substantially into register at the vibrator. This is due to the manner in which the ribbon is fed through and turned on itself in the ribbon guide or vibrator. Thus as the ribbon extends and is fed from, say, the right-hand spool 20 it passes forward of the bar 39 and back of the turning bar 38 of the vibrator and then downwardly and forwardly over said bar in an inclined direction. The ribbon then turns rearwardly beneath the turning bar 40 of the vibrator and then upwardly in an inclined direction to the right and over from the rear to the front of the turning bar 39, thence in a straight length to the ribbon spool 19. I have attempted in Fig. 3 to illustrate the different turns and the positions the layers of ribbon assume in the passage thereof through the vibrator. Thus, it will be seen that the ribbon extends from the spool 20 in the direction of the arrow *x* in a substantially straight length until it reaches and forms an inclined fold, corresponding in position and inclination to the turning bar 38. The next fold is a horizontal one corresponding in position to the turning bar 40. The ribbon then passes upwardly in an inclined direction in the rear of the turning bar 39 and then around to the front of said bar, as indicated by the arrow *z* and behind the turning bar 38 in a substantially straight length to the ribbon spool 19. The third fold of the ribbon therefore is an inclined fold along the turning bar 39 and corresponding to the position of said bar. It will be understood that the layers of the ribbon are slightly distorted as they are represented in Fig. 3, in order to facilitate illustrating the course which the ribbon takes through the guide. Nevertheless, this figure substantially represents the direction of the feed of the ribbon through the vibrator, and it will be understood from this figure that the ribbon passes in a triangular arrangement over the triangularly arranged guiding surfaces and that the different superposed layers are arranged substantially within the width of the ribbon, as is more clearly illustrated in Fig. 2.

In a construction such as that represented in Figs. 1 and 2 I preferably make the turning bar 39 bowed rearwardly out of the plane of the bars 38 and 40, as represented in Fig. 1, in order to prevent one part of the ribbon from bearing with undue pressure on another portion of the ribbon where two layers contact near the turning bar 39.

If the frame 50 and the vibrator be in the full line position represented in Fig. 2, and to the left of the printing point, a depression of a finger key is effective to move the associated type bar to the printing position and to interpose the field *b*, where it is uppermost and to the right of the vibrator, in the path of the types. In this position of the frame 50 the black field of the ribbon will be brought into use, and will remain

in use so long as the frame 50 remains in the full line position. Should the operator desire to use the other or red field *a* of the ribbon it is merely necessary to shift the frame 50 to the dotted line position with the aid of a forwardly projecting finger piece 59 which is struck up from and forms part of the frame 50. The shifting of the frame 50 to the dotted line position is effective to move the vibrator to the right of the printing point, thus bringing the field *a* of the ribbon to the left of the vibrator into use.

It will be observed that the construction is such that opposite side edge portions *a* and *b* of the ribbon at opposite sides of the ribbon guide or vibrator are brought into substantial alinement and are thus maintained as the ribbon is fed from spool to spool. That is to say, the operative position of the field *a* of the ribbon on the left of the vibrator is in substantial alinement with the operative portion of the field *b* on the right-hand side of the vibrator, as shown in Fig. 2, so that a single horizontal plane may cut both fields of the ribbon at the operative portions thereof, or at those portions of the ribbon which extend longitudinally of the platen and of the printing line where the types strike the ribbon.

The construction is such that it is self-indicating as to which field is operative. For example, when the vibrator is in the full line position, shown in Fig. 2, it is clear that it is set for the use of the black field because the black field shows directly beneath the printing point, whereas, if the vibrator be shifted to the dotted line position it is clear from the position of the red field beneath the printing point that the parts are set for the use of the red field. Nevertheless, if desired, suitable means may be used to indicate to the operator that the mechanism is set for the use of the red or black field. In the present instance I have provided a red indicating disk 60 which, when the slide 50 is in the full line position represented in Fig. 2, is covered by the slide so that it is hidden from the view of the operator. When the slide 50 is shifted to the dotted line position, said red disk 60 will be exposed to the view of the operator who will know from the exposed indicating disk that the construction is set to use the red field of the ribbon. Moreover, the position of the indicating disk directly in front of the operator is such that it may be readily observed.

From the foregoing description it will be understood that I have provided simple and efficient means by which one side edge portion or another of the ribbon may be brought into use at will and without varying the throw of the vibrator; that the means comprising the vibrator 37 and slide 50 are such that they may readily replace the ordinary vibrator construction secured to the front plate 36 of the Monarch machine; that this change may be readily effected without modifying the structural features of the Monarch machine as it now exists; that the throw of the vibrator is a constant one and never varies whether one or another field of the ribbon be employed; that the construction is simple, easy to manipulate and cheap to construct; and that there is no liability of the parts becoming deranged or broken. Moreover, the appearance of the ribbon vibrator and the substantially horizontal disposition of the ribbon in its feed movement from spool to spool through the vibrator presents an appearance not materially different from that presented by the ordinary machine. In short, the appearance of the vibrator construction is particularly acceptable in that it presents an appearance which does not differ materially from that of the ordinary vibrator construction, so far as the appearance of the ribbon as it is guided from spool to spool is concerned. Furthermore, there is the same degree of visibility afforded by the construction as is afforded by the ordinary vibrator construction such as is employed in the Monarch machine, for example. It will be seen that no part of the vibrator construction normally extends to or crosses the printing line and all of the printed matter at and above the printing line is normally exposed to the view of the operator.

In Figs. 4 to 8 inclusive I have shown two modified forms of construction embodying my invention.

Referring first to Figs. 4 and 5 it will be seen that the ribbon guide or vibrator which is designated as a whole by the reference numeral 37^a has its body portion made of sheet metal and is slotted at 61, 62 and 63. These slots are triangularly arranged and provide correspondingly arranged guiding surfaces 38^a, 39^a and 40^a, respectively, which correspond in disposition and relative arrangement to the guiding surfaces 38, 39 and 40, respectively, in the previously described construction. A supporting and guiding stem 45^a is connected to the sheet metal body portion of the vibrator and this, like the stem 45 in the previously described construction, may be supported and guided in a slide, such as the slide 50, in the manner previously described, or in any suitable manner. In this construction the ribbon 18 may pass from the right-hand ribbon spool as indicated by the arrow in Fig. 4. The ribbon passes in a comparatively straight length to a slot 61 through which the ribbon passes from the rear of the vibrator. The ribbon is turned on the inclined surface or edge 38^a to form a corresponding inclined fold in the ribbon and then extends downwardly

in an inclined direction and then rearwardly through a slot 63 in the vibrator. The ribbon is then turned on a horizontal guiding edge or surface 40^a and passes up in the rear of the vibrator in an inclined direction and through an inclined slot 62 in the vibrator from the rear side thereof. The ribbon is turned on the inclined guiding surface or edge 39^a to form a corresponding inclined fold in the ribbon and then passes substantially in a straight length to the other ribbon spool.

In the construction illustrated in Figs. 6, 7 and 8 the ribbon guide or vibrator as a whole is indicated by the reference numeral 37^b and comprises two parallel plate-like members 64 and 65 arranged one in front of the other. These plates, in the present instance, are shown secured to a supporting and guiding stem 45^b by rivets 66, and it should be understood that the stem 45^b may be supported and guided in the same manner for example as the stem 45, in the construction shown in Figs. 1 and 2, is supported and guided. The plate-like members 64 and 65 are alike except that they are reversed. Thus the member 64 has a horizontal slot 67 therein which provides a horizontal guiding surface or edge 68 on which the ribbon may be turned as will hereinafter more clearly appear. The member 64 is also provided with an inclined edge 69 which extends upwardly and to the right from the lower end thereof. An abutment or finger 70 is formed at the upper end of the inclined guiding portion 69 and a corresponding finger or abutment 71 is formed at the lower end of the inclined guiding surface. The member 65 has the same outline as the member 64, as hereinbefore stated. Thus, the plate 65 has a slot 72 therein which corresponds in size and registers with the slot 67 in the member 64, as shown in Figs. 6 and 7. The slot 72 forms a horizontal ribbon guiding edge or surface 73 with which the ribbon coöperates, and also with an inclined guiding edge or surface 74 which extends from the lower end upwardly and to the left. Fingers or abutments 75 and 76 project from the member 65 at the upper and lower ends respectively of the inclined guiding surface 74. The abutments or fingers 70, 71, 75 and 76 coöperate with the edges of the ribbon to prevent the inclined folds of the ribbon on the inclined guiding surfaces 69 and 74 from creeping along such surfaces.

If desired the two plates 64 and 65 may be made from a single piece of sheet metal folded at the lower end of the vibrator and the surfaces of the metal may be brought together at the lower end so that the slots 67 and 72 will form but a single slot.

As the ribbon 18 passes in a straight length from the right-hand ribbon spool it passes between the two members 64 and 65 and is then brought forwardly over the inclined edge 69 and downwardly in front of the vibrator. The ribbon is then threaded through the two alined slots or openings 67 and 72 which causes a horizontal fold to be taken in the ribbon. The ribbon then extends upwardly in the rear of the vibrator and is brought over the inclined guiding edge 74 to provide an inclined fold in the ribbon corresponding to the edge 74. The ribbon passes from the inclined edge 74 between the two members 64 and 65 to the left-hand ribbon spool in a straight length.

It will be seen that in each of the modified forms of construction shown in Figs. 4 to 8, inclusive, as well as in the construction shown in Figs. 1 and 2, the field *b* of the ribbon is uppermost on one side of the vibrator and is lowermost on the opposite side; and that the opposite edge portions of the ribbon on opposite sides of the vibrator are brought into substantial alinement and are arranged next to the printing line so that when the ribbon vibrator is shifted longitudinally of the platen to bring the ribbon vibrator at one side or the other of the printing point, either the field *a* or the field *b* may be brought into use, depending on the position of the vibrator longitudinally of the platen.

It will be seen that in each of the constructions shown the guide has at least three guiding or turning surfaces on which the ribbon is turned, and which surfaces are each at an angle to the others, so that the ribbon when turned on these guiding surfaces in the manner shown and described takes a polygonal course of an odd number of sides and has its opposite side edge portions on opposite sides of the guide presented next to the printing point and preferably substantially in alinement with each other. In Figs. 1 to 5 inclusive these three guiding surfaces are substantially in triangular arrangement, whereas in the construction shown in Figs. 6, 7 and 8 two of the guiding surfaces are arranged crosswise of each other but in each case in each of the three forms of the construction, each guiding surface is arranged at an angle to the other two.

When I refer herein to a ribbon guide, or a ribbon guiding means, I use these terms in a broad sense, and do not wish to be confined, by the use of this term, to a ribbon vibrator, since I am aware that the invention is applicable to other styles of typewriting machines and to ribbon guides which are not vibrators.

Moreover, I am aware that various changes may be made in construction without departing from the spirit and scope of

my invention which contemplates broadly the provision of means whereby the ribbon may be turned through a ribbon guide to bring opposite side edge portions of the ribbon at opposite sides of the guide next to the printing point or into substantial alinement, and the provision of means by which either one of two different substantially alined fields or either of the two fields which are next to the printing point, may be brought into use.

My invention also contemplates broadly the provision of means whereby the operative portions of the ribbon against which the types impact, are arranged longitudinally of the platen and of the printing line and with opposite side edge portions of the ribbon on opposite sides of the ribbon guide next to the printing point or substantially in alinement, and means for shifting the guide longitudinally of the platen, or in the direction of the printing line, to bring one or another of two different substantially alined fields of the ribbon into use.

While I have shown one manner of threading the ribbon through the guide or vibrator I am aware that the ribbon may be threaded through the vibrator in a manner other than that shown and described, although I prefer to thread the guide in the manner indicated because it affords an easy run of the ribbon through the vibrator, and brings superposed contacting layers of the ribbon in such relation that they move in the same direction during the feed of the ribbon. Thus, it will be understood that as the layer of the ribbon which is shown broken away in Fig. 3, moves in the direction of the arrow *x* from the spool 20, it will contact with the layer of ribbon directly behind it, which is likewise moving in the same direction as it passes from the turning bar 39 in a substantially straight length to the left-hand ribbon spool 19, as indicated by the arrow *z*.

An equivalent construction and arrangement are shown in Fig. 9 wherein each field *a'* and *b'* may be made as a separate ribbon, the two ribbons being threaded through the vibrator in the manner shown and maintained edge to edge.

The foregoing and many other changes may be made without departing from my invention.

What I claim as new and desire to secure by Letters Patent, is:—

1. In a typewriting machine, the combination with a ribbon, of means for guiding the ribbon so that it will travel longitudinally of the printing line at those portions of the ribbon against which the types impact and for turning the ribbon by said guiding means so that opposite side edge portions of the ribbon will simultaneously travel next to the printing line, and means for bringing either of two side edge portions of the ribbon which are next to the printing line into use.

2. In a typewriting machine, the combination with a ribbon having two longitudinally extending fields of different characteristics, of means for guiding the ribbon so that it will extend longitudinally of the printing line at those portions of the ribbon against which the types impact and for turning the ribbon by the guiding surfaces of said guiding means so that different fields at opposite side edge portions of the ribbon will simultaneously travel next to the printing line, and means for bringing either of two fields of the ribbon next to the printing line into use.

3. In a typewriting machine, the combination with a ribbon having two longitudinally extending fields of different characteristics, of means for vibrating the ribbon transversely of said fields at each printing operation, means for guiding the ribbon and turning it so as simultaneously to bring different fields next to the printing line, and means for bringing either of said fields next to the printing line into use.

4. In a typewriting machine, the combination with a ribbon having two longitudinally extending fields of different characteristics, of ribbon guiding means having three guiding surfaces around which the ribbon is turned, each of said guiding surfaces being arranged at an angle to others and so disposed that the ribbon is reversed thereby to bring different fields next to the printing line as the ribbon passes through said guiding means, and means for bringing either field next to the printing line into use.

5. In a typewriting machine, the combination with a ribbon having two longitudinally extending fields of different characteristics, of ribbon guiding means having three guiding surfaces around which the ribbon is turned, one of said surfaces being a horizontal surface and two of them being inclined with reference to the horizontal surface so that the ribbon is reversed when it is turned on said surfaces and different fields are brought next to the printing line, and means for bringing either one of the two fields next to the printing line into use.

6. In a typewriting machine, the combination with a ribbon having two longitudinally extending fields of different characteristics, of ribbon guiding means having three guiding surfaces two of which are inclined in opposite directions and with reference to the length of the ribbon as the latter passes from side to side of the machine and the third of which surfaces is arranged parallel with the edges of the ribbon as it extends longitudinally from side to side of the machine, the ribbon as it passes from side to side of the machine passing around said guiding surfaces and being

reversed thereby to bring different fields next to the printing line, and means for bringing either of two fields next to the printing line into use.

7. In a typewriting machine, the combination with a ribbon having two longitudinally extending fields of different characteristics, of ribbon guiding means having three guiding surfaces around which the ribbon is turned, one of said surfaces being a horizontal surface and two of them being inclined with reference thereto, so that the ribbon is reversed when it is turned on said surfaces and different fields are brought next to the printing line, means for bringing either one of the two fields next to the printing line into use, and means by which the ribbon is moved transversely into the path of a type at each printing operation.

8. In a typewriting machine, the combination with a ribbon having two longitudinally extending fields of different characteristics, of ribbon guiding means having three guiding surfaces two of which are inclined in opposite directions and with reference to the length of the ribbon as the latter passes from side to side of the machine and the third of which surfaces is arranged parallel with the edges of the ribbon as it extends longitudinally from side to side of the machine, the ribbon as it passes from side to side of the machine passing around said guiding surfaces and being reversed thereby to bring different fields next to the printing line, means for bringing either of two fields next to the printing line into use, and means for moving the ribbon transversely into the path of a type at each printing operation.

9. In a typewriting machine, the combination of a platen, ribbon guiding mechanism for maintaining the ribbon in the vicinity of the printing point and for directing the ribbon at one side of the platen in a polygonal course of an odd number of sides, and means for controlling said guiding mechanism to present at will opposite edge portions of the ribbon to the types.

10. In a typewriting machine, the combination of a carriage, ribbon guiding devices supported independently of the carriage and maintaining ribbon plies of the same ribbon in overlying relationship but with the edge portions of the plies reversed with respect to each other, and means for controlling the guiding devices to present opposite edge portions of the ribbon at will to the types.

11. In a typewriting machine, the combination with a ribbon having longitudinally extending fields of different characteristics, of a platen, a ribbon vibrator, guiding surfaces on the vibrator for turning the ribbon to bring opposite edges of the ribbon substantially into alinement, means for moving the vibrator longitudinally of the platen to bring either edge portion of the ribbon into use, and means for actuating said vibrator at each printing operation.

12. In a typewriting machine, the combination with a ribbon, of two ribbon spools, means intermediate said ribbon spools for turning the ribbon so as to bring opposite edges of the ribbon substantially into alinement, and means that enables either side edge portion of the ribbon to be presented to the action of the types.

13. In a typewriting machine, the combination with a ribbon, of ribbon vibrating means having guiding surfaces for turning the ribbon so as to bring opposite edges of the ribbon substantially into alinement, and means for controlling said vibrating means to bring either edge portion of the ribbon to the printing point.

14. In a typewriting machine, the combination with a ribbon, of a platen, a ribbon vibrating means, guiding surfaces for turning the ribbon to bring opposite edges of the ribbon substantially into alinement, and means for moving the guiding surfaces longitudinally of the platen to bring either edge portion of the ribbon into use.

15. In a typewriting machine, the combination with a ribbon having longitudinally extending fields of different characteristics at opposite edge portions thereof, of vertically disposed guiding means having surfaces on which the ribbon is turned so that the longitudinally extending field which is lowermost on one side of the guiding means travels as the uppermost field on the opposite side of the guiding means, and means by which the uppermost field on either side of the guiding means may be brought into use.

16. In a typewriting machine, the combination with a ribbon having two longitudinally extending fields of different characteristics, of ribbon guiding means including means for guiding the ribbon in the feed thereof through the guiding means so as to present different fields of the ribbon in the same general line, and means for controlling the guiding means so as to bring either field to the printing point.

17. In a typewriting machine, the combination with a ribbon having two longitudinally extending fields of different characteristics at opposite edge portions thereof, of a ribbon guiding means having means for turning the ribbon in the feed thereof through the guiding means so that one field of the ribbon on one side of the guiding means will be substantially alined with the other field of the ribbon on the opposite side of the guiding means, and means for controlling the guiding means so as to present either of two substantially alined fields on opposite sides of the guiding means at the printing point.

18. In a typewriting machine, the combination of a ribbon, the plane of that portion of the ribbon against which the types impact being substantially vertically disposed, said ribbon having longitudinally extending fields of different characteristics at the opposite edge portions thereof, substantially vertically disposed ribbon guiding means provided with means for changing the direction of the ribbon as it passes through said guide, so as to present the field of the ribbon which is lowermost on one side of the guiding means as the uppermost field on the other side of the guiding means, and means for controlling the guiding means to bring either field of the ribbon into use.

19. In a typewriting machine, the combination with a ribbon having two longitudinally extending fields of different characteristics at opposite edge portions thereof, of ribbon vibrating means provided with means by which the ribbon is turned as it is fed through the vibrating means so as to present different fields on opposite sides of the vibrating means in substantial alinement, and means for controlling said vibrating means so as to present either field to the printing point.

20. In a typewriting machine, the combination with a ribbon having two longitudinally extending fields of different characters at opposite edge portions thereof; of guiding means for the ribbon, said guiding means having guiding surfaces arranged at an angle to each other and over which the ribbon is guided as it is fed longitudinally, to change its direction and bring different fields on opposite sides of the guiding means substantially into alinement, and means for controlling said guiding means to present either of two substantially alined fields at the printing point.

21. In a typewriting machine, the combination with a ribbon having two longitudinally extending fields of different characteristics at opposite edge portions thereof; of substantially vertically disposed guiding means for the ribbon, said guiding means having guiding surfaces in substantially triangular arrangement and with an angle of the triangle arranged uppermost and over which surfaces the ribbon is guided as it is fed longitudinally, to change its direction and bring different fields on opposite sides of the guiding means substantially into alinement; and means for controlling said guiding means to present either of two substantially alined fields at the printing point.

22. In a typewriting machine, the combination with a ribbon having two longitudinally extending fields of different characteristics at opposite edge portions thereof; of guiding means for the ribbon, said guiding means having guiding surfaces in substantially triangular arrangement and with an angle of the triangle arranged nearest the printing point and over which surfaces the ribbon is guided as it is fed longitudinally, to change its direction and bring different fields on opposite sides of the guiding means substantially into alinement; and means for controlling said guiding means to present either of two substantially alined fields at the printing point.

23. In a typewriting machine, the combination with a ribbon having two longitudinally extending fields of different characteristics at opposite edge portions thereof; of a ribbon vibrator having guiding surfaces in substantially triangular arrangement and with an angle of the triangle arranged nearest the printing point and over which surfaces the ribbon is guided as it is fed longitudinally to change the direction of the ribbon and bring different fields on opposite sides of the vibrator substantially into alinement, and means for controlling said vibrator to present either of two alined fields at the printing point.

24. In a typewriting machine, the combination with a ribbon having two longitudinally extending fields of different characteristics; of a platen; means for guiding the ribbon so as to maintain it disposed longitudinally of the platen where it receives the impact of the types and with different fields on opposite sides of the printing point arranged substantially in alinement; and means for bringing either one of two different substantially alined fields to the printing point.

25. In a typewriting machine, the combination with a ribbon having two longitudinally extending fields of different characteristics at opposite edge portions thereof; of guiding means for the ribbon, said guiding means having guiding surfaces in substantially triangular arrangement, and the altitude of the triangle corresponding substantially to the width of the ribbon, said ribbon being fed over said guiding surfaces to turn the ribbon on itself and substantially within its own width and change its direction and bring different fields on opposite sides of the printing point substantially into alinement; and means for controlling said guiding means to present either of two substantially alined fields at the printing point.

26. In a typewriting machine, the combination with a ribbon having two longitudinally extending fields of different characteristics; of a platen; means for guiding the ribbon so as to maintain it disposed longitudinally of the platen where it receives the impact of the types and with different fields on opposite sides of the printing point arranged substantially in alinement, said

means including a ribbon vibrator having ribbon guiding surfaces in substantially triangular arrangement and by which different fields on opposite sides of the vibrator are brought substantially into alinement; and means for controlling the vibrator to bring either one or the other of two alined fields of the ribbon to the printing point.

27. In a typewriting machine, the combination with a ribbon having two longitudinally extending fields of different characteristics; of a platen; means for controlling the ribbon so as to maintain it disposed longitudinally of the platen where it receives the impact of the types and with different fields on opposite sides of the printing point arranged substantially in alinement, said means comprising a ribbon guiding means, and means for affording a shifting of the ribbon guiding means longitudinally of the platen to bring different of the alined fields into use.

28. In a typewriting machine, the combination with a ribbon having two longitudinally extending fields of different characteristics; of a platen; means for controlling the ribbon so as to maintain it disposed longitudinally of the platen where it receives the impact of the types and with different fields on opposite sides of the printing point arranged substantially in alinement, said controlling means comprising ribbon vibrating means which are operative to bring a part of the ribbon that extends longitudinally of the platen to the printing point at each printing operation; and means for affording a shifting part of the controlling means longitudinally of the platen to bring different substantially alined fields into use.

29. In a typewriting machine, the combination with a ribbon having two longitudinally extending fields of different characteristics; of a platen; means for guiding the ribbon so as to maintain it disposed longitudinally of the platen where it receives the impact of the types and with different fields on opposite sides of the printing point arranged next to the printing line, said means comprising ribbon vibrating means; and means whereby the vibrating means may be rendered operative on one side or the other of the printing point to determine which field of the ribbon shall be used.

30. In a typewriting machine, the combination with a ribbon having two longitudinally extending fields of different characteristics extending along opposite edge portions of the ribbon; of a platen; means for guiding the ribbon so as to maintain it disposed longitudinally of the platen where it receives the impact of the types and with the field at one edge portion of the ribbon on one side of the printing point substantially alined with the other field at the opposite edge portion of the ribbon on the other side of the printing point, said means comprising a ribbon vibrating means through which the ribbon is threaded and by which it is turned to bring the opposite edge portions of the ribbon substantially into alinement; and means whereby said vibrating means may be rendered operative on one side or the other of the printing point depending on which field of the ribbon is to be brought into use.

31. In a typewriting machine, the combination with a ribbon having two longitudinally extending fields of different characteristics extending along opposite edge portions of the ribbon; of a platen; means for guiding the ribbon so as to maintain it disposed longitudinally of the platen where it receives the impact of the types and with the field at one edge portion of the ribbon on one side of the printing point substantially alined with the other field at the opposite edge portion of the ribbon on the other side of the printing point, said means comprising a ribbon vibrator through which the ribbon is threaded and by which it is turned to bring the opposite side edge portions of the ribbon substantially into alinement; means for shifting the vibrator longitudinally of the platen to bring the point where the ribbon is turned to one side or the other of the printing point, thereby bringing one field or the other of the ribbon into use; and means for actuating the vibrator to move the ribbon transversely into the path of the types at each printing operation.

32. In a typewriting machine, a wire ribbon guide having a plurality of guiding surfaces which are so disposed as to substantially form a triangle on which the ribbon is turned.

33. In a typewriting machine, a wire ribbon guide having a portion thereof bent to provide three guiding surfaces which are so disposed as to substantially form a triangle with which the ribbon coöperates and on which it is turned, said wire guide being formed with a supporting stem which connects with the triangular guiding portion at one of the angles thereof.

34. In a typewriting machine, the combination of a ribbon; ribbon guiding means for maintaining those portions of the ribbon against which the types impact in the direction of the printing line and with opposite edge portions of the ribbon substantially in alinement; and means for controlling said ribbon guiding means for bringing either of two opposite substantially alined edge portions of the ribbon into use.

35. In a typewriting machine, the combination of a ribbon; ribbon guiding means for maintaining those portions of the ribbon against which the types impact in the direction of the printing line and with opposite

edge portions of the ribbon substantially in alinement, said ribbon guiding means including a ribbon vibrator in which the ribbon is turned to present the opposite edge portions of the ribbon on opposite sides of the vibrator substantially in alinement; and means for controlling the vibrator to bring either of two substantially alined edge portions of the ribbon on opposite sides of the vibrator into use.

36. In a typewriting machine, the combination of a ribbon; ribbon guiding means for maintaining those portions of the ribbon against which the types impact in the direction of the printing line and with opposite edge portions of the ribbon in substantial alinement; said ribbon guiding means including a ribbon vibrator by which the ribbon is turned to present the opposite edge portions of the ribbon on opposite sides of the vibrator substantially in alinement; means for moving the vibrator transversely of the printing line at each printing operation; and means for shifting the vibrator longitudinally of the printing line to bring either of two substantially alined edge portions of the ribbon on opposite sides of the vibrator into use.

37. In a typewriting machine, the combination of means for leading the operative portions of the ribbon against which the types impact in a substantially horizontal direction and for turning the ribbon so as to bring opposite edge portions of the ribbon in position to be cut by a single substantially horizontal plane; and means for bringing either of two opposite edge portions into use.

38. In a typewriting machine, the combination with a ribbon; of means for guiding the operative portions of the ribbon where the types impact longitudinally of the printing line, said means comprising a ribbon vibrating means having means for turning the ribbon so as to bring opposite edge portions thereof next to the printing point, a carrier for a part of said vibrating means, means for shifting the carrier and the part of the vibrating means carried thereby in the direction of the printing line; and means for moving the part of the vibrating means carried by the carrier toward and away from the printing line independently of said carrier.

39. In a front strike typewriting machine, the combination with a ribbon having two longitudinally extending fields of different characteristics; of means for guiding the operative portions of the ribbon where the types impact horizontally, said means comprising a vertically disposed ribbon vibrator having means for turning the ribbon so as to bring different fields of the ribbon longitudinally of one another; a carrier for said vibrator; means which afford a shifting of the carrier and vibrator horizontally; and means for moving the vibrator vertically toward and away from the printing line independently of said carrier.

40. In a front strike typewriting machine, the combination with a ribbon having two longitudinally extending fields of different characteristics; of means for guiding the operative portions of the ribbon where the types impact horizontally, said means comprising a vertically disposed ribbon vibrator having means for turning the ribbon so as to bring different fields of the ribbon longitudinally of one another; a carrier for said vibrator; means which afford a shifting of the carrier and vibrator horizontally; means for moving the vibrator vertically toward and away from the printing line independently of said carrier; and an indicator which is exposed to the view of the operator when said carrier is shifted to one of the positions which it may assume.

41. In a typewriting machine, a ribbon guide having guiding surfaces disposed in substantially triangular arrangement and on which the ribbon is turned, one of said guiding surfaces being bowed out of the plane of the others.

Signed at the borough of Manhattan, city of New York, in the county of New York, and State of New York, this 15th day of January A. D. 1912.

CHARLES E. SMITH.

Witnesses:
E. M. WELLS,
L. NELSON.