

W. P. KIDDER & C. W. SPONSEL
TYPE WRITING MACHINE.

APPLICATION FILED MAR. 29, 1907.

Patented Feb. 15, 1916.
4 SHEETS—SHEET 1.

1,171,961.

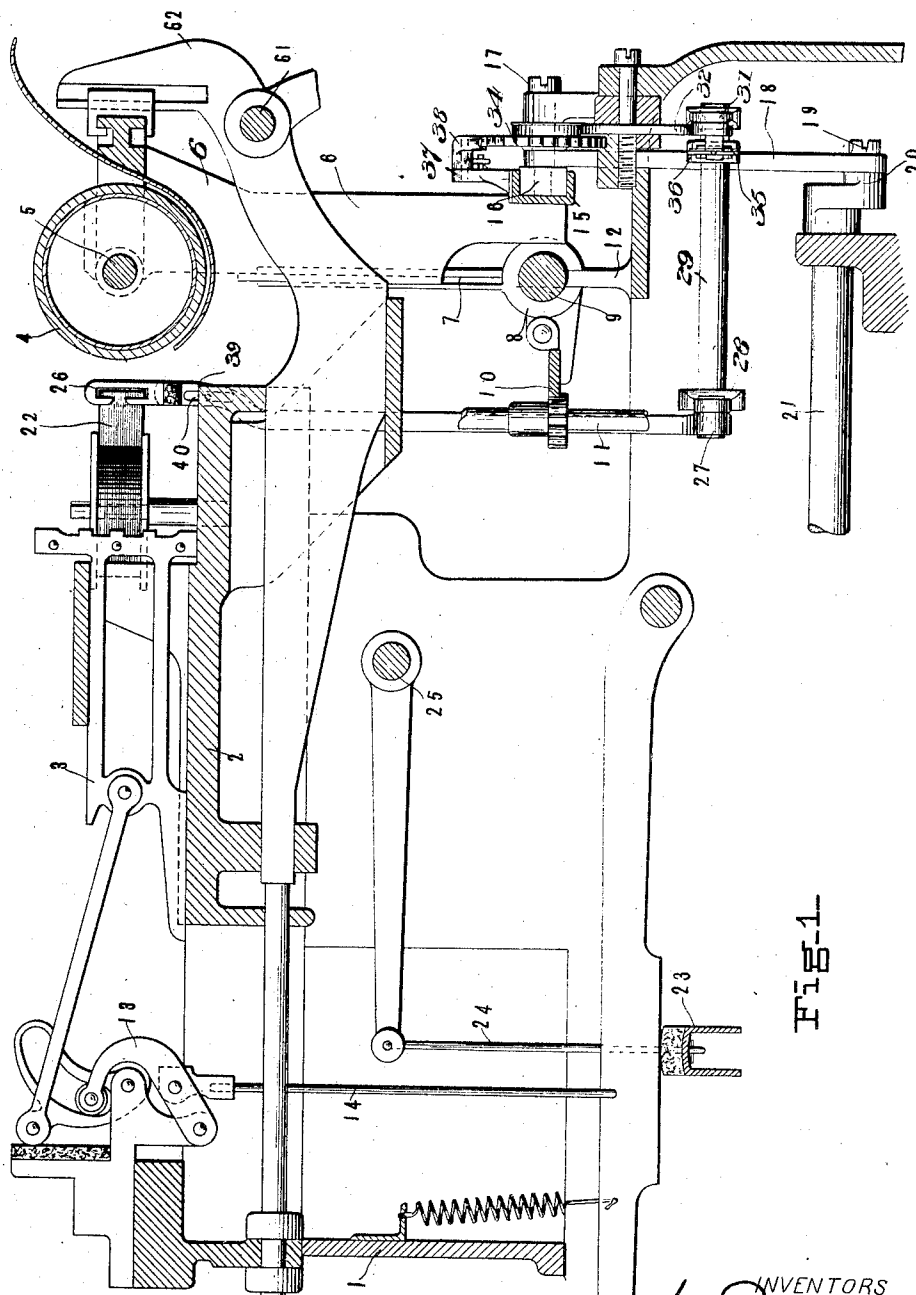


FIG-1

WITNESSES
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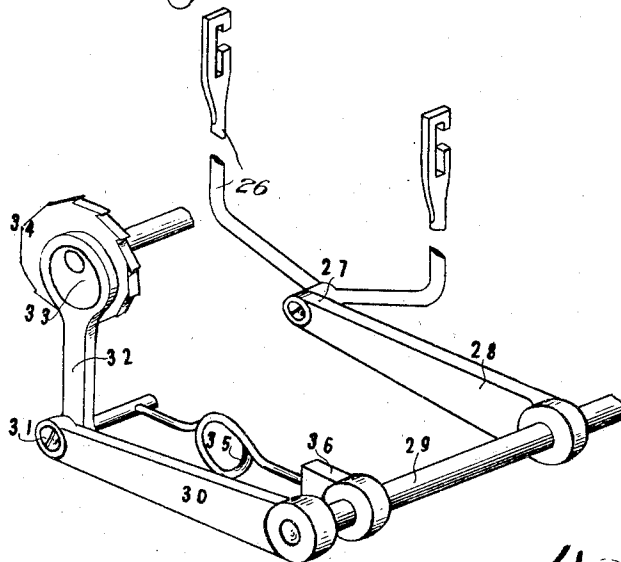
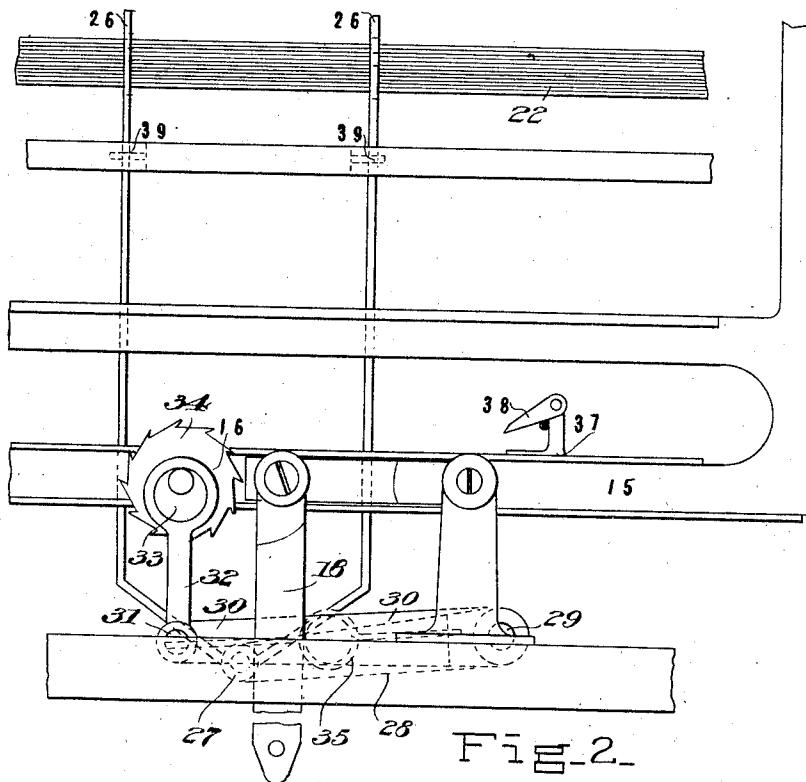
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4 SHEETS—SHEET 2.



WITNESSES

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Fig. 3.

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4 SHEETS—SHEET 3.

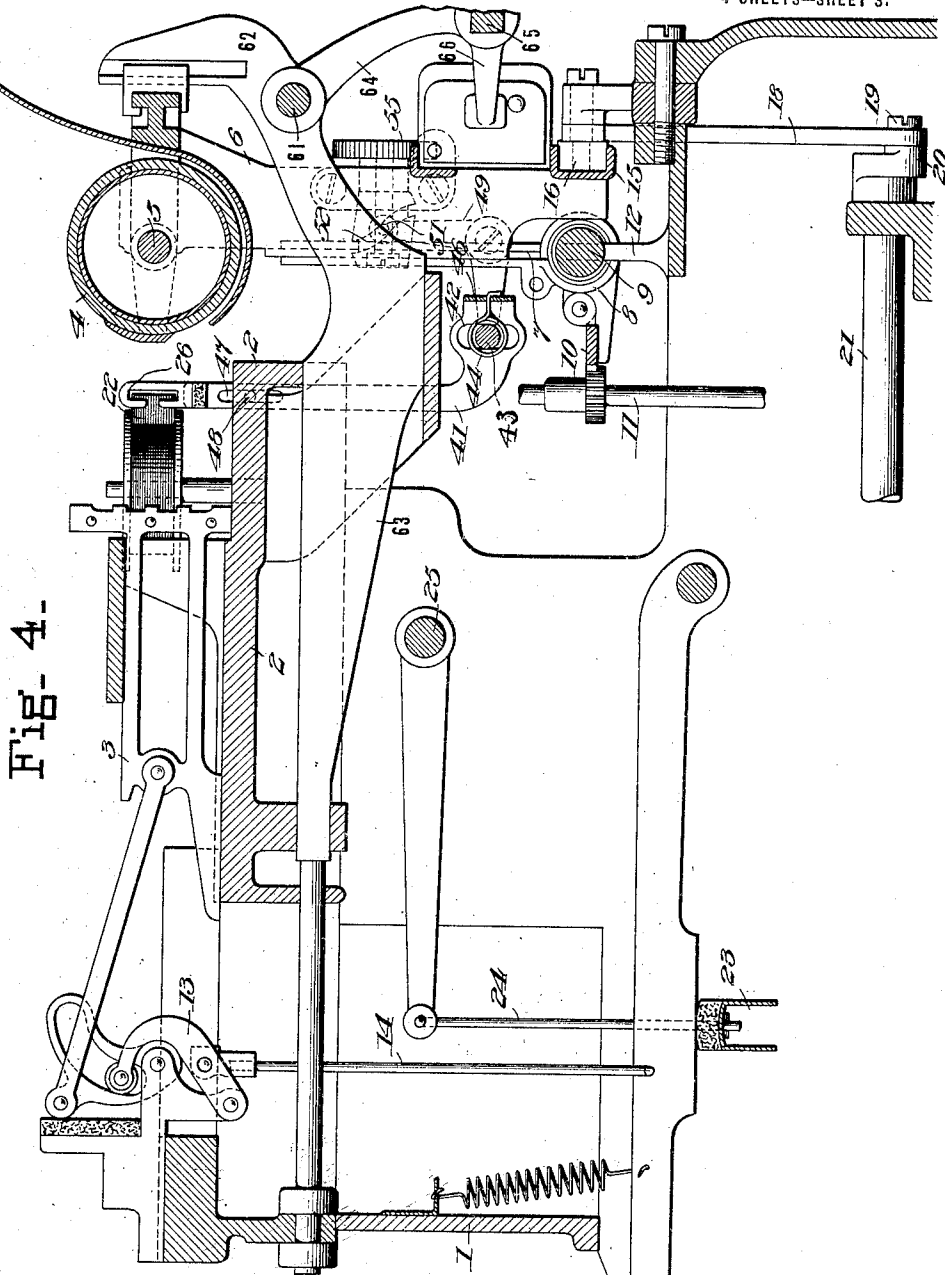


Fig. 4-

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4 SHEETS—SHEET 4.

Fig- 6 -

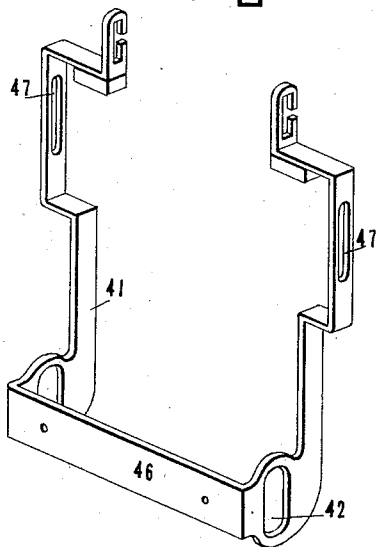


Fig- 7 -

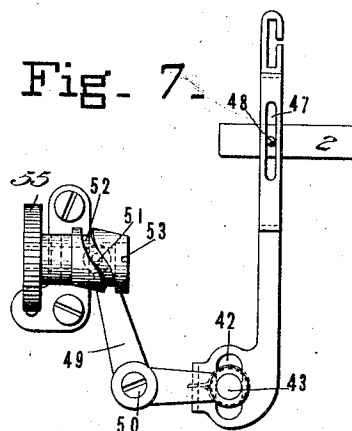
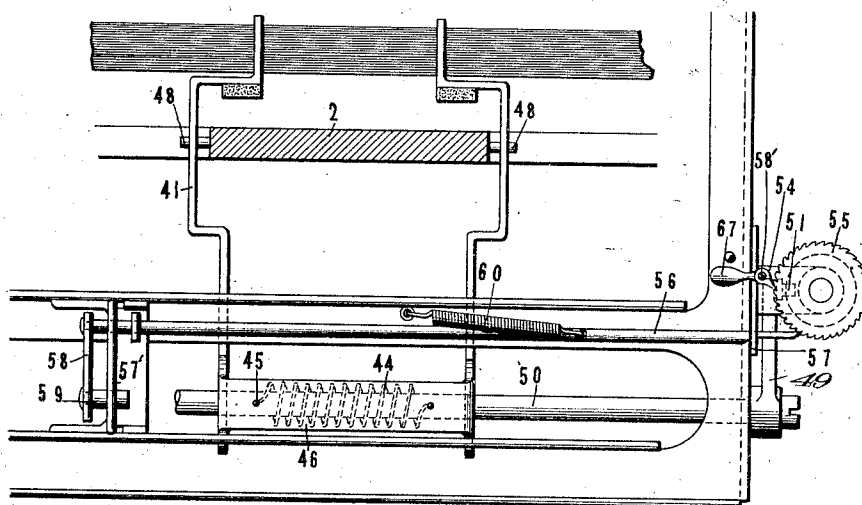


Fig- 5 -



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UNITED STATES PATENT OFFICE.

WELLINGTON P. KIDDER, OF BOSTON, MASSACHUSETTS, AND CHARLES W. SPONSEL, OF HARTFORD, CONNECTICUT, ASSIGNORS, BY MESNE ASSIGNMENTS, TO THE NOISELESS TYPEWRITER COMPANY, OF MIDDLETOWN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

TYPE-WRITING MACHINE.

1,171,961.

Specification of Letters Patent.

Patented Feb. 15, 1916.

Application filed March 29, 1907. Serial No. 365,407.

To all whom it may concern:

Be it known that we, WELLINGTON P. KIDDER and CHARLES W. SPONSEL, residing at Boston, in the county of Suffolk, State of Massachusetts, and Hartford, in the county of Hartford and State of Connecticut, respectively, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to typewriting machines, and more particularly to the ribbon mechanism thereof.

One of the objects of the invention is to provide simple and efficient means for automatically moving the ribbon widthwise with respect to the printing point.

Another object is to provide in a typewriting machine means adapted to shift the ribbon with the platen, such that the ribbon will at all times be held within the field of the types whatever its position with respect to the platen when the same is shifted.

Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, wherein is illustrated two of the various possible embodiments of our invention, Figure 1 is a view taken transversely of a typewriting machine, showing the same; Fig. 2 is a view in rear elevation of a portion of a typewriting machine having our invention applied thereto; Fig. 3 is a view in perspective showing the means employed for moving the ribbon widthwise; Fig. 4 is a view similar to Fig. 1 showing a different embodiment of our invention; Fig. 5 is a view similar to Fig. 2 showing a portion of a typewriting machine having the last-mentioned embodiment applied thereto; Fig. 6 is a view in perspective showing the construc-

tion of the ribbon carrier; and Fig. 7 is a view in elevation of the means employed for shifting the carrier to move the ribbon widthwise with respect to the printing point.

Similar reference characters refer to similar parts throughout the several views of the drawings.

Referring now to the drawings, wherein we have shown our invention applied to a noiselessly operating typewriter, the framework of the machine designated by 1 carries in its upper portion a table or bed 2 upon which the type-carrying members rest and across which they are adapted to be projected when operated for printing. But one of the type-carrying members 3 is shown herein, but it will be understood that such members are grouped upon bed 2 in such manner as to be thrust against a common point on the platen, which is shown in the present instance as the usual paper roll 4 carried upon a shaft 5. Shaft 5 is pivotally mounted in the upper portion of an upright platen frame 6 adapted to be shifted vertically upward or downward from a normal intermediate position in ways 7 which extend upward from a yoke 8 sliding upon a rail 9. Yoke 8 carries the feed rack 10 which meshes with the feed pinion upon shaft 11, said shaft operating through the escapement mechanism not herein shown to afford a letter spacing feed of the carriage. Rail 9 is mounted upon standards 12 erected upon the framing of the machine, as shown in Fig. 1 of the drawings.

The several type-carrying members are projected to impression by means of a link actuated by toggle mechanism denoted generally at 13, said toggle mechanism being connected with the finger levers by means of links 14 and the parts are returned to normal position after each actuation by means of a retractile spring connected therewith, and with a fixed portion of the machine. The platen frame 6 is provided with a longitudinally extending channel bar 15 which slides upon a block 16 connected by means of a stud 17 to a link 18 the lower end of which has a pivotal attachment at

19 with the arm or lever 20 extending from a rock-shaft 21, which is rocked to swing arm 20 upwardly or downwardly to shift the carriage in corresponding directions from a normal intermediate printing position by shift keys not herein shown.

The above-described mechanism comprises no part of our present invention, but is shown herein in order to render the same clearer of understanding.

The inking ribbon 22 is supported upon spools supported at either end of the machine, and is fed longitudinally of the platen step by step by any desired actuating means controlled in usual ways by the universal bar 23 upon which the several key levers rest, said bar being connected by means of a link 24 with an arm extending from a universal rock shaft 25. Ribbon 22 is supported in the vicinity of the impression point of the platen by a vertical carrier through which the ribbon is threaded, said carrier being composed of a pair of upright members 26 which merge at their lower ends and are fulcrumed at 27 see Fig. 3 upon an arm 28 rigidly secured to a shaft 29 journaled in the lower portion of the machine. Shaft 29 extends rearwardly and has loosely mounted thereon an arm 30 and this arm is connected at its outer end by a pivot pin 31 with a link 32, the upper end of which is shaped to fit about an eccentric 33 formed upon a ratchet wheel 34 journaled upon stud 17. Pivot pin 31 has extended therefrom a spring 35, herein shown looped in its middle portion, and the outer end of said spring is fast in a collar 36 rigidly secured to shaft 29. By means of this construction it will be seen that eccentric 33 is resiliently connected to shaft 29, and that an upward or a downward movement of link 32, as when the eccentric is rotated, will serve through said shaft and arm 28 to raise or depress carrier 26 and thereby move the ribbon widthwise with respect to the printing point.

Erected upon channel bar 15 of the platen frame is a standard 37 which carries at its upper end a pivotally mounted gravity pawl 38 adapted at each return movement of the carriage to be carried into engagement with one of the teeth of ratchet wheel 34, rotate the same and compel thereby a rotative movement of eccentric 33 to a desired extent, thereby moving link 32 in an upward or downward direction and causing a corresponding movement of the ribbon carrier.

Carrier 26 is guided near its upper end by means of pins 39 extended from bed 2 which take through longitudinally extending slots 40 (see Fig. 1) provided in each of the upright members of the carrier. These pins, while forming guides for the carrier, insuring its movement in a direction at right angles to the longitudinal feed of the ribbon,

also operate to limit the upward or downward movements thereof when the same is moved during the shifting of the platen frame for upper or lower case printing.

Having thus described the structural features constituting this embodiment of our invention, the operation thereof may now be understood. The ribbon carrier 26 is connected by arm 28, shaft 29, spring 35 and link 32 with the carriage shifting mechanism, so that whenever the carriage is shifted upward or downward for different case printing the carrier will be moved in corresponding directions to carry the ribbon within the field of the upper or lower types of the type-carrying members. It will be noted by reference to Fig. 1 that in this embodiment of the invention the ribbon is considerably narrower than the field of the type.

During each return movement of the carriage at the end of a line gravity pawl 38, engaging with ratchet wheel 34 rotates the same one or more teeth, and eccentric 33 being rotated lifts or depresses link 32 which, through the above described mechanism, causes a corresponding movement of carrier 26 and moves the ribbon upward or downward with respect to the printing point of the platen, thus utilizing substantially the entire widthwise surface of the same.

In order to provide against carrying the ribbon without the field of the upper or lower types, the length of slots 40 in carrier 26 is such that should the platen be shifted when the ribbon has been moved widthwise in an upward or downward direction to bring the upper or lower margins thereof between the middle types of the type-carriers, the guide pins would, by their engagement with the end walls of slots, prevent a movement of the carrier sufficient to carry the ribbon without the field of the upper or lower types, the support of said carrier upon the spring 35 operating to allow a free upward or downward shifting movement of the platen while the carrier is maintained stationary.

In Figs. 4 to 8 inclusive, we have shown a different embodiment of our invention in that the ribbon carrier 41, which is formed integral, has its side members provided at their lower ends with vertically-disposed elongated slots 42 through which extends a rod 43. Ribbon carrier 41 is resiliently supported upon rod 43 by means of a coil spring 44 which encircles said rod and has its free ends secured at 45 in openings provided in plate 46, which connect the lower ends of the side members of the carrier. This construction enables rod 43 to be lifted or depressed while the carrier 41 is held stationary by engagement of the ends of slots 47 with pins 48 extending from bed 2, as in the first-described embodiment of our invention.

Rod 43 is carried upon the outer ends of bell crank levers 49, one at each end of the paper carriage, said levers being carried upon a shaft 50 which extends longitudinally of the carriage and is journaled in the end walls thereof. The outer end of one of bell crank levers 49 is provided with a pin 51 which enters a cam groove 52 in a rotating member 53 journaled in a bracket 54 secured to the end wall of the paper carriage, said member 53 at its opposite end carrying a ratchet wheel 55 and being rotated thereby.

The rotation of ratchet wheel 55 is effected by means of an elongated pawl 56 extending longitudinally of the carriage and suitably guided at one end in an opening provided in a plate 57 fixed to the end of the carriage and at its opposite end extending through an opening in a web 57'. A vertically-disposed plate 58 is secured to the opposite end of pawl 56 and a guide stud 59 fast to the plate 58 extends from the lower end of this plate through an opening in web 57'. A coil spring 60 secured at one end to pawl 56 and at its opposite end to the carriage frame normally holds the pawl in a retracted position, as shown in Fig. 5 of the drawings.

Upon a rock shaft 61 (see Fig. 4) supported in the end walls of frame of the machine, and journaled intermediate its ends in the upwardly turned portion 62 of tie rod 63, are mounted depending arms, one of which is shown at 64, said arms at their lower ends carrying a bar 65 upon which is adjustably mounted a projecting arm 66. This arm, which is arranged near the right hand side of the machine, is interposed in the path of the plate 58 (see Fig. 5) so that when the carriage is returned to the beginning of the line, the engagement between the same and plate 58 will effect an actuation of pawl 56, and this pawl will rotate the ratchet wheel 55 through a space of one or more teeth and thereby compel a rotative movement of the eccentric member 53. A weighted detent 67 swiveled upon a pin 58' upon bracket 54 engages the teeth of ratchet wheel 55 and prevents a reverse movement thereof.

The operation of this embodiment of our invention is substantially as follows: Ratchet wheel 55, being rotated by pawl 56 through a distance of one or more teeth upon each return movement of the carriage, compelling a rotative movement of eccentric member 53, will cause rod 43 through bell crank levers 49, to be alternately raised and depressed, and ribbon carrier 41 mounted upon rod 43 will carry the ribbon which is threaded through the slots provided in the upper end thereof up and down with respect to the printing point, as in the first-described embodiment. Whenever the carriage is shifted up or down for different case printing,

the carrier will be moved in corresponding directions to carry the ribbon, but always within the field of the upper and lower types of the type carrying members, the engagement between pins 48 and the ends of slots 47 preventing the carrying of the ribbon outside of the field of the types. Inasmuch as the carrier is resiliently mounted upon rod 43, the ribbon carrier may be held against movement up or down without interfering with the corresponding movements of rod 43 upon which the carrier is mounted, the construction allowing a free upward or downward shifting movement of the platen while the carrier is maintained stationary.

It will accordingly be seen that we have provided mechanism wherein are realized the several aims and objects of our invention in an exceedingly simple and efficient manner. The ribbon, which is normally held in a position to afford a clear view of the printing, is moved upward and downward with the platen to enable printing to be effected from the upper or lower banks of types, and is also moved widthwise with respect to the platen to allow substantially the entire surface thereof to be utilized for printing purposes. Moreover, the presence of the ribbon between the several types is at all times insured whatever its relative position with respect to the printing point of the platen, when shifted for upper or lower case printing.

The flexible connection between the platen shifting means and ribbon shifting means which we have described in this case have a certain resilience which is sufficiently rigid to carry the parts together; nevertheless if the carriage be shifted with some force, as is apt to occur in rapid writing, there is a tendency of the ribbon guide to move farther than the movement of the platen, which is usually brought to a stop abruptly, and this tendency would naturally be permitted to have effect through the resilient connection. By providing the pin and slot stops, however, for limiting positively the movement of the ribbon carrier, this difficulty is overcome. The whole device provides that the surface of the ribbon will be covered with a series of broken lines constituting in effect a waving line which will cover the entire surface of the ribbon before the latter is sufficiently worn to remove it from the machine.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

Having described our invention, what we

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

1. In a typewriting machine, in combination, a type carrier, a ribbon carrier, a platen, separate means for shifting the platen and the ribbon carrier relative to the type carrier, and means for limiting the movement of one of the shifted parts when they are being shifted.
2. In a typewriting machine, in combination, a type carrier, an inking ribbon, a ribbon carrier therefor, a platen, separate means for shifting the platen and the ribbon carrier, and a flexible connection between the separate shifting means.
3. In a typewriting machine, in combination, a type carrier, an inking ribbon, a carrier therefor, a platen, separate means for shifting the platen and the ribbon carrier relatively to the type carrier, a flexible connection between the shifting means, and means for limiting the movement of said ribbon carrier.
4. In a typewriting machine, the combination of an inking ribbon, a shiftable platen, a carrier for the ribbon in the vicinity of the printing point of the platen, a yielding support for said carrier, means for shifting said carrier whereby the ribbon may be moved widthwise with respect to the printing point, and means for preventing said carrier from moving the ribbon from between the platen and the types when the former occupies any of a plurality of positions to which it may be shifted.
5. In a typewriting machine, in combination, a type carrier, a platen, an inking ribbon interposed between the type carrier and the platen, a ribbon carrier, separate means for shifting the platen and the ribbon carrier, and means for limiting the movement of the ribbon to positions within the field between the type and the platen when the two are moved to shifted position.
6. In a typewriting machine, in combination, a type carrier, an inking ribbon, a carrier therefor, a platen, means for shifting the inking ribbon widthwise, means for shifting the platen, a flexible connection between said shifting means, and means for positively limiting the movement of one of said shifted parts when they are being shifted, said flexible connection permitting the movement of one of the parts to be arrested prior to the arresting of the movement of the other.
7. In a typewriting machine, the combination of a shiftable platen, an inking ribbon mounted to be shifted therewith, means for moving the ribbon laterally with respect to the platen, and means for limiting the movement of the ribbon when the platen is shifted.
8. In a typewriting machine, the combination of a shiftable platen, a ribbon shift-

able therewith, means for moving the ribbon widthwise with respect to the platen, and means adapted when the ribbon has been moved widthwise to certain positions to hold the same stationary while the platen is being shifted.

9. In a typewriting machine, in combination, a type carrier, an inking ribbon, a carrier therefor, a platen, means for shifting the inking ribbon widthwise, means for shifting the platen, a flexible connection between said shifting means, and a pin and slot construction for positively limiting the movement of one of said shifted parts when they are being shifted.

10. In a typewriting machine, the combination of the type carriers, each of which is provided with a plurality of types, a shiftable platen cooperating with the types, an inking ribbon, a ribbon carrier located in the vicinity of the printing point and adapted to be shifted with the platen to carry the ribbon therewith, means for shifting said carrier to move the ribbon widthwise with respect to the platen, and means for limiting the movement of the ribbon when the platen is shifted.

11. In typewriting machines, the combination of the type carriers, each of which is provided with a plurality of types, a shiftable platen cooperating with the types, an inking ribbon, a ribbon carrier in the vicinity of the impression point of the platen guiding the ribbon past the printing point thereof, a spring support for said carrier, means for moving said carrier and the ribbon widthwise with respect to the printing point, means for moving said carrier with the platen when the same is shifted, and means for limiting the movement of the ribbon carrier when the platen is shifted.

12. In a typewriting machine, the combination with a shiftable platen, of a plurality of type carrying members each of which is provided with a plurality of types, a longitudinally traveling inking ribbon, a ribbon carrier in the vicinity of the printing point and adapted to guide the ribbon past the same, means for moving said carrier whereby the ribbon is moved widthwise of the platen, means for moving said carrier with the platen when the latter is shifted for upper or lower case printing, a spring support for said carrier, and means preventing said carrier from moving the ribbon outside of the field of the types during the shifting movements of the platen.

13. In a typewriting machine, the combination with the shiftable platen carriage, of a platen carried thereby, an inking ribbon, a carrier in the vicinity of the printing point of the platen adapted to guide the inking ribbon thereacross, a yieldable device extending from the carriage and interposed in the support of said carrier

whereby said carrier moves with the carriage when the platen is shifted for upper or lower case printing, and means holding said carrier stationary during portions of the shifting movements of the platen.

14. In a typewriting machine, in combination, a shiftable platen carriage, a platen carried thereby, an inking ribbon fed longitudinally of the platen, a ribbon carrier for supporting and guiding that portion of the ribbon being fed past the printing point of the platen, said carrier being yieldably supported from the platen carriage and shifting therewith, means for moving said carrier to carry the ribbon widthwise with respect to the printing point, and means for preventing a movement of said carrier with the platen that would carry the ribbon away from the printing point.

15. In a typewriting machine, the combination with a shiftable platen frame, of a platen carried thereby, the type carrying members each of which is provided with a plurality of types, an inking ribbon fed longitudinally of the platen, a ribbon carrier in the vicinity of the printing point adapted to control and guide the ribbon across the printing point, means for yieldably supporting said carrier from the platen frame whereby said carrier will move with the platen when the same is shifted for upper or lower case printing, means for moving said carrier with respect to the platen whereby the ribbon will be carried widthwise with respect to the printing point, and means adapted to prevent said carrier from moving the ribbon outside of the field of the type when the platen is in any of the positions to which it may be shifted.

16. In a typewriting machine, the combination with a shiftable platen frame, of a platen carried thereby, type carrying members, each of which is provided with a plurality of types, an inking ribbon fed longitudinally of the platen, a ribbon carrier in the vicinity of the printing point of the platen adapted to control and guide the movements of the ribbon thereat, a spring support for the ribbon carrier extending from the platen frame, said ribbon carrier being moved with the platen frame to carry the ribbon with the platen when the same is shifted for upper or lower case printing, means operating through said spring support to shift the carrier whereby the ribbon will be moved widthwise with respect to the printing point, and means for limiting the movements of the ribbon carrier when the platen is shifted to insure that the ribbon shall not be carried from between the types and the platen.

17. In a typewriting machine, the combination with a shiftable platen frame, of a

platen mounted thereon, type carrying members, each of which is provided with a plurality of types, an inking ribbon fed longitudinally past the printing point, a carrier for that portion of the ribbon being fed across the printing point of the platen adapted to control and guide the movements of the ribbon thereat, resilient means connecting said carrier with the platen frame, whereby said carrier will be shifted to carry the ribbon with the platen when the same is shifted for upper or lower case printing, and means operated at intervals to move said carrier, whereby the ribbon will be moved widthwise with respect to the printing point.

18. In a typewriting machine, the combination of a shiftable platen frame, a platen mounted thereon, type carrying members, each of which is provided with a plurality of types, an inking ribbon fed longitudinally past the printing point of the platen, a ribbon carrier in the vicinity of the printing point and adapted to control and guide the movements of the ribbon thereat, a spring support slidably connected to the platen frame upon which said ribbon carrier is pivotally mounted, said ribbon carrier being shifted with the platen frame to carry the ribbon therewith when the platen is shifted for upper or lower case printing, and means operating through said spring support for lifting or depressing said carrier whereby the ribbon will be moved widthwise with respect to the printing point.

19. In a typewriting machine, the combination of a platen frame fed for letter spacing, a platen mounted thereon, means for shifting said platen for upper or lower case printing, an inking ribbon fed longitudinally of the platen, a ribbon carrier adapted to support and guide that portion of the ribbon being fed past the printing point of the platen, resilient connecting means extending between said ribbon carrier and said platen frame, whereby the ribbon will be moved with the platen when the latter is shifted, and means actuated by a movement of the carriage acting through said resilient connection to lift or depress said carrier, whereby the ribbon will be moved widthwise with respect to the printing point.

20. In a typewriting machine, the combination with a shiftable platen frame fed for letter spacing, of a platen mounted thereon, an inking ribbon fed longitudinally of the platen, a carrier for the ribbon arranged in the vicinity of the printing point adapted to control and guide the movements of the ribbon thereat, a pivotal support for said ribbon carrier, means for resiliently connecting said pivotal support to the platen carriage, whereby said carrier will move

with the platen when the latter is shifted for upper or lower case printing, and means acting at intervals through said resilient connecting means to raise or depress said ribbon carrier to move the ribbon widthwise with respect to the platen, whereby substantially the entire surface of the ribbon may be utilized for printing purposes.

21. In a typewriting machine, the combination of a platen frame, a ribbon fed longitudinally thereof, a ribbon carrier in the vicinity of the printing point adapted to control and guide the movements of the ribbon past the same, a support upon which said carrier is pivotally mounted, and a pawl and ratchet controlled device for moving said support, at intervals, whereby said carrier will be lifted or depressed and the ribbon moved thereby widthwise with respect to the printing point.

22. In a typewriting machine, the combination of a platen, an inking ribbon fed longitudinally thereof, a carrier for the ribbon in the vicinity of the printing point adapted to control and guide that portion of the ribbon being fed across the printing point, a support upon which said carrier is pivotally mounted, an eccentric for lifting or depressing said support, whereby said carrier will be moved to carry the ribbon widthwise with respect to the printing point of the platen, and pawl and ratchet mechanism actuated at intervals to rotate said eccentric.

23. In a typewriting machine, the combination of a platen frame, an inking ribbon fed longitudinally thereof, a carrier for the ribbon in the vicinity of the platen and adapted to control and guide the movements of the ribbon across the printing point thereof, a support upon which said carrier is pivotally mounted, means including an eccentric for connecting said support to said platen frame, a ratchet wheel for rotating said eccentric, whereby said carrier through said support will be raised or depressed to carry the ribbon widthwise with respect to the printing point of the platen, and means actuating at intervals said ratchet wheel.

24. In a typewriting machine, the combination with the paper carriage, of a platen mounted thereon, an inking ribbon fed longitudinally of the platen, a carrier for said ribbon adapted to control and guide its movements past the printing point of the platen, a support upon which said carrier is pivotally mounted, means including an eccentric for connecting said support with said paper carriage, a ratchet wheel for rotating said eccentric whereby said support and the carrier are raised or depressed and the width of the ribbon changed in its relation to the printing point of the platen, and means carried by the paper carriage

which during a movement rotates said ratchet with said ratchet wheel.

25. In a typewriting machine, the combination of a shiftable paper carriage fed for letter spacing, a platen mounted thereon, an inking ribbon fed longitudinally of the platen, a carrier for that portion of the ribbon being fed across the printing point of the platen adapted to control and guide the movements of the ribbon across the same, means for connecting said ribbon carrier with the paper carriage, whereby the same will be carried therewith when the paper carriage is shifted for upper or lower case printing, a ratchet wheel connected with said connecting means, and a pawl carried by the paper carriage adapted during a movement thereof to actuate said ratchet wheel.

26. In a typewriting machine, the combination, with a shiftable paper carriage, of a platen mounted thereon, an inking ribbon fed longitudinally of the platen, a carrier for the ribbon adapted to support and guide the same past the printing point of the platen, a device upon which said carrier is pivotally supported, an eccentric for connecting said device with said paper carriage, said carrier being shifted with the platen for upper or lower case printing, a ratchet wheel for rotating said eccentric, and a pawl mounted upon said paper carriage actuating said ratchet wheel during a movement of the paper carriage.

27. In a typewriting machine, the combination with a platen, of a paper carriage upon which said platen is mounted, said paper carriage being fed for letter spacing and shifted for upper or lower case printing, an inking ribbon fed longitudinally of the platen, a carrier for said inking ribbon adapted to control and guide the movements thereof past the printing point of the platen, means, pivotally connected with said carrier and slidably connected with said platen frame, such means raised or depressed during the shifting movements of the carriage, whereby said carrier will move to carry the ribbon with the platen when the same is shifted, an eccentric raising or depressing the aforesaid means, whereby said carrier will be lifted or depressed and the ribbon moved widthwise with respect to the printing point, a ratchet wheel for rotating said eccentric, and a pawl mounted upon the paper carriage engaging and actuating said ratchet wheel during a movement of the paper carriage.

28. In a typewriting machine, the combination of a platen, a paper carriage upon which the same is mounted, an inking ribbon fed longitudinally of the platen, a carrier adapted to control and guide the movements of the ribbon past the printing point of the

platen, means for guiding said carrier, and means actuated by the longitudinal movement of the paper carriage for raising or depressing said carrier to move the ribbon widthwise with respect to the printing point of the platen.

29. In a typewriting machine, the combination of a shiftable platen, an inking ribbon fed longitudinally of the same, a carrier for supporting that part of the ribbon being fed across the printing point and adapted to guide and control the movements of the ribbon thereat, means for raising or depressing said carrier to move the ribbon widthwise with respect to the printing point, means for guiding the movements of said carrier, said guiding means operating to limit the movements of said carrier when the platen is shifted so as to insure that the ribbon shall not be carried from between the printing point of the platen and the types.

30. In a typewriting machine, the combination of a shiftable platen, an inking ribbon fed longitudinally of the same, a carrier arranged to support that portion of the ribbon being fed across the printing point of the platen and adapted to guide and control the movements of the ribbon thereat, a spring support upon which said carrier is pivotally mounted to raise or depress the carrier, whereby the widthwise extent of the ribbon relative to the printing point will be changed and substantially the entire surface of the ribbon utilized for printing purposes, means for connecting said support with the platen, whereby said carrier will be shifted with the platen, and means for guiding said carrier which limit the movements thereof during the shifting of the platen for upper and lower case printing.

31. In a typewriting machine, the combination with a shiftable platen, of a vertically disposed ribbon guide, a ribbon carried by said guide and normally disposed in the path of travel of the type carriers, an operating lever, one arm of which is pivotally connected with and coacts with the lower part of said guide, an actuator, a connection between said actuator and the other arm of said lever adapted to oscillate said lever as the actuator moves, thereby to cause the ribbon guide to move progressively up and down, and means for shifting the platen and guide vertically whereby they maintain the same relative position when printing upper and lower case characters.

32. In a typewriting machine, the combination of a platen, a type carrier, a key lever for said type carrier, a ribbon guide, a ribbon carried thereby normally positioned opposite the printing point on the platen and in the path of the type carriers, an operating lever for said ribbon guide, a

part on which said lever is fulcrumed, means for actuating said lever, and means operating independently of the printing key lever for bodily moving said part and said operating lever together.

33. In a typewriting machine, in combination with a platen, of means for shifting said platen, a ribbon guide, a ribbon carried thereby, an operating lever for said guide, a part on which said lever is fulcrumed, and means for actuating said lever, said lever being so connected with the platen shifting means as to move bodily when the platen shifting means is actuated.

34. In a typewriting machine, the combination with a platen, of type carriers adapted to coact therewith, means for shifting the platen for upper case characters, a ribbon guide, a ribbon carried thereby normally positioned in the path of travel of the type carriers, an operating lever for said guide, a part on which said lever is fulcrumed, and a member having a connection with said lever for actuating the lever, said lever and guide being so connected with the platen shifting means as to move bodily with the platen when shifted, whereby the ribbon maintains the same relative position to the printing point in both shifted and normal positions.

35. In a typewriting machine, in combination with a platen, of a ribbon guide, a ribbon carried thereby normally opposite the printing point on the platen, a lever connected with the guide, an actuator having a connection with said lever, and means for automatically moving said actuator to oscillate the lever and cause said ribbon guide to move the ribbon progressively in a direction transverse to its length.

36. In a typewriting machine, the combination with a platen, of a type carrier adapted to coact therewith, a printing key lever for actuating said type carrier, a ribbon guide, a ribbon carried thereby normally positioned in the path of travel of the type carrier opposite the printing point, a pivotally mounted lever supporting said guide near one end, an actuator having a connection with said lever adapted to oscillate said lever as the actuator moves to progressively feed ribbon in a direction transverse to its length back and forth across the printing point, whereby the impressions made with the type carriers thereon will produce a wavy line, and means adapted to be actuated independently of the printing key levers for bodily moving said ribbon guide with respect to its normal position.

37. In a typewriting machine, the combination with a platen, of a type carrier adapted to coact therewith, a printing key lever for actuating said type carrier, a ribbon guide, a ribbon carried thereby nor-

5 mally positioned in the path of travel of the type carrier opposite the printing point, a pivotally mounted lever supporting said guide near one end, an actuator having a connection with said lever adapted to oscillate said lever as the actuator moves to progressively feed ribbon in a direction transverse to its length back and forth across the printing point, whereby the impressions
10 made with the type carriers thereon will produce a wavy line, and shifting mechanism adapted to shift the platen and ribbon simultaneously, whereby they will main-

tain the same relative position when printing upper case characters.

In testimony whereof we affix our signatures, in the presence of two witnesses.

WELLINGTON P. KIDDER.
CHARLES W. SPONSEL.

Witnesses as to W. P. Kidder:

HENRY W. WILLIAMS,

A. M. TAIT.

Witnesses as to C. W. Sponsel:

HARRY R. WILLIAMS,

DANIEL WESTIN.