

1,273,010.

A. W. SMITH.
TYPE WRITING MACHINE.
APPLICATION FILED MAY 10, 1917.

Patented July 16, 1918.

2 SHEETS—SHEET 1.

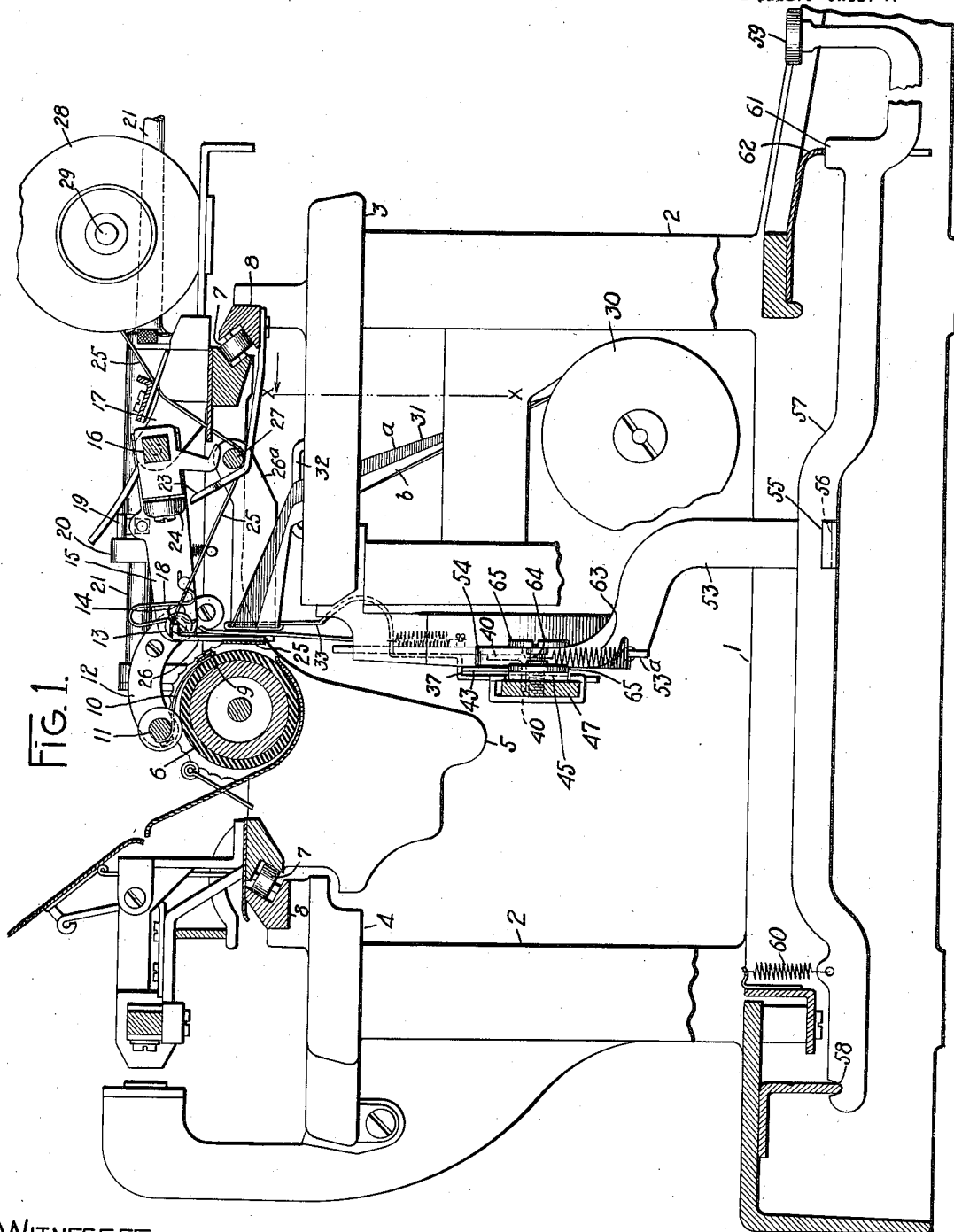


FIG. 1.

WITNESSES

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ARTHUR W. SMITH, OF NEW YORK, N. Y., ASSIGNOR TO REMINGTON TYPEWRITER COMPANY, OF ILION, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

1,273,010.

Specification of Letters Patent.

Patented July 16, 1918.

Application filed May 10, 1917. Serial No. 167,629.

To all whom it may concern:

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

My present invention relates to ribbon mechanism for typewriting machines, and its principal object is to provide novel key set ribbon guiding means.

To the above and other ends which will subsequently appear, my present invention consists in the features of construction, combinations of devices and arrangements of parts hereinafter described and particularly pointed out in the claims.

In the accompanying drawings which illustrate the preferred form of my invention,

Figure 1 is a fragmentary side elevation, partly in section, of one style of No. 11 Remington typewriter machine embodying my invention, parts being omitted.

Fig. 2 is a fragmentary vertical sectional view, on a larger scale than Fig. 1, the section being taken on a plane indicated by the dotted line $x-x$ in Fig. 1, but some of the parts shown in said figure being omitted.

Fig. 3 is a fragmentary plan view showing parts of my invention.

Fig. 4 is a detail view.

Fig. 5 is a diagrammatic view illustrating varying relationships of the ribbons, the type shield and work sheets.

Referring especially to Fig. 1, the main frame of the machine comprises a base 1, posts 2 and top plate sections 3 and 4. The main carriage 5 carries a platen 6 and co-operates through rollers 7 with fixed trackways 8. The usual printing instrumentalities and escapement devices are omitted from the drawing. A type shield or manifold cut-out device in the form of a metal strip 9 extends lengthwise along the platen at its front side and normally above the printing line, said strip being carried by arms 10 connected to its ends, which arms are secured to the cross bar 11 of a pressure bail which further comprises arms 12. Said arms 12 curve forward and downward and are provided with lateral headed screws 13 which engage in slots, indicated at 14, said slots being

formed in arms 15 fixed to a squared rock shaft 16 supported in brackets 17 mounted on the front portion of the carriage. Springs 18 coöperate with screws 13 to maintain them at the rear of the slots 14, the construction affording freedom of motion of the bail and the ribbon shield or cutout strip so that the latter may be moved substantially circumferentially of the platen to cover and uncover the printing line. This movement may be effected either by hand or by devices comprising a pin 19 extending forward from a crank arm 20 on the usual line spacing rock shaft 21, said pin coöperating with a projection 22 on the right-hand arm 15 to lower the type shield into operative position when the line spacing rock shaft is operated. A restoration of the strip to inoperative position is automatically effected during endwise movements of the carriage by a fixed double cam 23 that coöperates with a roller 24 carried by the rock shaft 16. The type shield or cutout strip may be employed effectively in coöperation with my improved ribbon guide to obtain various desired results in the printing of superposed work sheets, as will be hereinafter explained more in detail.

The present style of machine is provided with a carriage carried ribbon 25 which extends lengthwise of the platen opposite the printing line between two guides 26 which are at the rear ends of arms 26^a fixed to a rock shaft 27 supported at its ends on the side bars of the carriage. From the guides 26 the ribbon extends forward, passing under the rock shaft 27 and thence upward to parallel spools 28 arranged near opposite ends of the carriage and mounted on a shaft 29 which is actuated to turn the spools and feed the carriage carried ribbon 25 back and forth in a manner more fully explained in the application of Joseph Phelps, Serial No. 170,199, filed May 22, 1917.

My improved ribbon guide is employed in connection with a ribbon which is wound on spools 30 arranged at the sides of the machine under the top plate section 3, said spools being mounted and controlled as in the No. 11 Remington machine. From the spools 30 the ribbon 31 is led upward, passing through holes in the top plate section 3 and over guide bars 32, and thence inward, said ribbon being controlled opposite the printing point by novel ribbon guiding de-

vices instead of by the usual ribbon vibrating mechanism. The ribbon 31 may be divided lengthwise into two fields or stripes of different colors or characteristics. In the present instance the upper field a may be black and the lower field b uncolored or white.

Centrally the ribbon 31 is threaded through a ribbon carrier or guide, indicated at 33, and which in itself may be of any preferred construction. The present guide is formed of sheet metal and is punched and shaped as shown. Its head is provided with guide loops 34 for the ribbon 31 and its stem or body portion is curved or bent rearward, passing through a slotway 35 formed in the usual segmental plate 36, and thence downward behind said plate, being offset to provide a shoulder 37. In order to lighten the guide it is preferably formed with cut-outs, as indicated at 38, and as a consequence said shoulder is divided into two portions since the upper cut-out extends through the shoulder. Where it passes through the slotway 35 the ribbon guide or carrier 33 is provided with notches or cut-outs 39 which loosely embrace the edges or walls of the slot, this construction providing a guide for the upper portion of the ribbon carrier behind the plate 36. Secured to said plate centrally and near its lower end is a slotted guide 40 which coöperates with the lower end portion of the ribbon carrier, said guide coöperating with the upper guiding devices to prevent displacement of the ribbon carrier and confining it to a rectilinear up and down path. The guide or carrier 33 is thus slidably mounted on a stationary part of the machine. A vertical draw spring 41, hooked at its upper end into a hole in the stem of the guide and at its lower end anchored by a screw 42 to the plate 36, tends constantly to pull or draw the ribbon carrier or guide 33 downward and maintains it constantly engaged at its left-hand shouldered portion 37 with the top face of the inner or right-hand arm of a lever or stop member 43. Said lever is of the first order, being fulcrumed between its ends on a shoulder screw 44, which shoulder screw 44 is secured to a plate 45, said plate in turn being suitably secured, as by screws 46, to a stationary toothed stop bar 47 that is arranged within the main frame and extends from side to side of the machine. The outer or left-hand arm of the lever 43, which is considerably shorter than the right-hand arm, underlies and constantly engages with an abutment 48, best shown in Fig. 4. Said abutment may be variously shaped, according to the number of ribbon fields or stripes that are to be employed. In the present instance the abutment is oblong in shape and is provided with two pairs of parallel stop

faces 49 and 50, and is rotatably mounted on a shoulder screw 51, which is also secured to the detachable plate 45. Formed preferably integral with the stop device or abutment 48 and arranged forward thereof is a ratchet wheel or device 52, square in shape and provided at each corner with a ratchet tooth 52^a whereby the abutment 48 may be turned to cause its four faces to be brought successively into coöperative engagement with the upper edge of the lever 43, the latter underlying said abutment with its left-hand arm and being maintained constantly in engagement therewith through the spring 41. This spring means or spring 41, acting through the shoulder 37, presses down on the inner arm of the lever 43 and consequently tends to lift its outer arm. Movement of this outer arm however, is limited by the abutment or stop device 48, which is effective positively to prevent movement of the ribbon guide across the printing line in at least one direction, that is, downward in the present case. Since the faces 50 and 49 are at different distances from the center of rotation of the combined stop and ratchet device 48, 52, a rotation of said device by means now to be described will alternately raise and lower the ribbon carrier, thus providing for a variation in its normal position and a consequent change in respect to the printing point p on the platen of the printing portion of the ribbon 31, or that portion between the guide loops 34.

The means for turning the ratchet device 52 comprises an upright arm or pawl member 53, provided at its upper end with a pawl tooth 54, which is in the plane of the ratchet device but is normally maintained above and out of engagement with the ratchet teeth 52^a. The lower end of the arm 53 is hooked or U-shaped, as indicated at 55, and engages with a notch 56 in the under face of a key lever 57, said key lever being fulcrumed at its rear on a plate 58 and being provided at its front with a key or button 59. A restoring spring 60 maintains the key lever 57 and key 59 in a single normal position, which is determined by the engagement of a projection 61 on the key lever with a stationary guide plate 62. A coiled spring 63, hooked at its lower end in a perforated lug 53^a projecting laterally from the arm 53, extends upward and at its upper end is hooked around or anchored to the shank 64 of a guide screw which further comprises heads 65, separated by said shank, said guide screw being secured to the plate 45 and providing a guide for the upper end portion of the arm 53, which is loosely confined between the opposite faces of the heads 65. These faces prevent fore and aft displacement of the arm 53 while lateral displacement is prevented by the ratchet

member 52 and the shank 64 of the screw, said guide also being loosely confined between these two parts. The spring 63 tends constantly to lift the pawl member or arm 53 and normally maintains it disengaged from the ratchet device 52, as illustrated in Fig. 2.

Assuming that the other parts are in the position illustrated in full lines in Figs. 2 and 4, it will be observed that the lever 43 is engaged with one of the faces 50 and that as a result the position of the lever is fixed, its inner arm acting as a stop in direct engagement with the ribbon guide 33 which as a consequence is set or normally positioned so that the printing portion of the ribbon covers the printing point with its upper field or stripe *a*. With the parts thus set, operation of the printing instrumentalities will cause the type impressions to be offset on the underlying work sheet through the ribbon field *a* and the type impressions will make a straight path lengthwise of said ribbon field. It will be understood that the ribbon guide will remain stationary or quiescent during printing operations. If it should be desired to dispense with printing on the ribbon field *a*, the key 59 may be depressed, lowering the arm 53 and causing the pawl tooth 54 to engage with the underlying ratchet tooth 52^a, turning the ratchet device 52 and abutment 48, carrying the contacting face 50 out of engagement with the underlying lever 43 and bringing one of the abutment or stop faces 49 into operative contact with said lever. The throw of the pawl 54 is such, under the action of the key 59, that it is effective to turn the rotary device only far enough at this operation to change from the face 50 to the following face 49. On releasing the key 59 it will return under the action of its spring 60 to its normal position, the spring 63 at the same time restoring the arm 53 to its normal position. When the rotary device 52, 48 is turned as described, it will result in forcing the ribbon guide to be slid upward or raised to the dotted line position shown in Fig. 2, this action being brought about by an enforced slight rotation of the lever 43 on its fulcrum, the outer or short arm of the lever being lowered and its inner arm raised. This action results from the fact that the parallel faces or abutments 49 are farther from the center of rotation of the rotary device 48, 52 than are the parallel abutments or stop faces 50. The two sets or pairs of stop faces are so related that as a consequence of a change from one stop face 50 to a stop face 49 the ribbon carrier, through the interposed lever 43 and under action of the spring 41, is shifted upward far enough to bring its field *b* opposite the printing point *p* so that the types will act through the field *b* when actuated. The new setting of the parts is shown by dotted

lines in Fig. 2. This field *b* of course may be a differently colored field from the field *a* but in the present instance said field *b* is uncolored so that there will be no printing effected through the ribbon 31 when the ribbon guide is reset as described. Of course the same result would be obtained if the ribbon were narrow and comprised a single field *a*. If, on the other hand, the ribbon had, say, three fields, the abutment 48 would be provided with three stop faces at different distances from the center of rotation. At the next actuation of the field changing key 59 the pawl and ratchet devices 52, 54 will again rotate the abutment 48, bringing the second face 50 into contact with the lever 43, the inner arm of the lever being consequently lowered and the ribbon guide slid or pulled downward through the action of its spring 41. From what has been said it will be understood that operations of the key 59 are effective by means of the devices described to cause repeated successive raisings and lowerings of the ribbon guide, which by reason of this setting and resetting can cause the ribbon to be maintained in a desired predetermined relationship with the printing point or line on the platen. The improved devices may readily be applied to existing styles of machines. The detachable plates 45 carries the lever 43, device 48, 52 and guide 65, and by unhooking the lower end of the arm 53 all these parts may be removed with the plate 45.

In Fig. 5 is diagrammatically illustrated the relationship of the ribbons, cut-out and work sheets opposite the printing point. The ribbon 31 and the cut-out may be thrown out alternately or together, and various combinations of printing the various work sheets may be had. For example, by throwing up the ribbon 31 the outer sheet will not be printed, while with the cut-out 9 down the sheet or sheets behind the cut-out will be shut off so that they also will not receive type impressions. Similarly raising the cut-out and lowering the ribbon guide 33 will enable both the outermost work sheet and those behind the cut-out to be printed; or the cut-out may be left operative while the outer sheet prints from ribbon 31. Other combinations will suggest themselves, and may readily be effected, according to the exigencies of the work.

Various 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 of a platen, a ribbon guide for normally maintaining the ribbon opposite the printing point on the platen, and pawl and ratchet mechanism controlled by a single key for setting said guide in variable positions.

2. In a typewriting machine, the combination of a platen, a ribbon guide for normally maintaining the ribbon opposite the printing point on the platen, a movable stop upon which said guide rests, and means comprising a key having a single normal position for variably setting said stop and guide.
3. In a typewriting machine, the combination of a platen, a ribbon guide for normally maintaining the ribbon opposite the printing point on the platen, and a key controlled abutment effective to vary the normal position of said guide and positively to prevent movement of said guide across the printing line in one direction.
4. In a typewriting machine, the combination of a platen, a ribbon guide, and a stop with which said guide constantly coöperates, said stop being variably settable and being effective positively to prevent movement of said guide across the printing line in one direction.
5. In a typewriting machine, the combination of a platen, a ribbon guide, a stop with which said guide constantly coöperates, and key controlled means for variably setting said stop, said stop being effective positively to prevent movement of said guide across the printing line in one direction.
6. In a typewriting machine, the combination of a platen, a ribbon guide, a stop with which said guide constantly coöperates, said stop being effective positively to prevent movement of said guide across the printing line in one direction, devices for varying the location of said stop, and a single key for actuating said devices.
7. In a typewriting machine, the combination of a platen, a slidable ribbon guide, a spring constantly urging said guide in one direction, a lever one arm of which is coactive with said guide, a stop device coactive with the other arm of said lever, and devices for resetting said stop to change the normal position of said lever.
8. In a typewriting machine, the combination of a platen, a slidable ribbon guide, a spring constantly urging said guide in one direction, a lever one arm of which is coactive with said guide, a stop device coactive with the other arm of said lever, a key, and connections between said key and said stop for shifting said stop.
9. In a typewriting machine, the combination of a platen, a slidable ribbon guide, a spring constantly urging said guide in one direction, a lever one arm of which is coactive with said guide, a stop device coactive with the other arm of said lever, and pawl and ratchet devices for rotating said stop.
10. In a typewriting machine, the combination of a platen, a ribbon carrier, a stop lever for said carrier, a spring constantly tending to turn said lever on its fulcrum, and a key controlled device effective to overcome said spring.
11. In a typewriting machine, the combination of a platen; a ribbon guide; and means for variably setting said guide comprising a rotary stop, a series of teeth, and a key controlled pawl engageable with said teeth.
12. In a typewriting machine, the combination of a platen, a ribbon guide that remains stationary during printing operations, and means comprising an abutment variably settable to vary the position of said guide and effective positively to prevent movement of said guide across the printing line in one direction.
13. In a typewriting machine, the combination of a platen, a ribbon carrier, and two coöperating rotary stops for positioning said carrier.
14. In a typewriting machine, the combination of a platen, a ribbon carrier, a rotary stop provided with ratchet teeth, a key operated pawl, and a lever interposed between said stop and said ribbon carrier.
15. In a typewriting machine, the combination of a ribbon carrier, a lever against which said carrier constantly abuts, and means comprising pawl and ratchet devices for controlling the normal position of said lever.
16. In a typewriting machine, the combination of a ribbon carrier, a lever against which said carrier constantly abuts, and means comprising pawl and ratchet devices for controlling the normal position of said lever and a plate removably mounted and when removed carrying said lever and said pawl and ratchet devices.
17. In a typewriting machine, the combination of a ribbon carrier, a variable abutment, a lever between said abutment and said ribbon carrier, and spring means constantly effective to maintain said lever in contactive engagement with both said ribbon carrier and said abutment.
18. In a front strike typewriting machine, the combination of a platen, an upright ribbon guide, a variable stop, a horizontally disposed lever of the first order, and spring means constantly effective to maintain said ribbon and one arm of said lever in contactive engagement and the other arm of said lever and said stop in contactive engagement.
19. In a typewriting machine, the combination of a platen, a ribbon guide that remains stationary during printing operations, and a type shield, said shield and said guide being independently controllable so that one of them may be operative while the other is inoperative, or both may be operative or inoperative at the same time.
20. In a typewriting machine, the combination of a carriage, a platen, a ribbon guide

mounted on a stationary part of the machine,
said guide remaining quiescent during print-
ing operations, a carriage carried ribbon
guide, and a type shield, said shield and said
5 first recited ribbon guide being independ-
ently settable in predetermined positions.

Signed at the borough of Manhattan, city

of New York, in the county of New York
and State of New York this 9th day of May,
A. D. 1917.

ARTHUR W. SMITH.

Witnesses:

CHARLES E. SMITH,
E. M. WELLS.