

1,009,351.

H. H. STEELE.
TYPE WRITING MACHINE.
APPLICATION FILED JAN. 18, 1910.

Patented Nov. 21, 1911.

3 SHEETS-SHEET 1.

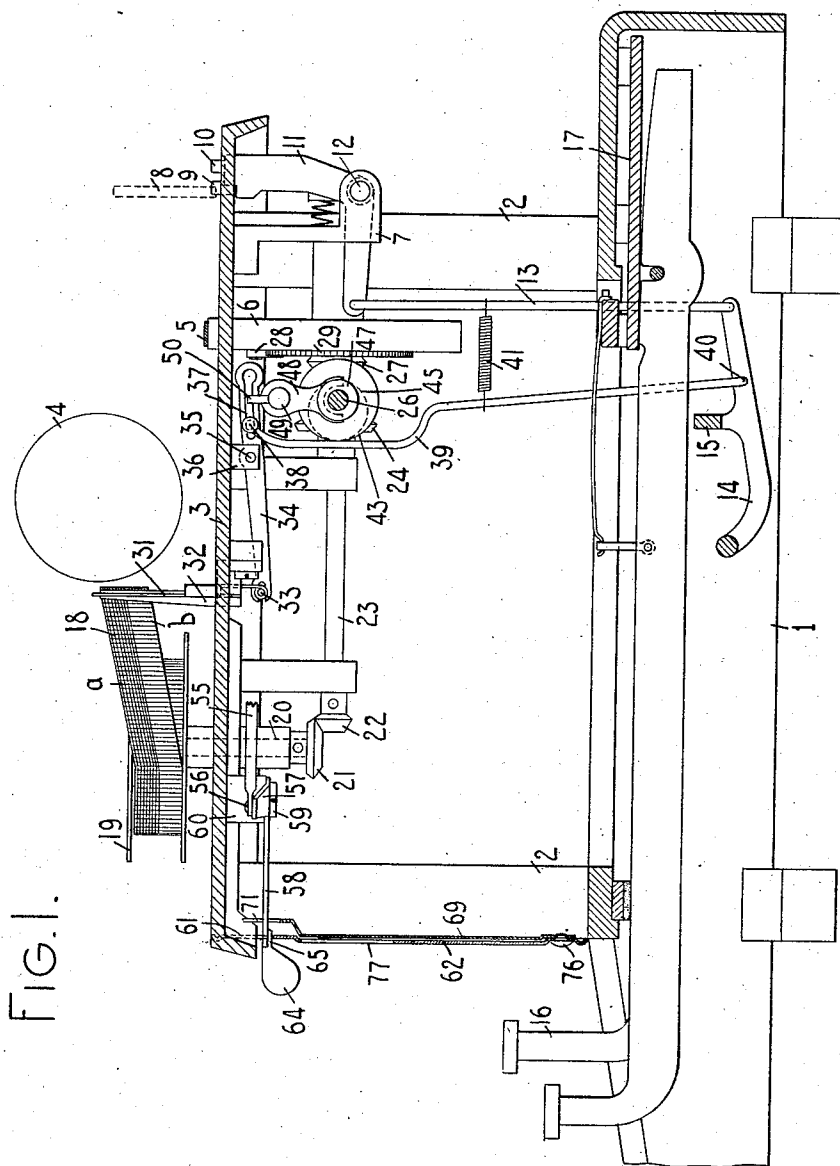


FIG. 1.

WITNESSES:

E. M. Wells.

M. W. Pool

INVENTOR:

Herbert H. Steele

By Jacob Field

HIS ATTORNEY

FIG. 2.

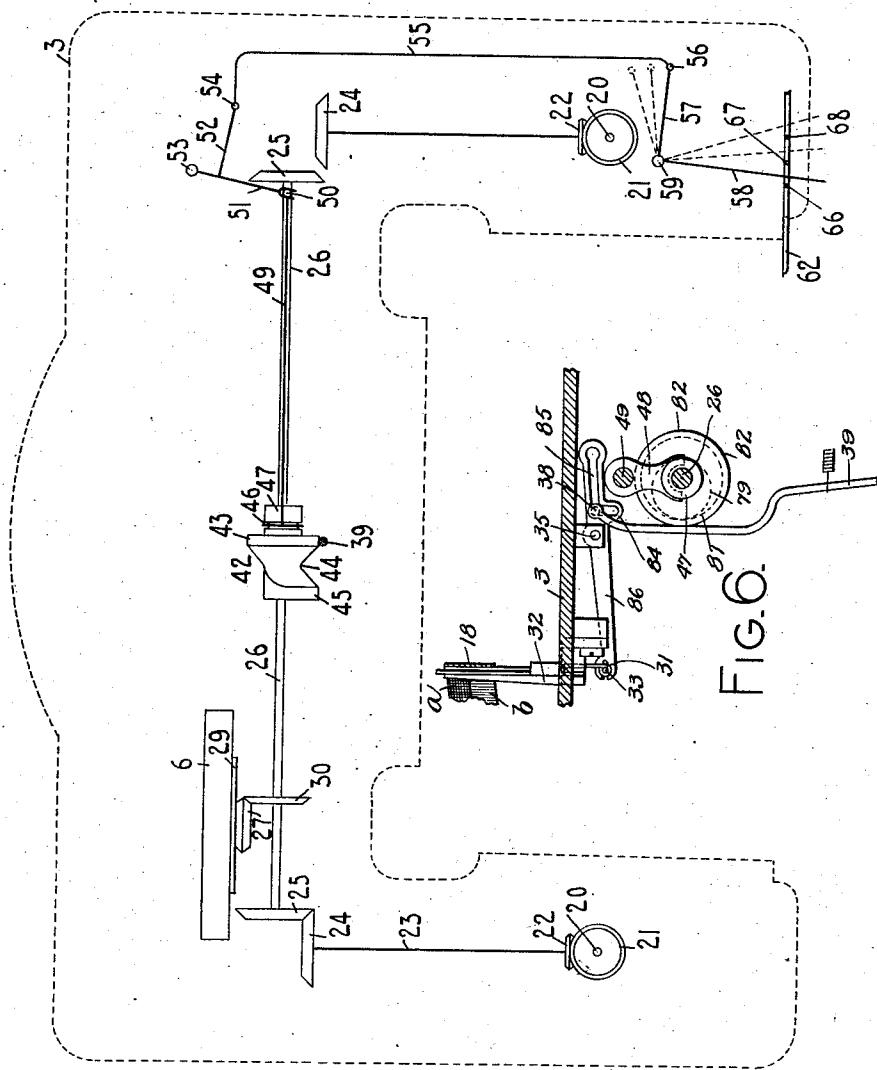
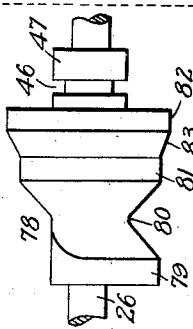


FIG. 6.

WITNESSES.

E. M. Wells.
M. W. Pool

FIG. 7.



INVENTOR.

Herbert H. Steele
By Jacob F. Ford

HIS ATTORNEY

1,009,351.

3 SHEETS—SHEET 3.

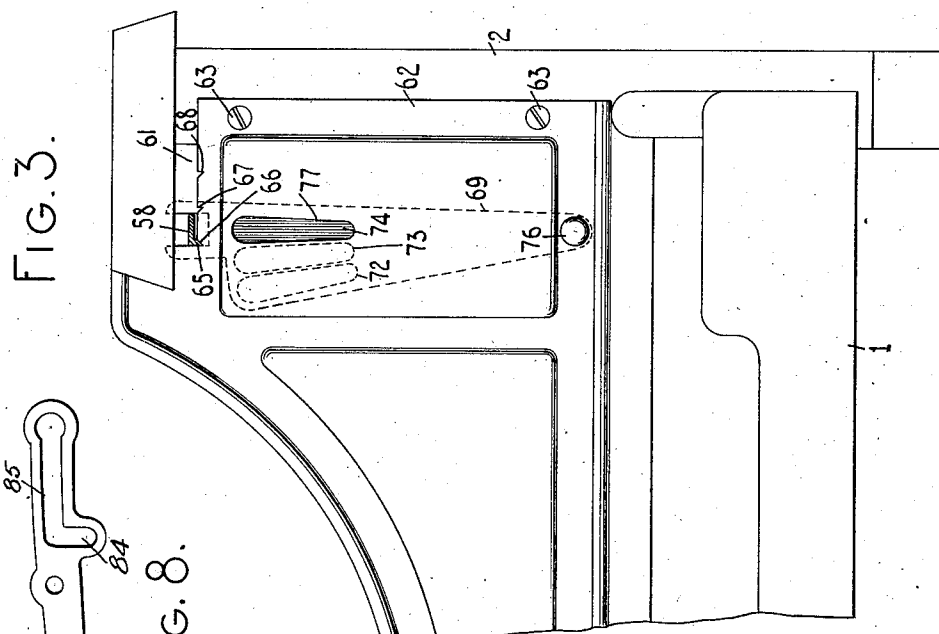
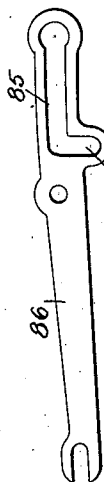


FIG. 3.



ਯੋਗੇਸ਼ੁ

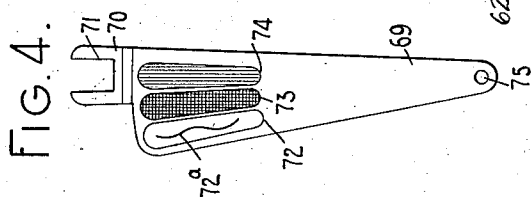
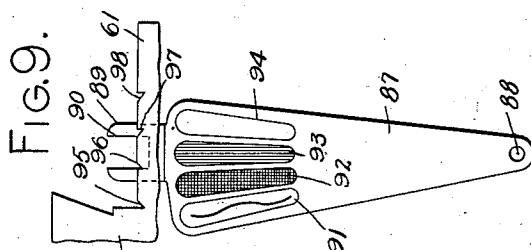
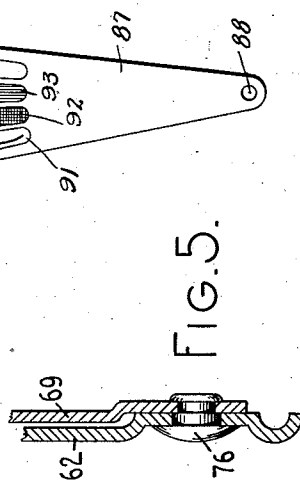


FIG. 4.



ഒം
ഓം
ഔം



561

WITNESSES:

E. M. Wells.
m.w. Pool

INVENTOR:

Kenneth H. Steele
By Jacob Falck

HIS ATTORNEY

UNITED STATES PATENT OFFICE.

HERBERT H. STEELE, OF MARCELLUS, NEW YORK, ASSIGNOR TO THE MONARCH TYPE-
WRITER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

1,009,351.

Specification of Letters Patent.

Patented Nov. 21, 1911.

Application filed January 18, 1910. Serial No. 538,639.

To all whom it may concern:

Be it known that I, HERBERT H. STEELE, citizen of the United States, and resident of Marcellus, in the county of Onondaga 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 ribbon mechanism for typewriting machines and more especially to ribbon controlling and indicating devices for such ribbon mechanism.

The general object of the invention is to provide improved devices of the classes specified.

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

In carrying out my invention in the present instance I provide a shiftable plate on which are suitable marks to indicate whether the ribbon mechanism is arranged for cross feeding or whether one or another of a plurality of different ribbon fields are operative. This shiftable plate is arranged to coöperate with a fixed or stationary plate having an opening or sight hole so that when the ribbon mechanism is set or re-arranged the corresponding mark or signal on the shiftable plate will be brought opposite the opening in the fixed plate so as to indicate visually to the operator the way in which the ribbon mechanism is set to operate at the time.

In another form of my invention herein shown the shiftable indicating plate is provided with an additional mark to indicate when the ribbon mechanism is inoperative so as to be adapted for stencil work. Further I provide detent devices for controlling the shifting mechanism for the ribbon whereby the shift from one field to the other is readily accomplished, while additional action is necessary to switch for cross feeding or for stencil work.

Two forms of my invention are shown in the accompanying drawings, wherein—

Figure 1 is a fragmentary vertical, sectional view taken fore and aft of a Monarch typewriting machine embodying my invention, parts of the machine being omitted and parts broken away. Fig. 2 is a diagrammatic plan view showing the ribbon

mechanism and the indicating devices in association therewith. Fig. 3 is a fragmentary front elevation, partly in section, showing a portion of the front part of the machine with the ribbon indicating mechanism associated therewith. Fig. 4 is a detached view of the shiftable indicating plate. Fig. 5 is a fragmentary vertical sectional view showing the mounting of the shiftable indicating plate. Fig. 6 is a fragmentary side view, partly in section, of a form of ribbon mechanism different in some respects from that shown in Figs. 1 to 5. Fig. 7 is a detail view of part of the ribbon mechanism shown in Fig. 6. Fig. 8 is a detached view of the ribbon operating lever shown in Fig. 6. Fig. 9 is a front elevation showing a modified form of shiftable indicating plate.

Referring first to the construction shown in Figs. 1 to 5, the main frame of the machine comprises a base 1, corner posts 2 and a top plate 3. A platen 4 (diagrammatically illustrated in Fig. 1) is mounted in a carriage (not shown), which is connected by a strap 5 with a spring drum 6 journaled on a stationary bracket 7. The carriage feeding or escapement devices comprise a toothed wheel 8 connected with a carriage and coöperating with dogs 9 and 10 on a rocker 11 pivoted at 12 on the bracket 7 and connected by a link 13 with a universal bar frame 14 which is pivoted in the base 1 and carries a universal bar 15. Key levers 16 are fulcrumed on a fulcrum plate 17 and are connected with type bars (not shown). The key levers operate the type bars and also actuate the universal bar frame.

A ribbon 18 is wound on spools 19, one arranged horizontally at each side of the machine above the top plate and forward of the platen. Said spools are on vertical shafts 20, each carrying a beveled pinion 21 which meshes with a beveled gear 22 on a shaft 23 supported from the top plate and also carrying a beveled pinion 24 which is adapted to mesh with a driving pinion 25 at one end of a driving shaft 26.

Each ribbon spool is connected as above described with a gear 24, the two gears 24 being adapted to mesh alternately with their driving gears 25, so that the spools may be turned in alternation to wind or feed the ribbon back and forth. The driving shaft 26 has connections with the spring

drum 6 including a beveled gear 27 having a pawl and ratchet connection 28, 29 with the spring drum, said gear 27 meshing constantly with a beveled gear 30 which is on and rotates the shaft 26 but has a slidable connection therewith.

Midway between the spools the ribbon is threaded through a carrier or vibrator 31 supported on a stationary guide 32 and pivotally connected at 33 with an operating lever 34 fulcrumed at 35 on a lug 36 depending from the top plate 3. The rear arm of the lever 34 has a slot 37 which receives a lateral pin 38 carried at the top of a link 39 pivotally connected at 40 with the universal bar frame 14. A coiled spring 41 connects the link 39 with the link 13 and tends constantly to draw said link 39 rearward about its pivotal center 40, but such movement is controlled by a member 42 slidably mounted and rotatable by the driving shaft 26. Said member 42 comprises a circular operating face 43, a smaller circular face 44 (the faces 43 and 44 being concentric with the shaft 26), and a circular operating face 45 which is eccentric to the shaft 26. The operating faces are connected by curved surfaces so that by sliding the member 42 lengthwise of the shaft 26 by hand controlled means any desired operating face may be brought into cooperation at its front side with the link 39. Said hand means cooperate with a groove 46 in a hub 47 on the member 42 and comprise an arm 48 bifurcated to cooperate with the groove 46, the upper end of said arm being secured to a slide rod 49 which carries a pin 50 engaging the forked end of an arm 51 of a bell crank lever which further comprises an arm 52 and has a pivot 53 fixed to the top plate. The arm 52 is pivotally connected at 54 with a link 55, the forward end of said link being pivotally connected at 56 with an arm 57 of a bell crank lever which further comprises a forwardly extending flexible spring arm 58, said bell crank lever being pivoted on a shoulder screw 59 which as shown in Fig. 1, is supported by a lug 60 depending from the top plate. The lever arm 58 extends forward through a slot or cut-away 61 formed at the right-hand top portion of the usual stationary front plate 62 of the machine, which front plate is secured by screws 63 to the posts 2. As thus far described the mechanism is or may be that of the Monarch machine.

Bent down from the forward end of the lever 58 is a finger piece or key 64, said finger piece being vertically disposed and arranged forward of the front plate 62 so as to be readily accessible, as shown in Fig. 1. The rear end of the bent down or finger portion 64 of the lever arm 58 is beveled on one side as indicated at 65, forming a pointed tongue the left-hand side of which is ver-

tical, the right-hand side being beveled or inclined upward therefrom (Fig. 3). This tongue is adapted to engage with one or another of a plurality of pointed notches 66, 67 and 68 cut in the horizontal edge of the slotted portion 61 of the front plate. Each of these notches has a vertical edge and a beveled edge. As will be seen from Fig. 3 the vertical face of the left-hand notch 66 is at the left-hand side of the notch and is coincident with the left-hand edge of the slot 61 while the right-hand edge of said notch is beveled. The edges of the notch 67 are oppositely disposed, the right-hand edge being vertical and the left-hand edge beveled. The edges of the notch 68, which lies at the right of the notch 67, are disposed similarly to the edges of the notch 67.

It will be understood that the beveled tongue 65 and the cooperating notches operate as detents to set the ribbon controlling member 42 so as to maintain predetermined faces on said controlling member in operative engagement with the link 39. Thus when the parts are arranged as shown in Figs. 1 to 3, the tongue 65 and notch 66 maintain the operating face 43 in cooperation with the link 39 so that the vibrator may receive an unvarying extent of movement or throw, such as will enable it to present the lower portion or field *b* of the ribbon 18 opposite the printing point.

If it is desired to write lengthwise of the upper ribbon field *a* of the ribbon 18, the finger piece 64 is pushed rightward, the inclined edge of the slot 66 acting as a cam to force the tongue 65 up out of the slot 66, the flexible lever arm 58 yielding sufficiently for the purpose. During further rightward movement of the lever arm 58 the point or lower edge of the tongue 65 will slide over the edge of the slot 61 between the notches 66 and 67. As soon as the tongue reaches the slot 67 the inherent spring in the arm 58 will force it into the notch and the right-hand vertical edge of said notch will act as a stop to prevent further movement under ordinary conditions. If it be desired to continue rightward movement it is preferable first to lift the finger piece 64 to raise the tongue entirely out of the notch 67, although by applying greater power sidewise the tongue may be forced out of the notch 67. This movement of the arm 58 and its tongue 65 from the notch 66 to the notch 67 will operate through the described mechanism to slide the member 42 along the shaft 26 toward the right, bringing into operation the face 44. At the same time the link 39 and pin 38 will be drawn rearward by the spring 41, so that when the link 39 is pulled downward, the operating lever will move only far enough to raise the upper ribbon field *a* to the printing position.

It will be understood that the outer or

vertical sides of the oppositely disposed notches 66 and 67 will serve as stops during ordinary sliding movements of the tongue 65 back and forth between said notches, while the inclined edges of said notches will serve as cams for said tongue to lift the same out of the notches. This enables a change from one of the ribbon fields *a* or *b* to the other to be readily effected by side pressure on the finger piece so that the ribbon mechanism may be positioned for writing lengthwise along one ribbon field or the other.

If a ribbon of uniform character throughout be substituted for the ribbon 18, then it will ordinarily be desired to feed said uniform ribbon automatically crosswise as well as lengthwise so that substantially the entire width may be utilized. To obtain this result it is necessary to shift the lever 57, 58 rightward until the tongue 65 engages with the third notch 68, the lever arm 58 being flexed and the tongue 65 lifted to clear the notch 67. After the notch 67 has been cleared the lifting pressure may be relaxed and the finger piece 64 merely pushed toward the right until the tongue 65 engages with the slot 68, the vertical right-hand edge whereof will act as a stop to prevent further rightward movement. This movement brings the face 45 into coöperation with the link 39, resulting in automatic variations in the throw of the ribbon. It will be seen that I provide a novel and improved construction comprising the devices 65 to 68 inclusive for positioning and setting the ribbon.

The novel indicating devices associated with the above described ribbon controlling and field-changing mechanism, or which may be associated with any other suitable ribbon mechanism, comprises a movable element in the form of a sector, plate or target 69 which may be of sheet metal.

As best appears in Fig. 4 the sectoral plate 69 is formed with an upward extension 70 having a rectangular open-mouthed slot 71. Near its top and below the extension 70 the plate 69 is provided with indicating devices or fields 72, 73 and 74 which are adapted to correspond with the cross feeding positions of the member 42. At its narrow lower end the plate or indicator 69 is provided with a circular bearing opening 75 adapted to receive a pivotal support about which the plate may be swung, and the sides of the indicating fields lie in radial lines passing through the center of motion of the plate. The plate is supported on a shouldered rivet 76 which passes through an opening at the right-hand side of the front plate 62 and near the lower edge thereof.

As clearly shown in Fig. 5 the rear end of the rivet 76 is up-set or headed so as to confine the plate 69 between the rear head

or up-set portion and the shoulder of said rivet. The plate 69 extends upward from the rivet or pivotal support 76 and is slightly off-set forward so as to lie close to the rear face of the front plate 62, behind which front plate the sectoral plate 69 is disposed, but the extension 70, as appears in Fig. 1, is off-set rearward from the body of the plate and so that the lever arm 58 may be seated in the slot 71 behind and clear of the finger piece or key 64. By reason of this engagement or loose connection of the lever arm 58 with the slotted extension 70 of the plate 69, it will be understood that movements of the lever arm 58 will be transmitted to the plate 69 and will cause corresponding swinging movements of said plate about its pivotal center 76.

The front plate 62 is provided with a slot or sight hole 77 which is cut into the plate 62 vertically above the rivet 76 and so as to coöperate with the indicating fields on the sectoral plate 69. The front plate, it will be seen, serves as a stationary cover plate for the movable indicator or plate 69. The sides of the slot 77 are in lines radial of the pivotal center of the plate 69 and in size the sight hole 77 may be substantially the same as or slightly smaller than the indicating fields or marks on the plate 69. These fields or marks in the present instance are of the following character preferably. The field 72 is marked with a sinuous or curved line 72^a on a suitable background, the sinuous line indicating the nature of the path followed by the types when the field 72 is opposite the sight hole 77. The field 73 is colored to correspond with the color of the ribbon field *a* while the field 74 is colored to correspond with the color of the ribbon field *b*. The parts are so connected and arranged that when the indicating fields 72, 73 and 74 are respectively opposite the sight hole 77, the faces 45, 44 and 43 of the member 42 will in turn be operative on the link 39.

It will be apparent from the described construction that there will be visible through the right hole 77 only one indicating field at a time. The visible indicating field corresponds in character with the use to which the ribbon is to be put at the time, and all the other indicating fields are covered or hidden. Thus there is avoided the confusion that results when ribbon indicating devices are employed as heretofore which comprise various marks visible at all times. Furthermore, it will be seen that locking means are provided for holding the proper indicating mark opposite the sight hole, this locking means in the present case comprising the detent devices 65 to 68 inclusive.

An extension of the invention to include four indicating marks is exemplified in the construction shown in Figs. 6 to 9 inclusive.

In this modified construction provision is made for rendering the ribbon inoperative so that it will not be vibrated at printing operation, thus providing for doing stencil work. Accordingly the controlling member 42 is replaced by a controlling member 78, which besides an operating face 79 concentric with the driving shaft 26 and small and large operating faces 80 and 81 concentric with said shaft, further comprises a concentric operating face 82 which is of greater diameter than the operating face 81 with which it is joined by a conical face 83. The face 82 when in cooperation with the link 39 will maintain said link in such position that the actuating pin 38 is still closer to the fulcrum 35 than when the face 81 is in operation and so that said actuating pin is normally situated at the top of a vertical slot or pocket 84 which extends downward at right angles from an arcuate slot 85 formed in an operating lever 86 which replaces the operating lever 34 of the prior construction. It will be apparent that if the operating face 82 is in action as shown in Fig. 6 the downward movement of the link 39 when the universal bar frame is depressed will cause the pin 38 to move downward in the slot 84 without affecting the operating lever so that the vibrator and ribbon will remain quiescent when the printing keys are actuated and will permit the types to contact directly with the stencil paper or other work sheet on the platen. The indicating devices which are employed with this modified construction of ribbon mechanism comprise a sectoral plate or member 87 which replaces the plate 69 of the prior construction. The plate 87 is provided at its lower end with a bearing opening 88 adapted to the rivet 76 and with an extension 89 at its upper end formed with a slot 90 for cooperation with the lever arm 58. The plate 87 is provided with indicating devices or fields 91, 92 and 93 corresponding respectively with the indicating marks or fields 72, 73 and 74 of the prior construction. The plate 87 is further provided with an indicating device or mark 94 which is located at the right of the mark or device 93 and will be brought opposite the sight hole 77 in the front plate when the pin 38 is above the slot 84 as shown in Fig. 6 and the ribbon vibrating mechanism is silenced or inoperative. The field 94 is suitably marked as for example by the word "Stencil" to indicate the character of work to which it corresponds.

As shown in Fig. 9, four notches are provided in the horizontal edge of the slot 61 of the front plate 62, said notches being numbered 95, 96, 97 and 98. These notches replace the three notches of the prior construction. The outer notches 95 and 98 are designed to cooperate with the spring

tongue 65 to hold the indicating devices or fields 94 and 91 respectively opposite the sight hole; and the outer vertical edges of these two outer notches act as stops for the lever arm 58, while their inner edges are beveled or inclined so as to facilitate ready movement inward of the lever arm 58 under a pushing action against the key or finger piece 64. The inner edges of the notches 96 and 97 are likewise beveled or inclined so that the switch lever may be pushed readily from one to the other to change ribbon fields but requires the application of more power to enable it to be switched either for cross feeding or for stencil work.

Various changes may be made without departing from the spirit and scope of my invention.

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

1. In a typewriting machine, the combination of a flexible hand lever, and a part provided with a set of cooperating notches having angularly disposed sides, certain of the notches having sides at right angles to the path of movement of the lever and serving as checks tending to arrest the lever in opposite directions of its movement.

2. In a typewriting machine, the combination with ribbon mechanism including hand controlled means setttable to change from one ribbon field to another, of indicating devices comprising a movable indicator provided with a plurality of indicating fields, a cover plate having a sight hole and an additional hole through which a portion of said hand controlled means projects, and operative connections between said indicator and said means for setting any predetermined one of the plurality of movable indicating fields opposite the sight hole.

3. Indicating devices for the ribbon mechanism of a typewriting machine, said indicating devices comprising a plurality of movable indicating fields, a cover therefor provided with a sight hole, and means operating automatically for moving any one of said indicating fields to bring it opposite the sight hole, said indicating devices being mounted separately from said means.

4. Indicating devices for the ribbon mechanism of a typewriting machine, said indicating devices comprising a movable indicator provided with a plurality of indicating fields, said indicator being arranged behind a stationary part of the machine provided with a sight hole, and hand operated means for moving said indicator to bring any selected one of its fields into the view of the operator and to maintain the other fields hidden from the view of the operator behind said stationary part, a portion of said means projecting through a hole in said stationary part at some distance from said sight hole.

5. Indicating devices for the ribbon mechanism

nism of a typewriting machine, said indicating devices comprising a plurality of movable indicating fields, a cover therefor provided with a sight hole, and means controlled by a single key for moving any one of said indicating fields to bring it opposite the sight hole, said key projecting through a hole in said cover which is separated from said sight hole.

6. Indicating devices for the ribbon mechanism of a typewriting machine, said indicating devices comprising a plurality of actuated movable indicating fields, a cover therefor provided with a sight hole, and means operating automatically for moving certain of said indicating fields opposite the sight hole and for moving certain other of said indicating fields simultaneously out of register with said sight hole, said means being controlled by a finger piece which has a path of movement at one side of said sight hole.

7. Indicating devices for the ribbon mechanism of a typewriting machine, said indicating devices comprising a plurality of movable indicating fields, a cover therefor provided with a sight hole, means separately mounted from said indicating devices for moving any one of said indicating fields opposite the sight hole, and detent devices for maintaining the indicating fields opposite the sight hole at will.

8. Indicating devices for the ribbon mechanism of a typewriting machine, said indicating devices comprising a movable plate provided with a plurality of indicating fields, a cover for said plate provided with a sight hole, and means for moving said plate to bring opposite the sight hole any one of the plurality of indicating fields carried thereby, said means being operated through a hole removed from said sight hole.

9. Indicating devices for the ribbon mechanism of a typewriting machine, said indicating devices comprising a pivoted plate provided with a plurality of indicating fields, a cover for said plate having a sight hole, and means for turning said plate on its pivot to bring predetermined indicating fields opposite said sight hole and to move all the other indicating fields out of register therewith, said means being operated through a hole removed from said sight hole.

10. Indicating devices for the ribbon mechanism of a typewriting machine, said indicating devices comprising a plate pivoted near one end to a stationary part and provided near its opposite end with a plurality of indicating fields, said stationary part being provided with a sight hole through which said fields are visible one at a time, and devices including a finger piece for swinging said plate on its pivot to move predetermined fields opposite said sight hole.

11. Indicating devices for the ribbon mechanism of a typewriting machine, said indicating devices comprising a vertical plate pivoted at its lower end to a stationary part and provided near its upper end with a plurality of indicating fields, said stationary part being provided with a sight hole through which said fields are visible one at a time, and hand controlled means connected with said plate near its upper end for swinging said plate on its pivot to move predetermined fields opposite said sight hole.

12. In a typewriting machine, the combination with ribbon mechanism comprising a hand operated lever and a plurality of detent devices coöperative therewith, of indicating devices for said mechanism, said devices including a movable indicator, and a loose connection between said indicator and said lever, said indicator being viewed through an opening which is removed from said lever.

13. In a typewriting machine, the combination with ribbon mechanism comprising a hand operated lever and a plurality of detent devices coöperative therewith, of indicating devices for said mechanism, said devices including a pivoted indicating plate provided with a plurality of indicating fields and having a loose connection with one arm of said lever, said indicator being viewed through an opening which is removed from said lever.

14. In a typewriting machine, the combination with ribbon mechanism comprising a hand operated lever and a plurality of detent devices coöperative therewith, of indicating devices for said mechanism, said devices including a pivoted indicating plate provided with a plurality of indicating fields and formed with a slot to engage one arm of said lever, said plate being pivoted to a stationary part provided with a sight hole for said indicating fields.

15. In a typewriting machine, the combination with ribbon controlling mechanism comprising devices for employing at will either one of two color fields of a single ribbon and for feeding the ribbon crosswise and for silencing the ribbon and further comprising a hand operated lever and four detent devices coöperative therewith, of indicator devices for said mechanism, said devices including a pivoted indicating plate provided with four indicating fields, the two inner fields indicating color fields of the ribbon, one of the outer fields indicating a cross feeding operation of the ribbon and the other of the outer fields indicating a silencing of the ribbon, said plate being pivoted to a stationary part provided with a sight hole for said indicating fields, and connections between said plate and said lever for operating the plate to expose its indicating fields one at a time.

16. In ribbon mechanism for a typewriting machine, the combination of a hand operated lever, a stationary part provided with notches coöperative with said lever, said
5 notches serving both as checks or stops for said lever and as cams therefor, and indicating devices separate from said lever but operatively connected thereto.

17. In ribbon mechanism for a typewriting machine, the combination of a hand operated lever, a stationary part provided with notches coöperative with said lever, one side
10 of each notch serving as a check or stop for said lever and the opposite side of the notch acting as a cam on the lever, and indicating
15 devices separate from said lever but operatively connected thereto.

18. In ribbon mechanism for typewriting machines, the combination of a lever having
20 a flexible arm provided with a tongue, a part provided with coöperating notches, each notch serving to maintain said lever in a predetermined set position, one side of
25 said notch serving as a stop to check movement of the lever in one direction and the opposite side of said notch being beveled and serving as a cam for the flexible lever

arm, and indicating devices separate from said lever but operatively connected thereto.

19. In ribbon mechanism for typewriting machines, the combination of a lever, a
30 notched part, the notches in said part engaging said lever during movements thereof, one side of each notch being straight to
35 check the lever and the opposite side inclined at an angle from the straight side and acting to cam said lever, and indicating
40 devices separate from said lever but operatively connected thereto.

20. In ribbon mechanism for typewriting machines, the combination of a lever, a part
40 provided with a set of notches, the inner side of each notch of said set being beveled to cam said lever and the outer side of each
45 notch being straight to check said lever, and indicating devices separate from said lever but operatively connected thereto.

Signed at Syracuse, in the county of Onondaga, and State of New York this 14th day of January A. D. 1910.

HERBERT H. STEELE.

Witnesses:

ANNA T. LYNCH,
BESSIE G. KITTEL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."