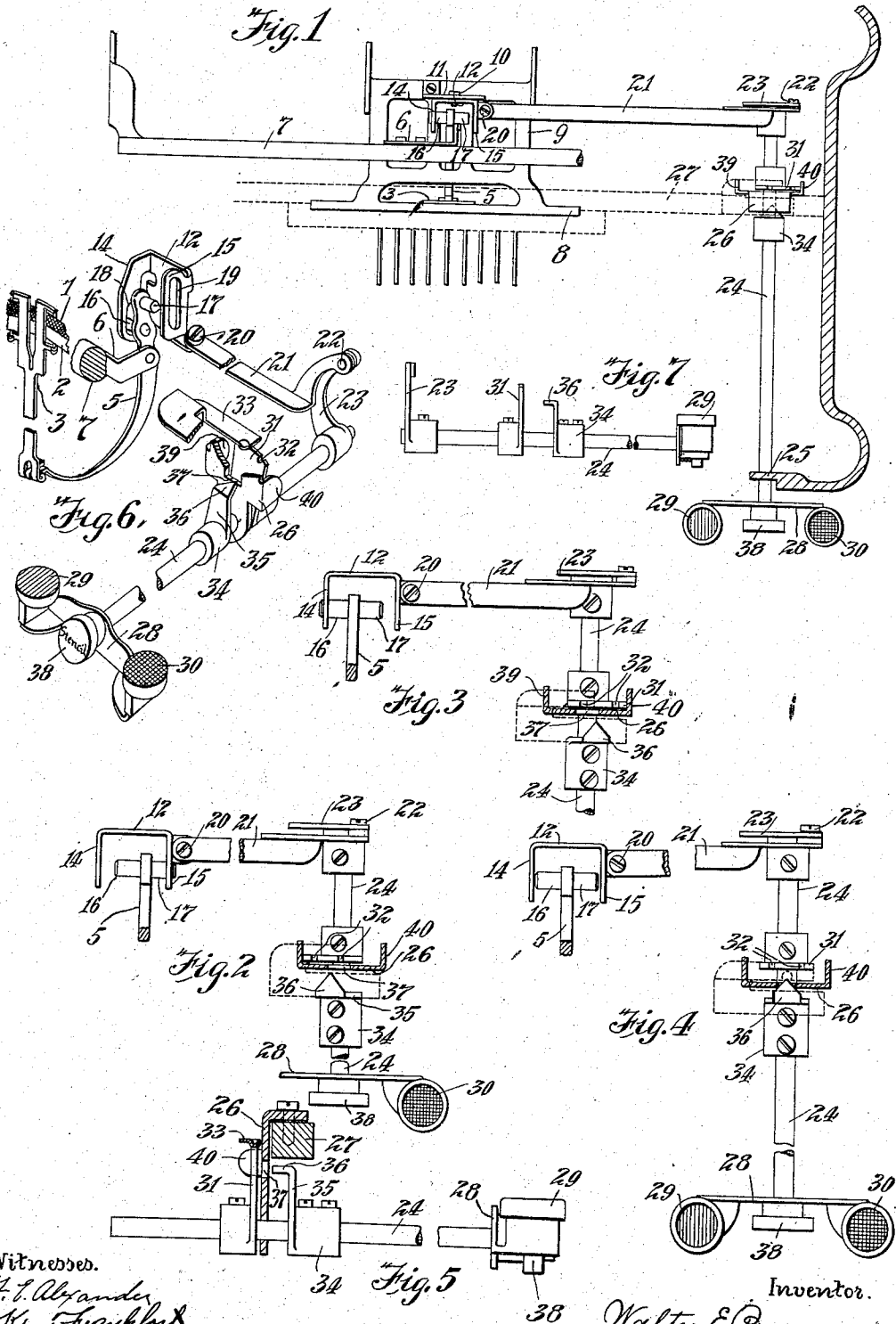


W. E. BARNARD.
TYPE WRITING MACHINE.
APPLICATION FILED AUG. 18, 1910.

1,041,722.

Patented Oct. 22, 1912.



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TYPE-WRITING MACHINE.

1,041,722.

Specification of Letters Patent.

Patented Oct. 22, 1912.

Application filed August 18, 1910. Serial No. 577,860.

To all whom it may concern:

Be it known that I, WALTER E. BARNARD, a citizen of the United States, residing in Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

The present invention relates to a type-writing machine in which two parallel fields of ribbon, of different color, are shiftable into and out of active position with respect to the printing point of the type, the machine, to this end, comprising means for setting the ribbon vibrating mechanism so that an actuator which reciprocates at every stroke of the type bars may give the ribbon vibrator the proper throw to bring the desired field to active position.

The means for setting the ribbon vibrator to the actuator has commonly comprised a device such for instance as a rock shaft movable to the right to connect the ribbon vibrator to the actuator in such manner that thereafter, upon operation of a type key, the vibrator moves a distance sufficient to bring one of the ribbon fields to the printing point; and movable to the left to make such a connection between the vibrator and the actuator that operation of a type bar then moves the vibrator a different distance to bring the other field to the printing point. It is also old for the rock shaft or the like to have an intermediate position in which the ribbon vibrator is entirely disconnected from the actuator and cannot be moved by the type bars to bring either ribbon field to the printing point. The means for centering and holding the rock shaft in its intermediate position has ordinarily been a device suitably mounted on the machine frame and movable into and out of engagement with the rock shaft.

One object of the present invention is to avoid the necessity of the operator making a special movement to return the vibrator-silencing lever to normal position before operating a color key to bring the desired stripe of ribbon into use.

Another object is to provide a more simple and conveniently operated means than has heretofore been devised for setting the ribbon actuating means to render both ribbon fields inactive.

In the preferred form of the invention, I

employ the rock shaft having the functions above mentioned, but instead of having an independently movable device for centering the same in its intermediate position, the shaft of my invention is self-centering. To this end the shaft is free to have longitudinal as well as rocking movement in its hangers, and carries a point or bevel which, when the shaft is moved longitudinally, engages a centering surface in one of the hangers and causes the shaft to turn from either side to its intermediate position where it is held against further turning movement in either direction. By thus rendering the shaft self-centering, the necessity of a special centering device is obviated, and the construction becomes simple and inexpensive. The key for centering the shaft is carried on the end of the shaft between the keys which rock the shaft to right and left position, and the entire arrangement is therefore compact and neat in appearance. The shifted shaft and key remain in their rear positions until either of the color-shift keys is depressed; and the color-shift key automatically shifts the shaft endwise back to normal position.

Having briefly described the objects and nature of the invention, a structure embodying the same will now be described in detail in connection with the accompanying drawings in which—

Figure 1 is a top plan view of so much of an Underwood typewriting machine as suffices to disclose the present invention. Fig. 2 is a top plan view showing the ribbon actuating mechanism set for one of the ribbon fields. Fig. 3 is a view similar to Fig. 2 but showing the ribbon actuating mechanism set for the other ribbon field. Fig. 4 is a top plan view showing the actuating mechanism so set that both ribbon fields are inactive. Fig. 5 is a view in side elevation, partly sectional, of the rock shaft and parts for operating the same. Fig. 6 is a perspective of the assembled mechanism. Fig. 7 is a detail view in side elevation of the rock shaft and parts carried thereby.

Referring to the drawings, the ribbon, composed of color fields 1 and 2, is shown threaded into and supported by the vibrator 3. The latter has up and down movement which may be varied to bring one or the other of the color fields to the printing point. The vibrator 3 is carried by a lever 110

5 pivoted to a bracket 6 on the shift rail 7 of the case-shifting mechanism of the machine. The universal bar 8 vibrated by the type bars is fixed upon a frame 9. Attached
 5 by a screw 10 to a bracket 11 on the frame 9 is an actuator 12. A slot in the bracket 11 permits of lateral movement of the actuator on the frame 9. The actuator has two forwardly extending ears 14 and 15.
 10 The lever 5, which carries at one end the ribbon vibrator, projects at its other end upward between the ears 14 and 15 and carries wrist pins 16 and 17 positioned at different distances from the fulcrum of the
 15 lever. The ears 14 and 15 have vertical slots 18 and 19 respectively. When the actuator is moved laterally to the right on the frame 9, the slot 19 engages the pin 17, and when moved to the left, the slot 18 engages
 20 the pin 16. The ears 14 and 15 are however sufficiently far apart to allow of both pins being disengaged from the actuator when the latter is at the central point of its path of movement on the frame 9. If the pin 16
 25 is in engagement with the slot 18 when the frame 9 moves with the universal bar, the lever 5 and vibrator 3 with the ribbon will be rocked a distance depending upon the distance of the wrist pin 16 from the fulcrum
 30 of the lever. Similarly the movement of the vibrator and ribbon when the pin 17 is in engagement with the slot 19 depends upon the distance of pin 17 from the fulcrum of the lever. The arrangement of the pins 17
 35 and 18 on the lever 5 therefore determines which of the ribbon fields is in any instance presented to the printing point. If neither pin engages a slot in the actuator, then when the latter moves with the frame 9, no move-
 40 ment is transmitted to the lever 5 and neither ribbon field is presented to the printing point.

The means for setting the actuator in any of these positions shown in Figs. 2, 3, and 4
 45 will now be described.

Pivottally attached at 20 to the actuator is a bar 21, the other end of which is hinged at 22 to an arm 23 fast to a rock shaft 24. The rock shaft 24 has a bearing 25 at its
 50 forward end (see Fig. 1) in the frame of the machine, and at an intermediate point (see Fig. 5) has a second bearing in a hanger or bracket 26 secured to the frame bar 27. Fast to the forward end of the shaft is a
 55 cross arm 28, which to the left of the shaft 24 carries a key 29, and to the right of the shaft 24, a key 30. On depression of the key 29, the shaft 24 is rocked counter clockwise, and acts through the arm
 60 23 and bar 21 to move the actuator 12 to the position shown in Fig. 3. If the key 30 is depressed, the shaft 24 is turned clockwise and brings the actuator to the Fig. 2 position. The keys 29 and 30 therefore de-
 65 termine which of the two ribbon fields is to

be presented to the printing point when the type bars are operated. The shaft 24 has fixed to it a plate 31 having two nicks 32, each operated according to the position of the shaft 24, to be engaged by a spring
 70 detent member 33 carried on the frame bar 27. In the Fig. 2 position one of the nicks 32 coöperates with detent 33 to hold the shaft against displacement, and in the Fig. 3 position the other nick 32 serves the same
 75 purpose. Ears 39 and 40 on the hanger 26 limit the throw of the shaft in either direction by engaging the plate 31.

Fixed to the shaft 24 by set screws is a collar 34 carrying an arm 35 perpendicular
 80 to the shaft but having at its end a wedge or spear-shaped horizontal section 36. Opposite the pointed member 36 is an opening 37 in the hanger 26. The shaft 24 has sufficient longitudinal movement in its bearings
 85 to bring the member 36 from the position shown in Figs. 2 and 3 to the position shown in Fig. 4. Regardless of the degree to which the shaft 24 may have been rocked to the right or left, the wedge 36 by acting on
 90 one or the other side of the opening 37 in the hanger, turns the shaft to the centering position shown in Fig. 4, in which position, it will be noted, both wrist pins 16 and 17 are disengaged from ears 14 and 15. In
 95 this position, operation of the type bars results in no movement of the lever 5 and ribbon vibrator. This is the stenciling position of the mechanism. Displacement of the shaft 24 from its stenciling position is
 100 opposed by the engagement of both sides of the wedge with the bracket 26, and by the yielding pressure of the flat rear portion of springs 33 upon the flat top of arm 31, Fig. 4, so that accidental rocking of the shaft is
 105 prevented.

The key 38 for giving the shaft 24 its longitudinal movement is carried on the forward end of the shaft (as shown in the several figures) between the keys 29 and 30.
 110 The keys 29, 30 and 38 are suitably marked to designate their purpose.

After the machine has been operated for stenciling, either color-shift key 29 or 30
 115 may be depressed, for the purpose of shifting the actuator 12 to one side or the other of its central position. In so doing, the shaft 24 is necessarily rocked to one side or the other; and in either case one of the opposite cam edges 37 mounted on said shaft will,
 120 by reason of its engagement with the edge of opening 37, force the shaft endwise forwardly to normal position. The link 21 swings forwardly and backwardly to accommodate this endwise movement of shaft
 125 24, and in all cases is efficient to shift the actuator 12.

I have described a simple form of the invention, but it will be understood that the structure shown is capable of consider-
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able modification within the scope of the invention.

Having thus described my invention, I claim:

5 1. In a typewriting machine, the combination with an actuator which reciprocates at the type strokes, of mechanism for setting the actuator to cause the same to vibrate
10 either of two fields of ribbon to cover the printing point at the type strokes, said mechanism comprising a key controlled rock shaft which is rocked to the right to set the
15 actuator for one of the ribbon fields, and to the left to set the actuator for the other of the ribbon fields, and having a position intermediate its right and left hand positions in which the actuator is set for neither ribbon field, said shaft being also movable longitudinally in its bearings, and means with
20 which the shaft coöperates when moved longitudinally to cause the shaft to be rotated during such longitudinal movement to its aforesaid intermediate or unsetting position.

2. In a typewriting machine, the combination with an actuator which reciprocates at
25 the type strokes, of mechanism for setting the actuator to cause the same to vibrate either of two fields of ribbon to cover the printing point at the type strokes, said
30 mechanism comprising a key controlled rock shaft which is rocked to the right to set the actuator for one of the ribbon fields, and to the left to set the actuator for the other of the ribbon fields, and having a position intermediate its right and left hand positions in which the actuator is set for neither ribbon field, said shaft being also movable longitudinally in its bearings, and means with
35 which the shaft coöperates when moved longitudinally to cause the shaft to be rotated during such longitudinal movement to its aforesaid intermediate or unsetting position, and means to oppose turning of the shaft in either direction when the latter is in the unsetting or silencing position.

3. In a typewriting machine, the combination with an actuator which reciprocates at
40 the type strokes, of mechanism for setting the actuator to cause the same to vibrate either of two fields of ribbon to cover the printing point at the type strokes, said
45 mechanism comprising a key controlled rock shaft which is rocked to the right to set the actuator for one of the ribbon fields, and to the left to set the actuator for the other of the ribbon fields, and having a position intermediate its right and left hand positions in which the actuator is set for neither ribbon field, said shaft being also movable longitudinally in its bearings, means with
50 which the shaft coöperates when moved longitudinally to cause the shaft to be rotated during such longitudinal movement to its aforesaid intermediate or unsetting position,
55 and yielding means to oppose the turning of

the shaft in either direction when the latter is in the unsetting position.

4. In a typewriting machine, the combination with an actuator which reciprocates at the type strokes, of mechanism for setting
70 the actuator to cause the same to vibrate either of two fields of ribbon to cover the printing point at the type strokes, said mechanism comprising a key controlled rock shaft which is rocked to the right to set the
75 actuator for one of the ribbon fields, and to the left to set the actuator for the other of the ribbon fields, and having a position intermediate its right and left hand positions in which the actuator is set for neither ribbon field, said shaft being also movable longitudinally in its bearings, and means with
80 which the shaft coöperates when moved longitudinally to cause the shaft to be rotated during such longitudinal movement to its aforesaid intermediate or unsetting position, said last named means acting to oppose turning of the shaft in either direction when the latter is in the unsetting position, said
85 shaft carrying a cross bar with a key at each end for rocking the shaft to the right or left hand ribbon-setting positions, and to coöperate with said shaft-rotating means to shift the shaft endwise forwardly.

5. In a typewriting machine, the combination with an actuator which reciprocates at
95 the type strokes, of mechanism for setting the actuator to cause the same to vibrate either of two fields of ribbon to cover the printing point at the type strokes, said
100 mechanism comprising a key controlled rock shaft which is rocked to the right to set the actuator for one of the ribbon fields, and to the left to set the actuator for the other of the ribbon fields, and having a position intermediate its right and left hand positions in which the actuator is set for neither ribbon field, said shaft being also movable longitudinally in its bearings, said shaft carrying a wedge or cam-shaped centering device,
110 and means with which said centering device coöperates upon longitudinal movement of the shaft to turn the shaft during such longitudinal movement from either its right or its left hand position to its aforesaid intermediate or unsetting position.

6. In a typewriting machine, the combination with an actuator which reciprocates at the type strokes, of mechanism for setting
120 the actuator to cause the same to vibrate either of two fields of ribbon to cover the printing point at the type strokes, said mechanism comprising a key controlled rock shaft which is rocked to the right to set the
125 actuator for one of the ribbon fields, and to the left to set the actuator for the other of the ribbon fields, and having a position intermediate its right and left hand positions in which the actuator is set for neither ribbon field, said shaft being also movable
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longitudinally in its bearings, and means with which the shaft coöperates when moved longitudinally to cause the shaft to be rotated, during such longitudinal movement, from either its right or its left hand setting position, to its aforesaid intermediate or unsetting position, and manipulative means for rocking said shaft in either direction and causing it concomitantly to re-
 10 turn endwise to normal position.

7. In a typewriting machine, the combination with an actuator which reciprocates at the type strokes, of mechanism for setting the actuator to cause the same to vibrate
 15 either of two fields of ribbon to cover the printing point at the type strokes, said mechanism comprising a key controlled rock shaft which is rocked to the right to set the actuator for one of the ribbon fields, and to
 20 the left to set the actuator for the other of the ribbon fields, and having a position intermediate its right and left hand positions in which the actuator is set for neither ribbon field, said shaft being also movable lon-
 25 gitudinally in its bearings, said shaft carrying a wedge or cam-shaped centering device, and a stationary element positioned and shaped to coöperate with said centering device upon longitudinal movement of the
 30 shaft to turn the shaft during such longitudinal movement from either its right or its left hand position to its aforesaid intermediate or unsetting position.

8. In a typewriting machine, the combination with an actuator which reciprocates at the type strokes, of mechanism for setting the actuator to cause the same to vibrate
 35 either of two fields of ribbon to cover the printing point at the type strokes, said mechanism comprising a key controlled element which may be reciprocated between two positions in one of which positions the
 40 actuator is set for one ribbon field and in the other of which positions the actuator is set for the other ribbon field, said element having also a movement in a different
 45 direction from said reciprocating movement,

to cause the element to assume a position in which the actuator is set for neither ribbon field. 50

9. In a typewriting machine, the combination with an actuator which reciprocates at the type strokes, of mechanism for setting the actuator to cause the same to vibrate
 55 either of two fields of ribbon to cover the printing point at the type strokes, said mechanism comprising a key controlled element which may be reciprocated between two positions in one of which positions the
 60 actuator is set for one ribbon field and in the other of which positions the actuator is set for the other ribbon field, said element having also a movement in a different direc-
 65 tion from said reciprocating movement, and a stationary guide with which said element coöperates when given its last named movement to cause said element to assume a position in which the actuator is set for neither ribbon field.

10. The combination with a ribbon-vibrating mechanism, of a shifter therefor, means for moving said shifter in opposite directions to bring different fields of the ribbon
 70 into use, means for moving said shifter in a third direction, and a cam device for bringing said shifter into a ribbon-silencing position when moved in said third direc-
 75 tion.

11. The combination with a ribbon-vibrating mechanism, of a shifter therefor, two keys for moving said shifter in opposite directions to bring different color fields of the ribbon into use, a third key for moving said shifter in a third direction, and a cam device for bringing said shifter into a silenc-
 80 ing position when moved in said third direction; said shifter being movable by any of the three keys from either position to which it is shiftable by the remaining two keys.

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