Oct. 10, 1933. J. RITZ 1,929,448

RIBBON VIBRATING AND RIBBON SHIFTING MECHANISM

Filed Oct. 23, 1931 3 Sheets-Sheet 1

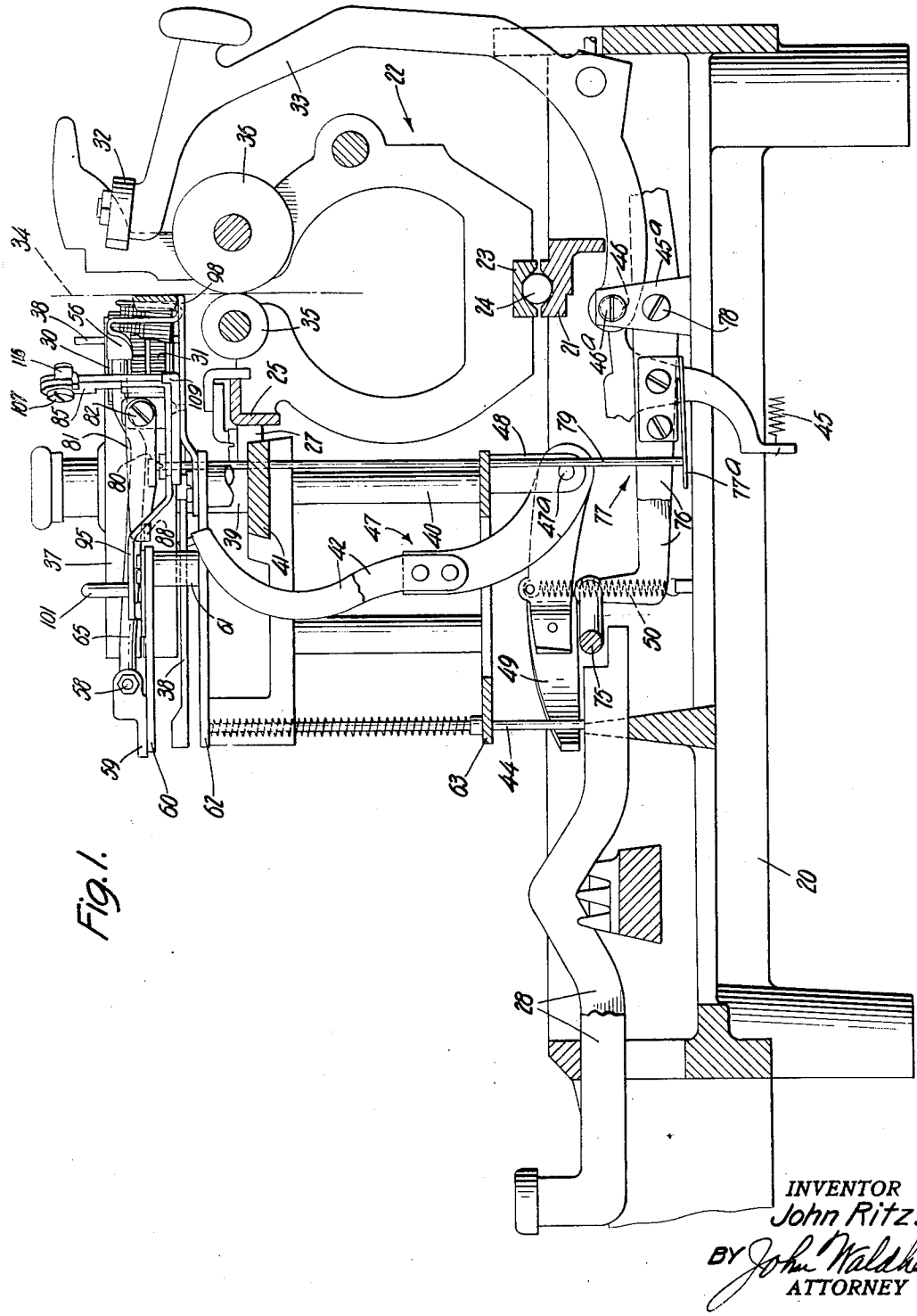


Fig. 1.

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Fig. 2.

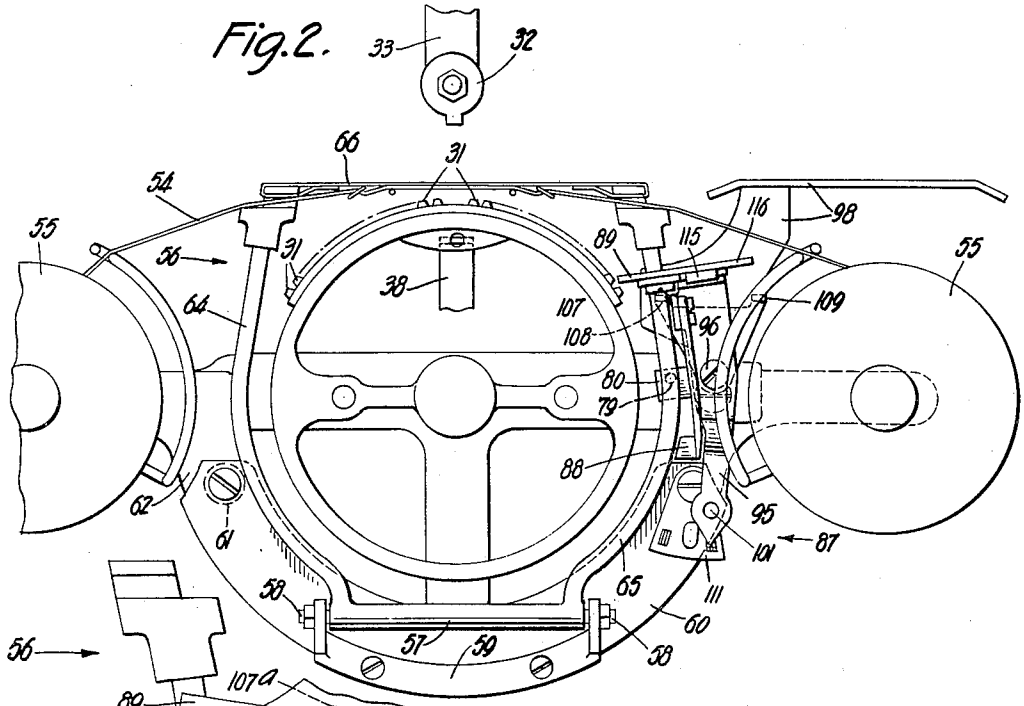
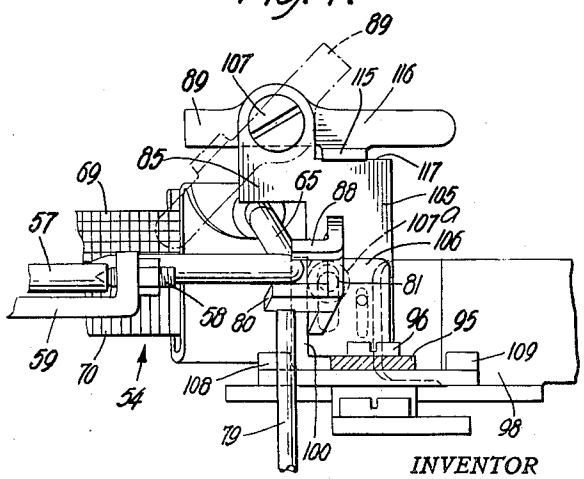


Fig. 3.

Fig. 4.



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Fig.5.

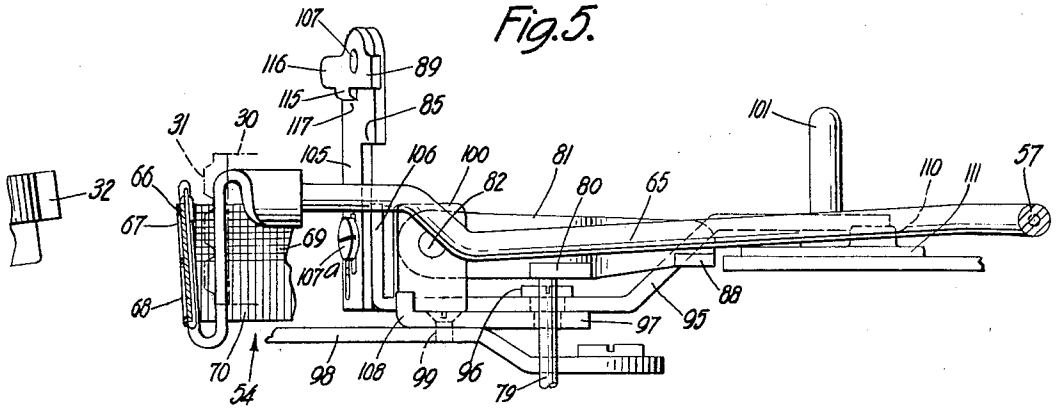


Fig.6.

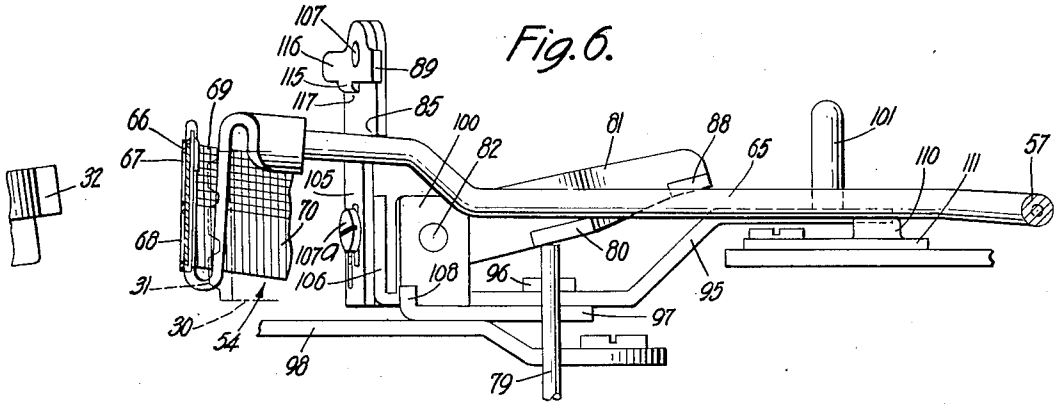
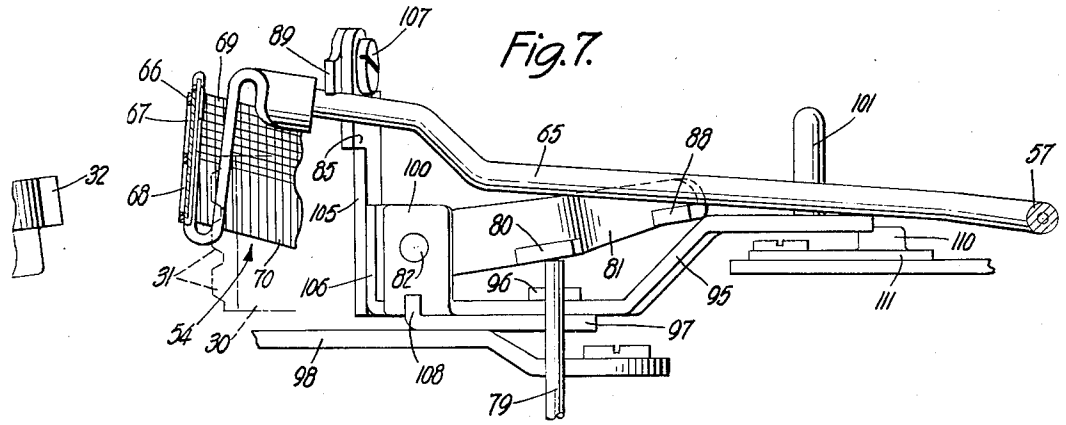


Fig.7.



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RIBBON VIBRATING AND RIBBON SHIFTING MECHANISM

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Application October 23, 1931. Serial No. 570,527

34 Claims. (Cl. 197—159)

This invention relates to typewriting machines and more particularly to ribbon vibrating and ribbon shifting means.

An object of the invention is to provide a simple and efficient device which may be used to vary the throw of the ribbon vibrator in accordance with the desired field of the ribbon and which may readily be applied to any Varityper writing machine.

In carrying out the invention there is provided in the ribbon vibrating mechanism an intermediate lever cooperating with the ribbon vibrator, said intermediate lever being shiftable to condition it, or in other words, change its relation with respect to the ribbon vibrator so that the throw of the latter is varied, when the ribbon vibrating mechanism is operated, in accordance with the desired field.

A feature of the invention relates to an arrangement of stops to limit the stroke of the ribbon vibrator and thus prevent overthrow of the ribbon, the stops being shiftable by a ribbon shift lever.

Another feature of the invention relates to means for arresting the ribbon shift lever so as to properly position it in its movements and to thus properly condition the mechanism in accordance with the desired throw of the ribbon vibrator, and further to locate the vibrator stops in their proper positions.

Other features and advantages will hereinafter appear.

In the drawings which form part of the specification:

Fig. 1 is a sectional side view of the machine, as seen from the right hand side thereof, and showing the invention applied thereto;

Fig. 2 is a fragmentary top plan view of the machine showing the ribbon mechanism set for the black or upper field of the ribbon;

Fig. 3 is a top plan view, on a larger scale, of the ribbon mechanism showing it set for the lower or red field of the ribbon;

Fig. 4 is a detail front view showing the ribbon vibrated to the upper or red field, as in Fig. 6;

Fig. 5 is an enlarged sectional view of the ribbon vibrating and ribbon shifting mechanism as seen from the left hand side of the machine;

Fig. 6 is a view similar to Fig. 5 showing the ribbon vibrated with the upper or black field at the printing point; and

Fig. 7 is a similar view showing the lower or red field of the ribbon vibrated to the printing point.

Similar characters refer to similar parts thoughout the several views.

The machine includes a main frame 20 to which is secured a track 21 upon which a carriage 22 is mounted to travel back and forth transversely of the machine. The carriage is provided with a bar 23 which co-operates with the track 21 through anti-friction rollers or balls 24 to guide said carriage. The carriage is further guided by a bar 25, at its upper end, co-operating with a roller 27 mounted on the main frame 20.

The carriage is urged in a letter feed direction in the usual manner by a carriage propelling means or spring drum (not shown). Letter feed movements of the carriage are effected by escapement mechanism (not shown) which is actuated at each operation of key levers 28.

The printing instrumentalities include a type carrier or shuttle 30 having types 31 with which a head 32 of the hammer 33 co-operates to print against an interposed work sheet 34, the work sheet being fed up and down by suitable feed rollers 35 and 36 supported on the carriage 22. The type shuttle 30 is curved to conform with a cylindrical anvil 37 by which it is carried in the usual manner.

To actuate the type shuttle 30 it has connected thereto a lever 38 secured to a sleeve 39 to rotate about a shaft 40; the sleeve 39 being supported on a bar 41, of the main frame.

The shuttle actuating lever 38 is operable from a central position, in opposite directions by either of two arms 42, about the axis of a shaft 40, said arms being actuated, one at a time, in a manner hereinafter described, to carry the selected type of the shuttle 30 to the printing point, the types being accurately positioned by means of corresponding indexing pins 44 operable by the key levers 28 to project their upper ends into the path of the shuttle lever 38 to arrest the latter. Subsequently the hammer 33 is actuated by a spring 45 under the control of the escapement mechanism, said hammer being secured to a shaft 46 supported by pivot screws 46^a on the main frame 20.

Each of the arms 42 forms part of a frame 47, each frame being supported to swing about a pivot 47^a on a fixed bracket 48. Each frame 47 also includes a bar 49 extending towards the middle of the machine and over the key lever 28 at one side of the middle of the machine, so that if any one of the key levers is operated the associated one of the frames 47 is actuated thereby against the action of a return spring 50. The upper end of the arm 42 is thus swung rear-

wardly to actuate the lever 38 and shuttle 30 to select the type as above described.

A ribbon 54 extends from one of two spools 55 to the other one and is guided past the printing point by a ribbon vibrator 56. The ribbon vibrator is U-shaped and includes a base part 57 by which it is pivotally supported on screw pivot studs 58 on a bracket 59 secured to a plate 60, which in turn is supported by two short posts 61 on the upper one of two guide plates 62 and 63 for the indexing pins 44, said guide plates being suitably secured to the machine frame 20. The ribbon vibrator further includes two arms 64 and 65 extending rearwardly from the base part 57. These arms carry at their rear or free ends the usual ribbon guard 66 which has therein two holes 67 and 68 (Fig. 5) registering with the upper field 69 and the lower field 70 of the ribbon and through which holes the hammer strikes the types 31 in accordance with the field beng used. The fields 69 and 70 of the ribbon may be of different colors such as black and red, respectively, and either field may be selectively rendered effective by suitable mechanism hereinafter described.

The ribbon is vibrated at each printing operation or at each actuation of a key-lever 28, each key-lever engaging, for this purpose, a universal bar 75 secured to two arms 76 of a frame 77 pivoted on the machine frame 20 by screws 78, one of said arms being connected to actuate the carriage escapement mechanism in the usual manner. One of said arms has secured thereto a flexible finger 77[a] to engage under a vertical rod 79 to move said rod upwardly, the latter being guided in the bar 41 and the plate 63. The upper end of the rod 79 usually engages the arms 65 of the ribbon vibrator, in the Varityper machine, to actuate said vibrator and carry the ribbon 54 to the printing line.

In the present invention, however, the upper end of the rod 79 engages a lip 80 bent off from an intermediate lever 81 to swing the latter about a pivot 82, said lip or connecting member 80 engaging under the arm 65 of the ribbon vibrator to actuate the latter and thus carry the upper field 83, which may be black, to the printing point as in Fig. 6. Over throw of the ribbon, when vibrated to the black field, is prevented by a stop 85 engaged by the arm 65 of the ribbon vibrator; said stop being rendered ineffective, in a manner hereinafter described, when the lower or red field 86 of the ribbon is used.

The intermediate lever 81 may be set or conditioned by suitable field selecting means, indicated generally by the numeral 87 and more fully described hereinafter. Said intermediate lever has another lip 88, which is a greater distance from the pivot 82, and is ineffective while the field selecting means is set for the upper or black field of the ribbon as in Fig. 2, where it clears the ribbon vibrator. When the ribbon selecting means 87 is set for the lower or red field of the ribbon however, as in Fig. 3, the lip 88 is positioned under the arm.

If the actuator rod 79 is operated, as previously described, while the lip 88 is under the arm 65, the intermediate lever 81 is actuated by said rod through the medium of the lip 80; the lip 88 engaging the arm 65 to swing the vibrator, through a greater distance, to the position in Fig. 7, to present the lower or red field 86 to the printing point. Over throw of the ribbon is prevented in this position by a stop 89.

The ribbon shifting means 87, or in other words, the field selecting means includes a shift lever 95 pivoted by a shouldered screw 96 on a bracket 97 secured to the line guide 98 by screws 99, the line guide being fixed on the machine frame in the usual manner. The shift lever 95 has an upwardly extending ear 100 upon which the intermediate lever 81 is supported by means of the pivot screw 82, so that while the shift lever 95 is moved leftwardly in Fig. 2, by a finger piece or handle 101, the lip 88 is carried under the arm 65 of the ribbon vibrator as in Fig. 3, thus setting the ribbon shifting means to select the lower or red field of the ribbon. When the black field of the ribbon is desired the shift lever 95 is swung rightwardly from the position in Fig. 3 to the position in Fig. 2, thus withdrawing the lip 88 from beneath the arm 65 of the ribbon vibrator to render it ineffective. The lip 80 of the intermediate lever 81 is located near the pivot 96 and is large enough to remain in co-operative relation with the actuating plunger 79 at all times irrespective of the co-operative relation of the intermediate lever 81 with respect to the ribbon vibrator.

The stops 85 and 89 which limit the movement of the ribbon vibrator to its two positions (Figs. 6 and 7) are supported on the shift lever 95 and are carried into and out of co-operative relation with the vibrator arm 65, by said shift lever while the latter is being actuated to condition the intermediate lever 81, or in other words, set it in accordance with the desired field of the ribbon.

The lower stop 85 is formed on a plate 105 which is adjustable vertically on an ear 106 of the selecting lever 95, to properly position it, the stop plate being secured to the ear by a screw 107[a]. The upper stop 89 is supported on the plate 105 by means of a screw 107.

To arrest the ribbon shift lever 95 in its various positions and thus properly position the stops 85 and 89 with respect to the arm 65 of the ribbon vibrator, two stops 108 and 109 are provided and are preferably bent up from the bracket plate 97 to arrest the shift lever respectively in its black position and its red position. The lever 95 is slightly resilient and a detent 110 on a fixed plate 111 co-operates with the forward end of said lever to hold it against either of the stops 108 and 109 to prevent accidental shifting thereof. Black and red indication marks 112 and 113 respectively are provided, at opposite sides of the detent 110, by which the shift lever 95 may be set in accordance with the desired field of the ribbon.

Provision is made to render both of the stops 85 and 89 ineffective so as to permit the ribbon vibrator to be swung up beyond said stops sufficiently to give free access to the ribbon vibrator to permit the ribbon to be threaded therethrough, or to get it out of the way when stencils are to be typed. Preparatory to so lifting the ribbon vibrator the shift lever 95 is first moved against the stop 109 as in Fig. 3 and the stop 89 is then swung, about the screw 107, which serves as a pivot, to the dotted line position in Fig. 4. The ribbon vibrator may then be swung upwardly unhindered the stop 89 swinging freely with it about its pivot 107. A lip 115 bent from the stop lever 116 normally engages a shoulder 117 of the stop plate 105 to arrest the stop 89 in its effective position as indicated in full lines Fig. 4.

It will be understood that the intermediate lever 81 is located adjacent to the arm 65 of the

ribbon vibrator; that said lever and said arm extend in opposite directions from their pivots and each towards the pivoted end of the other; that the lips or connecting members 80 and 88 are positioned unequal distances from the pivot 82 of the intermediate lever so that they may engage the arm 65 of the ribbon vibrator unequal distances from the pivot 57 to accordingly vary the throw of the ribbon vibrator in accordance with the position of the intermediate lever 81 which is settable in accordance with the desired field of the ribbon.

It will also be understood that the bracket 97 carries all of the operating parts thus providing a single ribbon selecting and vibrating unit which may readily be applied to any existing Varityper machine.

While certain preferred embodiments of the invention have been described, it will be understood that changes in the form, arrangements, proportions, sizes and details thereof may be made without departing from the scope of the invention as defined in the appended claims.

I claim:—

1. In a typewriting machine, the combination of key levers, a pivoted ribbon vibrator, means operable by the key levers to actuate the ribbon vibrator, the operable means including an intermediate member to swing the ribbon vibrator about its pivot, and means to shift said member independently of and with respect to the ribbon vibrator without disturbing the position of the latter to vary the extent of throw of said ribbon vibrator.

2. In a typewriting machine, the combination of key levers, a ribbon vibrator, means operable by the key levers to actuate the ribbon vibrator, the operable means including an intermediate lever, said intermediate lever having a plurality of engaging portions to engage the ribbon vibrator one at a time to actuate the ribbon vibrator through various distances, and means to change the position of said lever to render any one of said engaging portions effective according to the desired throw of the ribbon vibrator.

3. In a typewriting machine, the combination of key levers, a pivoted ribbon vibrator, means operable by the key levers to actuate the ribbon vibrator, the operable means including an intermediate lever having two ears thereon to engage the ribbon vibrator differently to vary the throw of the latter, and means to shift the intermediate lever laterally of the direction of movement of the ribbon vibrator to cause either one of the ears to engage the ribbon vibrator to vary its extent of movement in accordance with the desired field of the ribbon.

4. In a typewriting machine, the combination of key levers, a ribbon vibrator, means operable by the key levers to actuate the ribbon vibrator, the operable means including a rod, an intermediate lever operable thereby and forming a connection between the rod and the ribbon vibrator, and means to set the intermediate lever relatively to the rod and the ribbon vibrator to change the extent of movement of the ribbon vibrator effected by said rod in accordance with the desired field of the ribbon.

5. In a typewriting machine, the combination of key levers, a pivoted ribbon vibrator, means including an actuator operable by the key levers, an intermediate lever operable by said actuator and to oscillate the ribbon vibrator, two engaging members on said intermediate lever and arranged unequal distances from the pivot of said intermediate lever, and means independent of the ribbon vibrator to shift the intermediate lever to carry either member into effective relation with said ribbon vibrator to vary the extent of throw of the latter in accordance with desired field of the ribbon.

6. In a typewriting machine, the combination of a pivoted ribbon vibrating lever, an actuating lever therefore, said levers being located close to each other and extending in opposite directions from their pivots and engaging directly with each other, printing instrumentalities including key levers, means to operate the actuating lever at each actuation of key lever to operate the ribbon vibrating lever, and means whereby the point of engagement between said actuating lever and said ribbon vibrating lever may be varied to vary the throw of the ribbon vibrating lever in accordance with the desired field of the ribbon.

7. In a typewriting machine, the combination of a ribbon vibrating lever, an actuating lever therefore, printing instrumentalities including key levers, means actuable by the key levers to operate the actuating lever, said actuating lever having contact members thereon located unequally from its fulcrum and to engage the ribbon vibrating lever, and operable means to bodily support said actuating lever to shift it laterally with reference to the ribbon vibrating lever without disturbing the latter to change the relation of the contact members relatively thereto so that the throw subsequently imparted to the ribbon vibrating lever is varied in accordance with the desired field of the ribbon.

8. In a typewriting machine, the combination of a ribbon vibrating lever, an actuating lever therefore, printing instrumentalities including key levers, means actuable by the key levers to operate the actuating lever, a projection on said actuating lever to engage the ribbon vibrating lever to operate the latter, a second projection on said actuating lever and further removed from the fulcrum than the first mentioned projection, and operable means to bodily support said actuating lever to shift it to carry said second projection into co-operative relation with the ribbon vibrator so that upon a subsequent operation of said actuating lever the ribbon vibrating lever is actuated through a greater extent.

9. In a typewriting machine, the combination of a main frame, a ribbon vibrating lever pivotally supported thereon, a ribbon shift lever pivotally supported on said main frame, an actuating lever for the ribbon vibrating lever, said actuating lever being pivotally supported on said shift lever and located adjacent and extending substantially parallel to the ribbon vibrating lever so that it may move in a plane substantially parallel to the plane in which the ribbon vibrating lever moves when the latter is operated thereby; key levers, and means actuable by the key levers to operate said actuating lever upwardly, said shift lever being operable at will to condition the actuating lever with respect to the ribbon vibrating lever to vary the throw imparted to the latter in accordance with the desired field of the ribbon.

10. In a typewriting machine, the combination of a main frame, a ribbon vibrating lever pivotally supported thereon, a ribbon shift lever pivotally supported on said main frame, an actuating lever for the ribbon vibrating lever, said actuating lever being pivotally supported on said shift lever, said actuating lever being located adjacent to the ribbon vibrating lever and extending from its

pivot towards the pivot of the ribbon vibrating lever, key levers, means actuable by the key levers to operate the actuating lever, the latter including a projection to engage the ribbon vibrating lever, and a second projection on the actuating lever and further removed from the pivot of the actuating lever than the first mentioned projection, the shift lever being effective to carry the second mentioned projection into cooperative relation with the ribbon vibrating lever so that it engages the latter closer to its pivot than the first mentioned projection to impart a greater movement to the ribbon vibrating lever.

11. In a typewriting machine, the combination of key levers, a ribbon vibrator, means operable by the key levers to actuate the ribbon vibrator, the operable means including an intermediate lever to engage the ribbon vibrator, means to vary the cooperative relation of said intermediate lever with respect to the ribbon vibrator to vary the throw of the ribbon vibrator, and stops to limit the movement of the ribbon vibrator in its various positions, said stops being settable by the varying means.

12. In a typewriting machine, the combination of key levers, a ribbon vibrator, means operable by the key levers to actuate the ribbon vibrator, the operating means including an intermediate lever, said intermediate lever having a plurality of engaging portions to engage the ribbon vibrator one at a time to effect various throws of the ribbon vibrator, means to render any one of said engaging portions effective according to the desired throw of the ribbon vibrator, and stops to engage the ribbon vibrator one at a time to limit the movements thereof in its various positions, said stops being shiftable by the rendering means to carry them into cooperative relation with the ribbon vibrator in accordance with the throw of the latter.

13. In a typewriting machine, the combination of key levers, a ribbon vibrator, means operable by the key levers to actuate the ribbon vibrator, the operating means including an intermediate lever, said operating lever having two ears thereon to engage the ribbon vibrator differently to vary the throw of the latter, means to shift the intermediate lever to cause either one of the ears to engage the ribbon vibrator in accordance with the desired throw, and limiting means for the ribbon vibrator settable by the shifting means.

14. In a typewriting machine, the combination of key levers, a ribbon vibrator, means including an actuator operable by the key levers, an intermediate lever to engage the ribbon vibrator to operate it, said intermediate lever being operable by said actuator, a settable lever to condition said intermediate lever to vary the throw of the ribbon vibrator in accordance with desired field thereof, and limiting means for the ribbon vibrator on the settable lever.

15. In a typewriting machine, the combination of a ribbon vibrating lever, an actuating lever therefor, printing instrumentalities including key levers, means actuable by the key levers to operate the actuating lever, said actuating lever having contact members thereon to engage the ribbon vibrator one at a time and located unequal distances from its fulcrum, means to shift the actuating lever laterally with reference to the ribbon vibrating lever to render effective any one of the contact members so that the throw subsequently imparted to the ribbon vibrating lever by the actuating lever is varied in accordance with the desired field of the ribbon, and stops on the settable lever to arrest the ribbon vibrating lever in its various positions.

16. In a typewriting machine, the combination of key levers, a ribbon vibrator, means operable by the key levers to actuate the ribbon vibrator, the operable means including an intermediate lever to engage the ribbon vibrator, means to vary the co-operative relation of said intermediate lever with respect to the ribbon vibrator to vary the throw of said ribbon vibrator, stops to limit the movement of the ribbon vibrator in its various positions, said stops being settable by the varying means, and means to arrest the varying means to properly position the stops with respect to the ribbon vibrator.

17. In a typewriting machine, the combination of key levers, a ribbon vibrator, means operable by the key levers to actuate the ribbon vibrator, the operating means including an intermediate lever, said intermediate lever having a plurality of engaging portions to engage the ribbon vibrator one at a time to effect various throws of the ribbon vibrator, means to render any one of said engaging portions effective according to the desired throw of the ribbon vibrator, stops to engage the ribbon vibrator one at a time to limit the movements thereof in its various positions, said stops being shiftable by the rendering means to carry them into cooperative relation with the ribbon vibrator in accordance with the throw of the latter, and stops to limit the movement of the rendering means.

18. In a typewriting machine, the combination of key levers, a ribbon vibrator, means including an actuator operable by the key levers, an intermediate lever to engage the ribbon vibrator to operate it, said intermediate lever being operable by said actuator, a settable lever to condition said intermediate lever to vary the throw of the ribbon vibrator in accordance with desired field thereof, limiting means for the ribbon vibrator on the settable lever, and means to limit the movement of the settable lever to properly position the limiting means for the ribbon vibrator.

19. In a typewriting machine, the combination of key levers, a ribbon vibrator, means operable by the key levers to actuate the ribbon vibrator, the operable means including an intermediate lever to engage the ribbon vibrator, means to vary the cooperative relation of said intermediate lever with respect to the ribbon vibrator to vary the throw of the ribbon vibrator, stops to limit the movement of the ribbon vibrator in its various positions, said stops being settable by the varying means, indicating means for the varying means, and arresting means for the varying means.

20. In a typewriting machine, the combination of key levers, a ribbon vibrator, means operable by the key levers to actuate the ribbon vibrator, the operating means including an intermediate lever, said intermediate lever having a plurality of engaging portions to engage the ribbon vibrator one at a time to effect various throws of the ribbon vibrator, means to render any one of said engaging portions effective according to the desired throw of the ribbon vibrator, stops to engage the ribbon vibrator one at a time to limit the movements thereof in its various positions, said stops being shiftable by the rendering means to carry them into cooperative relation with the ribbon vibrator in accordance with the throw of the latter, indicating means for the rendering means, and stops to arrest the rendering means.

21. In a typewriting machine, the combination

of key levers, a ribbon vibrator, means including an actuator operable by the key levers, an intermediate lever to engage the ribbon vibrator to operate it, said intermediate lever being operable by said actuator, a settable lever to condition said intermediate lever to vary the throw of the ribbon vibrator in accordance with desired field thereof, limiting means for the ribbon vibrator, on the settable lever, indicating means to assist in setting the settable lever, and limiting means for the settable lever to properly positon the limiting means for the ribbon vibrator.

22. In a typewriting machine, the combination of a pivoted ribbon vibrator, printing instrumentalities including key levers, means actuable by the key levers to operate the ribbon vibrator, means to vary the throw of the ribbon vibrator so as to expose the upper field or the lower field of a ribbon to the printing point, stops to arrest the ribbon vibrator, shifting means for said stops, means to limit the movement of the shifting, means to present either of the stops to the ribbon vibrator, means to pivotally support one of said stops on the shifting means so that it may be rendered ineffective independently of the shifting means so as to permit the ribbon vibrator to be swung past said pivoted stop.

23. In a typewriting machine, the combination of a ribbon vibrator, key levers, means actuable by the key levers to operate the ribbon vibrator, said means including a variable element, a fixed bracket, a ribbon shift lever pivoted on said bracket, means to pivotally support the variable element on the shift lever so that its effective relation with respect to the ribbon vibrator may be varied by the shift lever, and stops on said bracket to arrest the shift lever.

24. In a typewriting machine, the combination of a U shaped ribbon vibrator having a ribbon supported thereby at its open end, means to pivotally support the ribbon vibrator at its closed end, key levers, means operable by said key levers and cooperating with one of the arms of the ribbon vibrator to actuate the latter at the actuation of any one of the key levers, and means to alter the operable means to vary the throw of the ribbon vibrator in accordance with the desired field of the ribbon.

25. In a typewriting machine, the combination of a U shaped ribbon vibrator having a ribbon supported thereby at its open end, means to pivotally support the ribbon vibrator at its closed end, a pivoted ribbon shift lever, an intermediate lever pivotally supported on the shift lever, key levers, means including an element under the control of the key levers to operate said intermediate lever, a lip on said intermediate lever to be always engaged by said element, said ear engaging also under the arm of the ribbon vibrator, and a second ear on said intermediate lever, said second ear being further removed from the pivot of the intermediate lever than the first mentioned ear and being out of effective relation with the ribbon vibrator while the machine is set to print through the upper field of the ribbon, the ribbon shift lever being settable laterally to carry the second lip under the arm of the ribbon vibrator so that upon a subsequent actuation of the intermediate lever by said element the ribbon is vibrated to print through the lower field thereof.

26. In a typewriting machine, the combination of a U shaped ribbon vibrator having a ribbon supported thereby at its open end, means to pivotally support the ribbon vibrator at its closed end, a pivoted ribbon shift lever, an intermediate lever pivotally supported on the shift lever, key levers, means including an element under the control of the key levers to operate said intermediate lever, a lip on said intermediate lever to be always engaged by said element, said ear engaging also under the arm of the ribbon vibrator, a second ear on said intermediate lever, said second ear being further removed from the pivot of the intermediate lever than the first mentioned ear and being out of effective relation with the ribbon vibrator while the machine is set to print through the upper field of the ribbon, the ribbon shift lever being settable laterally to carry the second lip under the arm of the ribbon vibrator so that upon a subsequent actuation of the intermediate lever by said element the ribbon is vibrated to print through the lower field thereof, stops on said ribbon shift lever to be carried thereby into co-operative relation with the arm of the ribbon vibrator, stops to arrest the ribbon shift lever, and a detent to prevent accidental displacement of the ribbon shifting lever.

27. In a typewriting machine, the combination of a type carrier, a hammer to co-operate therewith, a ribbon having two fields, a ribbon vibrator, a ribbon shield on the said vibrator, key levers, settable means operable by the key levers at each actuation thereof, and means to alter the position of the settable means so that the ribbon vibrator may be actuated through varying distances by the key levers according to the desired field of the ribbon, said shield having two apertures therein through which the hammer may co-operate with the type carrier, said apertures registering one with each field of the ribbon.

28. In a typewriting machine, the combination of a horizontally disposed ribbon vibrator pivotally supported at one end thereof, a vertically disposed ribbon guide at the other end thereof, key levers, means including an element operable vertically by said key levers, a horizontally extending lever operable in a vertical plane by said element and engaging the ribbon vibrator to actuate the latter at each actuation of any one of the key levers, and means for conditioning the horizontally disposed lever to vary the throw imparted to the ribbon vibrator.

29. In a typewriting machine, the combination of a ribbon vibrator extending horizontally fore-and-aft of the machine and pivotally supported at its forward end, a guide at its rear end for a ribbon having an upper field and a lower field, an actuating lever engaging said ribbon vibrator to operate it, said lever being disposed parallel to the ribbon vibrator and being pivotally supported at its rear end from which it extends forwardly towards the pivoted end of the ribbon vibrator, key levers, means operable by the key levers to operate the actuating lever and thus operate the ribbon vibrator, and means to shift said actuating lever so as to alter its point of contact lengthwise of the ribbon vibrator so as to change the throw of the ribbon vibrator in accordance with the desired field of the ribbon.

30. In a typewriting machine, the combination of a ribbon vibrator extending horizontally fore-and-aft of the machine and pivotally supported at its forward end, a guide at its rear end for a ribbon having an upper field and a lower field, an actuating lever engaging said ribbon vibrator to operate it, said lever extending substantially parallel to the ribbon vibrator and being pivotally supported at its rear end from which it extends forwardly towards the pivoted end of the

ribbon vibrator, key levers, means operable by the key levers to operate the actuating lever and thus operate the ribbon vibrator, said actuating lever having two engaging portions thereon to cooperate one at a time with the ribbon vibrator and arranged different distances from the pivot of said actuating lever, a shift lever to support said actuating lever, and a vertically disposed pivot about which the shift lever may be actuated to move the actuating lever laterally with respect to the ribbon vibrator to render either one of the engaging portions effective to vary the throw of the ribbon vibrator in accordance with the desired field of the ribbon.

31. In a ribbon mechanism for a typewriting machine, the combination with two cooperating levers in a train of devices arranged to vibrate the ribbon, said levers being contiguously disposed and extending in opposite directions and each extending towards the pivoted end of the other from its own pivot, of means to conditon the actuating lever to vary the leverage between the two levers in accordance with the desired throw of the ribbon.

32. In a ribbon mechanism for a typewriting machine, the combination with two cooperating levers in a train of devices arranged to vibrate the ribbon, said levers being contiguously disposed and extending in opposite directions and each extending towards the pivoted end of the other from its own pivot, of means to support said actuating lever and whereby it may be shifted to alter its point of engagement with the operable lever to vary the throw of the ribbon in accordance with the desired field.

33. In a typewriting machine, the combination of a ribbon vibrating lever, an actuating lever therefore, means including an element to engage the actuating lever to operate it, said element engaging the actuating element at a point always substantially the same distance from the point of the actuating lever, and means to shift the actuating lever to change its leverage with respect to the ribbon vibrating lever to vary the throw of said ribbon vibrator.

34. In a typewriting machine, the combination of a ribbon vibrating lever, an actuating lever therefor, two projections on the actuating lever and arranged different distances from the pivot thereof to engage the ribbon vibrator one at a time, key levers, means operable by the key levers to engage at each operation always the same one of said projections to operate the actuating lever, the projection engaged by said operable means engaging the ribbon vibrator to operate it, and means to effect a relative shifting between the actuating lever and the ribbon vibrator to render effective the projection not engaged by the operable means.

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