

April 2, 1946.

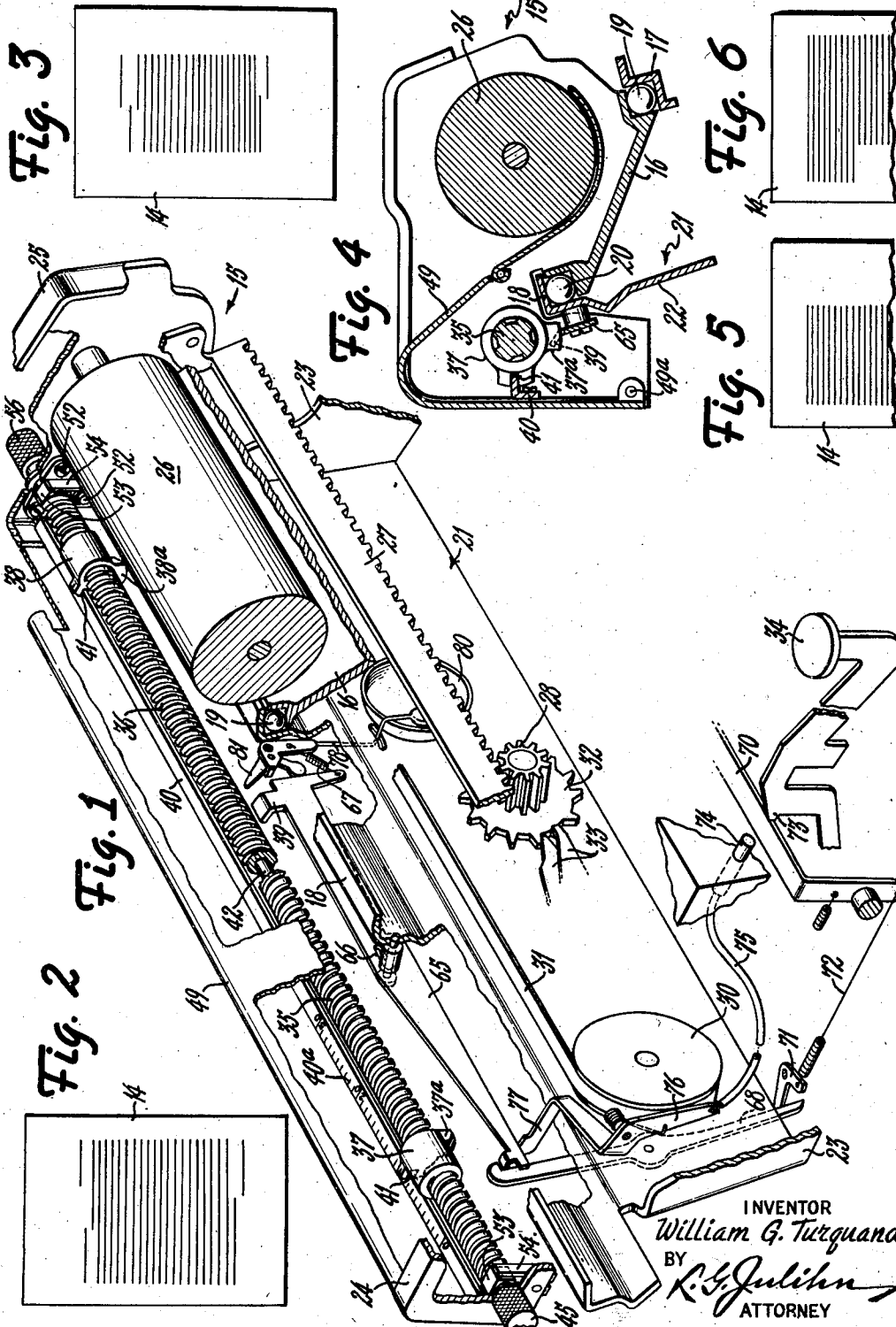
W. G. TURQUAND

2,397,578

TYPEWRITING MACHINE

Filed Oct. 22, 1943

3 Sheets-Sheet 1



April 2, 1946.

W. G. TURQUAND

2,397,578

TYPEWRITING MACHINE

Filed Oct. 22, 1943

3 Sheets-Sheet 2

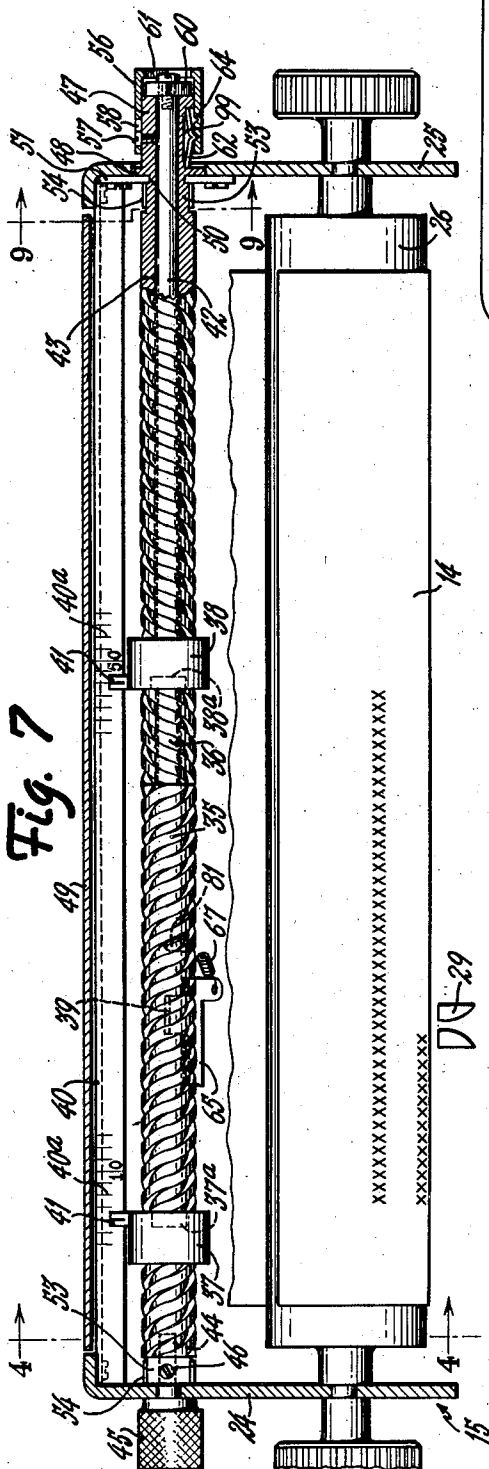
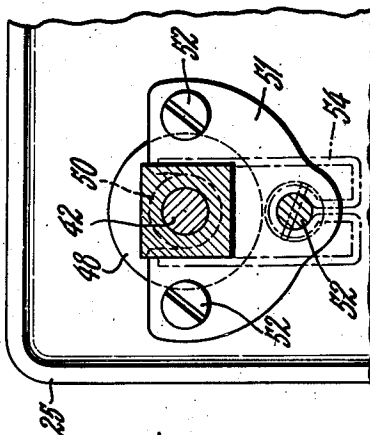


Fig. 7



6.577

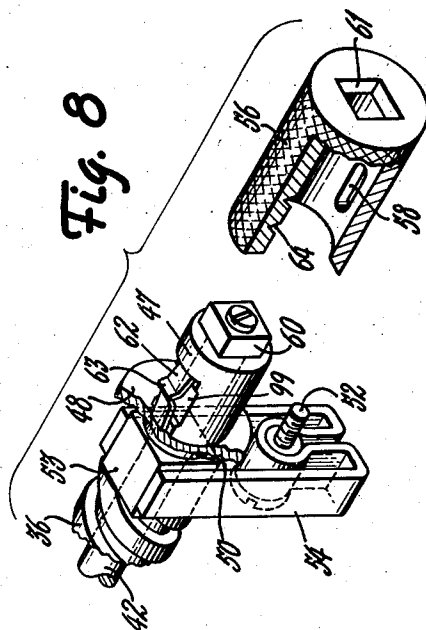


Fig. 8

INVENTOR
William G. Turquand
BY
R. E. Juhn
ATTORNEY

April 2, 1946.

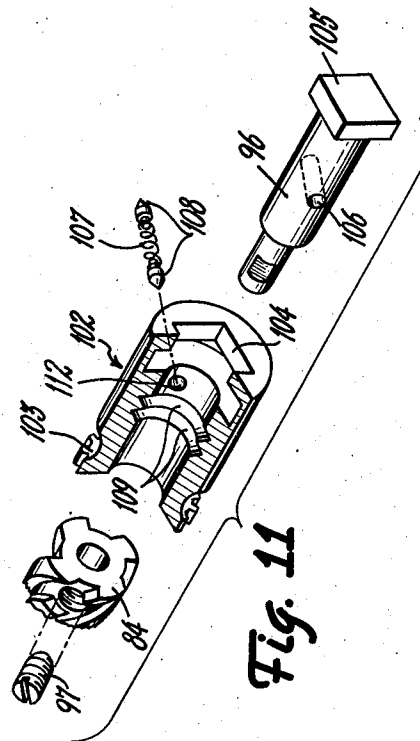
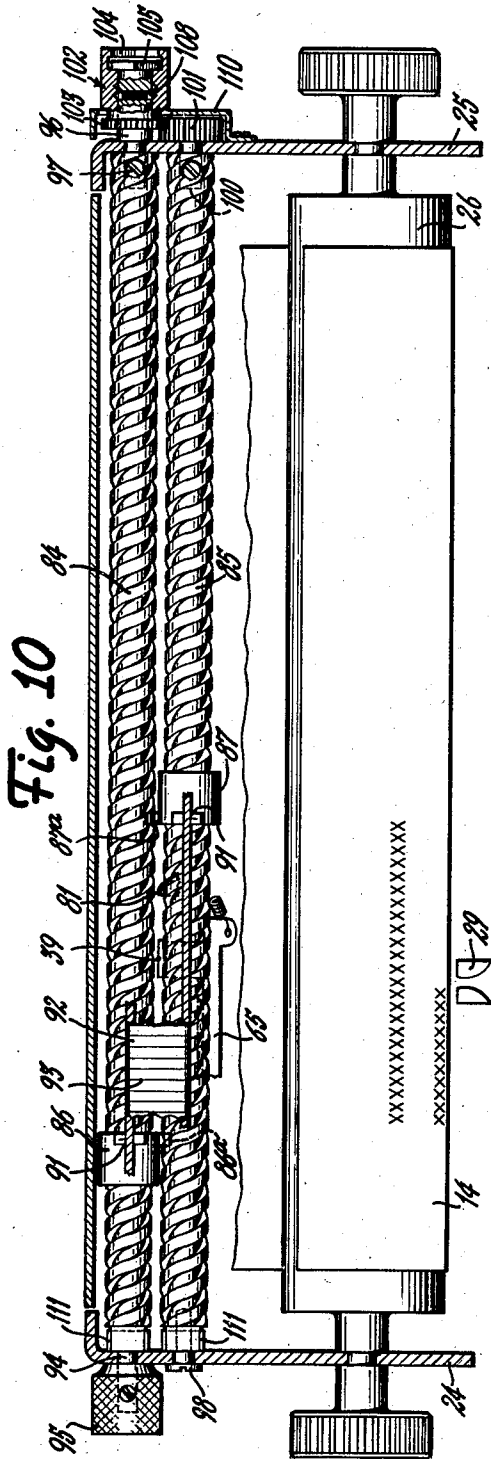
W. G. TURQUAND

2,397,578

TYPEWRITING MACHINE

Filed Oct. 22, 1943

3 Sheets-Sheet 3



INVENTOR
William G. Turquand
BY
R. S. Juhn
ATTORNEY

UNITED STATES PATENT OFFICE

2,397,578

TYPEWRITING MACHINE

William G. Turquand, Brooklyn, N. Y., assignor
to Underwood Corporation, New York, N. Y., a
corporation of Delaware

Application October 22, 1943, Serial No. 507,345

16 Claims. (Cl. 197—63)

This invention relates to typewriting machines and more particularly to regulators for determining stopping positions for the carriages in such machines.

It is old in the art to pre-establish concomitantly two or more carriage stopping positions by manipulation of a single control. For example, in the patent to Dobson No. 2,142,241, of January 3, 1939, there is disclosed a structure whereby a left and a right margin-stop are concomitantly adjustable toward or away from each other by manipulation of a single turning knob, the important advantage being that a writing line can be expeditiously and conveniently shortened or lengthened concomitantly at both ends, in accordance with the length of a letter to be typed, to give such letter a well-balanced, neat appearance, and, therefore, beauty and character.

While thus some of the known prior stop regulating devices, such as the one of said patent to Dobson, facilitate quick conjoint regulation of a plurality of carriage-stops, such devices have the disadvantage that independent stop-regulation is unfeasible, wherefore machines embodying such devices are unsuitable for many classes of work.

With the above in view, it is an object of the invention to provide efficient and reliably operative means, for conveniently pre-establishing, for different work, either conjointly or separately, a number of different stopping positions for a typewriting machine carriage.

Another object of the invention is to provide reliably operative, conveniently manipulative means for efficiently pre-establishing the left-hand and right-hand margins in a typewriting machine, at will, either separately or conjointly.

A further object of the invention is to provide margin-regulating means which make it possible to vary either of the margins independently of the other or to widen or narrow both margins concomitantly.

Also among the objects of the invention is to provide conveniently manipulative means whereby a number of independently regulatable carriage stopping means are efficiently connectable at will for conjoint regulation.

A further object is to provide in combination with a number of independently adjustable carriage stopping means, efficient connecting devices for rendering said stopping means conveniently adjustable concomitantly, the connecting devices preferably including means to suppress connection of said stopping means whenever such con-

nection is attempted while only one of the stopping means is in a set position.

Still other objects and features of the invention will be apparent upon consideration of the detailed description which follows, as that description is read in the light of the accompanying drawings.

Referring now to these drawings:

Figure 1 is a fragmentary perspective view of an Underwood portable typewriter together with novel devices for regulating a left and a right margin-stop, either separately or conjointly.

Figure 2 is a representation of a typewritten sheet having opposite narrow margins of equal width,

Figure 3 illustrates a typewritten sheet with margins wider than those of Figure 2,

Figure 4 is a sectional side elevation taken substantially along line 4 indicated in Figure 7,

Figure 5 depicts a typewritten sheet having opposite margins of different width,

Figure 6 is a representation of a typewritten sheet having a group of lines with equal left and right margins and another group with widened left margins,

Figure 7 is a plan view illustrating a typewriter carriage equipped with the novel margin-stop regulating mechanism shown in Figure 1,

Figure 8 shows a perspective illustration of certain parts of the margin-stop regulating mechanism of Figures 1 and 7, in a state of separation,

Figure 9 is a sectional side-view taken approximately along line 9 indicated in Figure 7,

Figure 10 is a plan view similar to Figure 7, showing a modified form of the invention,

Figure 11 is an exploded perspective view of certain parts of the modified structure seen in Figure 10.

Referring now particularly to Figures 1 and 4, a carriage 15 having a guideway member 16 is mounted for letter-feed and return-movements upon front and rear rails 17 and 18, by means of antifriction elements 19 and 20. The said rails 17 and 18 form part of a usual case-shift frame 21 which includes also a rear wall 22 and two opposite side walls 23. From the opposite ends of the carriage guideway member 16 rises a left and a right end-plate, 24 and 25, respectively, which plates support rotatably a platen cylinder 26 whereon one or more work sheets 14 may be supported in a usual manner. A letter-feed rack 27, extending between the carriage ends and pivotally mounted thereon is normally in mesh with a gear pinion 28, and a spring-motor 30, through the medium of a flexible band 31, tends to move

the carriage in letter-feed direction. However, movement of the carriage by said spring-motor is controlled by a usual escapement mechanism comprising an escapement wheel 32 which is associated with said pinion, and escapement-wheel stepping-dogs 33, the latter being actuated in response to each operation of any one of the usual complement of type-keys 34, or the usual space-key, the latter not shown. Said type-keys actuate typebars, not shown, against the front side of the platen 26, to a common printing point approximate to the usual type-guide designated by the numeral 29. For moving the carriage to any desired position, the rack 27 may be temporarily released from the pinion 28, whereas the escapement mechanism 32, 33 may be of a design to permit ready return of the carriage in leftward direction.

Margin stopping devices

A preferred embodiment of the invention is shown in Figures 1, 4, 7, 8, and 9; according to which, upon the rear of the carriage, see Figures 1, 4, and 7, are situated two threaded shafts or screws 35, 36, extending longitudinally thereof, axially in line with the carriage, each shaft being coextensive with about half the length of the carriage 15, the shafts or screws 35 or 36 carrying respectively a left margin-stop 37 and a right margin-stop 38, and each stop having an internal thread for threadedly meshing its associated screw. Either of said screws is turnable upon the carriage to adjust the associated margin-stop lengthwise of the carriage, and so that the stops 37, 38 may not turn with the screws, there is extending along the full length of the carriage a bar 40 wherewith each of said stops has a keyway engagement as indicated at 41, see especially Figures 1, 4, and 7. Said bar is provided with a position indicating scale 40^a for the stops and is fastened at its extreme ends to intumed flanges of the opposite end-plates 24, 25, see Figure 7. The stop adjusting screws and the bar 40 may be concealed normally by a shroud 49, forming a paper-rest at the introductory side of the platen 26 and being pivotally displaceable about an axis 49^a to expose said stops and associated scale for inspection.

Referring now more specifically to Figures 1 and 7, it will be seen that the screws 35, 36 are respectively right and left threaded, from which it is evident that if both screws are turned rearwardly as seen from the top, the said stops 37, 38, will move toward each other. Conversely, if said screws are turned forwardly, the threads will move the stops 37, 38 away from each other. The lead of the threads has been chosen so that for each one-quarter turn of either of the screws, the associated stop is shifted one letter-feed step, which in a typewriter of standard construction is $\frac{1}{16}$ inch. The threads of the screws are preferably square in cross-section and may be quadruple as shown. As may be seen from Figures 1 and 7, said stops 37, 38 have stop-lugs 37^a and 38^a respectively, which lugs are both in cooperative range with a counterstop 39, and are respectively adapted for engagement therewith to establish the beginning and the end of the line.

The leftwardly situated screw 35 has a thin shaft-extension 42 reaching rightwardly through a central bore 43 in the screw 36, to the outside of the right-hand carriage-end-plate 25. The left end of the screw 35 is pivoted in the end-plate 24 by means of a pin 44 which on the outside of the end-plate is enlarged into a screw-

turning knob 45. The pin 44 extends into a central hole provided in the screw 35 and is secured to the latter by a set screw 46. The rightwardly situated screw 36 ends in an unthreaded section 47 which protrudes through a hole in the right carriage-end 25, the section 47 having a ring-like enlargement 48 fitting turnably in said hole. Just inside of the right end-plate 25, the screw 36 has a circumferential groove 50, and a plate 51, fastened to the inside of the right end-plate, by screws 52, or otherwise, reaches into said groove for longitudinal anchorage of the screw 36 to the right-hand carriage end-plate 25. It will be observed that the structure just described allows said screws 35, 36 to be turned independently of each other.

Each of the stop adjusting screws has just inside the immediate carriage-end a squared portion 53, each such portion being pinched resiliently between two legs of a leaf spring 54, said springs acting upon said square portions to detent the screws yieldingly in four different rotative positions, it being remembered here that the lead for each of the stop adjusting screws is $\frac{1}{16}$ inch for every quarter turn. If, therefore, the screws are turned to successively detented positions, the stops will be adjusted in increments equal to the letter-feed pitch of the carriage.

On the said unthreaded end 47 of the screw 36, on the outside of the carriage end-plate 25, there is provided a screw turning knob 56 in the form of a sleeve. This sleeve or knob fits said unthreaded end 47 for axial sliding movement thereon, but is joined for rotation with the screw 36 by means of a screw 57 having a head fitting a slot 58 in the sleeve, said slot allowing limited sliding movement of the knob 56. In the position seen in Figure 7, the knob, when turned, rotates the stop adjusting screw 36 without turning the other stop adjusting screw 35. If, however, the knob or sleeve 56 is moved toward the carriage-end 25, the two screws become firmly clutched for concomitant rotation, and therefore for concomitant adjustment of both the margin-stops 35, 36. More specifically, the shaft-extension 42 has fastened thereto, at its right end, a toothed clutch member 60, see Figures 7 and 8, which when the knob or sleeve 56 is moved toward the end-plate 25, becomes meshed in positive interlock with a congruent interior of an internal clutch-flange 61 of the sleeve or knob 56. Stated more in detail, the said clutch member 60 and the interior of the flange 61, are both square, and are always in matching positions when the screws 35, 36 are detented by the springs 54 bearing against the squared portions 53 of the screws. From this it should be clear that the connection of said screws can never be effected if the screws are relative to each other out of step. In other words, the clutch 60, 61 is constructed to suppress connection of the screws 35, 36 whenever such connection is attempted while only one of the latter is in a set or detented position. The sleeve or knob is detented in either of its longitudinally adjusted positions and for this purpose a flat spring 62, see Figures 7 and 8, having an outwardly projecting detenting edge 63, lies in a transverse cut 99 of said unthreaded screw-end 47, the detenting edge 63 being capable of entry into either of two internal cavities 64 provided in the sleeve 56.

It should be noted that the ring-like enlargement 48 is somewhat larger than the diameter of the knob 56, thereby to facilitate assembly of the dual screw-unit 35, 36 by introduction of the

end bearing the said knob, from within, into the side plate 25, the pivot pin 44 and the plate 51, on opposite carriage ends, being thereafter secured.

The aforementioned margin counterstop 39 is part of a lever 65 extending parallel to the carriage just beneath the margin-stop-adjusting screws 35, 36. This lever 65, by reason of a pin and slot joint 66 at the rear of the rail 18, is capable of some leftward, lengthwise displacement by the right-hand margin-stop 38 as the typing progresses to a certain line-end position, in order to actuate a line-end key-locking mechanism. A spring 67, attached to a downwardly extending ear on the right end of the lever 65, exerts constantly an upward and rightward pull on the lever, maintaining it normally in the position shown in Figure 1. No displacement of the lever 65 takes place if the left margin-stop 37 is moved rightwardly against the counterstop 39, such engagement being solely effective to arrest the carriage in the desired returned position. Said lever 65 in being displaced by the stop 38 actuates an upright lever 68 pivoted upon the rear wall 21, the lower end of which in turn swings forwardly a key-locking bail 70 through the medium of a bell crank 71 and a resilient link 72. When so swung forwardly, the bail assumes a position under the rearwardly projecting lugs 73 of the various type-key levers 34, thereby locking these keys against effective actuation.

The lever 65, by reason of the pin and slot joint 66, is also rockable to move the counterstop 39 out of cooperative relation with both of the margin-stops 37, 38, thereby to allow movement of the carriage and typing to either side of the marginal positions defined by the stops 37, 38. Such rocking of the lever 65 is conveniently effected through actuation of a margin release key 74 which comprises the forward apex of a link 75 that is articulated to a spring-restored bell crank 76, the latter of which includes an arm 77 underlying the left end of the counterstop-bearing lever 65.

An audible line-end signalling device is also provided, which gives the operator a warning of the approach of the line-end at a given, constant number of letter-feed spaces, say four spaces, ahead of the position in which the type-keys become locked. This signalling device may comprise, a pivoted bell clapper 78 for striking a bell 80, and a one-way acting actuating dog 81 for said clapper, pivotally carried on the latter. As the carriage 15 approaches the line-end defined by the margin-stop 38, the dog 81, together with the clapper at first is idly displaced leftwardly, but as the carriage progresses a little further, the line-end margin-stop 38 clears the dog 81, with the result that the spring 67 causes the clapper 78 to strike the bell 80. During the return of the carriage, the dog 81 swings idly on the clapper.

Modification

The mechanism heretofore described with reference to Figures 1, 4, 7, 8, and 9, permits adjustment of the left and right margin-stops only over a limited range which is substantially commensurate respectively with the left and right half of the carriage travel. Such range of adjustment is adequate for average requirements but where full-range adjustment for both stops is desirable, the invention may take the form illustrated in Figures 10 and 11, comprising two parallel stop-adjusting screws 84 and 85, each being approximately equivalent in length with the

over-all length of the carriage 15. These stop-adjusting screws are preferably threaded in the same direction so that opposite turning is required to effect opposite adjustment of the margin stops 86, 87 wherewith said screws are respectively associated. Said stops 86, 87, as indicated in Figure 10, have downwardly reaching ears 86^a and 87^b situated in line with a counterstop 39 similar to the one hereinbefore described. In like manner, as the stops 37, 38, the stops 86, 87 have each a keyway formation 91 providing for their adjustment lengthwise of the carriage along a bar 92, the bar in the present construction, however, being in the form of an inverted channel, and the keyway formations of the respective stops being in straddling, sliding engagement with the opposite sides of the channel. Furthermore, similarly to the bar 40 of Figure 7, the upwardly facing side of the bar 92 has scale-markings 93 for indicating the respective positions of the stops 86, 87.

The left end of the screw 84 ends in a pivot pin 94 extending through the end-plate 24 and having fastened thereon a screw-turning knob 95. At the right end, the screw 84 is turnably supported in the carriage-end 25 by means of a shoulder stud 96 extending from without through the end-plate, into a central hole of the screw, a set screw 97 being provided for fastening the stud to the screw. The left end of the margin-stop adjusting screw 85 is pivoted upon the left carriage-end 24 by means of a shouldered screw 98, whereas the right end has a pivot pin 100 fastened therein, which pivot pin, on the outside of the carriage-end-plate 25 is enlarged into a gear 101. This gear is turnable by a knob 102 which is preferably carried rotatably on the aforementioned stud 96, the knob 102 having a gear 103 meshing the gear 101. In the position of the parts seen in Figure 10, the knob is freely turnable on the stud 96 in order to turn the screw 85 independently of the screw 84. However, the knob is axially shiftable toward the carriage-end-plate 25, and when so shifted will become positively clutched with the stud 96 through interfitting engagement of a square-holed internal rim 104 of the knob 102 with a square-shaped head 105 on the stud 96. In such clutched condition the knob 102 is operable to turn both the screws 84, 85 concomitantly, the adjustment of the stops 86, 87 being then either toward or away from each other, depending on the direction in which the knob is turned. So that the knob may be set in either its clutched or unclutched position, the stud 96 may have in a transverse hole 106 thereof a coil spring 107 pressing two oppositely disposed detent pins 108 resiliently against the interior of the knob 102, the latter having two internal circular detenting grooves 109 for engagement by said pins. Since said grooves are circular, the knob, of course, is turnable in either of its two axially adjusted positions. The knob, as seen in Figure 11, may have a hole 112 wherethrough the pins 108 and the spring 107 may be introduced during the process of assembly of the knob on the stud 96. To prevent injury of the operator's fingers by the gears 101, 103, the latter may be contained in a housing 110 attached to the outer side of the end-plate 25. Stepwise adjustment of either screw in agreement with the letter-feed pitch of the carriage, either individually or together, is assured by springs 111 cooperating with squared left-ends of the margin-adjusting screws, it being understood that the knob 102

is always clutchable to the head of the said stud 96 when both the stop-adjusting screws are in fully detented positions.

It will be observed from Figure 10 that the two turning knobs 95, 102 for the screws 84, 85 are on a common axis and that that stop 86, whether shifted individually or concomitantly with the stop 87, will be shifted in the same direction by corresponding directional turning of either of the knobs. Furthermore, individual turning of the knobs 95, 102 in the same direction will adjust the stops 86, 87 in opposite directions. Such organization of the control mechanism for the two stops avoids confusion in the operator's mind as to the direction in which to turn each of the knobs to effect the desired stop adjustments.

Most typing done in a day's work by the average typist consists of letter writing and it will be seen that for such work the invention provides for quick and convenient adjustment of both margins in consideration of the length of the text to be accommodated on the work sheet. In this connection compare the typed sheets of Figures 2 and 3. On the other hand, the usefulness of the machine for doing all kinds of other work of a more special nature requiring independent adjustment of the stops is not destroyed, it being always possible to set the machine for unequal margins, for example, such as are illustrated in Figure 5. Also, an operator is enabled to conveniently offset a paragraph as seen in Figure 6, by independent adjustment of one of the margin-stops. Furthermore, in the case of the structure shown in Figures 10 and 11, the left and the right margin may be established in any desired position along the full width of the sheet.

While the mechanism herein shown and described is admirably adapted to fulfill the objects stated, it is to be understood that it is not intended to confine the invention to the forms or embodiments herein described, for it is susceptible of embodiment in various forms, all coming within the scope of the claims which follow.

What is claimed is:

1. In a typewriting machine having a carriage movable on a frame, two adjustable stop-means for said carriage, each constructed for adjustment to and retention independently of the other in a plurality of different settings for stopping the carriage in different positions, said stop-means including each a member partaking in the settings thereof and extending lengthwise of the carriage, and means to connect and disconnect operatively said two members and therefore said two stop-means, respectively for concomitant or independent settings of the two stop-means.

2. In a typewriting machine having a carriage movable on a frame, two stop-means for said carriage adapted for settings independently of each other to a number of carriage-stopping positions, means for holding said two stop-means individually in their set positions, and means including single control means manipulative in one manner to connect and disconnect said two stop-means respectively for concomitant or independent settings and additionally manipulative in another manner, when the two stop-means are connected, to adjust both stop-means concomitantly.

3. In a typewriting machine having a carriage movable on a frame, two carriage-arresting stops, means for each of said stops to set them independently of each other to different positions, said means including, control means remote from both said stops, and two members extending lengthwise of the carriage, being individually ad-

justable by said control means and adapted, by individual adjustment thereof, to set said stops individually, and means for operatively connecting the said two setting-means at will for conjoint settings of both said stops.

4. In a typewriting machine having a carriage movable on a frame, a left and a right margin-regulating stop, means for each of said stops to set them independently of each other to different margin defining positions, said setting means including each a member extending lengthwise of the carriage and partaking in the settings of the setting means, and means for operatively connecting the said two setting-means at will for conjoint setting of both said stops toward or away from each other.

5. In a typewriting machine having a carriage movable on a frame, two rotatively settable means, both axially disposed lengthwise of the carriage and rotatively settable independently of each other to a plurality of positions, stop-means associated with each one of said settable-means and being adjustable to different carriage stopping positions by the rotative settings of the rotatively settable means, and means to connect and disconnect said two settable-means respectively for concomitant or independent settings, and consequently for concomitant or independent adjustments of said two stop-means.

6. In a typewriting machine having a carriage movable on a frame, two carriage-arresting stops adjustable in parallel to the carriage, screw-means for each of said stops to adjust them individually to different carriage stopping positions, and means to connect said two screw-means at will for concomitant adjustment of both said stops.

7. In a typewriting machine having a carriage movable on a frame, two carriage-arresting stops adjustable in parallel to the carriage, screw-means for each of said stops, turnable to adjust said stops individually to different carriage stopping positions, means to detent individually each of said screw-means in different turned positions that give said stops said different carriage stopping positions, and means to connect said two screw-means at will for concomitant adjustment of both said stops toward and away from each other.

8. In a typewriting machine having a carriage movable on a frame, a left- and a right-hand margin stop, two coaxial, adjacent, oppositely threaded screw-means, each screw-means being threadedly associated with one of said stops and rotatably to adjust such stop to different margin-defining positions, and means to clutch and unclutch said two screw-means at will for unitary or independent rotation, said two screw-means when clutched providing for unitary rotation of the two screw-means and, therefore, for concomitant adjustment of said stops toward or away from each other.

9. In a typewriting machine having a carriage movable on a frame, a left- and a right-hand margin stop, two coaxial, adjacent, oppositely threaded screws, each screw being threadedly associated with one of said stops and rotatable to adjust such stops to different margin-defining positions, a shaft for turning one of the screws extending therefrom through a central bore in the other screw, and clutch means for connecting the outer end of said shaft at will with said other screw.

10. In a typewriting machine having a carriage movable on a frame, a left- and a right-hand

margin stop, two coaxial, adjacent, oppositely threaded screws, each screw being threadedly associated with one of said stops and rotatable to adjust such stops to different margin-defining positions, a shaft for turning one of the screws extending therefrom through a central bore in the other screw, and clutch means for connecting the outer end of said shaft at will with said other screw, said last means including a screw-turning knob coaxially mounted with said screws and shiftable axially to clutch and unclutch the said shaft from the said other screw.

11. In a typewriting machine having a carriage movable on a frame, two adjustable stop-means for said carriage, each stop-means comprising for adjustment thereof to specific stopping positions a member rotatively settable in uniform angular increments to different positions, and means to connect and disconnect the two settable members respectively for concomitant or independent settings, said last means including means to suppress connection of the two members whenever connection is attempted while only one of said members is in a set position.

12. In a typewriting machine having a carriage movable on a frame, two adjustable stop-means for said carriage, each stop-means comprising for adjustment thereof to specific stopping positions a member rotatively settable in uniform angular increments to different positions, and means to connect and disconnect the two settable members respectively for concomitant or independent settings, said last means comprising a clutch having complementarily toothed clutch members adapted to be meshed in positive interlock whenever both said settable members occupy set positions.

13. In a typewriting machine having a carriage movable on a frame, a left and a right margin-defining stop adjustable in parallel with the carriage, two substantially coextensive parallel screws, each screw being threadedly associated with one of said stops and rotatably mounted to adjust such stop to different margin-defining positions, and manipulative means to turn said screws either separately or concomitantly for in-

dependent or concomitant adjustment of said stops, said last means including a turnable knob adapted to be shifted axially for operatively connecting said two screws and turning them concomitantly.

14. In a typewriting machine having a carriage movable on a frame, a left and a right margin-defining stop adjustable in parallel position with the carriage, two substantially coextensive, parallel screws, each screw being threadedly associated with one of said stops and rotatable for adjusting such stop to different margin-defining positions, gear means for transmitting stop-adjusting motion between the said screws for concomitant stop-adjusting rotation of both screws, and means to render said gear means effective or ineffective at will, for concomitant or independent stop-adjusting rotation of said screws.

15. In a typewriting machine having a carriage movable on a frame, two carriage-arresting stops, a screw threadedly associated with each stop and rotatively settable in uniform increments for adjusting such stop to different, equally spaced margin-defining positions, means to connect said screws for concomitant adjustment of both said stops to different margin-defining positions, said last means including means to suppress connection of the screws whenever connection is attempted while only one of the screws is in a set position.

16. In a typewriting machine having a carriage movable on a frame, two adjustable stop-means for said carriage, each stop-means comprising for adjustment thereof a member settable in uniform increments to different positions which variably control the position of arrest for the carriage, and means to connect and disconnect the two settable members respectively for concomitant or independent settings, said last means including means to suppress connection of the two members whenever connection is attempted while only one of said members is in a set position.

WILLIAM G. TURQUAND.