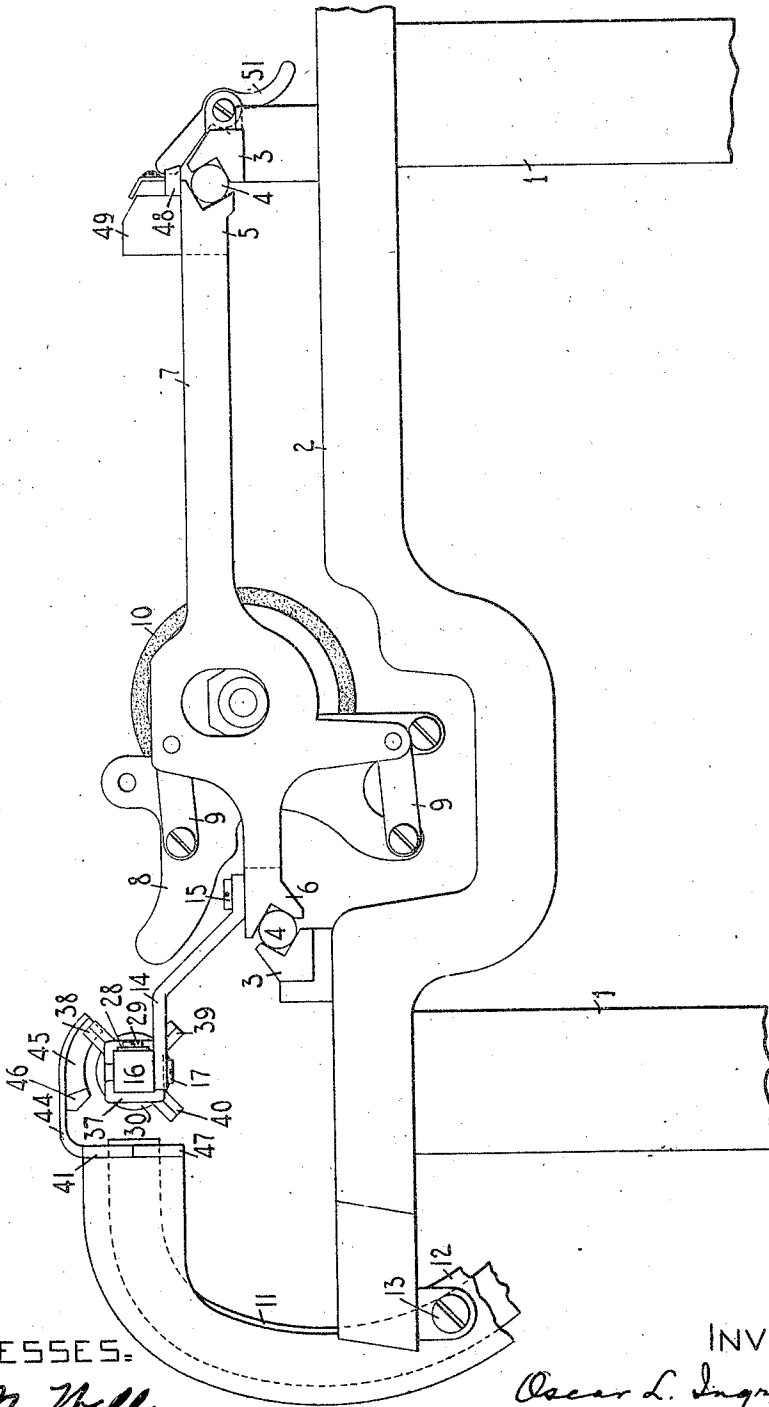


992,200.

FIG. 1.



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Oscar L. Ingram

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992,200.

Patented May 16, 1911.

3 SHEETS—SHEET 2.

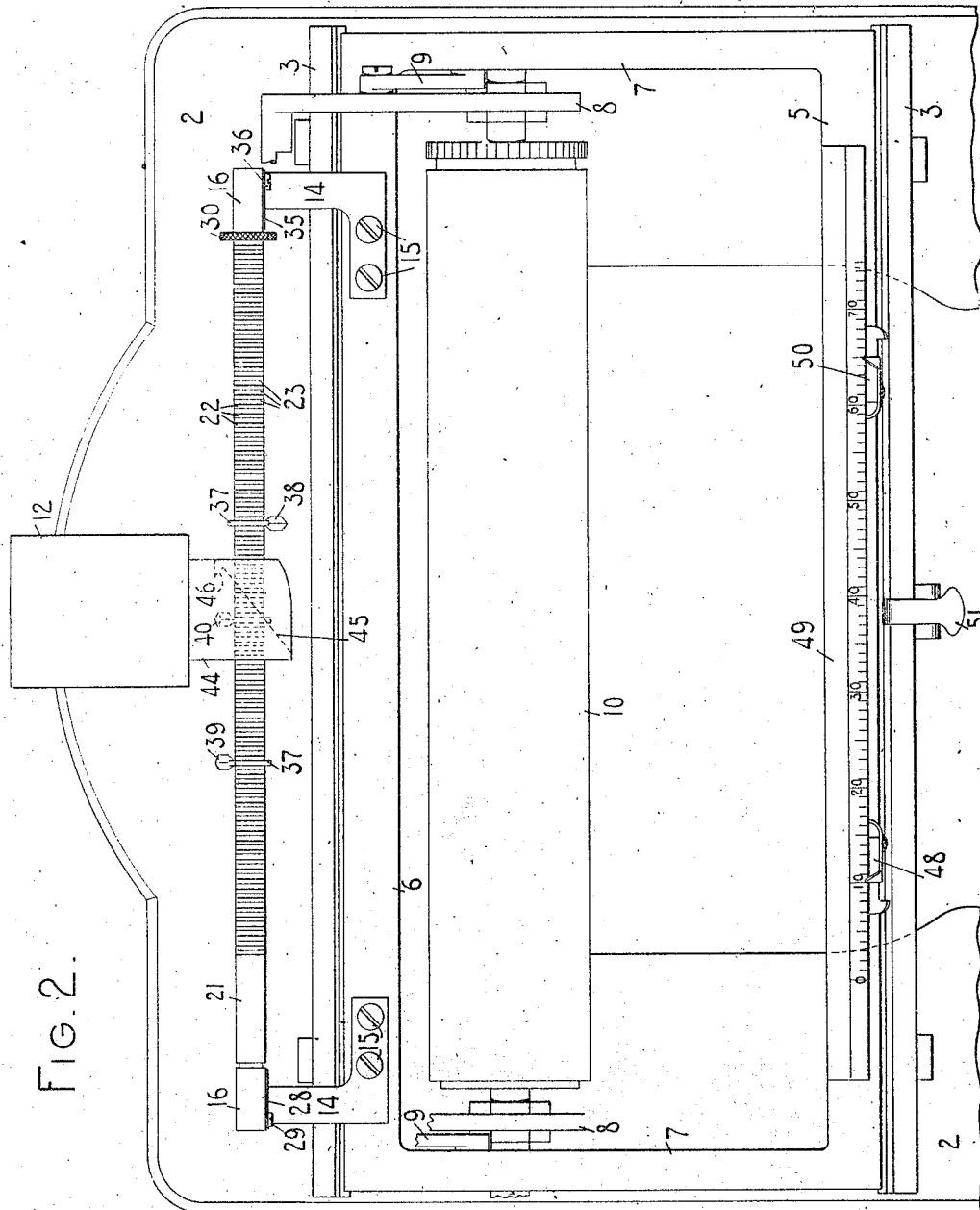


FIG. 2.

WITNESSES:

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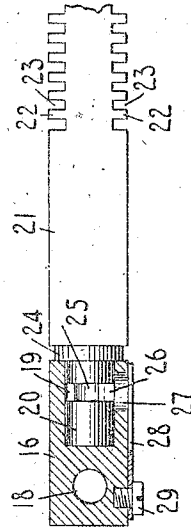
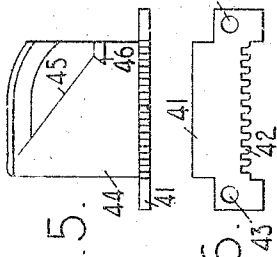
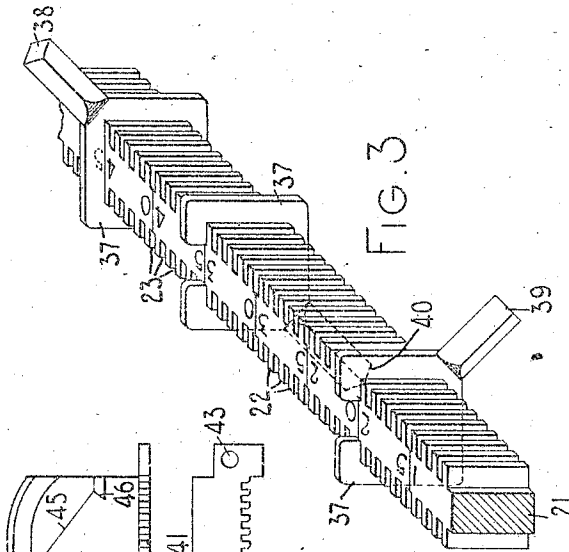
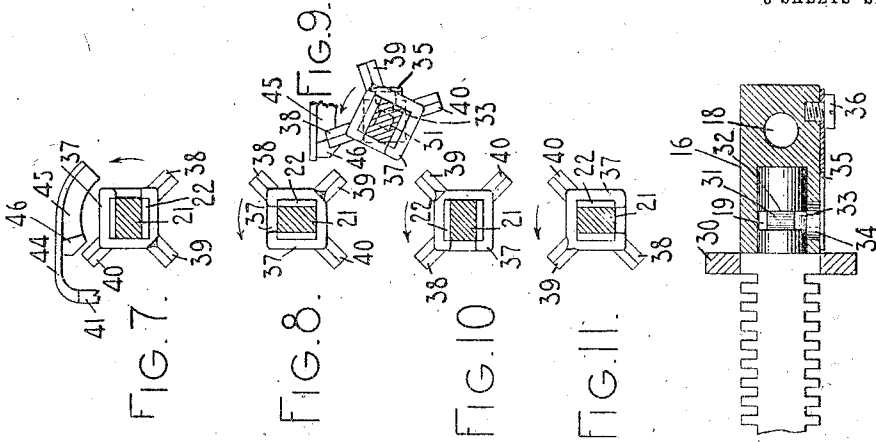
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O. L. INGRAM.
TYPE WRITING MACHINE.
APPLICATION FILED JAN. 31, 1910.

992,200.

Patented May 16, 1911.

3 SHEETS-SHEET 3.



WITNESSES.

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UNITED STATES PATENT OFFICE.

OSCAR L. INGRAM, OF WALLA WALLA, WASHINGTON, ASSIGNOR TO UNION TYPE-WRITER COMPANY, OF ILION, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

992,200.

Specification of Letters Patent.

Patented May 16, 1911.

Application filed January 31, 1910. Serial No. 541,006.

To all whom it may concern:

Be it known that I, OSCAR L. INGRAM, citizen of the United States, and resident of Walla Walla, in the county of Walla Walla and State of Washington, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates especially to stop devices for typewriting machines and has for its main object the provision of automatically controlled means for arresting the traveling element or carriage at different points in its travel so that lines of writing may be begun at different points on the work sheet.

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 the present instance I have shown my invention as comprising novel margin regulating devices adjustably mounted on the carriage of a typewriting machine, said devices coöperating with a stop on the stationary frame of the machine during return movements of the carriage.

My invention as herein exemplified is particularly adapted to the writing of the headings of letters, including the date and address lines, but it will be apparent that the invention may be used in other ways besides the one explained below in detail.

Referring to the accompanying drawings which illustrate one form of my invention, Figure 1 is a fragmentary side elevation of the upper part of a typewriting machine embodying my invention, only so much of the machine as is necessary to a clear understanding of said invention being shown. Fig. 2 is a fragmentary top plan view of the machine, parts being omitted. Fig. 3 is a perspective view of certain of the novel stop devices mounted on the carriage. Fig. 4 is a plan view of the support for the novel stop devices on the carriage, the bearings of said support being shown in horizontal section. Figs. 5 and 6 are respectively a bottom plan view and a rear elevation of the co-operative stop device member on the frame of the machine. Figs. 7 to 11 inclusive are operating views showing the various posi-

tions assumed by the stop devices on the carriage during a cycle of operations.

My invention may be adapted to various styles of writing machines, but in the present instance I have preferred to show it embodied in a No. 10 Remington typewriter.

As shown in the drawings the main frame of this typewriter comprises corner posts 1 supporting a top plate 2 to which are secured two parallel track-ways 3 receiving anti-friction balls 4, which balls also co-operate with grooved front and rear bars 5 and 6 which are comprised in a rectangular carriage truck, said truck further including end bars 7 connecting the bars 5 and 6. A platen frame 8 is connected by links 9 to said truck and carries a cylindrical platen 10. The truck and platen frame constitute a carriage which is impelled leftward by the usual carriage power or spring drum (not shown) and is controlled by suitable escapement devices which are operated by printing key levers which further actuate type bars to coöperate with the front face of the platen. The printing and carriage feeding devices just referred to, as well as line space turning devices for the platen, are not shown in the drawings but are or may be of the usual character.

The machine is preferably equipped with tabulating mechanism comprising a set of pivoted key controlled denominational stop levers 11 arranged at the rear of the machine in a detachable frame 12 which is secured by means including screws 13 to the main frame of the machine and curves forward over the top and sides of the set of denominational levers forming a housing or cover therefor. The usual angular arms or brackets 14 are secured to the rear bar 6 of the truck by screws 15 and project upward and rearward from the bar 6. Ordinarily these arms support rigidly a column stop bar; but in this instance the ordinary stop bar is replaced by a rotary stop bar particularly adapted to the needs of my invention.

In the present case rectangular bearing blocks 16 are secured fixedly to the top rear portions of the arms 14 by headed screws 17 which pass upward through holes in the arms 14 and engage in tapped openings 18 in the bearing blocks 16. As will be appar-

ent from Fig. 4 the bearing blocks are formed at their inner ends with round depressions or bearing openings 19 which provide bearings for the trunnions or cylindrical bearing portions 20 of a stop carrying rack bar 21. The body of this stop bar is rectangular in cross section and corresponds in character with the usual column stop bar, being formed at opposite faces with teeth 22 to provide openings or spaces 23 at letter space intervals. At the left-hand side between the body portion of the bar 21 and the trunnion 20 is a reduced cylindrical portion or shoulder 24 which abuts against the inner face of the contiguous block 16. Part of the left-hand trunnion 20 is cut away to provide a circumferential depression or groove 25 in which fits a lug 26 carried by a stud 27 secured to the inner free end of a flat spring 28 which extends leftward along the bearing block and is secured near its outer end to said bearing block by a headed screw 29. The stud 27 bears in a round hole in the bearing block and said stud and the lug 26 which it carries are pressed constantly inward by the spring 28. The face of the lug 26 contiguous to the bottom of the groove 25 is concaved to conform to the bottom of said groove and the construction is such that the spring mounted lug 26, while permitting the trunnion 20 and stop bar 21 to turn freely, coöperates with the sides of the depression 25 to prevent endwise movement of said trunnion in its bearing and consequent endwise movement of the stop bar. The right-hand end of the body portion of the stop bar 21 terminates contiguous to the right-hand bearing block 16 in a circular flange or enlargement 30, the periphery of which is knurled, said flange providing a finger piece for turning the stop bar by hand on its bearings. The right-hand trunnion 20 is cut away to provide a reduced portion 31 which is squared or rectangular in cross section as appears from Figs. 4 and 9.

Projecting into the opening or groove 32 formed between the body of the trunnion and the rectangular reduced portion 31 is a lug 33 having a flat inner surface, said lug being integral with a round stud 34 seated in an opening in the bearing block 16 and secured to and pressed constantly inward by a flat spring 35 which is attached by a headed screw 36 to the right-hand bearing block. It will be understood that the flat inner face of the spring-pressed plunger or lug 33 will coöperate with each of the four flat sides of the rectangular portion 31 to hold the stop bar 21 set in predetermined relations with its bearings, the predetermined positions being a quarter turn distance apart. The stop bar 21 supports a plurality of stop members, each of which comprises a U-shaped body portion 37, the parallel sides whereof are

sufficiently flexible or yielding to fit into the interdental spaces 23 of the stop bar and frictionally engage said bar, thus enabling the stop members to be adjustably secured at desired points along the stop bar.

Projecting diagonally from one corner of the body portion 37 of each stop member is a stop lug which is rectangular in cross section. The stop lugs of all of the stop members are substantially alike, but for purposes of description may be given different numbers, viz., 38, 39 and 40. I have shown in the present instance three stop members each provided with a stop lug, but the construction may if necessary be altered so as to provide for a greater or less number as the exigencies of the system demand. The stop members are so arranged on the stop bar 21 in the present case that the stop lugs project in different directions from the bar although each is disposed substantially radial of the axis of motion of the stop bar. Thus the stop lugs 38 and 40 project in diametrically opposite directions from the stop bar while the stop lug 39 is arranged at right angles to the other two. This different disposition of the stop lugs may be accomplished by fitting the stop members to the bar from different sides and by turning the members oppositely before placing them on the bar. It is further to be noted, as shown in Fig. 3, that the stop lug 38 is arranged at the point "45" on the stop bar as indicated by the usual scale, while the stop lugs 39 and 40 are arranged respectively at the points "20" and "35" on said stop bar.

The movable stops or stop lugs on the stop bar 21 are adapted to coöperate during return movements of the carriage with a fixed stop member which in the present instance is secured to the front upper part of the frame 12 and may be formed integrally with the upper comb or guide plate of the denominational stop levers 11. Such a combined comb plate and stop member is shown detached in Figs. 5 and 6, Fig. 5 being a bottom plan and Fig. 6 being a rear elevation. The combined member also appears in Figs. 1 and 2. It comprises a flat vertical portion 41 provided with guide teeth 42 for the stop levers and having holes 43 for securing screws. A hooded portion 44 curves forward from the top of the part 41 so as to overlie the stop bar 21 and permit the movable stop members to pass thereunder. Formed at the under side of the hood-like portion 44 is a cam face 45 which extends downward to coöperate with the movable stop lugs. Said cam face inclines diagonally rearward from left to right as most clearly appears in Fig. 5 and terminates at a stop face 46 projecting downward from the under side of the hood 44, the stop face 46 being at right angles to the cam face 45 and the two faces at their junction pro-

viding a stop for the movable stop lugs as will hereinafter more clearly appear. The combined comb plate and stationary stop member is screwed to the front of the frame 12 and the usual lower comb plate 47 is also secured to the front of said frame so that the levers 11 may be projected forward through the guide teeth of the plates 41 and 47 as heretofore without interference.

When the rotatable stop bar 21 is set so that the movable stop lugs are arranged as shown in Figs. 2 and 7, the stop lugs will pass freely to and fro under the hood 44 without contacting with the fixed stop member during to and fro movements of the carriage. Accordingly it is only necessary to set the stop bar 21 in the Fig. 7 position when it is desired to dispense with the use of my improvements.

As has been stated, the present embodiment of my invention is particularly adapted to facilitating the writing of the headings of letters, and the movable stop members in the present instance are adjusted along the stop bar 21 for this purpose, the stop lug 38 being intended to cooperate with the fixed stop to arrest the carriage during a return movement thereof in the proper position for writing in the date line at the beginning of a letter, while the stop lugs 39 and 40 are respectively arranged to arrest the carriage for writing in the line containing the name and the line containing the address. The illustrated arrangement will cause the date line to be begun at "45" on the scale, the name line at "20" on the scale and the address line at "35" on the scale. In the present case, as will be seen from Fig. 2, the usual stop 48 for the left-hand margin is adjusted at the front of the carriage at the point "10" on the carriage scale 49; while the stop 50 for the right-hand margin is arranged at "65." These margin stops cooperate with the fixed stop 51 on the frame of the machine to determine the margins of the body of the work. The stop 48 will be effective to determine the left-hand margin as long as the novel stop devices are arranged as indicated at Fig. 7. Supposing the carriage to be well toward the left of its travel and that it is desired to begin a letter or other communication, the operator, by means of the knurled flange or finger piece 30, may turn the stop bar 21 by hand in the direction of the arrow in Fig. 7 until the parts are in the position shown in Figs. 1 and 8, with the stop lug 38 projecting upward and forward. The stop bar 21 and the stop lugs will be held set in this position by the engagement of the flat faced lug or spring plunger 33 with one of the flat sides of the rectangular part 31. The carriage is now retracted toward the right, bringing the stop lug 38 into engagement with the cam face 45. After such engage-

ment the further movement of the carriage will be effective through the cam acting on the stop lug 38 to turn the stop bar 21 and the stop members thereon in the direction of the arrow in Fig. 8. This turning movement continues until the stop lug 38 is arrested by contact with the stationary stop 46, at which time the stop lug 38 will be seated in the angular seat formed by said stationary stop and the cam and stop face 45 as shown in Fig. 9. From Fig. 9 it will be seen that at this time the spring plunger 33 is engaged with a corner of the rectangular part 31 and is exerting its force to continue the turning movement of the parts in the direction of the arrow in Fig. 9 but is restrained by the stop face 46. Thus the carriage will be arrested at the point "45" in the writing line and the writing of the date may be begun without further delay. As the date line is written the carriage will move step-by-step leftward, and the first few step-by-step movements will release the lug 38 from the stop 46 and will permit the spring plunger 33 to turn the parts from the Fig. 9 to the Fig. 10 position. In other words, the plunger will be effective to complete the full quarter turn of the parts from the Fig. 8 to the Fig. 10 position after the parts have been turned as far as the Fig. 9 position by the cam 45, and said plunger will bring the stop lug 39 into engaging position. Hence, thereafter when the date line is completed and the platen is line spaced and returned toward the right, the stop lug 39 will cooperate with the device 45 and 46 to further turn the stop bar 21 and to effect the arrest of the carriage at the point "20" in the writing line, where the name is to be begun. During the writing of the name line the spring plunger 33 will act against a corner of the rectangular part 31 to complete the quarter turn of the stop bar 21 to the Fig. 11 position, at which position, it will be noted, the stop lug 40 will be in position to engage the fixed cam and stop devices during the return of the carriage and so as to arrest the same at the point "35" which is the starting point of the address line. During the initial letter space movements at the beginning of the address line the spring plunger 33 will be effective as before to complete the quarter turn of the parts from the Fig. 11 to the Fig. 7 position and will maintain the parts set in the Fig. 7 position. In the Fig. 7 position, it will be recalled, the novel stop devices are ineffective, so that during the next return movement of the carriage the novel movable devices will pass the fixed stop 45, 46 without cooperating therewith and the margin stop 48 will cooperate with the stop 51 to arrest the carriage at "10" and it will further be apparent that these two stops 48 and 51 will operate in the usual way to de-

fine the left-hand margin of the body of the letter as long as the parts are set as shown in Fig. 7.

When the letter is completed and it is desired to begin the address at the top of a new letter, the operator may turn the stop bar 21 by means of the finger piece or button 30 from the Fig. 7 to the Fig. 8 position, and the operations above outlined may be repeated.

Of course the arrangement of the stop devices on the stop bar 21 may be different from that shown, and either this arrangement or other arrangements found suitable may be employed for other purposes than letter headings, such, for example, as addressing envelopes and like work. It will be apparent that the novel stop devices will not interfere with the operation of the tabulating mechanism, and it is to be understood that suitable column stops may be adjusted at the proper points along the stop bar 21 to cooperate with the denominational stops 11 so as to enable tabular work to be performed without interference by my present invention. In other words, the mechanism is capable of operating to vary automatically the point of arrest of the carriage during movements of the same in either and both directions of its travel.

My improvements, unlike certain prior constructions adapted to the same general ends, are operative independently of the rotary platen of the machine so that the platen may be line spaced or turned backward or forward at will as is frequently necessary, without disturbing the relationship between the cooperating stop devices. Unlike certain other prior constructions, the set of connected stop devices in the present instance is movable only in a direction of rotation on its support and is held from independent movement on its support in a direction endwise thereof, thus minimizing the chance of accidental displacement.

My invention provides changeable stop devices independent of the platen and cooperative to arrest the carriage, said devices being controlled by means which operate automatically to change the stop devices to cause the arrest of the carriage at different points in its travel, one of the stop devices being thrown out of action and another into operative position automatically during carriage movements so that on a later movement of the carriage it will be arrested at a different point in its travel, thus enabling different lines of writing to be begun at different points. In order to effect this variable arrest of the carriage provision is made for skipping or passing intermediate stops so that a stop beyond the intermediate stops may be caused to operate. The stop bar on the carriage and the adjustable stops thereon may be said to comprise one stop

member and the combined cam and stop device on the frame may be said to comprise another stop member, although it will be obvious that the cam and the stop on the frame may be made separate if desired. It will be observed that the stop member comprising the stop bar is provided with a plurality of engaging or contact surfaces or connecting stop elements or devices which project at angles to each other from the stop bar, each projecting in a direction radial of the turning axis of the stop bar. Further it will be seen that one of the stop members is movable by the other to different positions; that said stop members co-act directly to arrest the carriage at different points in its travel; that the automatic change in relationship of the stops is effective to enable them to arrest the carriage at a recurrent series of progressively varying points in its travel; that these points may of course be varied to suit the work in hand; that the stop bar which together with the adjustable stops thereon constitutes one of the stop members is provided with a rectangular reduced portion which comprises a plurality of angularly disposed flat positioning faces, said faces cooperating with a spring pressed device or plunger to assist in holding said stop member in predetermined positions, said spring pressed device further operating to turn said stop member independently of the cam on the frame; and that there is combined with the usual margin regulating devices or stops of a typewriting machine, stop positioning mechanism which is settable by hand in position to begin operation and which comprises a plurality, series or set of connected stops, said set of stops co-acting with another stop to arrest the carriage at varying points between the marginal positions defined by the usual margin regulating devices or stops of the machine.

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 traveling carriage, a rotary platen thereon, changeable stop devices independent of the platen and cooperative to arrest said carriage, and means operating automatically to change said stop devices to cause the arrest of the carriage at different points in its travel, said stop devices during such changes being prevented from moving in the direction of carriage travel independent of their respective supports.

2. In a typewriting machine, the combination of a traveling carriage, a plurality of stop devices for arresting said carriage at a plurality of different positions, and means operating automatically to throw one of said stop devices out of action and another

into operative position so that on a succeeding movement of the carriage it will be arrested at a different point in its travel, said stop devices during such automatic operation being prevented from moving in the direction of the carriage travel independent of their supports.

3. In a typewriting machine, the combination of a traveling carriage, a plurality of stops, and a coöperative stop, the plurality of stops being movable by the co-operating stop in one direction only and that direction being about a pivotal center, said coöperating stop moving said plurality of stops to different positions to arrest the carriage at different points in different lines of writing.

4. In a typewriting machine, the combination of a rotary platen, a traveling carriage supporting said platen, a stop member thereon independent of the platen, means for preventing motion of said stop member relative to the platen in a direction lengthwise thereof, said stop member having a plurality of engaging surfaces, and a stop member on the frame of the machine, one of said stop members being movable by the other stop member to different positions to cause said two stop members to co-act directly to arrest the carriage at different points in its travel.

5. In a typewriting machine, the combination of a rotary platen, a traveling carriage carrying the same, a stop member on said carriage independent of the platen, and a stop member on the frame of the machine, one of said stop members being provided with a plurality of contact devices each co-acting directly with the other stop member and thereby positioning the first member to bring different contacting devices to operative position.

6. In a typewriting machine, the combination of a traveling carriage, a set of stops, a support therefor, a coöperative stop, and means brought into play by the movement of the carriage for causing a change in relation between the stops of the set and the coöperative stop to cause said co-operative stop to engage at different times with the several stops of the set to arrest the carriage at different positions in different lines of writing, the stops of the set being prevented from moving in the direction of the carriage travel independent of said support.

7. In a typewriting machine, the combination of a rotary platen, a carriage carrying the same, a stop member on said carriage independent of the platen, means for preventing endwise movement of said member relative to the platen, a stop member on the frame of the machine, and means automatically operating to cause a change in relationship of said stops so that they may

be caused to arrest the carriage at a recurrent series of progressively varying points in its travel.

8. In a typewriting machine, the combination of a carriage, a stop member thereon, means for preventing endwise movement of said stop member relative to said carriage, a stop member on the frame of the machine, one of said stop members being provided with a plurality of contact surfaces, and means automatically operating to cause the contact surfaces of the last mentioned stop member to come into and go out of operative position so that they may be caused to coöperate in recurrent order with said other stop member.

9. In a typewriting machine, the combination of a carriage, a set of stops, a co-operative stop, the set of stops being arranged to arrest the carriage at different predetermined points by co-action with said coöperative stop, all of the stops being held from motion in the direction of the carriage travel independent of their supports, and means for changing the stops comprised in said set to enable the coöperative stop to skip intermediate stops of the set during return movements of the carriage.

10. In a typewriting machine, the combination of a carriage, coöperative margin stop devices, and automatically operating means for changing the arresting position of one of said coöperative margin stop devices to arrest the carriage at different points in different lines, said automatic means being controlled wholly by movements of the carriage and the movement of said one of said stops to arresting position being wholly in one direction relative to its support.

11. In a typewriting machine, the combination of a traveling carriage, a stop bar rotatable thereon, means for preventing movement of said stop bar relative to the carriage in the direction of travel of the same, stops adjustable on said bar, a coöperating frame stop, and means on the frame assisting to automatically turn said stop bar to bring different stops thereon into position to co-operate with the frame stop.

12. In a typewriting machine, the combination of a traveling carriage, a set of stops thereon, a coöperating frame stop, and a single cam coöperative with said stops individually to move the entire set.

13. In a typewriting machine, the combination of a stop member provided with a plurality of stops, a coöperating stop, and means directly coöperative individually with said plurality of stops to move them so that they may coöperate one at a time with said coöperating stop.

14. In a typewriting machine, the combination of a traveling carriage, a stop bar rotatable thereon, stops adjustable on said

bar, a cooperating frame stop, and a single cam on the frame cooperative with the stops on said bar to turn the same.

15. In a typewriting machine, the combination of a traveling carriage, a stop bar rotatable thereon, stops adjustable on said bar, a cooperating frame stop, and a stationary combined cam and stop member cooperating with said stops.

10 16. In a typewriting machine, the combination of a carriage, a stop member thereon, means for preventing endwise movement of said stop member relative to said carriage, a stop member on the frame of the machine, one of said stop members being provided with a plurality of contact surfaces, and means automatically operating to cause the contact surfaces of the last mentioned stop member to move into operative position one at a time and further to render all said contact surfaces inoperative.

17. In a typewriting machine, the combination of a rotary stop member carrying a plurality of stops, a cooperative stop, a cam for turning said stop member, and a spring-pressed device assisting to hold said stop member in predetermined positions.

18. In a typewriting machine, the combination of a rotary stop member carrying a plurality of stops, a cooperative stop, a cam for turning said stop member, a spring-pressed device assisting to hold said stop member in predetermined positions and to turn said stop member independently of said cam.

19. In a stop-changing mechanism for a typewriting machine, the combination of a rotary stop member carrying a plurality of stops, automatic means for turning the same, and spring-pressed devices for maintaining said stop member set in predetermined positions.

20. In a stop-changing mechanism for a typewriting machine, the combination of a rotary stop member carrying a plurality of stops, automatic means for turning the same, and spring-pressed devices for maintaining said stop member set in predetermined positions, said spring-pressed devices operating also to turn said stop member independently of said automatic means.

21. In a typewriting machine, the combination of a carriage, a toothed stop bar rotatable thereon, stops adjustable along said stop bar and provided with radially projecting stop portions disposed at angles to each other, and a cooperating member on the machine frame comprising a cam terminating in an angularly disposed stop face.

22. In a typewriting machine, the combination of a carriage, a toothed stop bar rotatable thereon, stops adjustable along said stop bar and provided with radially projecting stop portions disposed at angles to each other, a cooperating member on the machine frame comprising a cam terminating in an angularly disposed stop face, said stop bar being provided with angularly disposed flat positioning faces, and a spring-pressed plunger cooperative with said positioning faces.

23. In a typewriting machine, the combination of a carriage, a toothed stop bar rotatable thereon, stops adjustable along said stop bar and provided with radially projecting stop portions disposed at angles to each other, and a cooperating member on the machine frame comprising a cam terminating in an angularly disposed stop face, said stop bar being provided with angularly disposed flat positioning faces, and a spring-pressed plunger cooperative with said positioning faces, said plunger operating to turn said stop bar independently of said cam.

24. In a typewriting machine, the combination of a carriage, a toothed tabulator rack bar thereon, stops adjustable on said rack bar, said stops having radially projecting stop portions disposed at angles to each other, devices for preventing endwise movement of said stop bar in its bearings and for holding said stop bar in predetermined set positions, a fixed supporting frame comprising guiding devices for tabulator stops and also cam and stop devices for said radial stop portions.

Signed at Walla Walla, in the county of Walla Walla and State of Washington, this 22nd day of January, A. D. 1910.

OSCAR L. INGRAM.

Witnesses:

F. A. GARRECHT,
H. C. BRYSON.