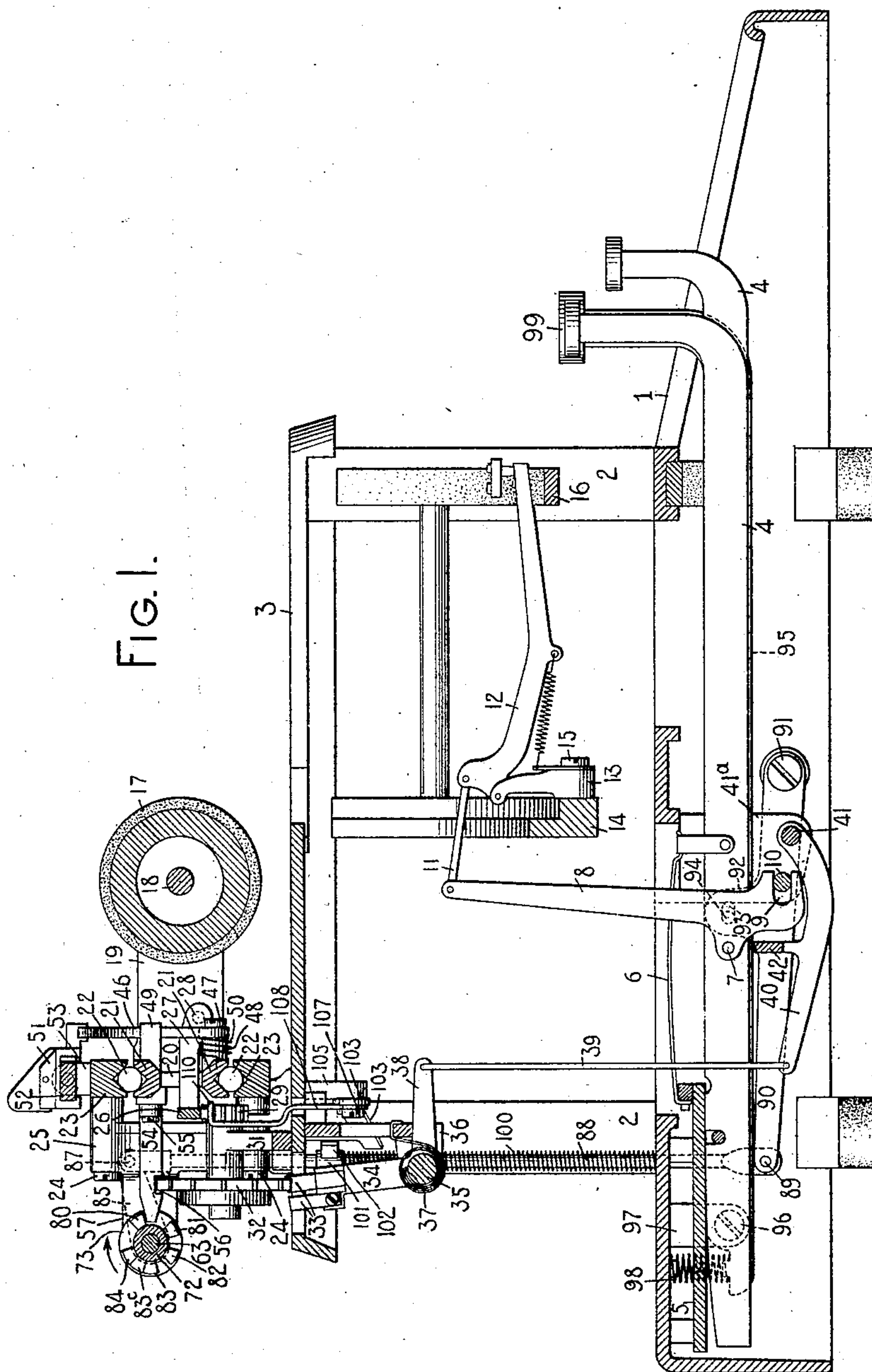


No. 878,162.

PATENTED FEB. 4, 1908.

H. H. STEELE.
TYPE WRITING MACHINE.
APPLICATION FILED MAR. 19, 1906.

5 SHEETS—SHEET 1.



WITNESSES:

J. B. Reeves
Mrs. Poole

INVENTOR:

Herbert H. Steele
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HIS ATTORNEY

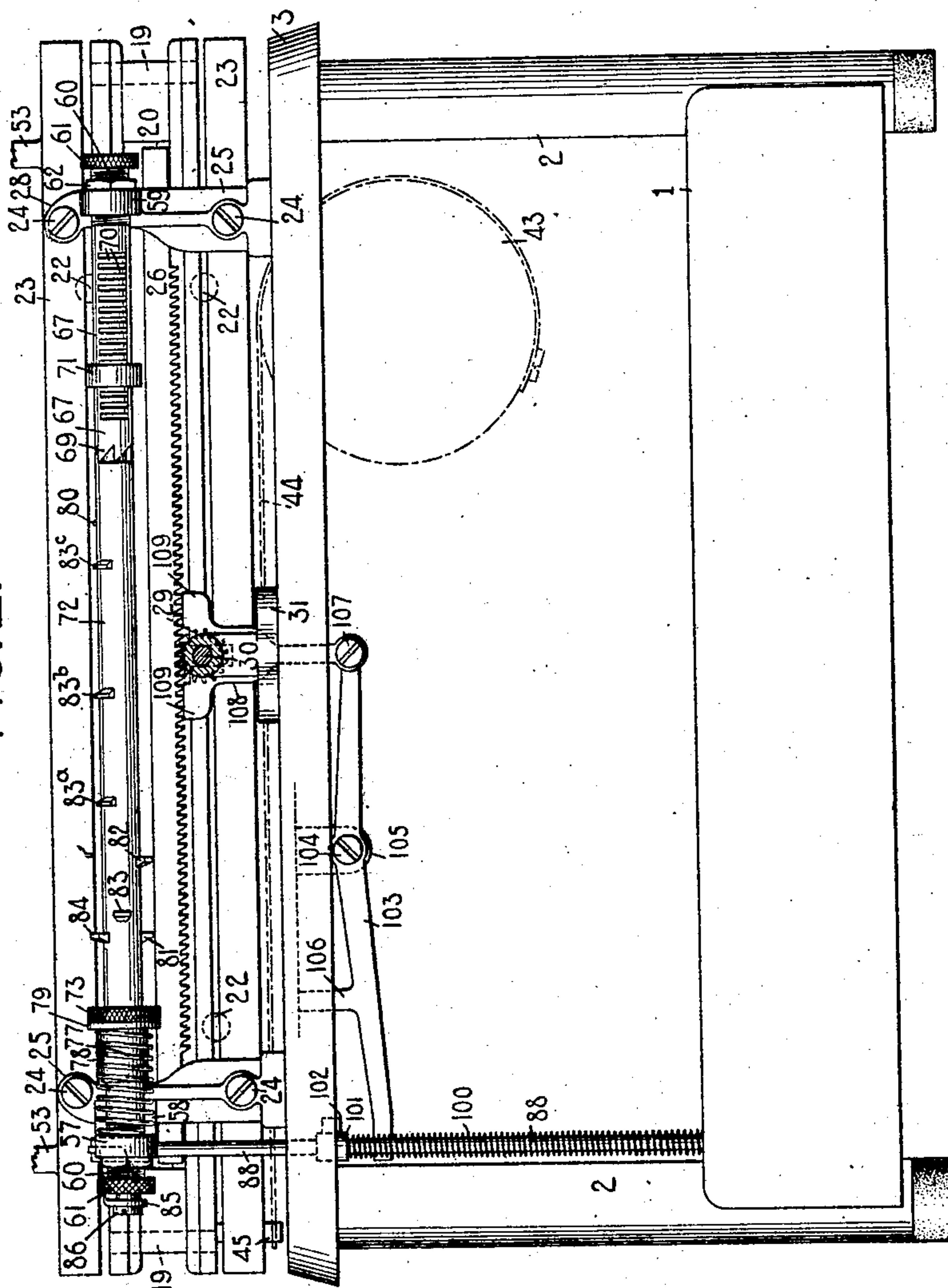
No. 878,162.

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TYPE WRITING MACHINE.
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5 SHEETS—SHEET 2.

FIG. 2.



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H. H. STEELE.
TYPE WRITING MACHINE.
APPLICATION FILED MAR. 19, 1906.

5 SHEETS—SHEET 3.

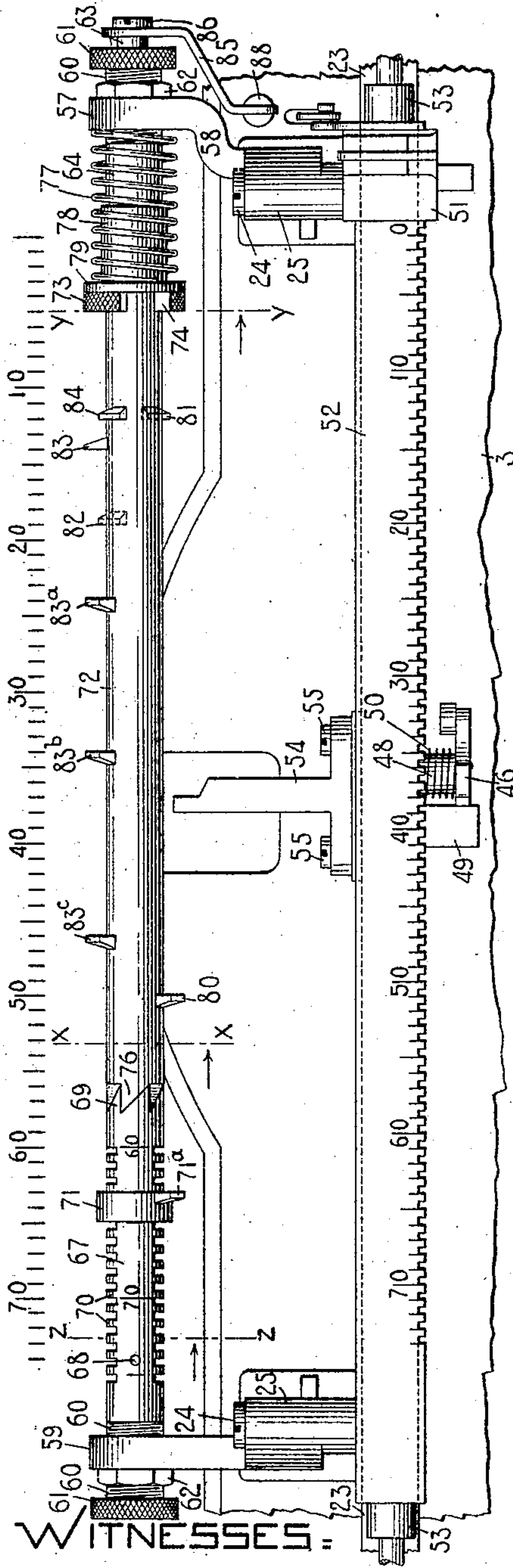
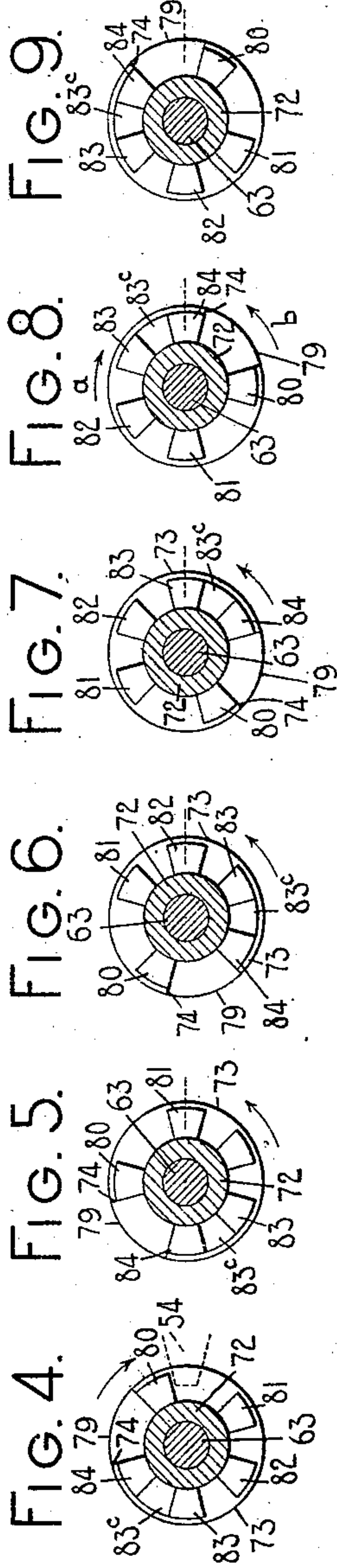


FIG. 3.



J. B. Reeves
m.w. Pool

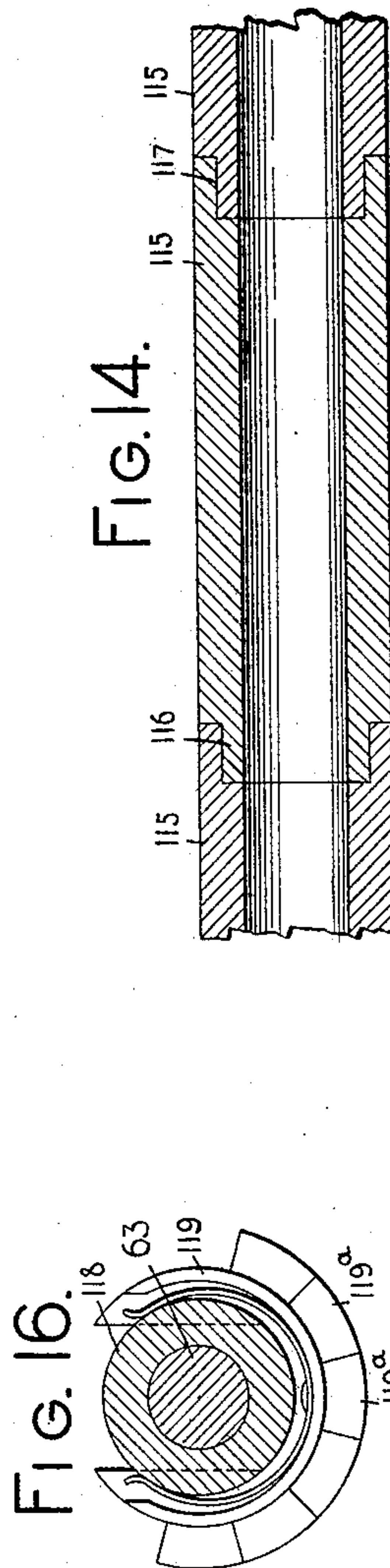
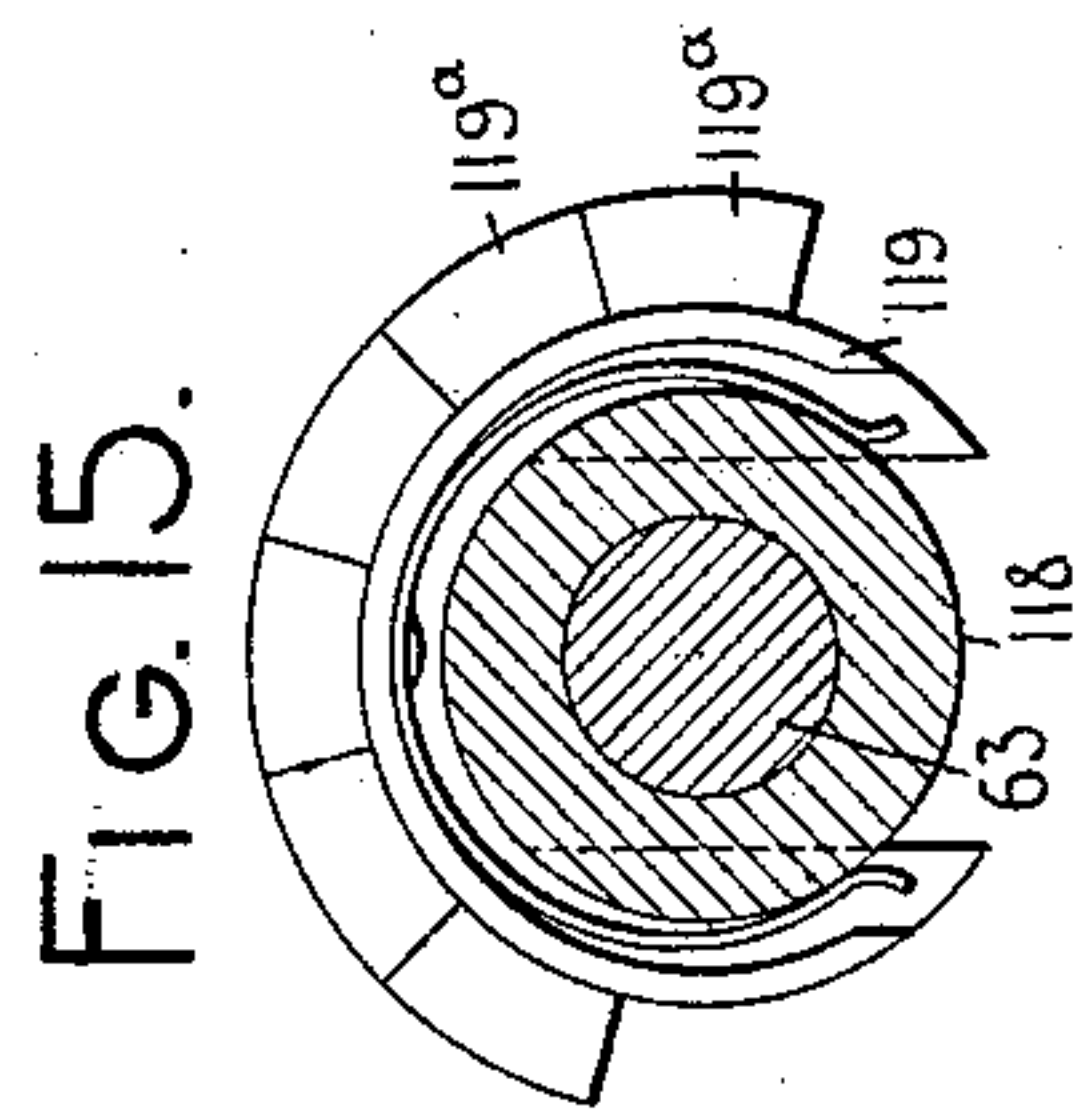
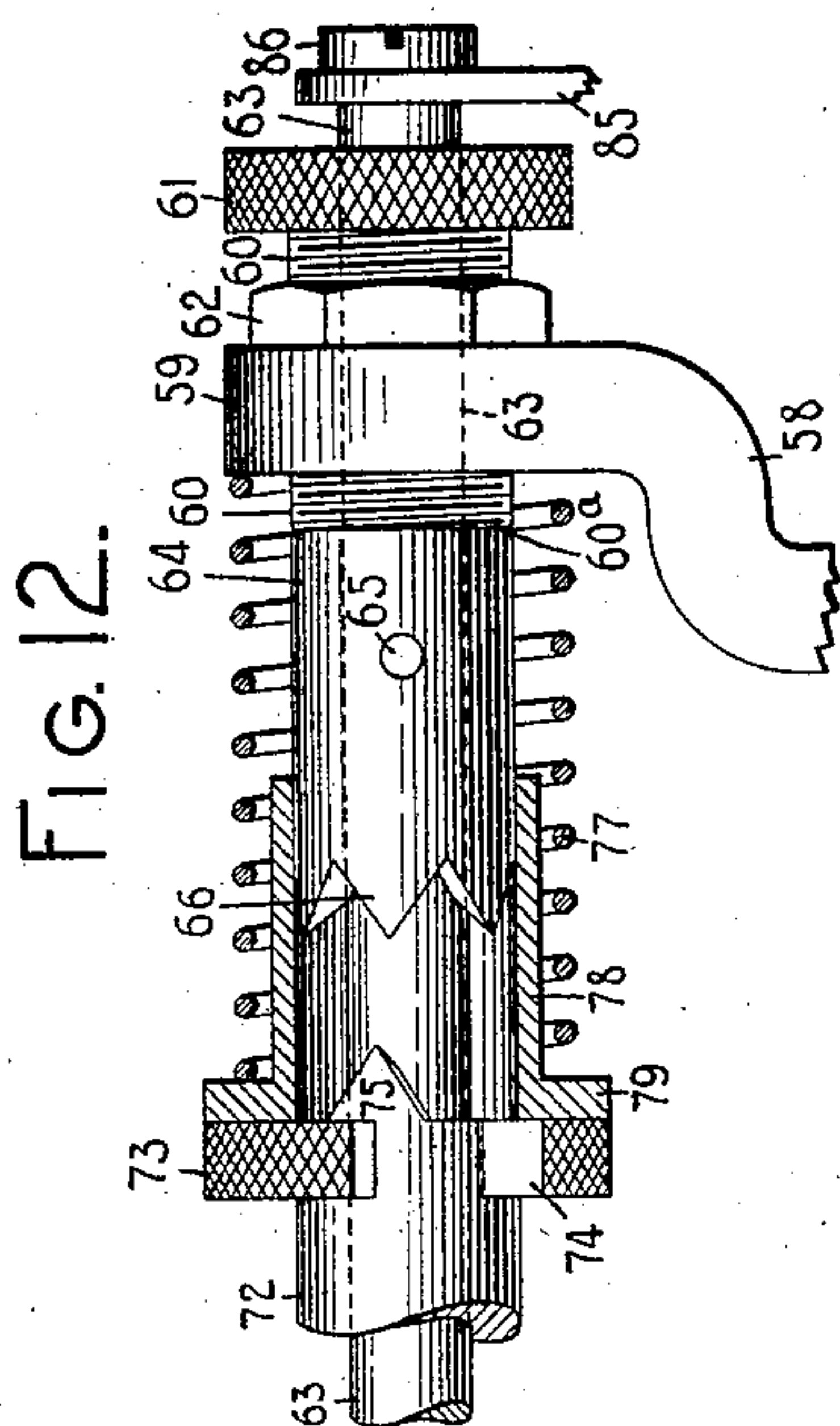
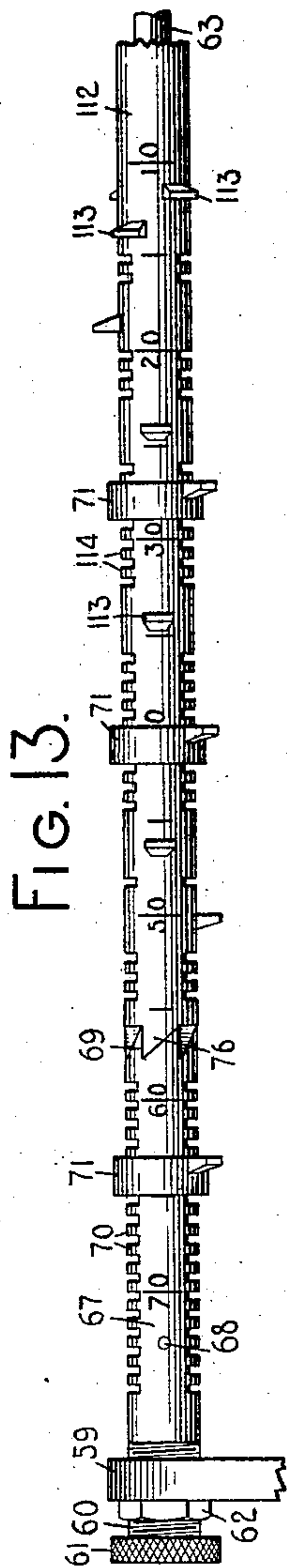
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No. 878,162.

PATENTED FEB. 4, 1908.

H. H. STEELE.
TYPE WRITING MACHINE.
APPLICATION FILED MAR. 19, 1906.

5 SHEETS—SHEET 4.



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No. 878,162.

PATENTED FEB. 4, 1908.

H. H. STEELE.
TYPE WRITING MACHINE.
APPLICATION FILED MAR. 19, 1906.

5 SHEETS—SHEET 5.

FIG. 17.

SYRACUSE N.Y. -----			
SOLD TO -----		-----	
INVOICE	OUR ORDER	CUSTOMER'S ORDER	SHIPPED
No. -----	No. -----	No. -----	VIA -----
TERMS -----			
xxxxxx		xx xx xx	

WITNESSES:

J. B. Reeves
m. w. Pool

INVENTOR:

Herbert H. Steele
By Jacob Felbel
HIS ATTORNEY

UNITED STATES PATENT OFFICE.

HERBERT H. STEELE, OF SYRACUSE, NEW YORK, ASSIGNOR TO THE MONARCH TYPEWRITER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

No. 878,162.

Specification of Letters Patent.

Patented Feb. 4, 1908.

Application filed March 19, 1906. Serial No. 306,862.

To all whom it may concern:

Be it known that I, HERBERT H. STEELE, citizen of the United States, and resident of Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to stop devices for typewriting machines and has for its main object to provide stop devices coöperative to arrest the traveling element or carriage in both directions of its travel in combination with means operating automatically to set certain of said stop devices to arrest the carriage at one time, and with means operative, preferably by the actuation of a key, to set certain of said stop devices at another time.

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

In my pending applications Nos. 304,947 and 305,274, filed respectively on March 8th, 1906, and March 10th, 1906, I have shown margin regulating devices which coöperate with stops to arrest the traveling element or carriage of a typewriting machine in varying positions as it is restored to begin a new line of writing, so that said carriage is automatically positioned to begin successive lines of writing at different distances from the margin of the work sheet. In the present application I have shown a margin regulating device of this general character combined with tabulating devices which are adapted to arrest the carriage at varying points in its travel in letter space feeding direction, the margin regulating device being provided with a plurality of portions some of which have the functions of tabulating or column stops. By this combination of devices I am enabled to arrest the carriage at different predetermined positions in both directions of its travel so that blanks may be filled in various styles or kinds of work sheets with great rapidity and accuracy.

In the present application I have shown my invention as embodied in a machine generally resembling the Monarch typewriter, but it is to be understood that said invention is of such a nature that it may be

readily applied to other forms of typewriting machine.

For purposes of ready explanation I have shown my present invention as constructed and arranged for writing a particular kind or style of work sheet, but it will be obvious that said invention may be readily adapted for writing work sheets of other and different kinds or styles.

In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view of a typewriting machine embodying my invention, the section being taken about centrally of the machine and parts of said machine being omitted. Fig. 2 is a rear elevation of the machine, parts being omitted. Fig. 3 is a fragmentary top plan view of the rear part of the machine, said view being drawn to a scale larger than Figs. 1 and 2. Associated with said Fig. 3 I have shown a scale as an aid in the explanation of the operation of the invention. Figs. 4 to 9 inclusive are enlarged sectional diagrammatic views illustrating different positions of the stop devices, said views being taken on the plane of the line *x* in Fig. 3 and looking in the direction of the arrow at said line. Fig. 10 is a sectional view taken on the line *y* in Fig. 3 and looking in the direction of the arrow at said line. Fig. 11 is a view taken on the line *z* in Fig. 3 and looking in the direction of the arrow at said line. Fig. 12 is an enlarged fragmentary top plan view showing the right-hand end of the stop support and the stop devices, some of the parts being shown in longitudinal section. Fig. 13 is a fragmentary plan view of a modified construction of a stop device. Fig. 14 is an enlarged fragmentary longitudinal sectional view of another modified construction of the stop device. Figs. 15 and 16 are enlarged transverse sectional views of another modified construction. Fig. 17 is a fragmentary face view of the work sheet or blank form hereinafter termed an invoice sheet or invoice.

Referring now more especially to Figs. 1 and 2 of the drawings, the frame of the machine comprises a base 1 from which rise corner posts 2 sustaining a top plate 3. Key levers 4 are fulcrumed on a fulcrum plate 5 mounted in the rear of the base, each key lever being provided with a restoring spring 6. Pivoted at 7 to each key lever is a sub-

lever 8, said sub-lever being provided near its lower end with a slot 9 which coöperates with a fixed abutment 10 and being connected at its upper end by a link 11 with a type bar 12 pivotally mounted in a hanger 13. The hangers are segmentally arranged in series on a segmental support 14 being each secured thereto by a screw 15. The free ends of the type bars are supported normally by a type rest 16 and are adapted when actuated to coöperate with a rotary cylindrical platen 17 having an axle 18 which is journaled in the side bars 19 of a U-shaped platen frame, carrier or carriage, the rear bar 20 whereof is formed with oppositely disposed grooves 21. Anti-friction balls 22 coöperate with grooves 21 in the platen frame or carrier and with oppositely disposed grooved guide rails 23, said guide rails being secured by screws 24 to standards 25 fixed to and rising from the top plate 3. A feed rack 26 is carried by arms 27 pivoted at 28 in the side bars 19 of the platen carrier. Said feed rack normally meshes with a feed pinion 29 fixed to a horizontal shaft 30 journaled in a bracket 31 secured to the top plate. Operatively connected with the rear end of the shaft is an escapement wheel 32. Coöperative with said escapement wheel are feed dogs 33 carried at the upper end of the vertically disposed arm 34 of a vibratory dog carrier or rocker 35 which is pivoted on a bracket 36 depending from the under side of the top plate and is provided with a restoring spring 37. Said dog carrier has a horizontally disposed arm 38 which is connected by a link 39 with an arm 40 of a universal bar frame, said frame being pivoted at 41 in fixed depending bracket arms 41^a and carrying a universal bar 42. The universal bar extends from side to side of the machine beneath the series of key levers 4 and is adapted to be actuated by said key levers and by the spacing levers (not shown) at printing or spacing operation to cause the carriage feeding devices above described to coöperate in a known manner to permit the carriage to be drawn a letter space distance in printing direction under the influence of a carriage spring drum 43 which is connected by a band or strap 44 with a lug 45 depending from the rear bar 20 of the carrier or carriage. A vertically disposed stop member 46 is pivotally mounted on a screw pivot 47 which screws into a lug 48 projecting forwardly from the bar 20. The stop member is normally maintained in engagement with a relatively fixed limiting stop 49 by a coiled spring 50 and said member is adapted to coöperate with suitable margin or line stop devices in the usual manner. The coöperating margin stop may be of the usual pattern and is indicated in the drawings by the numeral 51. Said margin stop is adjustably mounted on a toothed stop bar 52 which is journaled

in lugs 53 rising from the upper fixed guide rail 23. A horizontally disposed T-shaped stop 54 projects rearwardly from about the middle of the upper part of the bar 20 of the platen carrier, said stop being secured to said carrier by means of headed screws 55. As shown in Fig. 1, the stop 54 is cut away as shown at 56, so that in its movements from side to side of the machine it will not interfere with the escapement wheel 32.

The parts hereinbefore described do not materially differ from the corresponding parts of the Monarch machine, and it is not considered necessary therefore to describe them in greater detail or to explain at length their mode of operation.

The carriage stop 54 is adapted to coöperate with stop devices mounted on the framework of the machine, which stop devices will now be described. Integral with the right hand standard or bracket 25 and projecting horizontally and rearwardly therefrom is an arm 57, said arm, as clearly shown in Fig. 3, being formed with a lateral bend 58. A horizontal arm 59 likewise projects rearwardly from the left-hand standard 25, said arm 59, however, being straight and without any bend. The arms 57 and 59 are formed with threaded openings which receive screw bushings 60, said bushings each being provided with a knurled adjusting head 61 at its outer end. Each bushing is provided with a locking nut 62 which serves to maintain the bushing in a fixed relation with the arm in which it is mounted after said bushing has been properly adjusted in place in said arm. The bushings are formed with bearing openings which receive a shaft 63 (Fig. 12), said shaft extending from side to side of the machine at the rear of the carriage. A collar 64 is secured to the shaft 63 near its right-hand end in any suitable manner as by a pin 65. The outer end of said collar abuts against the inner end 60^a of the right-hand bushing 60 which extends through the bracket arm 57 and the inner end of said collar 64 is provided with a plurality of V-shaped teeth 66, six of said teeth being shown in the drawings (Fig. 12).

As shown in Figs. 2 and 3 a section or portion 67 of a stop bar or rod is mounted on the shaft 63 near its left end, said stop rod portion 67 being secured in fixed relation with said shaft in any suitable manner as by a pin 68. The outer or left-hand end of the stop bar 67 abuts against the inner end of the left-hand bushing 60. The right-hand end of said stop bar is formed with a plurality of saw-shaped teeth 69, each beveled on one side and straight on the other, six of said teeth being shown. Between its ends the stop bar portion 67 is formed at its front and rear sides with notches a letter space distance apart, said bar being thereby provided with teeth 70. Said bar may further

be provided as shown with scale marks corresponding with the platen scale (not shown). The toothed stop bar 67 is adapted to receive one or more detachable column or tabulating stops 71 of suitable construction, each provided with a contact or stopping portion 71^a. The column stop shown in the drawings is like that shown and described in the patent to Carl Gabrielson, No. 748,317, dated March 7th, 1905. Rotatably and slidably mounted upon the shaft 63 between the collar 64 and the stop bar portion 67 is a stop member which, as shown, is in the form of a long cylindrical sleeve or barrel 72. At its right-hand end the sleeve 72 is formed with an annular head or flange 73, the periphery whereof is knurled. The right-hand end of the barrel or sleeve 72 is provided with a V-shaped tooth 75 (Fig. 12) which is adapted to engage with the teeth 66 on the collar 64. The opposite or left-hand end of the sleeve 72 is provided with a tooth 76 which is beveled on one edge and straight on the other and is adapted to engage with the teeth 69 projecting from the stop bar portion 67. The tooth 76 is normally maintained in engagement with two of said teeth 69 and the tooth 75 is normally maintained out of engagement with the teeth 66 by a wire expansion spring 77 which is coiled around the collar 64 and abuts at one end against the bearing arm 57. The inner end or left-hand portion of said spring surrounds a short thimble or sleeve 78 which thimble serves to cover or house the teeth 66 and the tooth 75. The left-hand end of the thimble 78 is provided with a flange 79 against which the left end of the coiled spring 77 abuts. Said spring tends to press the flange 79 of the thimble against the flange 73 of the sleeve 72 and to press the latter leftward along the shaft 63 so as to maintain the tooth 76 in engagement with the teeth 69.

The stop member or sleeve 72 is provided with a plurality of stopping or contact portions spaced apart both circumferentially and longitudinally of the body of the sleeve. The number and relative disposition of these stopping or contact portions will depend upon the particular form of work for which the machine is to be fitted, as will more clearly appear from subsequent explanations. In the present instance for the sake of illustration I have shown the stop sleeve 72 as constructed for writing the work sheet shown in Fig. 17, and I will confine myself to a description of this particular construction of the stop sleeve. It is, however, to be understood that the number and relative disposition of the stopping portions may be varied to correspond with different kinds or styles of work. The sleeve 72 in the present instance is provided in addition to the flange 73 with eight contact or stopping portions

indicated by the reference characters 80, 81, 82, 83, 83^a, 83^b, 83^c and 84. These stopping or contact portions are of the same general character as those shown and described in my pending applications above referred to. Each of said stopping portions projects radially outward from the surface of the sleeve 72; each occupies at its root a space on said surface equivalent to one-twentieth of the circle that bounds the surface of the sleeve; and each has a plain or straight contact face and a beveled face.

As will be understood from a consideration of Figs. 2 and 3 the contact faces of some of the stopping portions are their left-hand faces, this being true of the stopping portions numbered 81, 82, 83 and 84, while the contact faces of the other stopping portions are their right-hand faces. From a consideration of Fig. 1 and the diagrammatic views (Figs. 4 to 9 inclusive), it will be further understood that the stopping portions of the stop member or sleeve 72 are disposed at intervals circumferentially of said sleeve. In the present instance, between the stops 80 and 81 there should be a space equivalent to 60°; between 81 and 82, a space of 30°; between 82 and 83, a space of 30°; between the end of 83 and the beginnings of 83^a, 83^b and 83^c the last three stops being in line longitudinal of the sleeve, there is no space; between the end of the last three stops and the beginning of stop 84 there is no space, and between the stop 84 and the stop 80 there is a space equivalent to 60°. It will further be understood from a consideration of Figs. 2 and 3 that considered longitudinally of the sleeve the stopping portions are spaced apart different distances, these distances, of course, depending on the positions of the blank spaces to be filled in on the work sheet.

The various stopping portions of the stop member or sleeve 72 are operative when they are brought into the path of the traveling stop 54 on the carriage, and said stops are adapted to be brought in turn to operative position by rotary movements communicated to said sleeve 72. One means of communicating rotary movement to the sleeve is automatic and will presently be described at length, this means being similar in principle to that explained in my said pending applications. In addition to the automatic means just referred to I have provided a key operated means for bringing certain of said stopping portions to operative position. This key operated means may be of any suitable construction. The mechanism shown in the drawings for accomplishing this result is similar to the key operated means for communicating rotary movement to the column stop bar shown in the patent to Gabrielson before referred to. A horizontally disposed arm 85 is secured to the right-hand end of

the shaft 63 by a screw 86. Preferably the end of the shaft 63 is squared and the arm 85 is provided with a rectangular slot which fits over the squared portion so that said arm is prevented from turning said shaft. Any suitable construction may be employed, however, for maintaining the two parts in a fixed relation.

The arm 85 extends forwardly from the shaft and is off-set inwardly as shown in Fig. 3, the free end of said arm being pivotally connected at 87 with the upper end of a vertical link 88, said link passing through suitable openings in the top plate 3 and the top of the base 1. The lower end of the link, as shown in Fig. 1, is pivotally connected at 89 with the rear end of a horizontal sub-lever 90, said sub-lever being pivoted at 91 to the right-hand side of the base 1. The sub-lever 90 is provided with an upwardly projecting portion 92 which is formed with a slot 93, said slot receiving a pin or stud 94 which is fixed to and projects laterally from a lever 95. The lever 95 is fulcrumed at 96 on a lug 97 depending from the rear of the base frame. Said lever is provided at its rear end with a coiled restoring spring 98 and its forward portion is bent upwardly and is capped with a key button 99 which is arranged just to the right of the top row of keys in the regular keyboard. The construction is such that when the key 99 is operated to depress the lever 95 the latter acts, through its pin and slot connection with the sub-lever 90, to swing the latter downwardly about its fulcrum 91, thereby moving the link 88 longitudinally downward and communicating a forward rotary movement in the direction of the arrow in Fig. 1 to the shaft 63 through the arm 85 fixed to said shaft. To assist in restoring the parts to normal position a wire spring 100 is coiled around the link 88 and is confined between the top of the base frame 1 and a collar 101 suitably secured to the link 88 beneath the top plate.

The collar 101 is provided with a laterally extending pin or arm 102 which is adapted when the link 88 is moved downwardly to operate a suitable carriage releasing mechanism which may comprise a releasing lever 103, pivoted at 104 to a lug 105 depending from the top plate, the construction being best shown in Fig. 2. The end of the outer or right-hand arm of the lever 103 extends under the pin 102 in position to be operated by the latter, the end of said arm being maintained normally at a fixed distance below the pin 102 by a stopping portion 106 extending upwardly from the frame of the lever and contacting with the under side of the top plate. The inner or left-hand arm of the lever 103 is pivotally connected at 107 with a vertically disposed lifting member 108, said member being bifurcated at its upper

end. The arms 109 of the bifurcated portion bear at their inner edges on the bracket 31 and the tops of said arms are bent forward horizontally, as best shown in Fig. 1, to provide lifting shoes 110, said lifting shoes being arranged at each side of the feed pinion 29 and normally lying beneath and just out of engagement with the teeth of the feed rack 26. The parts are so constructed and arranged that when the tabulating key 99 is operated the arm or pin 102 moves downwardly engaging the releasing lever 103 and actuating the latter to move the lifting member 108 upwardly so that the lifting shoes 110 engage the rack 26 swinging the latter on its pivots 28 up out of engagement with the feed pinion 29. The carriage is thereby freed or released from the step-by-step feeding or escapement devices and will be drawn rapidly across the machine in letter space direction by the spring drum 43 until arrested by the engagement of the stop 54 with one of the stopping portions on the sleeve 72 or with one of the tabulating stops 71.

As has been stated, the stop devices have been arranged as illustrated with special reference to the form of work sheet shown in Fig. 17. For convenience this work sheet will be designated by the reference character 111. Said work sheet is commonly termed an invoice and the top of the sheet which is broken away in the drawing comprises a bill head containing the address of the creditor and sometimes additional matter. The heading not being material in the present case has been omitted from the drawings. Let it be assumed that the invoice 111 has been entered in the machine and fed around with the platen in the usual manner until the first line to be written has been brought to the printing line. Let it further be assumed that the carriage is in the position shown in Fig. 2, so that the carriage stop 54 will be about in the position shown in Fig. 3, and that the stop sleeve 72 is in the position shown in Figs. 1, 2, 3 and 4. The operator first presses the tabulating key 99, which operation as previously explained communicates rotary movement to the shaft 63 and also causes the release of the carriage. The stop bar portion 67, it will be recalled, is fixed on the shaft 63 and the teeth 69 of said stop bar portion are engaged with the tooth 76 of the sleeve 72. Consequently the rotary movement of the shaft 63 will be communicated through the stop bar portion 67 to the sleeve 72, the straight sides of the engaging teeth 69 and 76 causing said sleeve to rotate without any change of relation relative to the stop bar portion 67. As will be best seen from an inspection of Figs. 1 and 4, the stopping portion 80 on the sleeve is, at the beginning of the rotary movement of the latter, just above the path of the carriage stop 54. The parts are so proportioned that the rotary move-

ment communicated to the sleeve 72 from the shaft 63 will turn said sleeve in the direction of the arrow in Fig. 4 through about 30° or just far enough to bring the stop 80 into the path of the stop 54, so that the carriage having been released in the manner previously described will be arrested by the engagement of the stop 54 with the stopping portion 80. After the arrest of the carriage the tabulating key may be released, whereupon the carriage releasing devices will be restored to normal position by gravity and the train of mechanism beginning with the lever 95 and comprising the sub-lever 90, link 88, arm 85 and shaft 63 will be restored to normal position by the springs 98 and 100. The return rotary movement of the shaft 63 will be communicated to the sleeve 72 through the stop bar portion 67, so that said sleeve will at the same time be restored to the position shown in Fig. 4, the stop 80 being swung upward out of the path of the carriage stop 54. The arrest of the carriage takes place at the point "50" on the platen scale, this being the point at which the first letter of the date which follows the printed words "Syracuse, N. Y." on the invoice is intended to be written. After the date has been written the platen may be line spaced in the usual manner and the carriage may be restored to the right by hand to begin a new line of writing. The rightward movement of the carriage will be unobstructed until the stop 54 engages with the flange 73 on the right of the sleeve 72. Further rightward movement of the carriage, after such engagement, moves the sleeve 72 longitudinally rightward along the shaft 63, compressing the spring 77 and disengaging the tooth 76 from the teeth 69. This rightward longitudinal movement of the sleeve will continue until the tooth 75 thereon fully engages with two of the teeth 66 on the collar 64. The collar 64 is fixed to the shaft 63 at a point such that the longitudinal movement of the sleeve 72 will be equivalent to two letter spaces. The carriage will be arrested by this stoppage of the sleeve at the point "3" on the platen scale. The teeth 66 on the collar 64 and the teeth 69 on the stop bar portion 67 are slightly out of line with each other, or, what is equivalent thereto, the teeth 76 and 75 on the sleeve may be arranged slightly out of line with each other so that as the sleeve is moved longitudinally rightward as just explained, a slight rotary movement will be communicated to it, said movement being in the direction of the arrow in Fig. 5. This action of the sleeve will be similar to that of the equivalent parts in my pending applications before referred to, and as the operation was explained at considerable length in said pending applications it is not thought necessary to further describe it herein.

The carriage when arrested by the coop-

eration between the stop 54 and the flange 73 in the manner just explained will be in proper position for writing the first line of the address of the purchaser following the printed words "Sold to" on the invoice 111. The first line of the address may therefore be written in the usual manner by operating the printing key levers 4, the carriage moving one letter space in printing direction at each operation of the printing instrumentalities. During the first two letter space movements of the carriage, as the stop 54 thereon moves leftward the flange 73 of the sleeve 72 will be maintained against said stop 54 by the spring 77, so that said sleeve will move leftward with the carriage stop 54 until restored to normal position with the tooth 76 engaged with the teeth 69. It will be remembered that the sleeve 72 has been slightly turned in the direction of the arrow in Fig. 5 during its rightward longitudinal movement. This slight turning movement has been sufficient to bring the point of the tooth 76 past the space which it has just left between two of the teeth 69. Consequently during the return longitudinal movement of the sleeve 72 under the influence of its restoring spring the tooth 76 will enter the space between the teeth 69 next in rear of that space with which said tooth 76 had previously engaged. As the sleeve 72 is pressed longitudinally leftward by the restoring spring 77, the teeth 76 and 69 cooperate to turn said sleeve a further distance in the direction of the arrow in Fig. 5. There are six teeth 69, it will be recalled, so that as the tooth 76 passes from the space between two of them to the next adjacent space, during the reciprocatory movement of the sleeve 72 just described, the latter will be turned or rotated through an arc of one-sixth of the circumference of a circle or 60°. This movement brings the stop 81 into the path of the carriage stop 54, as illustrated in Fig. 5, so that when the first line of the address has been written, and the carriage after the usual line spacing movement of the platen, is restored to the right, the stop 54 will engage with the stop 81 to move the sleeve 72 rightward until the tooth 75 engages with the teeth 66. The carriage will thereby be arrested in proper position to begin the second line of the address seven letter space distances to the right of the beginning of the first line of said address, that being the distance longitudinally measured along the sleeve between the flange 73 and the stop 81. As has been explained the rightward longitudinal movement of the sleeve causes the tooth 75 and the teeth 66 to cooperate to communicate a slight rotary movement to said sleeve sufficient to bring the point of the tooth 76 into position to enter the space between the teeth 69 adjacent to that space which said tooth 76 has just left. Conse-

quently as the second line of the address is written and the sleeve 72 is restored longitudinally leftward by the spring 77 the tooth 76 and the teeth 69 cooperate to communicate rotary movement to the sleeve such that it will be turned to the position illustrated in Fig. 6, bringing the stop 82 into the path of the carriage stop 54. When the second line of the address has been completed the platen is line spaced and the carriage is restored rightward by hand to begin the third line of the address, the stop 82 cooperating with the carriage stop 54 to arrest the carriage at a point seven letter spaces to the right of the beginning of the second line of said address. As the third line of the address is written the sleeve 72 which has been displaced longitudinally rightward as previously explained, will be restored to normal position by its spring 77. This reciprocatory movement of the sleeve causes its teeth to cooperate with the relatively fixed teeth on the shaft 63, the result of such cooperation being to cam or turn the sleeve from the position shown in Fig. 6 to that shown in Fig. 7 in which latter figure it will be noted that the stop 83 has been brought into the path of the carriage stop 54.

It will be seen from an inspection of Fig. 3 that considered longitudinally of the sleeve 72 the stop or stopping portion 83 is to the right of the stop 82 and between it and the stop 81. Consequently as the carriage is restored by hand to the right after the completion of the third line of the address, the stop 54 will cooperate with the stop 83 to arrest the carriage in proper position to fill in the blank space following the "Invoice No." on the invoice 111 at the left of and below the third line of the address. The invoice number blank is at such a distance below the third line of the address that it is necessary to actuate the line spacing mechanism twice to bring the blank for the invoice number to the printing line. This will be clearly understood from an inspection of Fig. 17. It will also be noted from said figure that following the blank for the invoice number and on the same line therewith are blanks for "Our order No.", "Customer's order No.", and the shipping direction.

During the reciprocatory longitudinal movement communicated to the sleeve 72 in connection with the filling in of the blank space of the "Invoice No.", rotary movement will be automatically communicated to said sleeve in the manner above explained, such that the sleeve will be turned from the position shown in Fig. 7 to that shown in Fig. 8. From an inspection of the last named figure it will be seen that the stop 84 has been brought into the path of the carriage stop 54 and the stops 83^a, 83^b and 83^c have been brought to a position just above and out of the path of said carriage stop.

If, therefore, after the filling in of the invoice number blank, the tabulating key 99 is depressed it will operate to turn the shaft 63 forwardly in its bearings and said shaft will, through the stop bar portion 67, communicate forward rotary movement (in the direction of the arrow *a*, Fig. 8) to the sleeve 72 sufficient to bring the stops 83^a, 83^b and 83^c down into the path of the carriage stop 54. Consequently when the releasing devices are operated during the last part of the depression of the tabulating key 99 the carriage will be freed from its step-by-step feeding devices and will move leftward rapidly until arrested by the engagement of the carriage stop 54 with the stop 83^a in proper position to write "Our order No." The tabulating key may now be released and the parts permitted to return to normal position, after which the blank space belonging to "Our order No." may be filled in. After this has been done the tabulating key 99 may be again operated to release the carriage and permit it to move freely leftward until arrested by the engagement of the carriage stop 54 with the stop portion 83^b. Thereafter the key actuated parts may be permitted to return to normal position and the "Customer's order" number filled in. On again operating the tabulating key 99 the carriage will be released and arrested by the engagement of the stop 54 with the stop portion 83^c in position to fill in the blank following "Shipped via."

It will be understood that at each operation of the tabulating key the sleeve 72 will be rotated forwardly to bring the stops 83^a, 83^b and 83^c down into the path of the carriage stop 54 and that each time said key is released said stop portions will be swung up into the position shown in Fig. 8 out of the path of the stop 54. The final blank in the line *i. e.* "Shipped via", having been filled in the platen may be line spaced and the carriage restored to the right by hand in the usual manner. This time the stop 54 on the carriage will cooperate with the stop portion 84 on the sleeve 72 to arrest the carriage in position to fill in the blank following the printed word "Terms". During the reciprocatory movement communicated to the sleeve in connection with the last described operation, said sleeve will be turned in the direction of the arrow *b* in Fig. 8 from the position shown in said Fig. 8 to that shown in Fig. 9. From an inspection of the latter figure it will be seen that the cut-away 74 in the flange 73 has been brought into the path of travel of the carriage stop 54, so that, after the "Terms" blank has been written and the carriage is restored to the right to begin a new line, the said carriage stop 54 will pass through the cut-away or slot 74 and will engage with the flange 79 of the thimble 78 without in any

way disturbing the sleeve 72. After the engagement of the spool flange 79 by the carriage stop 54 further rightward movement of the carriage will operate to move the thimble 78 away from the sleeve 72 and towards the bearing arm 57, the restoring spring 77 being compressed during this movement and operating to cushion the carriage. Said spring it will be understood exercises the same cushioning effect whenever it is compressed during the return movement of the carriage. In this instance the rightward movement of the carriage will continue until the vertically disposed carriage stop 46 coöperates with the margin stop 51 to arrest said carriage at zero. The platen, having previously had two line spacing movements communicated to it in the usual way, will now be in proper position for writing the first sales item on the bill, said item being indicated in Fig. 17 by the crosses marked *c*. The item having been written the tabulating key 99 is next depressed to release the carriage and cause it to move freely leftward until arrested by the engagement of the carriage stop 54 with the stopping portion 71^a of the column or tabulating stop 71. This stop 71 is arranged to stop the carriage at the point "63" on the platen scale and is always in position to be rendered operative by the depression of the tabulating key, as will be clearly understood from an inspection of Figs. 3 and 11. The carriage thus will be arrested by the coöperation of said stop 71 with the carriage stop 54 in position to write the amount of the sales item as indicated by the crosses at the right of the bill, said crosses being marked with the reference character *d*.

It will be noted that during the last described movements of the carriage from left to right and from right to left, since the automatic sleeve rotating mechanism is inoperative, the sleeve 72 has remained undisturbed. Consequently after the amount of the first sales item has been written, the carriage stop 54, when the carriage is restored to the right to begin the second sales item, will pass through the opening 74 in the flange 73 without disturbing the sleeve 72, so that the carriage will be again arrested at zero by the coöperation of the stop 48 with the margin stop 51. The second and subsequent sales items may be written in the manner already explained and after the invoice has been completed it may be removed from the machine and a second invoice entered therein and fed around with the platen in the usual way until said second invoice is in position to begin the first line of writing on the bill in the blank space for the date following the printed words "Syracuse, N. Y." Before beginning to write the second invoice the operator grasps the knurled portion of the flange 73 and turns the sleeve one

tooth rearward, this return movement being sufficient to carry said sleeve from the position shown in Fig. 9 to that shown in Fig. 4. In the latter position the procedure outlined in connection with the first invoice may be repeated with the second and subsequent invoices.

It will be understood that the arrangement of the stopping portions on the sleeve 72 may be varied to suit the character of the work to be done and it will also be understood that changes of various sorts in the construction of the sleeve and its associate parts may be effected within the scope of my invention. In Fig. 13, for example, I have shown a modified construction of stop sleeve. The sleeve illustrated in said figure and designated by the reference character 112 may be mounted on the shaft 63 in the same manner as the sleeve 72 and may be provided with stopping portions 113 projecting radially from the surface of said sleeve 112 and integral therewith. The surface of the modified sleeve 112, however, is preferably provided with a scale corresponding with the carriage or platen scale and said sleeve 112 is further preferably provided with teeth 114 a letter space distance apart and on opposite sides thereof, said teeth corresponding with the teeth 70 of the stop bar portion 67 and being disposed along the sleeve 112 wherever the space between the stopping portions 113 permits. The teeth 114 are adapted to receive between them column or tabulating stops 71 corresponding to the column stops 71 hereinbefore described. The construction is such that the sleeve 113 may by means of the knurled portion of a flange similar to the flange 73, be turned to inoperative position corresponding with the position of the sleeve 72 shown in Fig. 9, and when in said inoperative position the column stops 71 will be in position to be swung down into the path of the carriage stop 54 when the tabulating key is operated. It will be seen, therefore, that by this modified construction I provide a tabulating device which is operative in a manner similar to that shown and explained in the above cited patent to Gabrielson, and that this tabulating device may be arranged to be operated without being interfered with by the margin regulating device with which it is combined by simply turning the sleeve 112 so that a slot, similar to the slot 74 in the flange of the sleeve 72, is in the path of the carriage stop 54.

Instead of constructing the stop sleeve of a single piece of metal, said sleeve, as illustrated in Fig. 14, may be made up of sections 115, each of which may contain one or more tabulating stops and may be connected with the contiguous sections at each side by broken joints, as shown. In other words, each sleeve section may be reduced at one

end as indicated at 116 and counterbored at the other as indicated at 117, thereby being adapted to be fitted into the contiguous section at one end and to be fitted over the contiguous section at the other end. After the sections have been assembled, as shown, they may be soldered together, so as to form a single member.

In Figs. 15 and 16 I have illustrated a still further modification of stop sleeve construction. The stop sleeve in this instance, represented by the reference numeral 118, may be provided with teeth throughout its length at opposite sides, said teeth being similar to the teeth on the sleeve shown in Fig. 13. These teeth are adapted to receive removable stops 119 corresponding in general construction with the stop devices 71, but having stopping portions 119^a arranged at different points circumferentially of the body of the stops. It will be understood that with stop devices 119 of the character described it is possible to arrange a set of detachable stops in any desired order and in any desired relation considered both circumferentially of the stop sleeve and longitudinally thereof.

Various other changes besides these specified may be made without departing from the spirit of my invention.

It will be noted that by my invention I provide stop devices coöperative to arrest the traveling carriage in both directions of its movement, combined with means operating automatically, to set certain of said stop devices to cause the arrest of the carriage during its travel in one direction and with means operative to set certain of said stop devices to arrest the carriage during its travel in the other direction, the last named means being preferably key-actuated while the automatic means is in the present instance operated wholly by the co-action of the stop devices; that the automatically actuated stop devices comprise a sleeve provided with a plurality of contact portions and mounted to reciprocate lengthwise and also to rotate on a support which is itself capable of rotation; that the means for automatically communicating rotary movement to said sleeve comprises the relatively fixed teeth 66 and 69, which teeth serve as cams; and that I also provide means acting automatically to render inoperative, after a predetermined series of movements have taken place, the automatic sleeve-positioning means. It will further be understood that in one aspect of my invention the shaft 63 and the various devices carried thereby, comprising the stop bar portion 67 and the sleeve 72, or the corresponding parts in the modified constructions, may be regarded as a column stop bar and that certain of the stopping or contact portions of said sleeve 72, namely, the contact portions 80, 83^a,

83^b and 83^c, or the corresponding parts in the modified constructions, may be regarded as column stops similar in function to the column stop or stops 71. In this aspect of my invention it will be seen that I provide a tabulating mechanism comprising a column stop bar having thereon a plurality of column stops, in combination with key-actuated means for bringing said column stop into coöperative relation with the carriage stop and with means operating automatically to move certain of said column stops relatively to the other column stops whereby the automatically moved column stops are at times rendered operative when the key-actuated means is operated and at other times remain inoperative when said key-actuated means is operated.

If preferred, the flange 79 of the thimble 78 may be provided with a slot corresponding with the slot 74 in the sleeve 72 and the body portion of said thimble may have a slot which coöperates with a pin fixed to and projecting outwardly from the collar 64, the pin and slot connection preventing the thimble 78 from turning on the collar 64 but permitting the thimble to be moved longitudinally of the collar. By this construction the thimble and collar would always be maintained in a fixed relation circumferentially and the slot in the thimble would permit the carriage stop 54 to pass through without disturbing said thimble. When this construction is employed the parts should be proportioned so that the stop 54 will not engage the coils of the spring 77 when said stop passes through and to the right of the flange 79 of the thimble 78.

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

1. In a typewriting machine, the combination of a traveling carriage; stop devices coöperative to arrest said carriage in both directions of its travel; means caused to operate automatically by the travel of the carriage to set certain of said stop devices, which are initially in inoperative position, in position to cause the arrest of the carriage at one time; and means operative to set certain of said stop devices to arrest the carriage at another time.

2. In a typewriting machine, the combination of a traveling carriage; stop devices coöperative to arrest said carriage in both directions of its travel; means caused to operate automatically by the travel of the carriage to set certain of said stop devices, which are initially in inoperative position, in position to cause the arrest of the carriage in one direction; and means operative to set certain of said stop devices to arrest the carriage in the other direction.

3. In a typewriting machine, the combination of a traveling carriage; stop devices coöperative to arrest said carriage in both di-

rections of its travel; means caused to operate automatically by the travel of the carriage to set certain of said stop devices, which are initially in inoperative position, in position to cause the arrest of the carriage in one direction; and hand actuated means operative to set certain of said stop devices to arrest the carriage in the opposite direction.

4. In a typewriting machine, the combination of a traveling carriage; stops coöperative to arrest said carriage in both directions of its travel; means caused to operate automatically by the travel of the carriage to set a plurality of said stops to cause the arrest of the carriage at different points, each of said plurality of stops operating to arrest the carriage at one point only; and key actuated means for setting certain of said stops to arrest the carriage.

5. In a typewriting machine, the combination of a traveling carriage; stops coöperative to arrest said carriage in both directions of its travel; means caused to operate automatically by the travel of the carriage to set a plurality of said stops to cause the arrest of the carriage in one direction at different points, each of said plurality of stops operating to arrest the carriage at one point only; and means operative to set certain other of said stops to arrest the carriage in the opposite direction.

6. In a typewriting machine, the combination of a traveling carriage; stop devices coöperative to arrest said carriage in both directions of its travel; means operating automatically during one of the back and forth movements of the carriage to set certain of said stop devices so that on a succeeding movement of the carriage it will be arrested at a point in its travel in one direction different from the point at which it was last arrested in the same direction; and hand-actuated means operative to set certain of said stop devices to arrest the carriage during its travel in the opposite direction.

7. In a typewriting machine, the combination of a traveling carriage; stops coöperative to arrest said carriage in both directions of its travel; means controlled by said carriage for automatically setting a plurality of said stops to arrest the carriage at different points in one direction on different movements of said carriage in said direction, each of said plurality of stops operating to arrest the carriage at one point only; and means operative to set certain of said stops to arrest said carriage at different points in the opposite direction on different movements of said carriage.

8. In a typewriting machine, the combination of a traveling carriage; stops coöperative to arrest said carriage in both directions of its travel; means controlled by said carriage for automatically setting a plurality of said stops to arrest the carriage at different points in one direction on different movements of

said carriage in said direction, each of said plurality of stops operating to arrest the carriage at one point only; means operative to set certain of said stops to arrest said carriage at different points in the opposite direction on different movements of said carriage; and a key at the front of the machine for actuating the last recited means.

9. In a typewriting machine, the combination of a traveling carriage; a stop device thereon; a stop device on the frame of the machine, one of said stop devices being provided with a plurality of stop portions and being movable relatively to its support by the other stop to bring the different stop portions into arresting position to arrest the carriage at different points in one direction; and a third stop device coöperative with one of the first named stop devices to cause the arrest of the carriage in the opposite direction.

10. In a typewriting machine, the combination of a traveling carriage; a stop device thereon; a stop device on the frame of the machine, one of said stop devices being provided with a plurality of stop portions and being movable relatively to its support by the other stop to bring the different stop portions into arresting position to arrest the carriage at different points in one direction; a third stop device; and hand actuated means for causing certain of said stop devices to coöperate to arrest the carriage in the opposite direction.

11. In a typewriting machine, the combination of a traveling carriage; a stop thereon; a stop on the frame of the machine, one of said stops being movably mounted and provided with a plurality of contacting surfaces and the other stop operating on the first stop to bring different contacting surfaces to operative position to arrest the carriage at different points in its travel in one direction; and a third stop coöperative with one of the first recited stops to arrest the carriage during its travel in the opposite direction.

12. In a typewriting machine, the combination of a traveling carriage; a stop thereon; a stop on the frame of the machine, one of said stops being movably mounted and provided with a plurality of contacting surfaces and the other stop operating to position the first stop to bring different contacting surfaces to operative position to arrest the carriage at different points in its travel in one direction; a third stop; and hand-actuated means operative to cause said third stop and one of the first recited stops to coöperate to arrest the carriage during its travel in the opposite direction.

13. In a typewriting machine, the combination of a traveling carriage; a stop thereon; a coöperative movable stop on the frame of the machine provided with a plurality of contact or stop portions; means coacting with said lastnamed stop to move it to differ-

ent positions and to bring different contact portions thereof to operative position, the co-action of said movable stop with said means being caused by the carriage stop; a third stop mounted on the frame of the machine; and hand actuated means operative to cause said third stop and said carriage stop to co-operate to arrest the carriage.

14. In a typewriting machine, the combination of a traveling carriage; a stop thereon; a stop on the frame of the machine, movable relatively to its support in one direction by the other stop and provided with a plurality of contact portions; means co-acting with said frame stop to move it simultaneously in another direction, the combined movement bringing different contact portions of said stop to position to arrest the carriage at different points in its travel in one direction; a third stop; and hand-actuated means operative to cause said third stop and said carriage stop to co-act to arrest the carriage during its travel in the opposite direction.

15. In a typewriting machine, the combination of a traveling carriage; a stop thereon; a stop on the frame of the machine capable of rotary movement and also of a movement of translation, the carriage stop operating to give said frame stop one of said movements; means co-acting with the frame stop to give it simultaneously the other of said movements, said frame stop being provided with a plurality of contacting surfaces, different ones of which are brought by the double movement to position to subsequently co-operate with the carriage stop to arrest the carriage at varying points in its travel in one direction; a third stop; and hand-actuated means operative to cause said third stop and said carriage stop to coöperate to arrest the carriage during its travel in the opposite direction.

16. In a typewriting machine and in a tabulating mechanism, the combination of a carriage; step-by-step feeding mechanism therefor; means for releasing said carriage from its step-by-step feeding mechanism; a column stop; a coöperating stop, one of said stops being on the carriage; key-operated means for bringing said stops into coöperative relation when the release of the carriage takes place; a stop member operating to effect the arrest of said carriage on its return movement; and means for automatically controlling said stop member to vary the point of arrest of said carriage as it is returned.

17. In a typewriting machine and in a tabulating mechanism, the combination of a carriage; step-by-step feeding mechanism therefor; means for releasing said carriage from its step-by-step feeding mechanism; a column stop; a coöperating stop, one of said stops being on the carriage; key-operated means for bringing said stops into

coöperative relation when the release of the carriage takes place; a stop member co-operative with the stop on the carriage to arrest said carriage on its return movement; and means for automatically controlling said stop member to vary the point at which said carriage is arrested on its return.

18. In a typewriting machine and in a tabulating mechanism, the combination of a carriage; step-by-step feeding mechanism therefor; means for releasing said carriage from its step-by-step feeding mechanism; a column stop; a coöperating stop, one of said stops being on the carriage; key-operated means for bringing said stops into coöperative relation when the release of the carriage takes place; a plurality of movable stops coöperative with the stop on the carriage to arrest said carriage on its return movement; and means caused to operate automatically by the travel of the carriage to bring different ones of said plurality of stops to operative position.

19. In a typewriting machine and in a tabulating mechanism, the combination of a carriage; step-by-step feeding mechanism therefor; means for releasing said carriage from its step-by-step feeding mechanism; a column stop; a coöperating stop, one of said stops being on the carriage; key-operated means for bringing said stops into coöperative relation when the release of the carriage takes place; a movable stop member having a plurality of stopping portions to coöperate with the stop on the carriage to arrest said carriage on its return movement; and means caused to operate automatically by the travel of the carriage to bring different stopping portions to operative position.

20. In a typewriting machine, the combination of a traveling carriage; step-by-step feeding mechanism therefor; a stop on said carriage; stop devices coöperative with said stop to arrest said carriage in both directions of its travel; means operative to set certain of said stop devices and to release said carriage to cause the stop thereon to coöperate with the set stop device; and other means operating automatically to set in operative position certain of said stop devices initially in inoperative position to co-act with said carriage stop to arrest the carriage on its return movement.

21. In a typewriting machine, the combination of a traveling carriage; step-by-step feeding mechanism therefor; a stop on said carriage; stop devices coöperative with said stop to arrest said carriage in both directions of its travel; hand-actuated means operative to set certain of said stop devices and to release said carriage to cause the stop thereon to coöperate with the set stop device; and other means operating automatically to set in operative position

certain of said stop devices initially in inoperative position to co-act with said carriage stop to arrest the carriage on its return movement.

22. In a typewriting machine, the combination of a traveling carriage; step-by-step feeding mechanism therefor; a stop on said carriage; stop devices coöperative with said stop to arrest said carriage in both directions of its travel; hand-actuated means operative to set certain of said stop devices and to release said carriage to cause the stop thereon to coöperate with the set stop device; and means operating automatically to set in operative position certain of said stop devices initially in inoperative position to coöperate with the carriage stop to arrest the carriage at different points as it is returned.

23. In a typewriting machine, the combination of a traveling carriage; step-by-step feeding mechanism therefor; stop devices coöperative to arrest said carriage in both directions of its travel; means operative to set certain of said stop devices and to release the carriage from its step-by-step feeding mechanism to cause it to be arrested by the set stop device; and means operating automatically during one of the back and forth movements of the carriage to set in operative position certain of said stop devices initially in inoperative position so that on a succeeding return movement of the carriage it will be arrested at a point in its travel different from the point at which it was last arrested.

24. In a typewriting machine, the combination of a traveling carriage; step-by-step feeding mechanism therefor; stops coöperative to arrest said carriage in both directions of its travel; means operative to set certain of said stops to arrest the carriage when released from its step-by-step feeding mechanism; and means operating automatically during back and forth movements of the carriage to set a plurality of said stops so that on succeeding return movements of the carriage it will be arrested at different points in its travel, each of said plurality of stops operating to arrest the carriage at one point only.

25. In a typewriting machine, the combination of a traveling carriage; step-by-step feeding mechanism therefor; stop devices coöperative to arrest said carriage in both directions of its travel; means operative to set certain of said stop devices and to release the carriage from its step-by-step feeding mechanism so as to cause its arrest at different points in its travel in the step-by-step feeding direction on different movements of said carriage; and means controlled by said carriage for automatically setting certain of said stop devices to arrest said carriage at different points in its travel on different movements of said carriage in the return

direction, the certain of said stop devices last referred to being also automatically movable by said means to inoperative position.

26. In a typewriting machine, the combination of a traveling carriage; step-by-step feeding mechanism therefor; stop devices coöperative to arrest said carriage in both directions of its travel; means operative to set certain of said stop devices and to release the carriage from its step-by-step feeding mechanism so as to cause its arrest at different points in its travel on different movements in the step-by-step feeding direction; a key at the front of the machine for actuating said means; and means controlled by said carriage for automatically setting in operative position certain other of said stop devices initially in inoperative position to arrest said carriage at different points in its travel on different movements of said carriage in the return direction.

27. In a typewriting machine, the combination of a power driven carriage; step-by-step feeding mechanism therefor; a stop on said carriage; a movable stop member on the frame of the machine provided with a plurality of contact surfaces; a third stop, said third stop being mounted on the frame of the machine; and hand-actuated means for moving said third stop to operative position and for releasing the carriage to cause the stop thereon to co-act with said third stop, said carriage stop operating on said stop member to bring different contact surfaces thereof to position to coöperate with the carriage stop when said carriage is moved in return direction.

28. In a typewriting machine, the combination of a power driven carriage; step-by-step feeding mechanism therefor; a stop on said carriage; a movable stop member on the frame of the machine provided with a plurality of contact surfaces; another stop on the frame of the machine; hand-actuated means for moving the last recited stop to operative position and for releasing the carriage from its step-by-step feeding mechanism, said carriage stop operating as it is returned to communicate bodily longitudinal movement to said stop member; and means coöperating with said stop member to give it simultaneous rotary movement, different ones of the contact surfaces of said stop member being brought to operative position by the double movement communicated to the latter.

29. In a typewriting machine, the combination of a power driven carriage; means for feeding said carriage step-by-step in one direction; a stop on said carriage; a shaft journaled on the frame of the machine; a reciprocatory sleeve on said shaft provided with a plurality of contact surfaces arranged circumferentially and longitudinally; a spring constantly tending to press said sleeve in the

direction of the step-by-step feeding movement of the carriage, said carriage stop being coöperative with said sleeve to move it in the opposite direction; a cam fixed to said shaft and coöperative with said sleeve to give it rotary movement on said shaft as said sleeve is moved by said carriage stop; a second cam coöperative with said sleeve to give it rotary movement on said shaft as said sleeve is restored to normal position by said spring; one or more column stops adjustable on said shaft; and hand-actuated means for communicating rotary movement to said shaft to bring said column stops to operative position.

30. In a typewriting machine, the combination of a power driven carriage; step-by-step feeding mechanism therefor; a stop on said carriage; a stop on the frame of the machine comprising a rotary and reciprocatory sleeve provided with a plurality of contact surfaces arranged at different points longitudinally and circumferentially of said sleeve, the stop on the carriage coöperating with said sleeve on the return movement of the carriage to move said sleeve longitudinally; a spring constantly tending to move said sleeve in the direction of the step-by-step feeding movement of the carriage; cams coöperating with said sleeve to give it rotary movement during its reciprocatory movement; a third stop; and means for moving said third stop to operative position and for releasing the carriage from its step-by-step feeding mechanism.

31. In a typewriting machine, the combination of a power driven carriage; step-by-step feeding mechanism therefor; a stop on said carriage; a sleeve mounted on the frame of the machine and spring-pressed in the direction of the step-by-step feeding movement of the carriage, said sleeve being provided with a plurality of contact surfaces and said carriage stop coöperating with said sleeve to move it against said spring pressure; a cam co-acting with said sleeve to give it rotary movement as it is moved by said carriage stop; a second cam coöperative with said sleeve to give it further rotary movement as it is restored to normal position by the spring pressure; a third stop, said third stop being mounted on the frame of the machine; and hand-actuated means for moving said third stop to operative position and for releasing the carriage from its step-by-step feeding mechanism.

32. In a typewriting machine, the combination of a power driven carriage; means for feeding said carriage step-by-step in one direction; a stop on said carriage; a reciprocatory sleeve movable from normal position by said carriage stop as said carriage is returned in the opposite direction; a spring adapted to restore said sleeve to normal position; said sleeve being provided with a plu-

rality of contact surfaces circumferentially and longitudinally arranged; cams coöperating with said sleeve as it is reciprocated to give it progressive rotary movements; a stop mounted on the frame of the machine; and hand-operated means for moving said last mentioned stop to operative position and for releasing said carriage from its step-by-step feeding mechanism.

33. In a typewriting machine, the combination of a power driven carriage; means for feeding said carriage step-by-step in one direction; a stop on said carriage; a shaft journaled on the frame of the machine; a reciprocatory sleeve on said shaft provided with a plurality of contact portions arranged circumferentially and longitudinally; a spring constantly tending to press said sleeve in the direction of the step-by-step feeding movement of the carriage, said carriage stop being coöperative with said sleeve to move it in the opposite direction; a cam fixed to said shaft and coöperative with said sleeve to give it rotary movement on said shaft as said sleeve is moved by said carriage stop; a second cam coöperative with said sleeve to give it rotary movement on said shaft as said sleeve is restored to normal position by said spring; one or more column stops adjustable on said shaft; and hand-actuated means for communicating rotary movement to said shaft to bring said column stops to operative position and for releasing said carriage from its step-by-step feeding mechanism, the rotary movement of said shaft being also transmitted to said sleeve to bring certain of the contact portions thereon to position to coöperate with said carriage stop when the carriage is released from its step-by-step feeding mechanism.

34. In a typewriting machine, the combination of a traveling carriage; stop devices; and means operative by the movement of the carriage for positioning certain of said stop devices initially in inoperative position so that they may be rendered operative to arrest the carriage at different points in its travel in both directions.

35. In a typewriting machine, the combination of a traveling carriage; a stop thereon; a stop on the frame of the machine; means automatically operating to cause said stops to coöperate to arrest the carriage during its travels in one direction in a series of varying positions; a third stop; and hand-actuated means operative to cause said third stop and one of the first recited stops to coöperate to arrest the carriage during its travels in the opposite direction in a series of varying positions.

36. In a typewriting machine, the combination of a traveling carriage; stops coöperative to arrest said carriage; means caused to operate automatically by the travel of the carriage to set a plurality of said stops to

cause the arrest of the carriage at different points on different back and forth movements of said carriage; and means for rendering said automatic means ineffective to vary the point of arrest of the carriage.

37. In a typewriting machine, the combination of a traveling carriage; stops cooperative to arrest said carriage; means caused to operate automatically by the travel of the carriage to set a plurality of stops to cause the arrest of the carriage at different points on different back and forth movements of said carriage; and means operating automatically to render the first recited means ineffective to vary the point of arrest of the carriage.

38. In a typewriting machine, the combination of a traveling carriage; stops cooperative to arrest said carriage; means caused to operate automatically by the travel of the carriage to set a plurality of said stops to cause the arrest of the carriage at different points on different back and forth movements of said carriage; and automatic means for rendering the first named means inoperative to vary the point of arrest of the carriage after the carriage has been variably arrested a predetermined number of times and at predetermined points in different lines.

39. In a typewriting machine, the combination of a traveling carriage; stops cooperative to arrest the carriage; means brought into play by the movement of the carriage for causing said stops to cooperate to arrest the carriage at different points in its travel; and means acting automatically to render the first named means inoperative to vary the position of arrest of the carriage.

40. In a typewriting machine, the combination of a traveling carriage; stop devices cooperative to arrest said carriage in both directions of its travel; automatic means operating to set certain of said stop devices to cause the arrest of the carriage during its travel in one direction; means operative to set certain of said stop devices to arrest the carriage during its travel in the other direction; and means acting automatically to render said automatic means inoperative to change the setting of the certain of said stop devices above referred to.

41. In a typewriting machine, the combination of a traveling carriage; stops cooperative to arrest said carriage in both directions of its travel; means caused to operate automatically by the travel of the carriage to set certain of said stops to cause the arrest of the carriage at different points in one direction; key actuated means operative to set certain of said stops to arrest the carriage during its travel in the opposite direction; and means acting automatically to render said first named automatic means ineffective to change the setting of any of said stops.

42. In a typewriting machine, the combination of a traveling carriage; a stop thereon; a movable stop member on the frame of the machine provided with a plurality of contacting surfaces; a carriage stop operating on said stop member to render different contacting surfaces operative to arrest the carriage at different points in its travel in one direction; a third stop cooperative with said carriage stop to arrest the carriage during its travel in the opposite direction; and means acting automatically to render said carriage stop inoperative on said stop member in the direction first referred to.

43. In a typewriting machine and in a tabulating mechanism, the combination of a power driven carriage; step-by-step feeding mechanism therefor; a column stop bar; a plurality of column stops thereon; a cooperative stop; key-actuated means for bringing said stop and said column stops into cooperative relation when the carriage is released from its step-by-step feeding mechanism; and means caused to operate automatically by the travel of the carriage to move certain of said column stops relatively to the others.

44. In a typewriting machine and in a tabulating mechanism, the combination of a power driven carriage; step-by-step feeding mechanism therefor; a column stop bar; a plurality of column stops thereon, certain of said column stops being movable independently of one another; a cooperative stop; key-actuated means for causing a rotary movement of said stop bar to bring said column stops to operative position; and means for causing rotary movement of certain of said column stops independently of the other column stops.

45. In a typewriting machine and in a tabulating mechanism, the combination of a power driven carriage; step-by-step feeding mechanism therefor; a column stop bar; a plurality of column stops thereon, certain of said column stops being movable independently of one another; a cooperative stop; key-actuated means for causing a rotary movement of said stop bar to bring said column stops to operative position; and means caused to operate automatically by the travel of the carriage to effect a rotary movement of certain of said column stops relatively to the others, whereby the automatically moved stops are at times rendered operative and at other times remain in inoperative position when said key-actuated means is operated.

46. In a typewriting machine and in a tabulating mechanism, the combination of a power driven carriage; step-by-step feeding mechanism therefor; a column stop bar; a plurality of column stops thereon; certain of said column stops being movable independently of one another; a cooperative stop;

key-actuated means for bringing said stop and said column stops into coöperative relation and for releasing the carriage from its step-by-step feeding mechanism; and means
 5 caused to operate automatically by the travel of the carriage to move some of said column stops relatively to the others, whereby the automatically moved stops are at times rendered operative and at other times re-
 10 main in inoperative position when said key-actuated means is operated.

47. In a typewriting machine and in a tabulating mechanism, the combination of a power driven carriage; step-by-step feed-
 15 ing mechanism therefor; a column stop bar journaled on the frame of the machine; a plurality of column stops thereon, certain of said column stops being movable independently of one another; a stop on the car-
 20 riage; key-actuated means for communicating rotary movement to said stop bar to bring said column stops to operative position; and means caused to operate automat-
 25 ically by the travel of the carriage to cause rotary movement of certain of said column stops on said stop bar independently of the other column stops.

48. In a typewriting machine and in a tabulating mechanism, the combination of
 30 a power driven carriage; step-by-step feeding mechanism therefor; a column stop bar journaled on the frame of the machine; a plurality of column stops thereon, certain of said column stops being movable independ-
 35 ently of one another; a stop on the carriage; key-actuated means for communicating rotary movement to said stop bar to bring said column stops to operative position and for releasing said carriage from its
 40 step-by-step feeding mechanism; and means caused to operate automatically by the travel of the carriage to rotate some of said column stops on said stop bar independently of the other column stops, whereby the auto-
 45 matically moved column stops are at times rendered operative and at other times remain in inoperative position when said key-actuated means is operated.

49. In a typewriting machine and in a
 50 tabulating mechanism, the combination of a power driven carriage; step-by-step feeding mechanism therefor; a column stop bar; a plurality of column stops thereon, certain of said column stops being movable independ-
 55 ently of one another; a coöperative stop; key-actuated means for bringing said stop and said column stops into coöperative relation when the carriage is released from its step-by-step feeding mechanism; means
 60 caused to operate automatically by the travel

of the carriage to move certain of said column stops relatively to the others; and means for rendering said automatic means inoperative.

50. In a typewriting machine and in a
 tabulating mechanism, the combination of a
 65 power driven carriage; step-by-step feeding mechanism therefor; a column stop bar; a plurality of column stops thereon, certain of said column stops being movable inde-
 70 pendently of one another; a coöperative stop; key-actuated means for bringing said stop and said column stops into coöperative relation and for releasing the carriage from its step-by-step feeding mechanism; means
 75 caused to operate automatically by the travel of the carriage to move some of said column stops relatively to the others, whereby the automatically moved stops are at times rendered operative and at other times
 80 remain inoperative when said key-actuated means is operated; and means acting automatically to render said automatic means inoperative.

51. In a typewriting machine and in a
 tabulating mechanism, the combination of a
 85 power driven carriage; step-by-step feeding mechanism therefor; a column stop bar journaled on the frame of the machine; a plurality of column stops thereon, certain of said column stops being movable independ-
 90 ently of one another; a stop on the carriage; key actuated means for communicating rotary movement to said stop bar to bring said column stops to operative position; automatic means controlled by the
 95 travel of the carriage for causing rotary movement of certain of said column stops on said stop bar independently of the other column stops; and means operating automatically to render said automatic means in-
 100 operative.

52. In a typewriting machine and in a
 tabulating mechanism, the combination of a
 power driven carriage; step-by-step feeding
 105 mechanism therefor; a plurality of column stops, certain of which are movable independently one of another; a coöperative stop; means for effecting a coöperative relation between said coöperating stop and
 110 said column stops in predetermined order; and automatically operating means for causing movement of certain only of said column stops.

Signed at Syracuse, in the county of Onondaga, and State of New York, this 10th
 115 day of March A. D. 1906.

HERBERT H. STEELE.

Witnesses:

JOHN S. MITCHELL,
 W. J. LOGAN.