C. L. FORTIER.

TYPE WRITING MACHINE.

APPLICATION FILED APR. 15, 1907.

956,067. **Patented Apr. 26, 1910.**

3 SHEETS—SHEET 1.

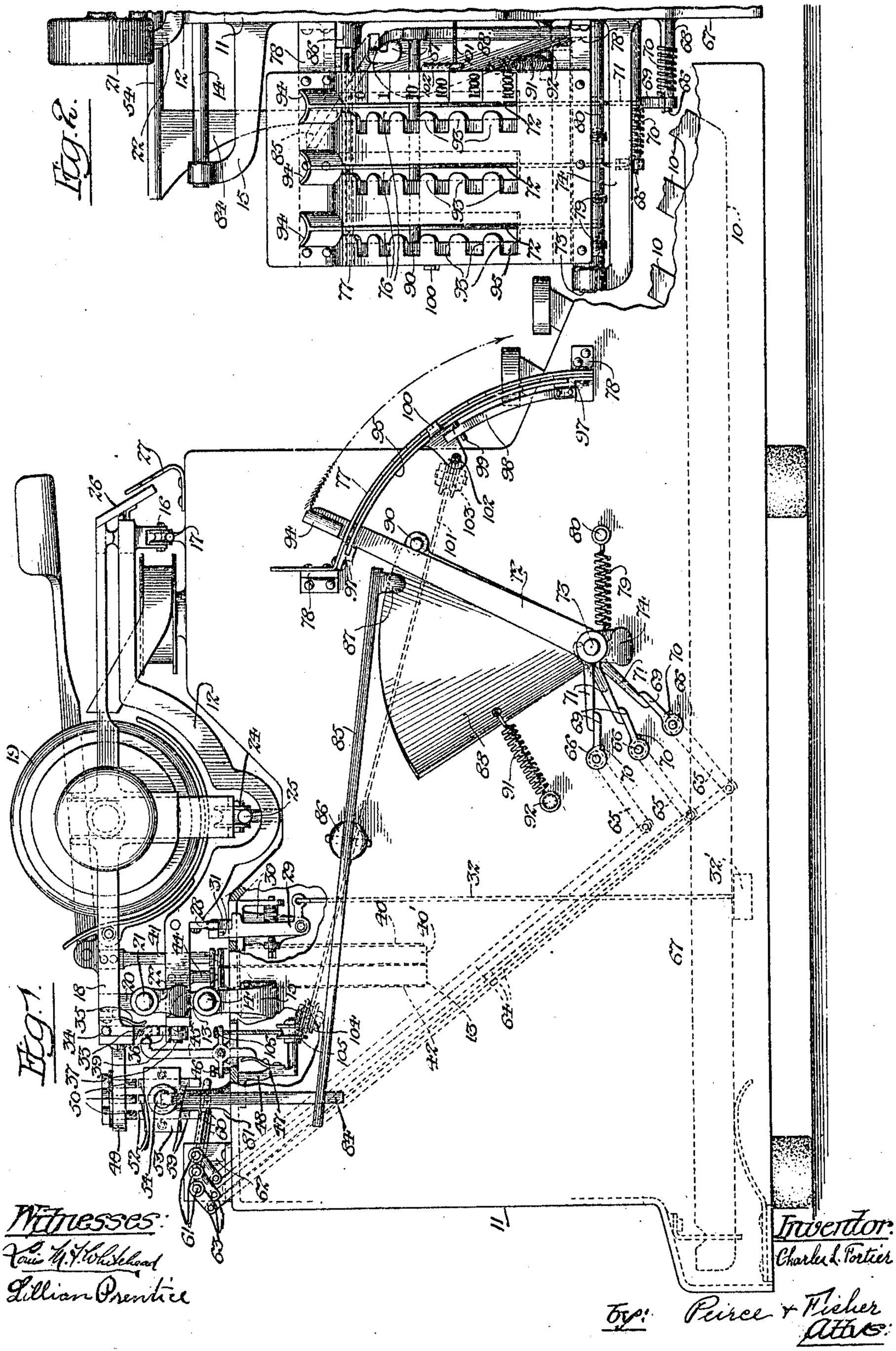

Fig. 1.

Witnesses:
Louis M. F. Whitehead
Lillian Prentice

Inventor:
Charles L. Fortier

By: Peirce & Fisher
Attys.

C. L. FORTIER.

TYPE WRITING MACHINE.

APPLICATION FILED APR. 15, 1907.

956,067.

Patented Apr. 26, 1910.

3 SHEETS—SHEET 2.

FIG. 3.

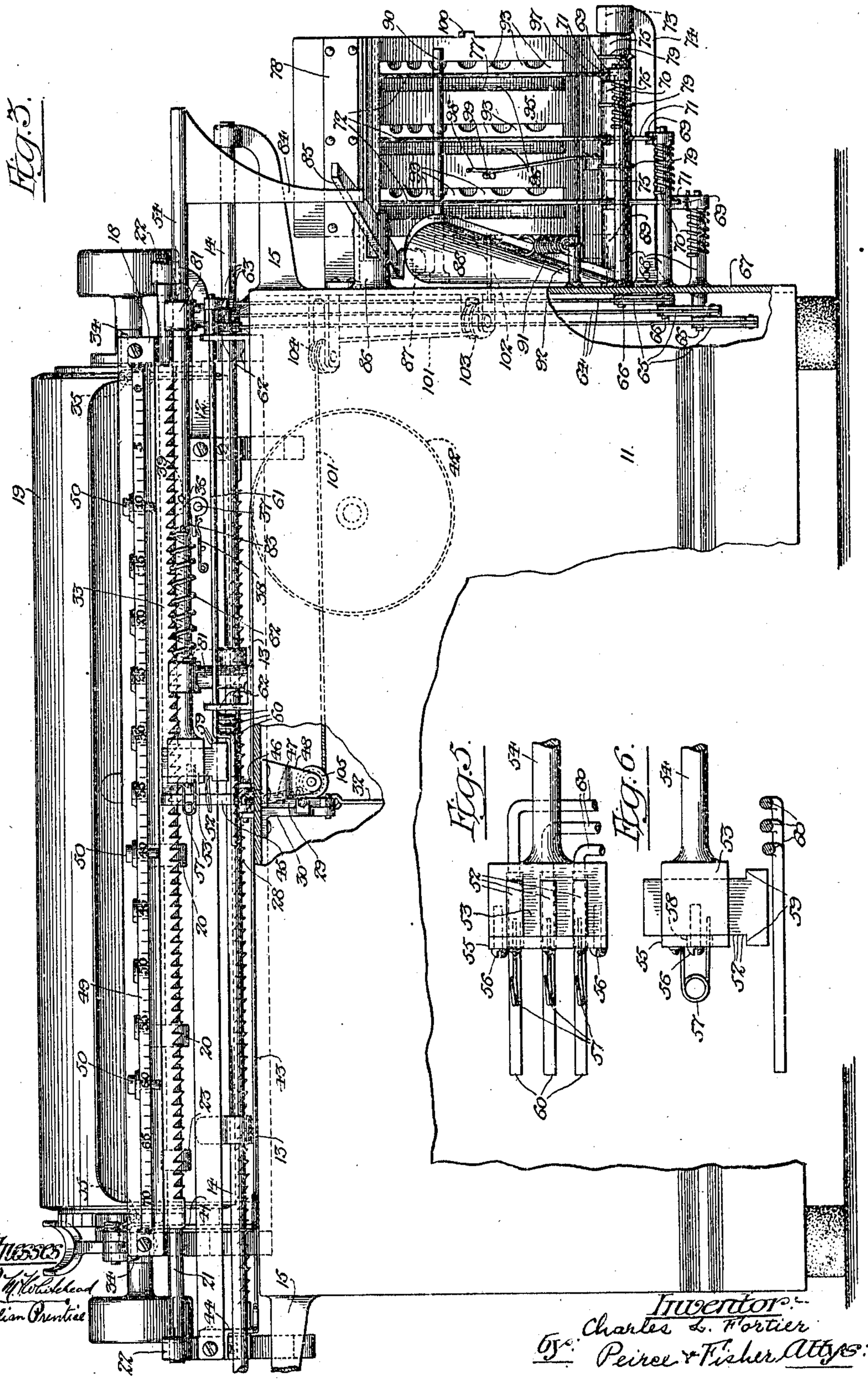

FIG. 5.

FIG. 6.

Witnesses

Fair M. Whitehead

Lillian Prentice

Inventor:

Charles L. Fortier

by: Peirce & Fisher Attys:

C. L. FORTIER.

TYPE WRITING MACHINE.

APPLICATION FILED APR. 15, 1907.

956,067.

Patented Apr. 26, 1910.

3 SHEETS—SHEET 3.

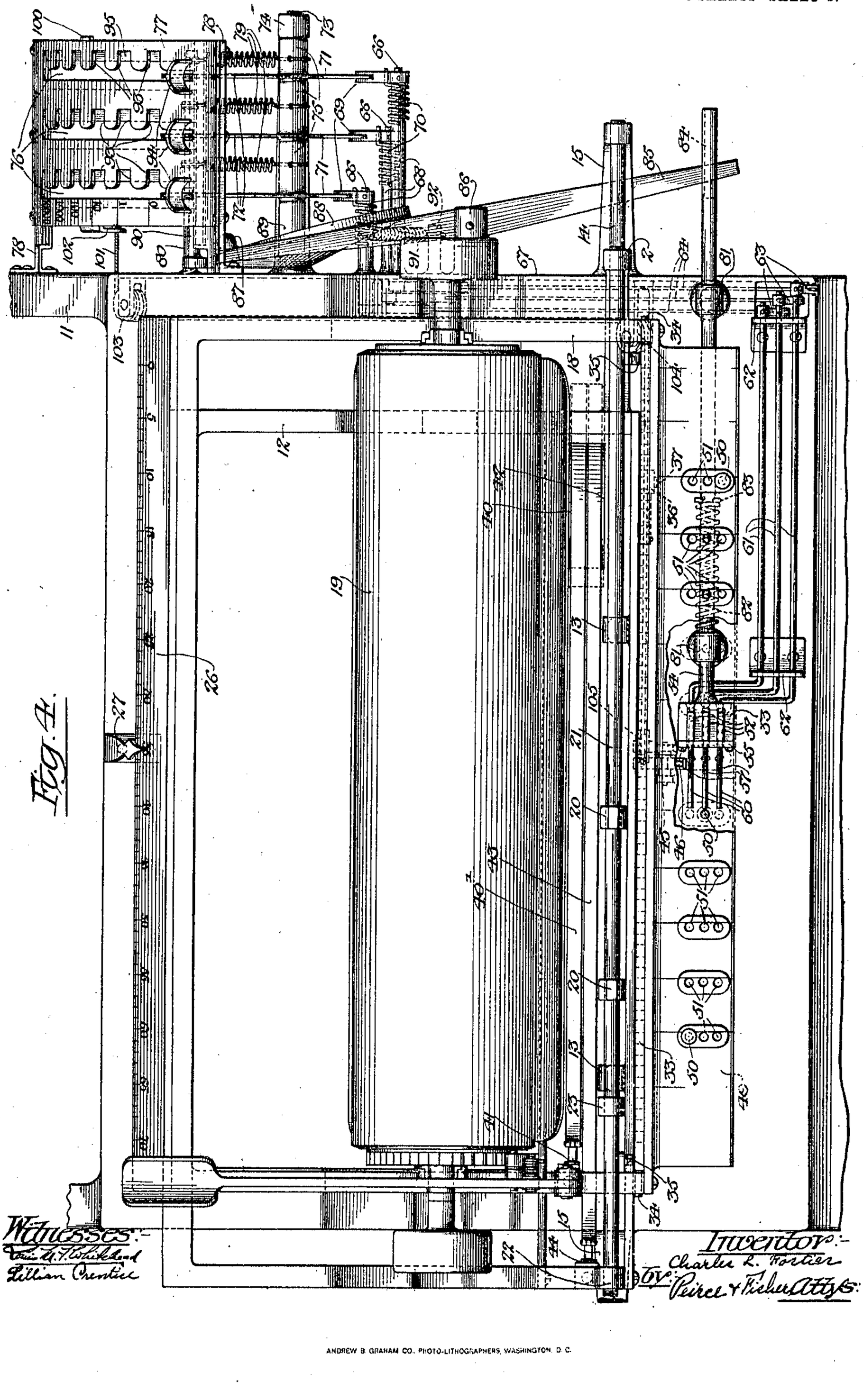

Fig. 4.

Witnesses:-
Chas. A. Whitehead
Lillian Prentice

Inventor:-
Charles L. Fortier
by: Peirce & Fisher Attys:

ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES L. FORTIER, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO UNION TYPEWRITER COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

956,067. Specification of Letters Patent. Patented Apr. 26, 1910.

Application filed April 15, 1907. Serial No. 368,171.

To all whom it may concern:

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

The invention relates to typewriting machines and more particularly to tabulating mechanism therefor, and seeks to provide a combined columnating or column selecting and denominational stop mechanism whereby the carriage may be brought to any one of a number of columnar positions along the line of print and at the same time to any one of a number of adjacent letter space positions in the selected column.

In prior constructions, the columnating stop mechanism for selecting a predetermined column and the denominational stop mechanism for selecting any one of a number of adjacent letter space positions have been separate and distinct mechanisms that must be separately actuated by the operator to bring the carriage to the desired position.

The object of the present invention is to combine these two forms of stop mechanisms so that the carriage may be brought to a desired position after a single run.

With this and other objects in view the invention consists in the features of construction, combinations and arrangements of parts hereinafter set forth, illustrated in the accompanying drawings and more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a side elevation of one form of typewriter with the improved tabulating mechanism applied thereto, portions of the frame being broken away to illustrate the operating mechanism. Fig. 2 is a detail view in front elevation of the tabulator key mechanism. Fig. 3 is a rear elevation of the parts shown in Fig. 1, with portions of the machine frame broken away to show the operating mechanism. Fig. 4 is a plan view of the machine. Fig. 5 is a plan and Fig. 6 is a side elevation of the dogging means forming part of the improved combined columnating and denominational stop mechanism.

The improvement is shown applied to a typewriter having main and supplemental carriages and set forth in a patent granted to me February 11th, 1908, No. 878,789. It will be understood however, that the invention may be readily adapted for use in connection with the carriage of any typewriter, either of the ordinary form in which the paper is carried upon the carriage or in the form in which the type mechanism is mounted on the carriage.

In the construction illustrated, the key levers 10 are mounted as usual in horizontal series in the base portion of the machine frame 11 and are arranged to operate any suitable form of type mechanism. The main carriage 12 is frame like in construction and is provided at the rear with depending lugs 13 through which extends a guide bar or rail 14 that is fixed at its ends to a pair of brackets 15 projecting laterally in the upper rear portion of the main frame. At the front, the main carriage is provided with a roller 16 that engages a cross rail 17 at the front of the machine frame. The side bars of the main frame are depressed, as shown, so as to permit the free shift thereon of the light supplemental carriage 18 upon which the platen 19 is journaled. The supplemental carriage is provided at the rear with lugs 20 engaging a guide bar or rail 21 that is fixed at its ends to lugs 22 on the main carriage. One of the lugs 20 is arranged to engage a collar 23 on the rod 21 to limit the return movement of the supplemental carriage with reference to the main carriage. The supplemental carriage however may be moved in letter space direction independently of the main carriage. Beneath the platen the supplemental carriage is provided with a roller 24 engaging a cross rail 25 which is shiftable for writing upper case letters. The supplemental carriage is also provided with a light forwardly extending portion carrying a letter space scale 26 which coöperates with the pointer 27 on the frame of the machine.

The main carriage is provided with a suitable form of letter space escapement. That shown comprises a rack 28 secured to the carriage and a rocker 29 pivoted to a bracket 30 on the main frame and provided with dogs 31 engaging the rack. A link 32 connects the rocker 29 with the usual universal bar 32′ that extends beneath the key levers 10. It is of course understood that any other suitable form of letter space escapement may be employed. The two carriages are connected so that in the ordinary

operation of the machine they will travel together. The connecting means is releasable to permit the free run of the light supplemental carriage for tabulating work. This releasable connection in the from shown, comprises a rack 33 having pintles or pivot pins 34 at its ends and adjacent its upper edge which engage openings in the rear ends of the side bars of the supplemental carriage. Springs 35 (see Figs. 1 and 3) normally hold the rack 33 in vertical position against the rear bar of the supplemental carriage 18. The teeth of the rack are arranged at letter space distances apart and are normally engaged by a dog or pawl 36 connected to the main carriage. The dog or pawl 36 is preferably pivoted to the main carriage by a pin 37 and is held by a spring 38 against a stop 39. The dog is thus free to yield in one direction and the teeth of the rack 33 are beveled so that the supplemental carriage may be returned independently of the main carriage until the lug 20 thereon strikes the collar 23 on the guide rail 21, but when the rack 33 is in engagement with the dog 36, the movement of the supplemental carriage independently of the main carriage in letter space direction, is prevented.

A spring actuated propelling drum 40 of usual construction is connected by a drive strap 40′ to a depending lug 41 on the supplemental carriage. This drum may be of sufficient power to propel both carriages, but preferably a second drum 42 is connected by a strap 43 to a depending lug 44 on the main carriage.

In the ordinary operation of the machine the two carriages travel together, the step-by-step movement being effected by the operation of the letter space escapement described. For tabulating work the light supplemental carriage is disengaged from the main carriage for a free run under the influence of the propelling drum 40. This release is effected by means of an arm or finger 45 pivoted to the upper rear portion of the main frame and having a forwardly turned upper end arranged to engage and shift the rack 33. The arm or finger 45 is provided with an adjustable stop screw 46 and is held in normal position by a spring 47 fixed to a bracket 48 and engaging the tail portion of the arm or finger. The bracket 48 is affixed to and depending from the rear top portion of the machine frame, as shown. When the dog or finger 45 is shifted the rack 33 will be moved out of engagement with the dog or pawl 36 and the supplemental carriage will be propelled in letter space direction until arrested by the stop mechanism. The supplemental carriage may be very light in construction so that it will move quickly and can be arrested without shock or jar upon the parts of the machine. The construction thus materially increases the speed of tabulating work and also increases the life of the machine. This construction is set forth and claimed in the prior application referred to.

The improved combined columnating and denominational tabulating or stop mechanism comprises a series of column stops, cooperating stops or dogging means for the column stops and mechanism by which the stops and dogging means are variably and relatively shifted to select any predetermined columnar position and also to select any one of a number of adjacent letter space positions in the predetermined column. The column stops are preferably mounted on the carriage of the machine and for this purpose the supplemental carriage here shown is provided at the rear with a rearwardly extending plate or support 49 upon which the column stops 50 are carried. The stops are preferably adjustable and arranged out of line and, in the construction shown, are in the form of headed pins which may be adjustably set within rows of openings or seats 51 formed in the supporting plate or bar 49. The rear edge of the plate or bar may be provided with a scale as indicated in Fig. 3, to assist the operator in locating the pins to define the separate columns along the line of print. It will be noted that there are three rows of openings or seats 51 for the column stops, but any suitable number of rows could be employed. In adjusting the tabulating mechanism one stop only will be arranged in each row, as clearly indicated in Fig. 4, so that the stops are arranged out of line. Other suitable means could be provided for adjustably mounting the column stops with their operative portions out of line.

The dogging means for coöperation with the stops preferably comprises a series of key controlled stops or dogs 52 which are transversely shiftable into and out of line with the column stops. In the form shown, these dogs correspond in number and are arranged in line with the rows of openings or seats 51 for the column stops so that each dog is arranged to coöperate with one particular stop. The dogs 52 are mounted to slide in vertical guide-ways or slots formed in a holder or support 53 that is fixed to the inner end of a rod 54. The dogs are held in place by a plate 55 fixed to the face of the holder or support 53 by screws 56. U-shaped springs 57 are fixed to the plate 55 at one end. The other ends of the springs extend through slots 58 in the plate 55 and engage the dogs to normally hold the latter in their lowermost position. Lugs 59 on the lower ends of the dogs are arranged to engage the lower face of the holder or support 53 and limit the upward shift of the dogs. The engagement of the free ends of

the springs 57 with the lower ends of the slot 58 limits the downward movement of the dogs.

The dogs 52 are moved vertically into line with the corresponding column stops 50 by a series of shifters which are in the form of cranks 60 in the construction shown, and are mounted upon the ends or formed in piece with a series of rock shafts 61 that are journaled in upstanding lugs 62 on the rear upward portion of the main frame. The crank arms or shifters 60 extend forwardly from the inner ends of the rock shaft 61 and the latter are provided on their outer ends with rearwardly projecting arms 63 which are connected by links 64 to rearwardly projecting arms 65 on a series of rock shafts 66 that are journaled in the lower portion of the side plate 67 of the main frame. The shafts 66 extend through sleeves 68 (see Fig. 3) formed upon the side plate 67 of the main frame and at their outer ends are provided with forwardly projecting arms 69. A series of springs 70 are coiled about the sleeves 68 and are fixed thereto at one end. The outer free ends of these springs engage the arms 69 and tend to turn the same and the shafts 66 so as to bring the shifter cranks 60 on the shafts 61 into operation to lift the dogs 52. The dog shifters and actuating parts connected therewith are however held in normal position with the actuating springs 70 under tension by a series of tail pieces or fingers 71 secured to the tabulating key levers 72. There are three of these key levers for controlling the operation of the tabulating mechanism in the form shown. That is to say, they correspond in number with the column stops and stop dogs. It will be understood that the number of these parts could be increased if desired.

The key levers 72 are loosely pivoted upon a shaft 73 fixed to the side plate 67 of the main frame at its inner end and to a bracket 74 at its outer end. The bracket 74, as shown, is secured to or formed in piece with the side plate 67 of the main frame and projects laterally therefrom.

The key levers 72 are each provided with a hub 75 that loosely engages the shaft 73. These hubs or sleeves serve to hold the keys properly spaced apart. The forward ends of the keys extend through slots 76 in a segmental guide plate 77 that is secured at its upper and lower edges to supports 78 mounted on the side plate 67 of the main frame and projecting laterally therefrom. A series of coiled pull springs 79 are fixed at one end to a laterally projecting pin 80 on the side plate 67 of the main frame, and the opposite ends of these springs extend around and are secured to the hubs or sleeves 75 of the several tabulating key levers 72. These springs hold the key levers 72 in normal position and in engagement with the upper ends of the slots 76 in the guide plate 77. The springs 79 also hold the tail pieces or arms 71 on the key levers in engagement with the arms 69 on the shafts 66. The springs 79 are stronger than the springs 70 so that the shafts 66 and dog shifters 60 operated thereby are normally held in inoperative position. When any one of the tabulating key levers 72 is shifted, the tail piece 71 thereon will be moved to release the corresponding shaft 66 and its spring 70 will then shift the same so that one of the dog shifters 60 will be actuated to lift the dog into the path of the column stop corresponding with the shifted key lever. In this way, by selecting any one of the tabulating keys, the stop dog 52 corresponding to any predetermined column stop may be shifted into line therewith to arrest the run of the carriage at a predetermined columnar position. That is to say, by means of the keys any one of a number of columnar positions may be selected and the tabulating mechanism set to arrest the carriage after the single run at the desired column while the columns or columnar positions intermediate the starting point and the selected column will be skipped.

It will be understood that the springs 70 for actuating the shafts 66 are stronger than the springs 57 on the stop dogs 52, so that the dogs will be shifted by the spring 70 against the tension of the springs 57 when the keys are actuated to release the arms 69 on the shafts 66. When the shifted key lever 72 is released it will be restored to normal position by its spring 79 and its tail piece 71 will strike the arm 69 and restore the dog shifting devices to normal so that the dog 52 which has been moved, can be moved out of line with the column stop by means of the spring 57 connected thereto.

Means are also provided, preferably under control of the same set of keys, for variably shifting the tabulating mechanism to arrest the run of the carriage at any one of a number of adjacent letter space positions in the predetermined or selected column. For this purpose, the rod 54 carrying the dog-holder or support 53 is mounted to slide longitudinally through a pair of upright lugs 81 at the upper rear portion of the main frame so that the set of dogs as a whole, may be shifted one or more steps in a direction parallel to the letter space movement to select the proper denominational position. In the construction shown, the dogs and dog-holder are yieldingly held in normal position by means of a spring 82 coiled about the rod 54 and extending between one of the lugs 81 and a pin 83 on the rod. At its outer end the rod 54 is provided with a depending arm or lug 84 which engages the rear end of an arm or lever 85. This lever is pivoted between its ends

to a projecting stud 86 on the side plate 67 of the main frame, and is provided at its forward end with a depending lug 87 which engages the upper end of a fan-shaped cam plate 88. This cam plate is provided with a hub or sleeve 89 that is swiveled upon the shaft 73. The cam plate is also provided with a laterally projecting pin or universal bar 90 which extends in front of and is arranged to be engaged by any one of the tabulating key levers 72. A coiled pull spring 91 extending between the rear edge of the cam plate 88 and the laterally projecting pin 92 on the side plate 67 of the main frame holds the cam plate 88 in normal position with the pin or bar 90 thereon against the forward edges of the key levers 72.

The coiled spring 82 on the rod 54 presses the latter outwardly or to the right (when viewed from the rear as in Fig. 3) and presses the lug 84 thereon into engagement with the rear end of the lever 85 so that the lug 87 on the forward end of the lever is pressed into engagement with the fan-shaped cam plate 88. By shifting any one of the key levers 72 the cam plate 88 will be moved to shift the forward end of the lever 85 outwardly and its rear end inwardly so that the dog-holder 54 and series of dogs 52 carried thereby will be shifted inwardly against the tension of the spring 82 and the extent of the shift of the dogs and dog-holder in longitudinal direction will depend upon the extent to which the selected key is shifted. To determine the extent of shift of the keys, the slots 76 in the guide plates 77 are preferably provided with a series of notches 93 corresponding to different letter space positions. In this way, the several keys may be employed to shift the dog-holder and series of dogs 52 in longitudinal direction to any one of the number of adjacent letter space positions, and at the same time, by selecting a particular key lever 72, the dog corresponding to a particular column stop will be shifted in line therewith so that by a single operation both a predetermined column and any desired denominational position in the predetermined column may be selected. That is to say, the tabulating mechanism may be operated to bring the carriage in one operation to any desired position.

When the selected finger key is released, spring 91 will restore the cam plate 88 and the spring 82 will restore the series of dogs and dog-holder. It should be noted that the individual dog shifters 60 are long enough to permit the shift of the dogs in longitudinal direction without disturbing the operative relation between the shifters and the series of dogs operated thereby. For convenience in manipulating the key levers, they are preferably provided on their ends with curved finger pieces 94. The finger keys are also preferably arranged to operate the arm or finger 45 for releasing the carriage to permit its free run. For this purpose, the key levers 72 are formed of spring material, such as German silver or the like. They tend normally to hug the right hand side of the guide slots 76 (when viewed from the front, as in Fig. 2), but they may be bent slightly to the left into engagement with any one of the notches 93. Upon the rear face of the guide plate 77 is mounted a universal device or plate 95 which is concentric therewith and which is provided with a series of slots 96 corresponding with the slots 76. This universal member or plate 95 is engaged at its upper and lower edges by a pair of slotted guides 97, so that it is free to shift laterally to a slight extent. A spring 98 fixed to the lower slotted guide 97 engages a pin 99 on the rear face of the plate 95 and holds it inwardly in normal position with a stop lug 100 on its outer edge in engagement with the outer edge of the plate 77. In this normal position, the edges of the slots 96 in the plate 95 are arranged to be engaged by the key levers 72 when shifted into engagement with the notches 93 of the plate 77. A cord or wire 101 fixed at its end to a lug 102 on the plate extends inwardly around a guide roller 103 on the inner face of the side plates 67, thence rearwardly around a second guide roller 104 also mounted upon the side plates 67 of the main frame. The cord or wire 101 thence extends inwardly around a guide roller 105 on the bracket 48 and upwardly to an arm 106 on the releasing dog or finger 45. Thus in operation, when any particular key is shifted the dog corresponding to that key is lifted in to the path of the corresponding column stop and at the same time the dog-holder and dogs are moved longitudinally or parallel to the letter space movement one or more steps in correspondence with the extent to which the selected key is shifted. Then, when the end of the shifted key lever is moved to the left into engagement with one of the notches 93, the universal plate 95 will be shifted and through the medium of the cord or wire 101, will operate the finger 45 to release the carriage and permit its free run until arrested by the engagement of the selected column stop with the shifted dog.

The phrase "dogging means" and like expressions where used in the claims, are intended to be construed broadly to include any suitable arresting means.

It is obvious that numerous changes may be made in the details of structure set forth without departure from the essentials of the invention.

Having described my invention, what I

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

1. In a typewriting machine, the combination with a carriage, of coöperating stop members for arresting the run of the carriage in different denominational positions in each one of a plurality of columns, a set of keys, one key for each column, means controlled by the operated one of said keys for selecting the column corresponding to said operated key, and means controlled by a variable operation of the operated key for determining the letter space position of arrest within the column.

2. In a typewriting machine, the combination with a carriage, coöperating stop members for arresting the run of the carriage at any one of a plurality of letter space positions in any one of a plurality of columns, a set of keys for controlling said stop members, one key for each column, means operated by a variable operation of any one of said keys to determine the letter space position of arrest within the column corresponding to said operated key, and means operated by the same variable operation of said key for selecting the column corresponding to said key.

3. In a typewriting machine, the combination with a carriage, of coöperating stop members for arresting the run of the carriage comprising a series of column stops arranged out of line and means for dogging said stops, a train of mechanism for actuating certain of said stop members to select a predetermined column, a train of mechanism for variably actuating certain of said stop members to arrest the carriage at any one of a number of adjacent letter space positions in the selected column, and keys each arranged to operate both of said trains of mechanism by the same motion of the operated key.

4. In a typewriting machine, the combination of a paper carriage, means for providing a plurality of longitudinal rows of column stops, a denominational stop for each said row of column stops, said denominational stops being adjustable in letter space direction, said denominational stops also serving as coöperating column stops, a set of keys corresponding in number with said rows of column stops and with said denominational stops; and connections whereby the respective keys control the corresponding stops; whereby the operation of a selected key will cause the paper carriage to be arrested at a predetermined columnar position and at a predetermined denominational position in the selected column.

5. In typewriting machines, the combination with a carriage, of combined columnating and denominational stop members comprising a series of column stops, dogging means for said stops, a holder for said dogging means, key-controlled mechanism for variably shifting said holder and dogging means carried thereby and key-controlled mechanism for actuating said dogging means within said holder.

6. In typewriting machines, the combination with a power-propelled carriage and with means for releasing the same to permit its free run, of combined columnating and denominational stop members for arresting the run of the carriage, comprising a series of column stops arranged out of line, dogging means for said stops, a holder for said dogging means, mechanism for variably shifting said holder and dogging means carried thereby, mechanism for actuating said dogging means within said holder and finger keys controlling the operation of said mechanisms and releasing means.

7. In typewriting machines, the combination with a power-propelled carriage and with means for releasing the same to permit its free run, of combined columnating and denominational stop members comprising a series of adjustable column stops arranged out of line, means for dogging said stops, a holder for said dogging means, mechanism for actuating said dogging means in transverse direction within the holder therefor to select any predetermined column, mechanism for variably shifting said holder and dogging means in letter space direction to arrest the carriage in any one of a number of adjacent letter space positions in the selected column and a set of finger keys, each of which is arranged to control the operation of both of said mechanisms.

8. In typewriting machines, the combination with a carriage, of combined columnating and denominational stop mechanisms for arresting the run of the carriage, comprising a series of column stops and a series of stop dogs, key-controlled mechanism for bringing a stop dog into coöperative relation with a predetermined one of said column stops and key-controlled mechanism for variably shifting said stop dogs to arrest the carriage at any one of a number of adjacent letter space positions in the selected column.

9. In typewriting machines, the combination with a power-propelled carriage and with means for releasing the same to permit its free run, of combined columnating and denominational stop mechanism comprising a series of column stops arranged out of line, and a series of stop dogs, mechanism for bringing a stop dog into coöperative relation with one of said column stops, mechanism for variably actuating said stop dogs to arrest the carriage at any one of a number of adjacent letter space positions in the selected column and operating finger keys for said mechanisms and for said releasing means.

10. In typewriting machines, the combina-

tion with a carriage, of coöperating stop members for arresting the run of the carriage, comprising a series of column stops, a series of stop dogs, a holder for said stop dogs, mechanism for variably shifting said dogs and dog-holder and mechanism for actuating said dogs within said holder.

11. In typewriting machines, the combination with a power-propelled carriage and with means for releasing the same to permit its free run, of combined columnating and denominational stop mechanism comprising a series of column stops arranged out of line, a series of coöperating stop dogs, a dog-holder, mechanism for variably shifting said dog-holder and dogs, mechanism for actuating said dogs within said holder and keys for controlling the operation of said mechanisms and of said releasing means.

12. In a typewriting machine, the combination with a power-propelled carriage and with means for releasing the same to permit its free run, of combined columnating and denominational stop mechanism comprising a series of adjustable column stops arranged out of line, a series of dogs, a dog-holder therefor, mechanism for variably shifting said dog-holder and dogs, mechanism for actuating said dogs within said holder and a set of finger keys, each arranged to control both of said mechanisms and to effect the operation of said releasing means.

13. In typewriting machines, the combination with a carriage, of stop mechanism for arresting the run of the carriage comprising a series of column stops, a series of stop dogs, a holder therefor, key-controlled mechanism for variably shifting said dogs and dog-holder and key-controlled mechanism for actuating said dogs within said holder.

14. In typewriting machines, the combination with a power-propelled carriage and with means for releasing the same to permit its free run, of combined columnating and denominational stop mechanism comprising a series of column stops arranged out of line, a series of stop dogs, a holder for said dogs, mechanism for actuating said dogs in said holder to select any predetermined column, mechanism for variably shifting said dogs and dog-holder in letter space direction to arrest the carriage in any one of a number of adjacent letter space positions in the selected column and finger keys controlling the operation of said mechanisms.

15. In a typewriting machine, the combination with a carriage, of means for arresting the run of the carriage comprising a series of column stops, a series of dogs coöperating with said column stops, a set of keys, one for actuating each of said dogs and means for bodily shifting said series of dogs to any one of a plurality of different operative positions.

16. In a typewriting machine, the combination with a carriage, of means for arresting its run comprising a series of column stops arranged out of line, a series of dogs for engaging said stops, a set of keys, one for actuating each of said dogs and means controlled by said keys for bodily shifting said series of dogs to any one of a plurality of different operative positions.

17. In a typewriting machine, the combination with a power-propelled carriage and means for releasing the same to permit its free run, of means for arresting the run of the carriage comprising a series of column stops, a series of dogs for engaging said column stops, a set of keys, one for actuating each of said dogs, a support or holder for said series of dogs and means controlled by said keys for bodily shifting said dog-support or holder, each of said keys being arranged to operate said carriage-releasing means.

18. In a typewriting machine, the combination with a carriage, of means for arresting the run of the carriage, comprising a series of column stops, a series of dogs, a set of controlling keys, one for each of said dogs and mechanism controlled by said keys for shifting said dogs into and out of line with said column stops and for variably shifting the dogs in letter space direction.

19. In a typewriting machine, the combination with a carriage, of means for arresting the run of the carriage comprising a series of column stops arranged out of line, a series of dogs coöperating with said stops, a set of keys, one for each of said dogs, mechanism controlled by said keys for shifting said dogs in transverse direction into and out of line with said column stops and mechanism controlled by said keys for variably shifting said dogs in letter space direction.

20. In a typewriting machine, the combination with a carriage, of means for arresting the run of the carriage comprising a series of column stops, a series of dogs, a set of variably shiftable keys, one for each of said dogs, mechanism actuated by said keys for shifting said dogs transversely into line with said column stops to select a predetermined column and mechanism actuated by said keys for variably shifting said dogs in letter space direction to arrest the carriage at any one of a number of adjacent letter space positions.

21. In a typewriting machine, the combination with a carriage, of means for arresting the run of the carriage comprising a series of adjustable column stops arranged out of line, a series of dogs coöperating with said column stops, a set of variably shiftable keys, one for each of said dogs, mechanism controlled by said keys for shifting said dogs into and out of line with said stops to select a predetermined column, a holder or support for said dogs and mech-

anism actuated by said keys for variably shifting said dogs and dog-holder or support in letter space direction to select one of a number of adjacent letter space positions.

22. In a typewriting machine, the combination with a power-propelled carriage and with means for releasing the same to permit its free run, of means for arresting the run of the carriage comprising a series of adjustable column stops arranged out of line, a series of dogs coöperating with said column stops, a set of variably shiftable keys, one for each of said dogs, mechanism actuated by said keys for shifting any one of said dogs into line with its corresponding column stop, a holder or support for said series of dogs, mechanism controlled by the variable shift of said keys for moving said dogs and dog-holder or support in letter space direction and a universal member operated by said keys and connected to said carriage-releasing means.

23. In a typewriting machine, the combination with a carriage, of means for arresting the run of the carriage comprising a series of column stops arranged out of line, a series of transversely shiftable dogs cooperating with said column stops, a longitudinally shiftable holder or support for said dogs, a series of variably shiftable keys, one for each of said dogs, mechanism controlled by said keys for selectively shifting said dogs transversely into line with the corresponding column stops and mechanism controlled by the variable shift of said keys for shifting said dog-holder or support in letter space direction.

24. In a typewriting machine, the combination with a carriage, of means for arresting the run of the carriage comprising a series of column stops arranged out of line, a series of transversely shiftable dogs coöperating with said column stops, a longitudinally shiftable holder or support for said dogs, said dogs and said dog-holder or support being spring-held in normal position, a set of variably shiftable keys, one for each of said dogs, mechanism controlled by the initial shift of said keys for selectively moving said dogs in transverse direction into line with the corresponding column stops and cam mechanism controlled by the variable shift of all of said keys for variably shifting said dog-holder or support in letter space direction.

25. In a typewriting machine, the combination with a power-propelled carriage and with means for releasing the same to permit its free run, of means for arresting the run of the carriage comprising a series of column stops adjustably mounted on the carriage and arranged out of line, a set of dogs coöperating with said stops, mechanism for actuating said dogs to select any one of said column stops, mechanism for variably shifting said dogs to arrest the carriage at any one of a number of adjacent letter space positions in the selected column and keys controlling the operation of said mechanisms.

26. In a typewriting machine, the combination with a power-propelled carriage and of means for releasing the same to permit its free run, of means for arresting the run of the carriage comprising a series of column stops adjustably mounted on the carriage and arranged out of line, a series of dogs coöperating with said column stops, said dogs being transversely shiftably into and out of line with said stops, a common dog-holder or support longitudinally shiftable in letter space direction, a set of variably shiftable keys, one for each of said dogs, means controlled by the shift of the selected key for moving one of said dogs into line with the corresponding column stop, mechanism controlled by the variable shift of any of said keys for shifting said dogs and dog-holder in letter space direction, and a universal member operated by said keys for actuating the carriage releasing means.

27. In a typewriting machine, the combination with a power-propelled carriage, letter space escapement mechanism therefor and means independent of said escapement mechanism for releasing the carriage to permit its free run, of means for arresting the run of the carriage, comprising a series of column stops, dogging means therefor and key mechanism arranged to actuate said dogging mechanism to select a predetermined column and to arrest the run of the carriage at any one of a number of adjacent letter space positions in the selected column.

28. In a typewriting machine, the combination with a power-propelled carriage, letter space escapement mechanism therefor and means independent of said escapement mechanism to permit its free run, of means for arresting the run of the carriage comprising a series of column stops arranged out of line, dogging means therefor, mechanism for actuating said dogging means to select a predetermined column, mechanism for variably shifting said dogging means to select any one of a number of adjacent letter space positions in said column and a set of finger keys controlling the operation of said mechanisms.

29. In a typewriting machine, the combination with the main and the supplemental paper-supporting carriages, of letter space escapement mechanism coöperating with said main carriage, means for releasing said supplemental carriage from said main carriage to permit its free run and means for arresting the run of the supplemental carriage comprising a series of column stops, dogging means for said stops, mechanism

for actuating said dogging means to select a predetermined column, mechanism for variably shifting said dogging means to arrest the run of the carriage at any one of a number of adjacent letter space positions in the selected column and a series of keys controlling the operation of said shift mechanisms.

30. In a typewriting machine, the combination with the main and the supplemental paper-supporting carriages, of letter space escapement mechanism coöperating with said main carriage, means for releasing said supplemental carriage from said main carriage to permit its free run and means for arresting the run of the supplemental carriage comprising a series of column stops, dogging means for said stops, mechanism for actuating said dogging means to select a predetermined column, mechanism for variably shifting said dogging means to arrest the run of the carriage at any one of a number of adjacent letter space positions in the selected column and a set of keys controlling the operation of said mechanisms, each of said keys being arranged to operate the releasing means for said supplemental carriage.

31. In a typewriting machine, the combination with power-propelled main and supplemental carriages, of letter space escapement mechanism coöperating with said main carriage, releasable pawl and rack mechanism connecting said main and supplemental carriages and means for arresting the run of the supplemental carriage comprising a series of column stops adjustably mounted thereon and arranged out of line, a series of dogs coöperating with said column stops, mechanism for operating said dogs to select a predetermined column, mechanism for variably shifting said dogs to select any one of a number of adjacent letter space positions in the selected column and a set of finger keys controlling the operation of said mechanisms.

32. In a typewriting machine, the combination with power-propelled main and supplemental carriages, of letter space escapement mechanism coöperating with said main carriage, releasable pawl and rack mechanism connecting said main and supplemental carriages and means for arresting the run of the supplemental carriage comprising a series of column stops adjustably mounted thereon and arranged out of line, a series of dogs coöperating with said column stops, mechanism for actuating said dogs to select a predetermined column, mechanism for variably shifting said dogs to select any one of a number of adjacent letter space positions in the selected column, a series of keys controlling the operation of said mechanisms and means actuated by said keys for releasing said pawl and rack mechanism.

CHARLES L. FORTIER.

Witnesses:
CHAS. L. GOSS,
ALICE E. GOSS.