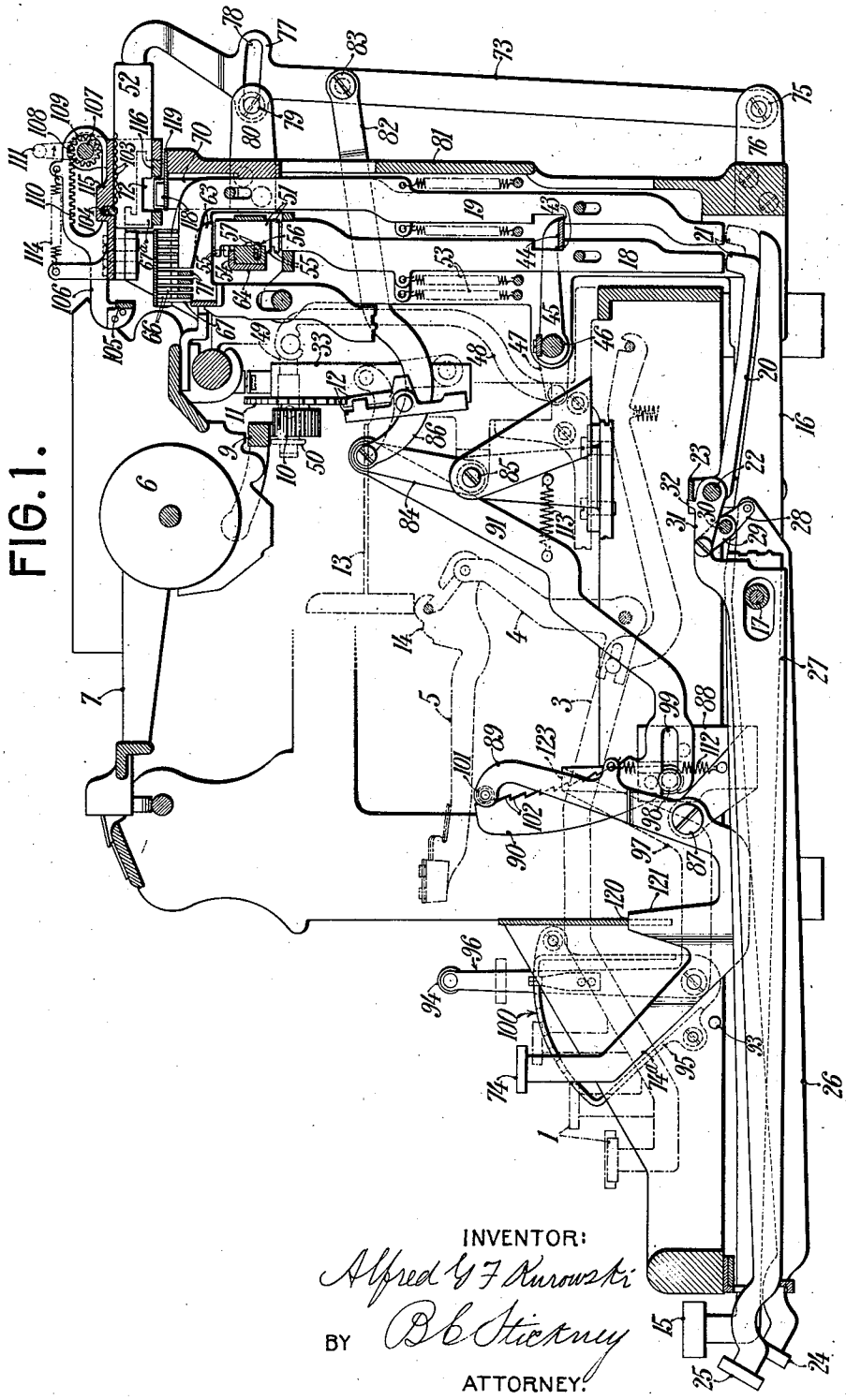
June 12, 1923. 1,458,904

A. G. F. KUROWSKI

TYPEWRITING MACHINE

Filed May 4, 1920 3 Sheets-Sheet 1

FIG. 1.



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TYPEWRITING MACHINE

Filed May 4, 1920 3 Sheets-Sheet 2

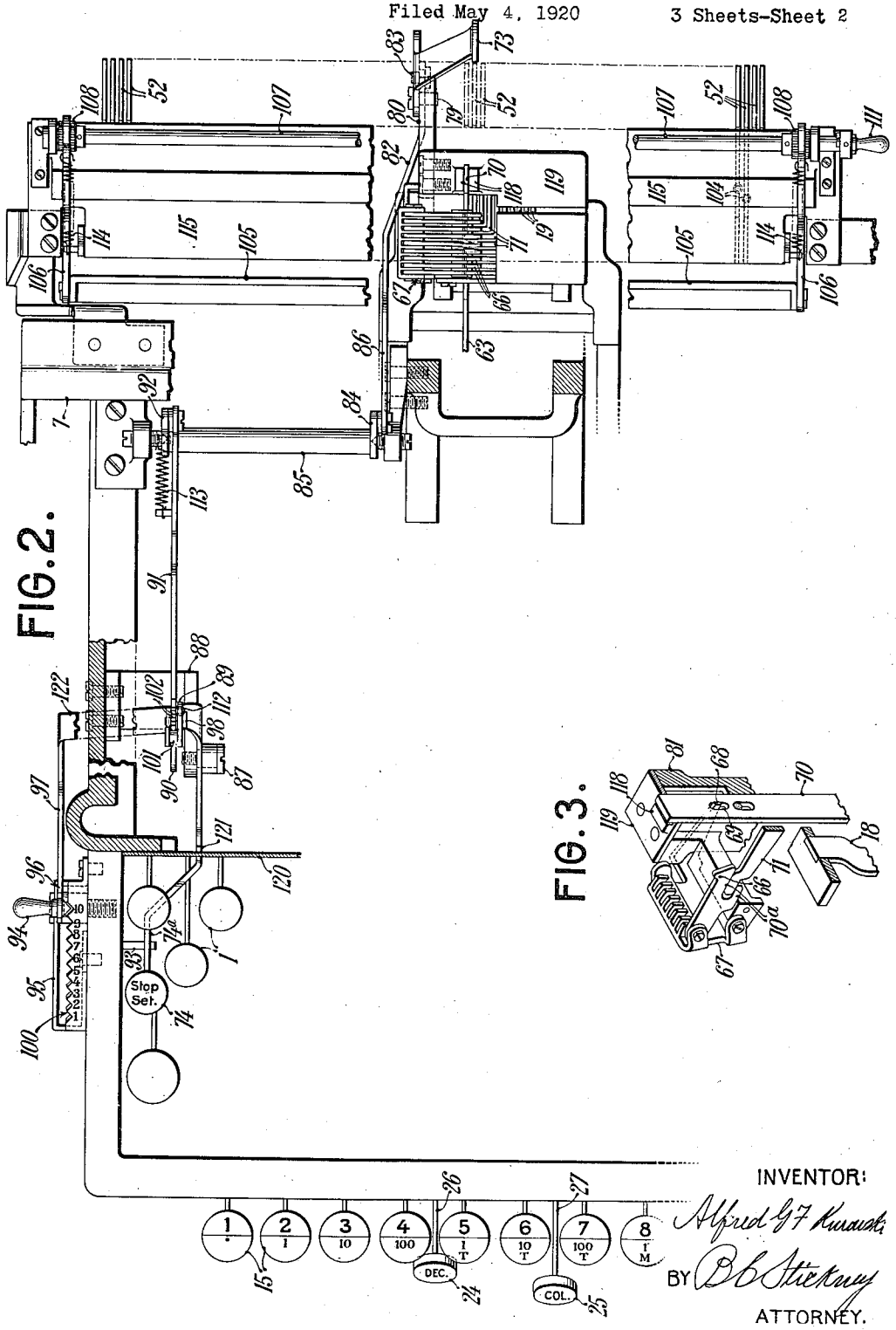


FIG. 2.

FIG. 3.

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TYPEWRITING MACHINE

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3 Sheets-Sheet 3

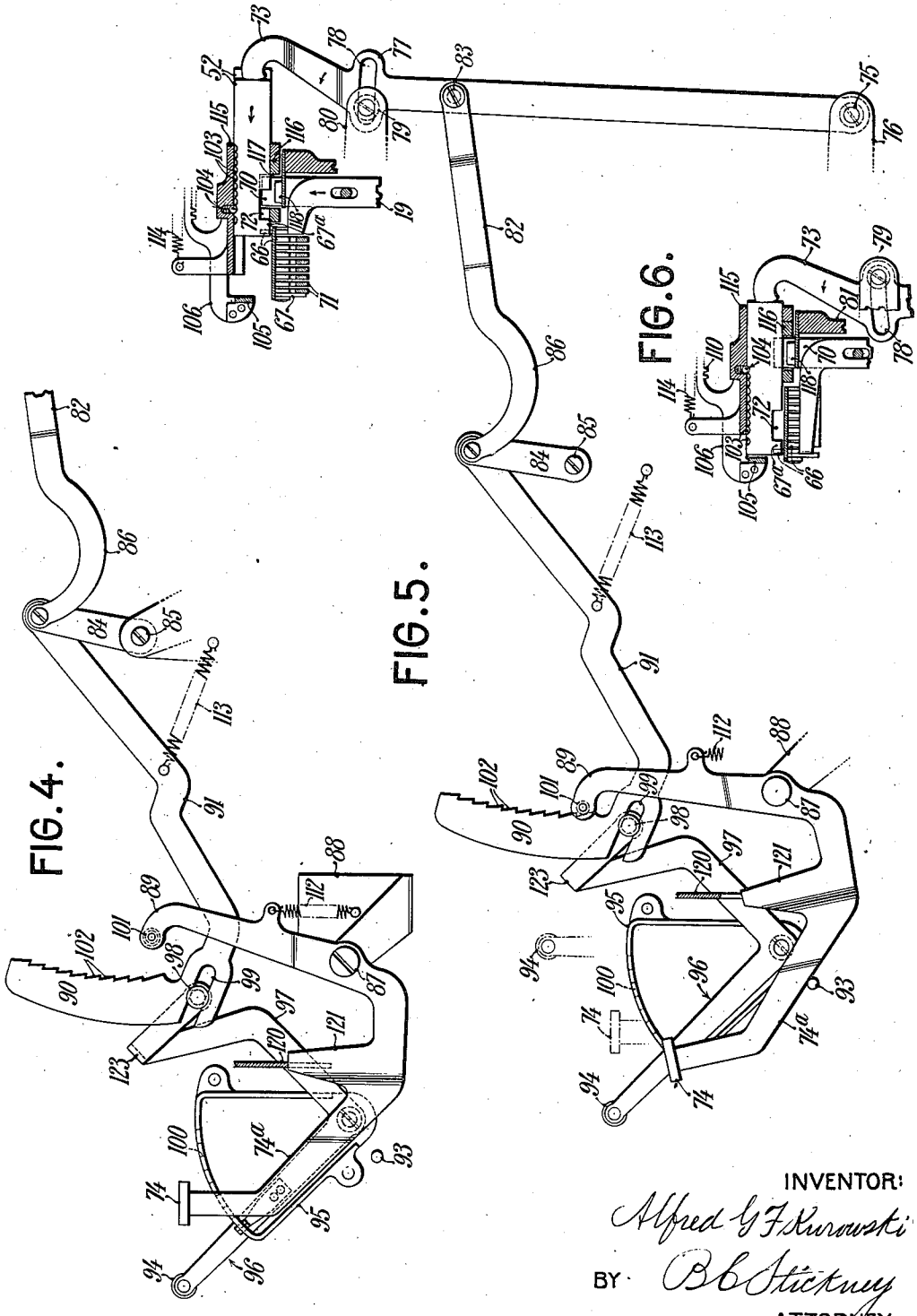


FIG. 4.

FIG. 5.

FIG. 6.

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Patented June 12, 1923. 1,458,904

UNITED STATES PATENT OFFICE.

ALFRED G. F. KUROWSKI, OF BROOKLYN, NEW YORK, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPEWRITING MACHINE.

Application filed May 4, 1920. Serial No. 378,784.

To all whom it may concern:

Be it known that I, ALFRED G. F. KUROWSKI, a citizen of the United States, residing in Brooklyn Borough, in the county of Kings, city and State of New York, have invented certain new and useful Improvements in Typewriting Machines, of which the following is a specification.

This invention relates to typewriting machines, and is herein disclosed as applied to a machine embodying many of the features shown in my application, Serial No. 170,354, filed May 23, 1917 (now Patent No. 1,356,926, dated October 26, 1920), in which the typewriter carriage is provided with a set of decimal-tabulating stops and a set of column-selecting stops, either of which is adapted to co-operate with key-operated carriage-arresting counter-stop devices.

In said patent, there is shown a single set of tabulating-keys which is adapted to operate either of two sets of counter-stop devices, according to the character of work in hand. The set of stops shown in said patent for use in decimal tabulating includes a settable stop at every letter-space of the typewriter carriage, said stops being adapted to be selectively set by a stop-setting key. The other set of stops shown therein comprises variously formed extensions to enable the stops to selectively be effective to arrest the carriage according to the tabulating key depressed at the moment.

According to the present invention, these latter stops may be identical in form, but may be adapted to be variably positioned to be selectively effective in arresting the carriage. These latter stops, according to the present invention, may be selectively and variably set by a stop-setting key, and, if desired, there may be one of such stops for every letter-space in the travel of the typewriter carriage.

To cause the typist to feel that the stops are being properly set, the setting key may have a uniform throw, and a finger-piece may be provided which varies the amount of throw of the device which is utilized in the setting of any stop, thereby enabling the key to variably set said stop according to the setting of the finger-piece. This structure enables a typewriting machine to be provided with a decimal-stop-setting key and a column-stop-setting key, thus making a machine of which the method of operation appeals to the average typist, whose mind is accustomed to deal with keys rather than stops and rack-bars.

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a sectional side view of an Underwood typewriting machine, showing the present invention applied thereto.

Figure 2 is a plan view of the same, largely diagrammatic, with most of the parts removed or broken away to show the underlying structure.

Figure 3 is a perspective view, showing a detail of the column-stop device.

Figure 4 is a side view of the column-stop-setting mechanism before the stop-setting key is depressed, but with the finger-piece adjusted to set a column-stop for the first column.

Figure 5 is a similar view, but showing the key depressed and in the act of setting the stop.

Figure 6 is a view similar to Figure 5, but showing the stop-setting mechanism setting a stop adapted to arrest the carriage at the last column.

In the Underwood typewriting machine, character-keys 1 depress key-levers 3 to rock bell-cranks 4, to swing type-bars 5 upwardly and rearwardly against the front side of a platen 6 mounted to rotate in a carriage 7. The carriage is controlled at the actuation of the keys 1 to travel step by step in a letter-feeding direction by an escapement mechanism, which includes a rack 9 hinged on the carriage 7 and engaging a pinion 10, which, in turn, is controlled in its rotation by an escapement-wheel 11. The escapement-wheel 11 is permitted to have an intermittent rotation by means of a pair of fast and loose dogs 12, rocked at the actuation of each key by means of a universal frame 13, in turn, rocked by engagement therewith of a heel 14 carried by each of the type-bars 5.

In addition to having step-by-step movements, the carriage 7 may be jumped a number of letter-spaces or decimal columns at a time, to any desired zone or major column. This may be done in the present case in either of two ways, viz., either by jumping the carriage to successive zones and to selected decimal columns or letter-spaces in such zones, or by jumping the carriage selectively from the first or any earlier zone

in its movement to any one of the suceeding zones or columns, omitting or passing by one or more of the intermediate zones or major columns. In either case, the jump movements of the carriage may be controlled by the same set of tabulating keys 15. The keys 15, when depressed, rock key-levers 16 which are pivotally mounted intermediate their ends on a common pivot-rod 17. The key-levers 16 have associated therewith two groups of bars or plungers, slidably mounted in the main frame of the machine, one plunger in each group for each key-lever. One set of these plungers 18 forms a decimal-tabulating group of counter-stops for selecting particular decimal columns or letter-spaces in major columns or zones. The bars or plungers 19 of the other set are adapted to select any one of a series of columns or zones within the capacity of the carriage, so that the carriage may be jumped from a starting position to any subsequent desired major zone or column, skipping, if necessary, intermediate columns or zones.

To enable the tabulating-keys 15 to selectively operate either set of plungers 18 or 19, there are provided a series of interponent-levers 20, having heads 21, which are adapted to be interposed between the tabulating key-levers, and either the plungers 18 or the plungers 19. The interponents 20 are floatingly mounted, by being pivoted on a rod 22, which is supported by a shiftable frame 23. The shiftable frame 23 can occupy either of two positions, being thereby adapted to actuate the plungers 18 or the plungers 19 at the depression of the keys 15.

To adjust the shiftable frame 23, there is provided a decimal-tabulating shift-key 24 and a column-selecting shift-key 25. These keys are mounted, respectively, on thrust-rods 26 and 27, pivotally connected at their rear ends to rock-arms 28 and 29 upon a shaft 30. The arm 29 is connected by a link 31 to the rod 22 of the shifting-frame 23, said link having a projection 32, lying in front of, and adapted to engage the shift-frame 23. The two positions of the shift-frame 23, and thus of the interponents 20, are determined by any desired device, one suitable device being described in my patent aforesaid.

To enable the plungers 18 or 19 to arrest the carriage in any position, the plungers are adapted to release the carriage from the escapement-wheel 11, to enable the carriage to travel under the influence of its spring-barrel 33 until arrested in a manner which will be later described. To effect this, the plungers 18 and 19 are provided with heels 43, all of which are adapted to engage a single universal bar 44, forming part of a rock-frame 45, pivoted at 46. When any plunger rises, the universal bar 44 is forced upwardly, and rocks a forwardly-extending arm 47, with the result that the arm 47 draws down on a link 48 to rock a lever 49, carrying at its front end a roller 50, which underlies the rack 9, and thus raises the rack out of engagement with the pinion 10. Thus, when any one of the tabulating-keys 15 is actuated to actuate either of its plungers 18 or 19, the carriage is free to move until arrested by either decimal-stops 51 or column-stops 52, according to the tabulating connections effective at the moment. With the interponents 20 in the Figure 1 position, underneath the decimal-tabulating plungers 18, the depression of a tabulating key 15 raises its decimal-plunger 18, against the tension of its spring 53, into the path of such decimal-stops 51, as may be set.

There is a series of these decimal-stops 51, herein shown as comprising one for each letter-space or decimal position of the carriage 7. They are adjustably mounted on the carriage 7 in a rack-bar 54 to occupy either an ineffective raised position or an effective depressed position. The decimal-stops 51 lie in vertical slots in the rack-bar 54, and have projections 55 limiting their upper and lower positions. They are adapted to be detained in their different positions by spring-pressed ball-detents 56 adapted to engage in notches 57 provided on their edges. These stops are adapted to be set by a key-operated stop-setting arm 63 (Figure 2) in a manner set forth in some detail in my said patent, the connections being such that when the carriage is positioned at any letter-space, the operation of the key which controls the stop-setting arm 63 sets the corresponding stop, so that when a decimal-plunger or counter-stop 18 is operated, and the carriage is released thereby, the carriage will travel until the set stop 51 is intercepted by the raised plunger or counter-stop 18 and arrests the carriage. In performing this operation, of course the decimal-selecting shift-key 24 must be at its rearward position, as shown in Figures 1 and 2, for holding the interponent-levers 20 at their forward positions with their heads 21 beneath the lower ends of the decimal-tabulating plungers 18, as shown in Figure 1.

Since there are usually ten of the tabulating keys 15, there are usually ten of the plungers 18, and the carriage is adapted to be arrested through the set stop 51 at any decimal place in a column ten letter-spaces wide, the space at which it is arrested depending on the actuated key 15. There may be provided an unsetting slide 64 of any usual or desired form, adapted to reset all the set stops 51, to enable suitable stops to be set up for any work in hand.

When it is desired to position the carriage selectively at any one of a plurality of columns by the column-stops 52, the column-shifting-key 25 is actuated to carry the in-

terponents 20 rearwardly to the position shown in dotted lines at Figure 1 with their heads 21 under the column-selecting plungers 19. Actuation of any one of the tabulating keys 15 at this time lifts the associated plunger 19 to release the carriage by actuating the universal bar 44, so that the carriage travels freely until a set column-stop 52, like the one seen in the foreground in Figure 5, intercepts a feeler or trip 66, which has been raised by the actuation of the plunger 19 at the depression of the key 15. There is a series of the column-stops 52, and there may be one of these stops for each letter-space position of the carriage 7, as shown in Figure 2. This provides for choosing or selecting ten column-stops 52 to correspond successively with the respective ten tabulating keys 15 in such manner that the successive columns of a work-sheet may be variably spaced as desired, according to the particular kind of work in hand. The catch or feeler 66 is in itself ineffective to arrest the carriage, but, when struck by a lug 67^a on the column-stop 52, the feeler is pushed to the left at Figure 3, thus rocking leftwardly a rock-frame 67, pivoted on a part of the main frame of the machine and upon which the feelers 66 are pivoted, said frame 67 comprising a finger 68 which lies in an opening 69 in a counter-stop 70, the connections being such that the rocking of the frame 67 lifts the counter-stop 70 into the path of the stop 52, as shown in Figure 5, with the result that the counter-stop intercepts the stop 52 and arrests the carriage. In this connection, it should be noted that Figure 5 diagrammatically represents not only the setting of the stop 52, but also represents diagrammatically the arresting of the carriage by the stop 52, operations which ordinarily would not take place at the same time.

To effect the lifting of the catch 66 to position where it is intercepted by the lug 67^a, in the manner described, the plungers 19 are provided with the connections described in some detail in said patent, said connections including a set of nested arms 71, which extend from the plungers and are bent at right angles, to enter forked ends 70^a in the trips 66. Each arm 71 is successively longer than the adjacent one, and is adapted to operate the stop-catch 66 next further away, to correspond with the successive columns from one to ten. To enable the unset stops 52 to pass freely by the set counter-stop 70 while the set stops 52 selectively co-operate with the various catches or trips 66, each stop 52 is cut away at 72, between the body of the stop and the lug 67^a. When ten of the column-stops 52 are set, each lug 67^a will co-operate only with its own catch or trip 66.

To enable any stop 52 to be set to co-operate with any trip 66, there is provided a stop-setting member or arm 73, lying behind the path of the stops 52 and adapted to be moved forward by a stop-setting key 74 to variably position the stops 52. The stop-setting arm or bar 73 is pivoted at 75 on a bracket 76 near the bottom of the machine, to enable the arc through which the arm 73 swings substantially horizontally to be of wide curvature. To hold the arm 73 in position to co-operate with only a single stop 52, it is provided with an enlargement 77, having an elongated slot 78 through which a shouldered screw 79 passes and is threaded into a bracket 80 fast on the frame 81, in which the tabulating plungers 18 and 19 are mounted.

The connections between the key 74 and the arm 73 include a link 82 pivotally attached at 83 to the arm 73, and pivotally attached at its front end to a rock-arm 84 fast to a transverse rock-shaft 85 extending to the side of the machine, said shaft being adapted to be rocked by the depression of the key 74. The link 82 is provided with a suitable arcuate portion 86 to enable it to swing clear of the escapement devices and other mechanism.

To draw forward the link 82 to set a stop 52, the key 74 is on a lever 74^a, pivoted at 87 on a bracket 88, so that an upstanding end or arm 89 of the key-lever swings forwardly against a substantially vertical transverse extension 90 of a link 91, which is pivotally connected to a rock-arm 92, fast to the rock-shaft 85, on which the rock-arm 84 is also fast. Thus, depression of the key 74 draws forward the links 91 and 82 and sets the stop 52. To enable the key 74 to have a uniform throw, and yet variably or differentially set a stop 52, according to the column to which it belongs, there is provided, on the frame 81, an abutment-forming stop-pin 93 adapted to arrest the key-lever at the downward limit of its throw, and the link 91 is given a variable throw, because its extension 90 normally stands at a variable distance from the end 89 of the key-lever, being formed on an arc having a center near the shaft 85.

In order to vary the lost motion between the extension 90 and the extension 89, there is provided a finger-piece 94 pivoted upon a bracket 95 on the outside of the typewriting machine frame, said finger-piece forming the upper end of a bell-crank 96, having a rearwardly-extending arm 97, which carries a roller 98 riding in a slot 99 in the front end of the link 91, with the result that when the finger-piece 94 is drawn forward along its guide 100, it lifts the extension 90 from the Figure 1 to the Figure 4 position, through the intermediate positions. In the Figure 1 position, there is substantially no lost motion between the extension 90 and the lug or roll 101 by which the end 89 operates it. In the Figure 1 position, therefore, the depression of the key 74 to its full extent moves

the setting arm 73 to its full extent and moves the stop 52, with which the arm 73 engages, from its Figure 1 position to its Figure 6 position, that is, to its fullest extent for arresting the carriage at the last column. In the Figure 4 position, the finger-piece 94 is drawn forward to its foremost or number "1" position along the guide or rack 100, with the result that the depression of the key 74 is idle for the greater part of its stroke, and only actuates the setting arm 73 far enough to shift a stop 52 from its Figure 1 to its Figure 5 position, for arresting the carriage at the first column.

To prevent any tendency to slip, the surface of the extension 90, where engaged by the lug or roll 101, is provided with teeth 102, spaced to correspond with the notches 1 to 10 of the rack 100. Each stop 52 is provided with corresponding depressions 103, which are adapted to be engaged by a spring-pressed ball-detent 104 to hold the stop in its set position, corresponding to the action of the lug or roll 101.

In order to provide a comparatively wide arresting surface for the stop 52, the movement of the stop from its ineffective position, shown in Figure 1, to its first effective position, shown in Figure 5, is greater than its subsequent movements, thus making it practically impossible for the counter-stop 70 to catch that stop on the corner and injure it, arresting the heavy carriage.

To return the stops 52, there is provided a suitable returning-bar 105, lying in front of all the stops 52, and supported at each end upon a sliding bracket 106, so that the two ends can be moved simultaneously by a shaft 107, having a pinion 108 at each end lying within an opening 109, of the adjacent bracket 106, each opening having a rack 110, adapted to be engaged by the pinion 108. To rotate the shaft 107, there may be provided a handle 111. To return the key 74 after its actuation, there may be provided a spring 112, anchored in the bracket 88 on which the key is pivoted; and to independently return the setting arm 73, there may be provided a spring 113, fast to the link 91, and anchored in any siutable position.

In order to keep the returning-bar 105 normally in its ineffective position, there is provided a spring 114 anchored to said bar and to a suitable bracket, tending to draw said bar forwardly. The rack-bar in which the stops 52 are mounted on the carriage 7 is in the form of a pair of facing-racks 115 and 116, in the upper one of which. 115, are mounted the ball-detents 104. The lower rack-bar 116 is constructed, in any suitable manner, with a central opening 117, in order to leave a clear space through which the counter-stop 70 can rise when it is actuated. To support the upper end of the counter-stop 70 against being bent by the carriage, when actuated, there is provided a pair of lugs 118, rising above the cap 119, of the casing, in which the counter-stop works.

The key 74 works in the usual key-lever comb 120, and is provided with a lug 121, adapted to strike the comb 120, and limit its return by the spring 112. The finger-piece 94 is mounted outside the frame of the typewriter, and its rearward extension 97 is also outside the typewriter frame, and is connected to the roller or lug 98, which works in the fork or slot 99, by a horizontal cross-piece 122, which extends within the typewriter frame, and then is bent downwardly at 123 to carry the roller or lug 98.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others.

Having thus described my invention, I claim:

1. In a typewriting machine, the combination with a traveling carriage, of tabulating means therefor comprising a series of column-stops on the carriage, each of said column-stops being selectively settable to a plurality of effective positions, and a counter-stop to co-operate with effectively-positioned column-stops, said counter-stop having a uniform throw.

2. In a typewriting machine, the combination with a settable stop and a setting bar for moving it from unset to set position, of a key for moving said bar, an arm fast to said key, and a link connected to said bar and comprising an extension adapted to be variably positioned relatively to the arm to determine how far the key will move the stop in setting it.

3. In a typewriting machine, the combination with a stop adapted to be variously positioned, of a bar for positioning it, a key, a lever for said key, a link connected to the bar and adapted to be swung transversely to the lever, a lug on said lever, and an extension of the link adapted to be engaged by the lug and to be operated thereby, according to the position of the extension.

4. In a typewriting machine, the combination with a traveling carriage, of tabulating means therefor comprising a series of column-stops on the carriage, each of said column-stops being selectively settable to a plurality of effective positions, a counter-stop to co-operate with effectively-positioned column-stops, said counter-stop having a uniform throw, and means actuable selectively by the effectively-positioned column-stops for shifting the counter-stop into the path of the column-stop actuating said shifting means.

5. In a typewriting machine, the combination with a traveling carriage, of tabulating means therefor comprising a series of column-stops on the carriage, each of said column-stops being selectively settable to a

plurality of effective positions, a counter-stop to co-operate with effectively-positioned column-stops, said counter-stop having a uniform throw, and column-selecting keys to determine which effectively-positioned column-stop is to be engaged by said counter-stop.

6. In a typewriting machine, the combination with a traveling carriage, of tabulating means therefor comprising a series of column-stops on the carriage, each of said column-stops being selectively settable to a plurality of effective positions, a counter-stop to co-operate with effectively-positioned column-stops, said counter-stop having a uniform throw, means actuable selectively by the effectively-positioned column-stops for shifting the counter-stop into the path of the column-stop actuating said shifting means, and column-selecting keys to determine the effectively-positioned column-stop to actuate the shifting means.

7. The combination with a column-stop and a detent device for holding it at any one of a plurality of selected set positions, of a key for variably setting the stop, a link through which the key is effective, a key-lever for the key by which it draws on the link, and a toothed extension of the link shiftable along the lever to vary lost motion between it and the lever to determine how far the stop shall be set, the teeth spaced to correspond to the effective positions of the detent device.

8. In a typewriting machine, the combination with column-stops, of a horizontally-swinging arm for setting them, a forwardly-extending link for operating said arm, a rock-shaft comprising a rock-arm pivotally attached to said link, a second forwardly-extending link, a rock-arm fast to said shaft and to which the latter link is pivotally attached, a vertical extension of said second link, a key-lever comprising an extension adapted to draw on said vertical extension, and a finger-piece connected to slidably guide the second link and adapted to shift said second extension to cause the key-lever to variably draw on the first link.

9. In a typewriting machine, the combination with a traveling carriage, of tabulating means therefor comprising a series of column-stops on the carriage, each of said column-stops being selectively settable to a plurality of effective positions, and a counter-stop to co-operate with effectively-positioned column-stops, said counter-stop having a uniform throw, said column-stops and said counter-stop being so constructed that the latter, when in effective position, may be carried past any ineffectively-positioned column-stop without engaging the latter.

10. In a typewriting machine having a traveling carriage, tabulating mechanism comprising a series of reciprocable column-stops, each shiftable from an ineffective position to any one of a plurality of effective positions corresponding to different columns, and resetting means for said column-stops comprising a bar universal to all of said column-stops, reciprocable racks connected to said bar at opposite sides of the carriage, and means to actuate said racks, comprising a shaft and pinions thereon meshing, respectively, with said racks.

11. In a typewriting machine having a traveling carriage, tabulating mechanism comprising a series of column-stops at letter-space intervals on said carriage and each shiftable from a rearward ineffective position to any one of a plurality of effective positions corresponding to different columns, a counter-stop to be shifted upwardly into position to be engaged by any effectively-set column-stop, and means to reset all effectively-positioned column-stops to ineffective position, said resetting means comprising a bar extending across the forward ends of said column-stops, and means to move said bar rearwardly.

12. In a typewriting machine having a traveling carriage, tabulating mechanism comprising a series of column-stops at letter-space intervals on said carriage and each shiftable from a rearward ineffective position to any one of a plurality of effective positions corresponding to different columns, a counter-stop to be shifted upwardly into position to be engaged by any effectively-set column-stop, and means to reset all effectively-positioned column-stops to ineffective position, said resetting means comprising a bar extending across the forward ends of said column-stops, racks connected with said bar at each side of the carriage, a shaft extending transversely of said racks, and pinions on said shaft meshing with said racks.

13. In a typewriting machine having a traveling carriage, the combination of a variably-settable carriage-arresting stop, a stop-setting key of uniform throw, and settable operating connections between the stop-setting key and the stop for variably setting the stop.

14. In a typewriting machine having a traveling carriage, the combination of a variably-settable carriage-arresting stop, a key-operated stop-setting lever of uniform throw, a stop-setting member co-operative with the stop, and settable operating connections between the stop-setting lever and said member for varying the throw of said member so as to variably set the stop.

15. In a typewriting machine having a traveling carriage, the combination of a variably-settable carriage-arresting stop, a key-operated stop-setting lever of uniform throw, a stop-setting member co-operative with the stop, settable operating connections

between the stop-setting lever and said member for varying the throw of said member so as to variably set the stop, and manually-operable means including a finger-piece for setting said connections to vary the throw of said member to variably set the stop.

16. In a typewriting machine having a traveling carriage, the combination of a variably-settable carriage-arresting stop, a stop-setting key of uniform throw, lost-motion operating connections between the stop-setting key and the stop, and manually-operable means including a finger-piece for varying the extent of the lost motion so as to to variably set the stop.

17. In a typewriting machine having a traveling carriage, the combination of a variably-settable carriage-arresting stop, a key-operated stop-setting lever of uniform throw, a stop-setting member co-operative with the stop, lost-motion operating connections between the stop-setting lever and said member, and manually-operable means including a finger-piece for varying the extent of the lost motion so as to vary the throw of said member and variably set the stop.

18. In a typewriting machine having a traveling carriage, the combination of a variably-settable carriage-arresting stop, a stop-setting key of uniform throw, and settable operating connections between the stop-setting key and the stop including a link swingable to vary the amount of movement transmitted from the key to the stop to provide for variably setting the stop.

19. In a typewriting machine having a traveling carriage, the combination of a variably-settable carriage-arresting stop, a key-operated stop-setting lever of uniform throw, a stop-setting member co-operative with the stop, and settable operating connections between the stop-setting lever and said member including a link swingable to vary the extent of stop-setting movement transmitted from the stop-setting lever to the stop-setting member to provide for variably setting the stop.

20. In a typewriting machine having a traveling carriage, the combination of a variably-settable carriage-arresting stop, a key-operated stop-setting lever of uniform throw, a stop-setting member co-operative with the stop, settable operating connections between the stop-setting lever and said member including a link swingable to vary the extent of stop-setting movement transmitted from the stop-setting lever to the stop-setting member for variably setting the stop, and manually-operable means including a finger-piece for swinging said link to set the latter.

21. In a typewriting machine having a traveling carriage and a frame upon which the carriage travels, the combination of a series of similar variably-settable carriage-arresting stops mounted on the carriage, a stop-setting member movably mounted on the frame and selectively co-operating with the stops to set the latter, a stop-setting key of uniform throw mounted on the frame, and settable operating connections between the stop-setting key and the stop-setting member for varying the throw of said member so as to variably set the stops.

22. In a typewriting machine having a traveling carriage and a frame upon which the carriage travels, the combination of a series of similar variably-settable carriage-arresting stops mounted on the carriage, a stop-setting member movably mounted on the frame and selectively co-operating with the stops to set the latter, a stop-setting key of uniform throw mounted on the frame, settable operating connections between the stop-setting key and the stop-setting member for varying the throw of said member so as to variably set the stops, and manually-operable means including a finger-piece for setting said connections so as to vary the throw of the stop-setting member to variably set the stops.

23. In a typewriting machine, the combination with a traveling carriage, of a series of variably-settable carriage-arresting stops upon the carriage, mechanism including a single stop-setting key for selectively and variably setting the stops, and a settable device in control of said mechanism to enable it to variably set the stops.

24. In a typewriting machine having a traveling carriage, the combination of a carriage-arresting stop settable to a plurality of predetermined positions, means including a stop-setting key for variably setting the stop, a link through which the key is made effective, a key-lever for the key by which it may operate the link, and a transverse extension of the link shiftable along the lever to determine how far the stop shall be set.

25. In a typewriting machine, the combination with a traveling carriage, of tabulating means comprising a series of column-stops at letter-space intervals on said carriage and shiftable forwardly from a rearward ineffective position to any one of a plurality of effective positions corresponding to different columns, a series of trips arranged from front to rear to correspond to the different effective positions of said column-stops, column-keys for selectively setting said strips to be actuated by correspondingly-set column-stops, a counter-stop shiftable upwardly from an ineffective position to a position to be engaged by any effectively-positioned column-stop, and means actuable by any one of said trips, upon actuation of the latter, to shift the counter-stop into the path of the column-stop actuating the trip.

26. In a typewriting machine, the combination with a traveling carriage, of tabulating means therefor comprising a plurality of tabulator-keys, a series of column-stops at letter-space intervals on said carriage, each of said stops being variably settable from a normal ineffective position to different effective positions corresponding to the different tabulator-keys, a counter-stop of uniform throw to co-operate with any effectively-set column-stop, means actuable by any one of said column-stops, when set in an effective position, to shift said counter-stop into position to be engaged thereby, and tabulator-key-operated means for selectively rendering the set column-stops effective on said shifting means.

27. In a typewriting machine having a traveling carriage, tabulating mechanism comprising a series of column-stops at letter-space intervals on said carriage and each shiftable from a rearward ineffective position to any one of a plurality of effective positions corresponding to different columns, a counter-stop to be shifted upwardly into position to be engaged by any effectively-set column-stop, and means to reset all effectively-positioned column-stops to ineffective position, said resetting means comprising a bar extending across the forward ends of said column-stops, slides connected with said bar at each side of the carriage, and means for simultaneously shifting said slides and consequently said bar.

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Witnesses:

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CATHERINE A. NEWELL.