

C. E. SMITH.
TYPE WRITING MACHINE.
APPLICATION FILED AUG. 28, 1910.

979,215.

Patented Dec. 20, 1910.

2 SHEETS-SHEET 1.

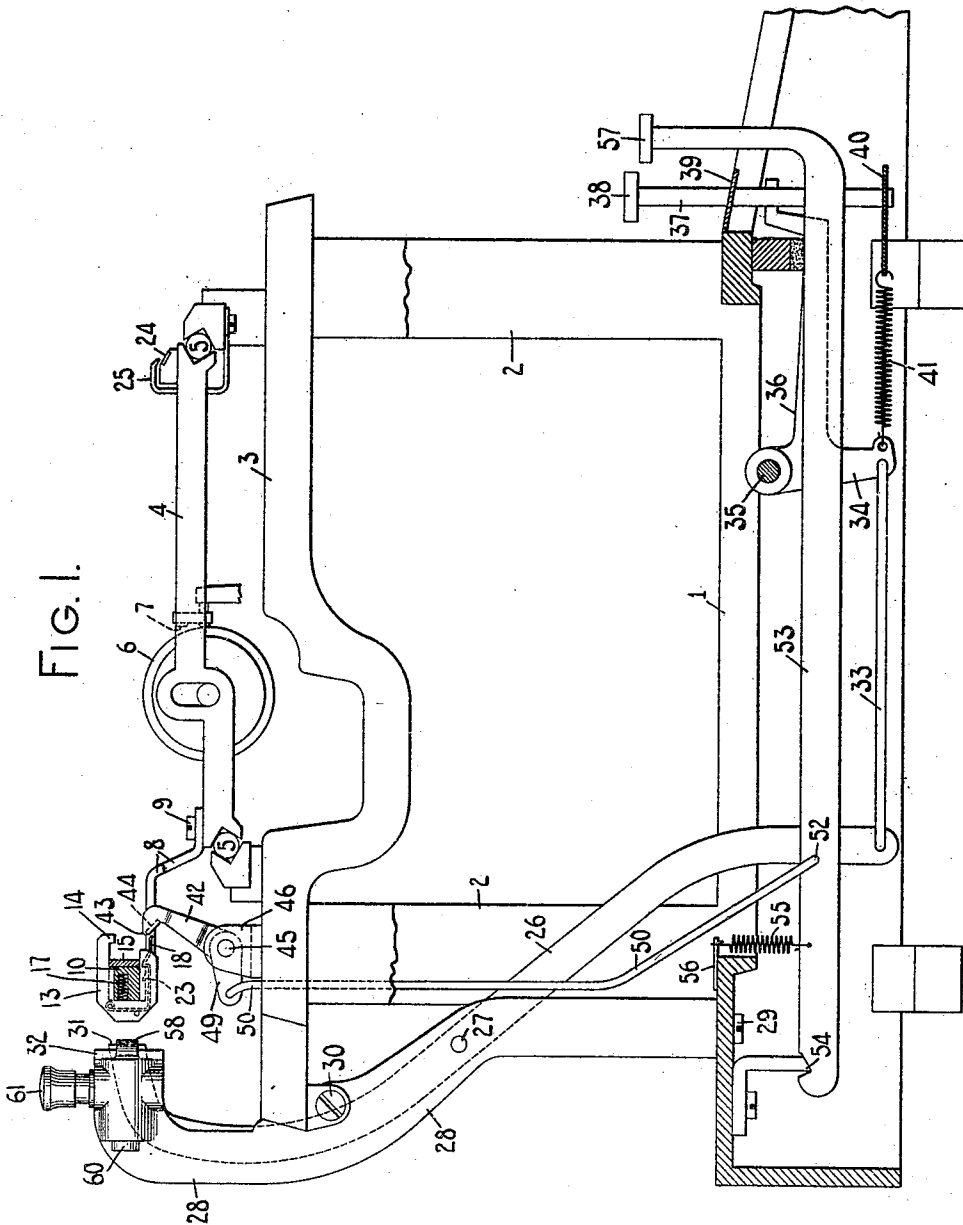


FIG. 1.

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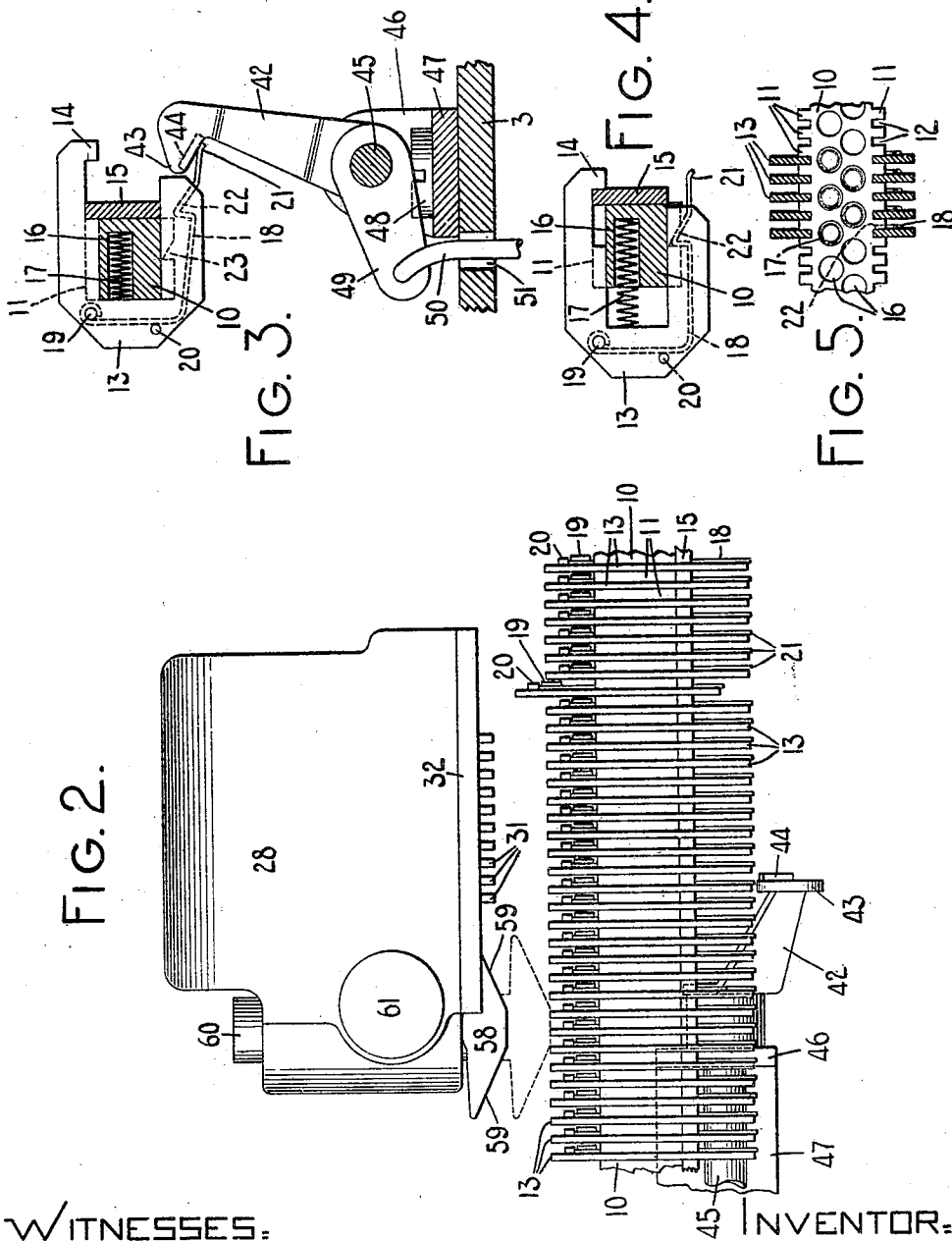
HIS ATTORNEY

C. E. SMITH.
TYPE WRITING MACHINE.
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979,215.

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2 SHEETS—SHEET 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES E. SMITH, OF NEW YORK, N. Y., ASSIGNOR TO UNION TYPEWRITER COMPANY, OF ILION, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

979,215.

Specification of Letters Patent.

Patented Dec. 20, 1910.

Application filed August 26, 1910. Serial No. 579,132.

To all whom it may concern:

Be it known that I, CHARLES E. SMITH, citizen of the United States, and resident of the borough of Brooklyn, city of New York, in the county of Kings 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 typewriting machines and more particularly to tabulating mechanism.

The object of the invention, generally stated, is to provide simple and efficient means for readily selecting different column stops for use and for quickly "clearing" the column stops which are in the operative position when the character of the work is such as to require the use of another and different set of column stops.

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

In the accompanying drawings wherein like reference characters indicate corresponding parts in the various views, Figure 1 is a fragmentary side elevation with parts in section of one form of typewriting machine embodying my invention, only so much of the machine being shown as is necessary to illustrate my invention in its embodiment therein. Fig. 2 is a fragmentary detail plan view of a portion of the tabulating mechanism and the means for "setting" the stops and restoring them to normal or inoperative position. Fig. 3 is a fragmentary detail side elevation, with parts in section, showing a portion of the "setting" mechanism and certain of the parts coöperative therewith. Fig. 4 is a transverse sectional view of the column stop bar with a column stop thereon; the column stop being shown in the operative position. Fig. 5 is a fragmentary rear view of the column stop bar with some of the column stops mounted thereon; the column stops being shown in section.

My invention has some of the same general objects in view and is in the nature of an improvement on the constructions disclosed in the applications of Sivertsen & Nielsen, Serial No. 488,675; George H. Smith, Serial No. 533,717; George F. Ballou, Serial No. 541,995; Clio B. Yaw,

Serial No. 564,227; and Oscar Woodward, Serial No. 565,846. The present invention is directed more particularly to the "setting" mechanism or to the means whereby the positions where the different stops are to be employed may be readily selected and such stops may be quickly "set" in the operative position.

I have shown my invention embodied, in the present instance, in a No. 11 Remington machine. It should be understood, however, that the invention may be embodied in various styles of typewriting machines.

The frame of the machine comprises a base 1, corner posts 2 and a top plate 3. A carriage 4 is mounted to travel over the top plate from side to side of the machine on antifriction balls or rollers 5. A platen 6 is shown mounted in a conventional manner on the carriage to receive the impact of types 7 against the front face thereof. Rearwardly extending arms 8 are secured by screws 9 to the carriage, near the ends thereof. The arms 8 support a column stop bar 10 which is secured thereto to travel with the carriage. The bar 10 is provided with teeth 11 at the upper and lower sides thereof, interdental spaces 12 being formed between said teeth for the reception of flat sheet metal bifurcated column stops 13. These stops are adapted to slide individually in the interdental spaces fore and aft of the machine and into and out of operative position; the stops being shown in the inoperative position in Fig. 1 and in the operative position in Fig. 4. Each stop 13 may be provided with a depending projection 14 adapted to engage a bar 15 removably secured to the column stop bar 10 by screws or other suitable means. From a comparison of Figs. 3 and 4 it will be seen that the column stops are adapted to slide in their interdental spaces 12 from the inoperative position represented in Fig. 3 to the operative position represented in Fig. 4, and that the projections or abutments 14 co-act with the bar 15 to limit the rearward movement of the stops 13. Staggered openings or recesses 16 are formed in the rear face of the column stop bar so that one of said openings will be in alinement with each of the column stops. A coiled expansion spring 17 is received in each of said openings and bears at one end against the bottom wall of the opening and

at its opposite end against that part of the stop which unites the arms which form the bifurcation of the stop. It will thus be understood that a separate spring is provided for each column stop and that said spring tends to move the associated column stop bar rearwardly in operative position. Each column stop 13 is provided with a spring latch or locking device, designated as a whole by the reference numeral 18. This locking device in the present instance is in the nature of a wire spring secured at one end to the stop 13 by a headed pin 19 which may be riveted to and extend laterally from the right-hand face of the stop. A second laterally projecting pin 20 projects from the same face of the stop and constitutes an abutment for the spring 18 to prevent it from turning on the pin 19. The spring is extended forwardly and terminates at its forward end 21 beyond the lower bifurcated arm of the associated column stop. Rearwardly of the end 21 the spring is bent in the form of a saw-tooth projection 22 which constitutes a locking or engaging member. When a stop is in the normal or inoperative position indicated in Fig. 1, the engaging member 22 co-acts with one end of an adjacent tooth 11 on the column stop bar, to lock the associated column stop in the retracted or inoperative position against the pressure of the associated spring 17 by which the column stop is projected to operative position. Each of the lower teeth 11 on the column stop bar is notched at 23, the notch being shaped to conform to the engaging member 22. The position of each notch 23 is such that when the column stop is in the projected or operative position the engaging member 22 will be seated in the associated recess to prevent an accidental displacement of the column stop from the operative position.

It will be seen that the upright, straight face of the engaging member 22 engages a corresponding wall in the notch 23 when the stop is in the operative position and locks the column stop against rearward movement. It will be understood, therefore, that the abutment 14 and bar 15 may be dispensed with, if desired, and the locking device 18 will limit the movement of the stop to operative position and will prevent a detachment of the stop from the bar under ordinary circumstances. In such a construction, however, a downward flexion of the end 21 of the locking device for a sufficient distance would disengage the locking device from the notch 23 and enable the stops to be withdrawn from the column stop bar, when desired; although it would prevent the displacement of the stops from the bar in the use of the construction.

It will be understood that each of the column stops is provided with a locking device

18 coöperative with the column stop bar in the manner hereinbefore described; and that there are preferably as many sets of interdental spaces 12 as there are letter space positions of the carriage in its travel from side to side of the machine. In other words, there are preferably as many column stops as there are letter space indices on the carriage scale 24 with which a fixed pointer 25 coöperates. It will be understood that the column stops 13 slide freely back and forth on the column stop bar so that when the locking device 18 is moved to the position shown in Fig. 3 the associated spring 17 will be effective to move the column stop to operative position.

When the column stops are in operative position, suitable tabulator mechanism is adapted to coöperate therewith. For the purpose of the present invention any suitable tabulating mechanism may be used to coöperate with the column stops. In the present instance I have shown denominational tabulator mechanism of the character employed in the No. 11 Remington machine. Such denominational tabulator mechanism comprises denominational stop levers 26 which are pivoted at 27 to a tabulator frame 28 secured by screws 29 and 30 to the frame of the machine. The upper forwardly extending ends of the denominational stop levers constitute denominational stops 31, which extend through slots in a guide plate 32 secured to the tabulator frame at the upper end thereof. The lower ends of the denominational stop levers are connected to forwardly extending links 33, connected at their forward ends to depending arms 34 of angular actuating levers, pivoted on a rod 35 secured to the base of the machine. The forwardly extending arms 36 of the angular actuating levers are operatively connected to key stems 37 provided with tabulator keys 38. The key stems 37 are guided in openings in guide plates 39 and 40. A contractile spring 41 is connected to each of the depending arms 34 of the actuating levers and to the guide plate 40. Each spring 41 restores its actuating lever 34—36 and the parts connected therewith to normal position. A depression of any of the tabulator keys 38 turns the associated lever 26 and moves the corresponding denomination stop 31 forward into the path of the column stops which are in the operative position; at the same time releasing the carriage from control of its escapement mechanism by suitable carriage release mechanism (not shown), such as that employed in the No. 11 Remington machine, for instance.

I have provided means whereby the different column stops may be selected for use and by which the locking devices for the column stops may be released one at a time to enable the springs 17 to move the column

stops to operative position. The means in question in the present instance, comprises a releasing device, designated as a whole by the reference numeral 42, which is in the nature of a crank arm off-set laterally at its engaging portion, as represented in Fig. 2. From an inspection of Fig. 2 it will be seen that the releasing device 42 is provided with an engaging member or portion 43 which extends forwardly of the column stop bar and is substantially in alinement with, or just at the left of, the left-hand or decimal stop of the series of denominational stops 31. Moreover, it will be understood that this engaging portion 43 is in alinement with the lower arm of a column stop at each letter space movement of the carriage; the stops being brought successively into register with the part 43 during the travel of the carriage. The releasing device is provided with a laterally projecting cam 44, the lower inclined face of which is adapted to co-act with the end 21 of the locking device on the same stop with which the engaging member 43 is adapted to co-act. Thus, it will be understood that when the arm 42 is moved rearwardly from the position shown in Fig. 1 to that indicated in Fig. 3, the cam 44 will be brought into engagement with the forward end 21 of the locking device, to depress it against the pressure of its spring and to release the engaging portion 22 thereof from the tooth 11 on the column stop bar with which it engages when the stop is in the inoperative position. In Fig. 3 the parts are shown in the positions which they assume when the arm 42 is moved rearwardly and at the instant when the engaging projection 22 of the locking device has been released from the column stop bar. At this instant the spring 17 of the released column stop, is effective to move the column stop rearwardly to the operative position, shown in Fig. 4. Ordinarily the engaging portion 43 on the releasing device does not contact with the column stop since the spring 17 is ordinarily effective to move the column stop to operative position as soon as the locking device is released. If, however, the stop for any reason should stick and the spring should be ineffective to move the column stop from its inoperative position, a slight further rearward movement of the member 42 is effective to bring the engaging portion 43 into contact with the lower arm of the column stop to "kick" the stop and start it in its movement to operative position; the movement of the stop being completed by the spring 17. The engaging portion 43 may, if desired, be dispensed with and is merely employed as a safety device to insure the movement of the stop to operative position in the event of it sticking in the bearings when the stop is in inoperative position. The member 42, as hereinbefore pointed out,

is in the nature of a crank arm which projects from a rock shaft 45 mounted to turn in upright bearing arms 46 of a bracket 47 secured by screws 48 to the top plate 3 of the machine. The rock shaft has a rearwardly extending crank arm 49, secured thereto near the end of the shaft opposite to that which carries the device 42. A downwardly extending link 50 is connected at its upper end to the crank arm 49, and passes through an opening 51 in the top plate and extends downward to a point 52 where it makes connection with a key lever 53, fulcrumed at 54. A restoring spring 55 is connected at one end to the key lever 53 and at its opposite end to a bracket 56. The key lever 53 extends forward to the keyboard of the machine, where it is provided with a finger key 57 by which the key lever and the device 42 controlled thereby may be actuated.

It will be understood from the foregoing description that the travel of the carriage brings the column stops and the locking devices 18 thereon successively into register and into coöperative relation with the device 42, and that a depression of the finger key 57 at this time is effective to move the device 42 rearwardly, thus releasing the locking device from the associated stop as indicated in Fig. 3 when the spring 17 for said stop is effective to move it rearwardly to operative position. The rearward movement of the device 42 is limited by the crank arm 49 engaging the bracket 47. This limits the downward movement of the arm 49 and a rearward movement of the device 42. The parts are so disposed that the rearward movement of the device 42 is arrested just after the engaging member 43 contacts with the lower arm of the stop 13 which is in register therewith and "kicks" the stop off.

In order to select the column stops for use and to "set" them in the operative position, it is merely necessary to insert a sheet and move the carriage successively to the different positions where the different columns are to be started and depress the key 57 when the carriage is at each point where a column is to be started as indicated by the carriage scale and pointer or at the printing point. In other words, if a column is to be started at, say, "20," the carriage is moved until the index "20" on the carriage scale is in register with the pointer 25. The key 57 is then depressed to effect a release of the column stop which is in register with the device 42. This stop is released in the manner hereinbefore described and is projected to operative position. When the decimal key is depressed the carriage will be arrested at "20" on the carriage scale, and so on the various stops may be "set."

For the purpose of my present invention any suitable means may be employed to re-

store the column stops to normal or inoperative position; although I prefer to employ means such as are shown in the application of Oscar Woodward hereinbefore referred to. This construction embodies a cam 58 having inclined faces 59 on opposite sides thereof and provided with a stem 60 mounted in a bearing in the tabulator frame to move fore and aft of the machine into and out of coöperative relation with the column stops, the normal position of the cam 58 being shown in full lines in Fig. 2. When the cam is moved forwardly to the dotted line position it is adapted to coöperate with the column stops which are in the operative position, to move them forwardly on the column stop bar to the inoperative position where they are locked by their spring locking devices 18. It should be understood that the camming of the column stops to inoperative position is effected by the relative movement between the column stops and the cam during the movement of the carriage from either right to left or left to right. The movement of the cam into and out of operative position is controlled by a finger piece 61 which is provided with a suitable cam (not shown) that is coöperative with a cam on the stem 60. A depression of the finger piece 61 is effective to move the cam 58 forwardly from the full to the dotted line position shown in Fig. 2, and when pressure on the finger piece 61 is released a suitable spring (not shown) is effective to restore the finger piece and the cam 58 to the normal or full line position, where it is out of coöperative relation with the column stops.

Various changes may be made without departing from the spirit and scope of my invention.

In a companion application filed by me of even date herewith and bearing Serial No. 579,133, broader claims than those contained herein are included; such broader claims being directed to controlling a lock for a column stop from the keyboard of the machine. In the present case the claims are restricted to a construction not shown in said companion application.

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

1. In a typewriting machine and tabulating mechanism, the combination of a series of column stops movable individually into and out of operative position and spring-pressed to operative position, means for locking said stops in the inoperative position, and means for releasing said locking means.

2. In a typewriting machine and tabulating mechanism, the combination of a series of column stops movable individually into and out of operative position and spring-pressed to operative position, individual

locking means for each of said stops for locking the stops in the inoperative position, and releasing means coöperative with the locking means of but one stop at a time to enable any desired stop to be moved by its spring to operative position.

3. In a typewriting machine and tabulating mechanism, the combination of a series of column stops movable individually into and out of operative position and spring-pressed to operative position, means for locking said stops in the inoperative position, means for releasing said locking means, and means for moving said locking means and releasing means relatively to each other to render the releasing means effective to release different stops of the series.

4. In a typewriting machine and tabulating mechanism, the combination of a frame of the machine, a carriage, a series of column stops carried by one of said parts and movable into and out of operative position and spring-pressed to operative position, individual locking means coöperative with said stops, and a releasing device carried by the other of said frame and carriage parts and coöperative with said individual locking means one at a time to release the stops one at a time and enable them to be projected to operative position.

5. In a typewriting machine and tabulating mechanism, the combination of a series of column stops movable into and out of operative position and spring-pressed to operative position, means for holding said stops against the spring pressure thereon, and means for releasing said stops one at a time.

6. In a typewriting machine and tabulating mechanism, the combination of a series of column stops movable into and out of operative position and spring-pressed to operative position, means for holding said stops against the spring pressure thereon, means for releasing said stops one at a time, and means for bringing the holding means for the different stops successively into coöperative relation with said releasing means.

7. In a typewriting machine and tabulating mechanism, the combination of a series of column stops movable individually into and out of operative position and spring-pressed to one of said positions, individual means for locking each stop against the pressure of its spring, means for releasing each of said locking means independently of the others, and means for effecting a relative movement between the locking means and releasing means during the travel of the carriage.

8. In a typewriting machine and tabulating mechanism, the combination of a series of column stops movable individually into and out of operative position and spring-pressed to one of said positions, means for

positively moving said stops to the other of said positions against the pressure of their springs, individual means for locking each stop against the pressure of its spring, and means for releasing each of said locking means independently of the others, the travel of the carriage effecting a relative movement between the locking means and releasing means to bring different individual locking means successively into coöperation with said releasing means.

9. In a typewriting machine and tabulating mechanism, the combination of a series of column stops situated a letter space distance apart and movable into and out of operative position and spring-pressed to operative position, an individual locking device for each of said stops for locking the stops against the pressure of their springs, and a releasing device coöperative with but one locking device at a time the travel of the carriage bringing the locking devices of different stops and the releasing device into co-operative relation at successive letter space movements of the carriage.

10. In a typewriting machine and tabulating mechanism, the combination of a carriage, a series of column stops movable into and out of operative position and spring-pressed to operative position, means for locking said stops against spring pressure, and a key actuated releasing device disconnected from the stops and the locking means therefor but operative to release the different stops one at a time, the stop which may be released by said releasing device depending on the position of the carriage in its travel.

11. In a typewriting machine and tabulating mechanism, the combination of a carriage, a series of column stops movable into and out of operative position, a series of springs one for each of said stops and operative to move them individually to operative position, individual means coöperative with each stop to hold it against the pressure of its spring in the inoperative position, and key controlled releasing means separate from said holding means and stops for releasing the stops one at a time from the holding means therefor so that the stops may be projected separately by their springs to operative position, the travel of the carriage effecting a relative movement between the holding means and releasing means, whereby the particular stop which may be released depends on the position of the carriage in its travel.

12. In a typewriting machine and tabulating mechanism, the combination of a carriage; a series of column stops movable individually into and out of operative position; springs for moving said stops to operative position, one spring being employed for each stop; and means for enabling the springs to move the stops one at a time from inopera-

tive to operative position, said means being operative to control the movement of different stops to operative position by the travel of the carriage.

13. In a typewriting machine and tabulating mechanism, the combination of a carriage, a series of column stops movable into and out of operative position and spring-pressed to operative position, a locking device carried by each stop for locking it against spring pressure in the inoperative position, and a releasing device coöperative with said locking devices one at a time.

14. In a typewriting machine and tabulating mechanism, the combination of a carriage, a series of column stops movable into and out of operative position and spring-pressed to operative position, a locking device carried by each stop for locking it against spring pressure in the inoperative position, and a releasing device coöperative with said locking devices one at a time; the travel of the carriage effecting a relative movement between said locking devices and the releasing device to bring the locking devices of different stops successively into coöperative relation with said releasing device, and thus determine by the position of the carriage in its travel which of the different stops may be released and projected to operative position.

15. In a typewriting machine and tabulating mechanism, the combination of a carriage, a series of column stops carried by the carriage and movable thereon into and out of operative position and spring-pressed to operative position, a locking device carried by each stop to lock the stops against the pressure of their springs in the inoperative position, and a releasing device carried by the frame of the machine and coöperative with but one of said locking devices at a time.

16. In a typewriting machine and tabulating mechanism, the combination of a carriage, a series of column stops carried by the carriage and movable thereon into and out of operative position, said stops being situated a letter space distance apart, individual springs coöperating with said stops to move them from the inoperative to the operative position, a spring-pressed locking device carried by each stop for locking each stop against the pressure of its spring in the inoperative position, and a key actuated releasing device carried by the frame of the machine and coöperative with but one of said locking devices at a time, the movement of the carriage effecting a relative movement between said locking devices and said releasing device, whereby the stops may be individually released and moved to operative position and whereby the position of the carriage in its travel determines which of the stops may be released.

17. In a typewriting machine and tabulating mechanism, the combination of a toothed stop bar, bifurcated column stops adapted to slide in the interdental spaces between the teeth on said bar and into and out of operative position, and springs seated in openings in said bar and adapted to slide the stops to operative position.

18. In a typewriting machine and tabulating mechanism, the combination of a toothed stop bar, bifurcated column stops adapted to slide in the interdental spaces between the teeth on said bar and into and out of operative position, a spring coöperative with each stop to move it to operative position, and a locking device carried by each stop and adapted to engage the column stop bar and hold the associated stop against the pressure of its spring.

19. In a typewriting machine and tabulating mechanism, the combination of a toothed stop bar, bifurcated column stops adapted to slide in the interdental spaces between the teeth on said bar into and out of operative position, a spring coöperative with each stop to move it to operative position, a spring locking device carried by each stop and adapted to engage the column stop bar and hold the associated stop against the pressure of its spring, and a key actuated releasing device adapted to co-act with said spring locking devices one at a time to release the locking devices and the stops held thereby.

20. In a typewriting machine and tabulating mechanism, the combination of a toothed stop bar, bifurcated column stops adapted to slide in the interdental spaces between the teeth on said bar and into and out of operative position, a spring coöperative with each stop to move it to operative position, and a spring locking device carried by each stop and adapted to engage the column stop bar and hold the associated stop against the pressure of its spring, each spring locking device also engaging a notch in the column stop bar when the associated stop is in the operative position to hold the stop against accidental displacement from such position.

21. In a typewriting machine and tabulating mechanism, the combination of a toothed column stop bar, bifurcated column stops adapted to slide in the interdental spaces between the teeth on said bar into and out of operative position, a spring locking device carried by each stop and having a saw-tooth engaging member adapted to engage the end of an adjacent tooth on the column stop bar to hold the stop in the inoperative position and adapted to engage in a corresponding depression in an adja-

cent tooth on the bar when the stop is in the operative position to hold the stop against accidental displacement from such position and to prevent the stop from being withdrawn from the bar.

22. In a typewriting machine and tabulating mechanism, the combination of a series of column stops movable into and out of operative position and spring-pressed to operative position, means for moving the stops to inoperative position against their spring pressure, and means for holding the stops in inoperative position against their spring pressure.

23. In a typewriting machine and tabulating mechanism, the combination of a series of column stops movable into and out of operative position and spring-pressed to operative position, means for moving the stops to inoperative position against their spring pressure, means for holding the stops in inoperative position against their spring pressure, and means for releasing any desired stop from its holding means.

24. In a typewriting machine and tabulating mechanism, the combination of a carriage, a series of column stops movable into and out of operative position and spring pressed to operative position, a cam for moving said stops to inoperative position against their spring pressure, the travel of the carriage effecting a relative movement between said stops and cam to cam the stops to inoperative position, and means for holding the stops in the inoperative position against their spring pressure.

25. In a typewriting machine and tabulating mechanism, the combination of a carriage, a series of column stops movable into and out of operative position and spring pressed to operative position, a cam for moving said stops to inoperative position against their spring pressure, the travel of the carriage effecting a relative movement between said stops and cam to cam the stops to inoperative position; means for holding the stops in the inoperative position against their spring pressure, and key actuated means for releasing said stops one at a time from the holding means therefor, the travel of the carriage bringing the holding means for different stops and the key actuated releasing means into coöperative relation.

Signed at the borough of Manhattan, city of New York, in the county of New York, and State of New York, this 25th day of August A. D. 1910.

CHARLES E. SMITH.

Witnesses:

E. C. JACKSON,
E. M. WELLS.