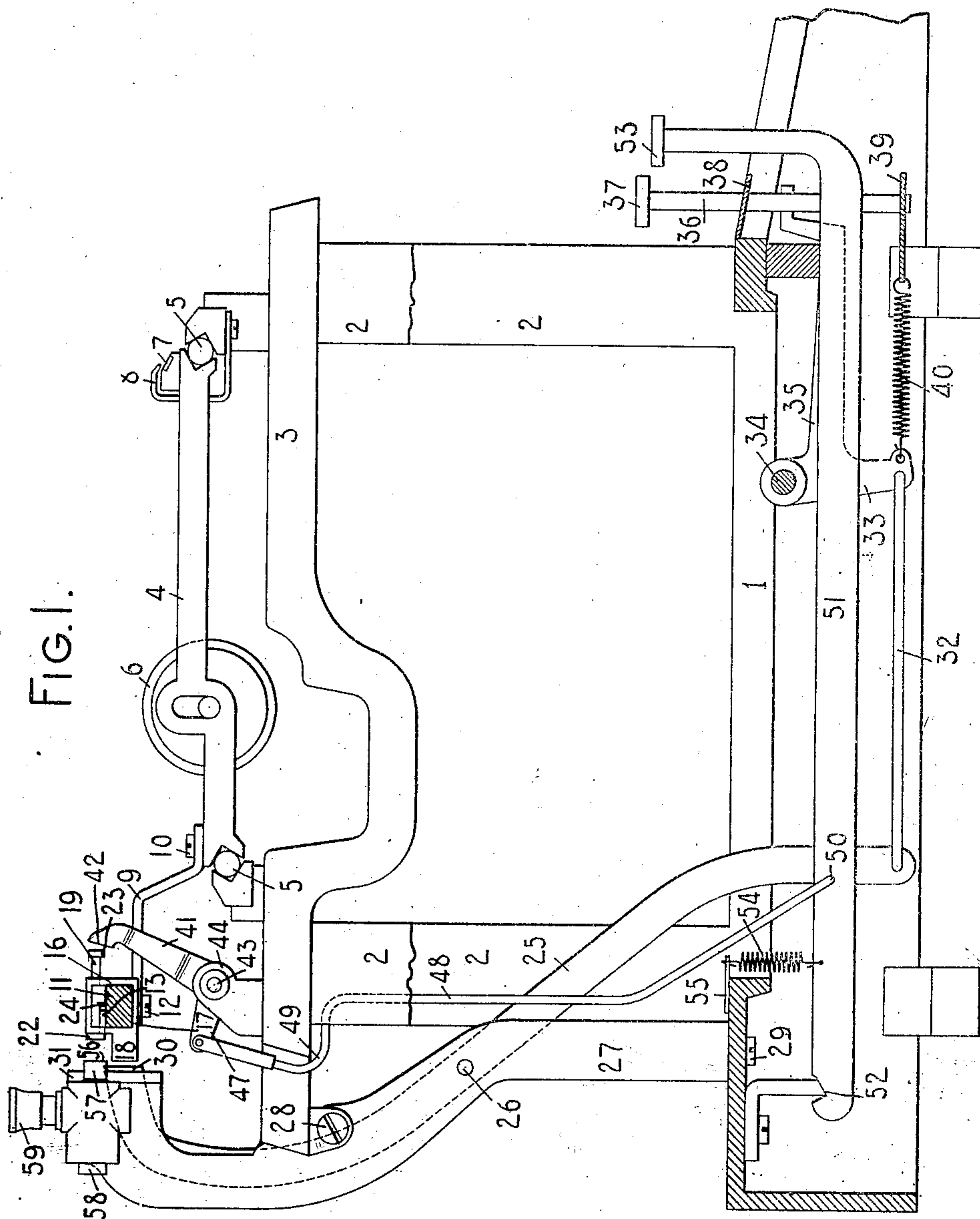


C. E. SMITH.
TYPE WRITING MACHINE.
APPLICATION FILED AUG. 26, 1910.

979,216.

Patented Dec. 20, 1910.

2 SHEETS-SHEET 1.



WITNESSES:

E. M. Wells
M. F. Hannweher

INVENTOR

Charles E. Smith
By Jacob F. Felt

HIS ATTORNEY

C. E. SMITH.
TYPE WRITING MACHINE.
APPLICATION FILED AUG. 26, 1910.

979,216.

Patented Dec. 20, 1910.

2 SHEETS—SHEET 2.

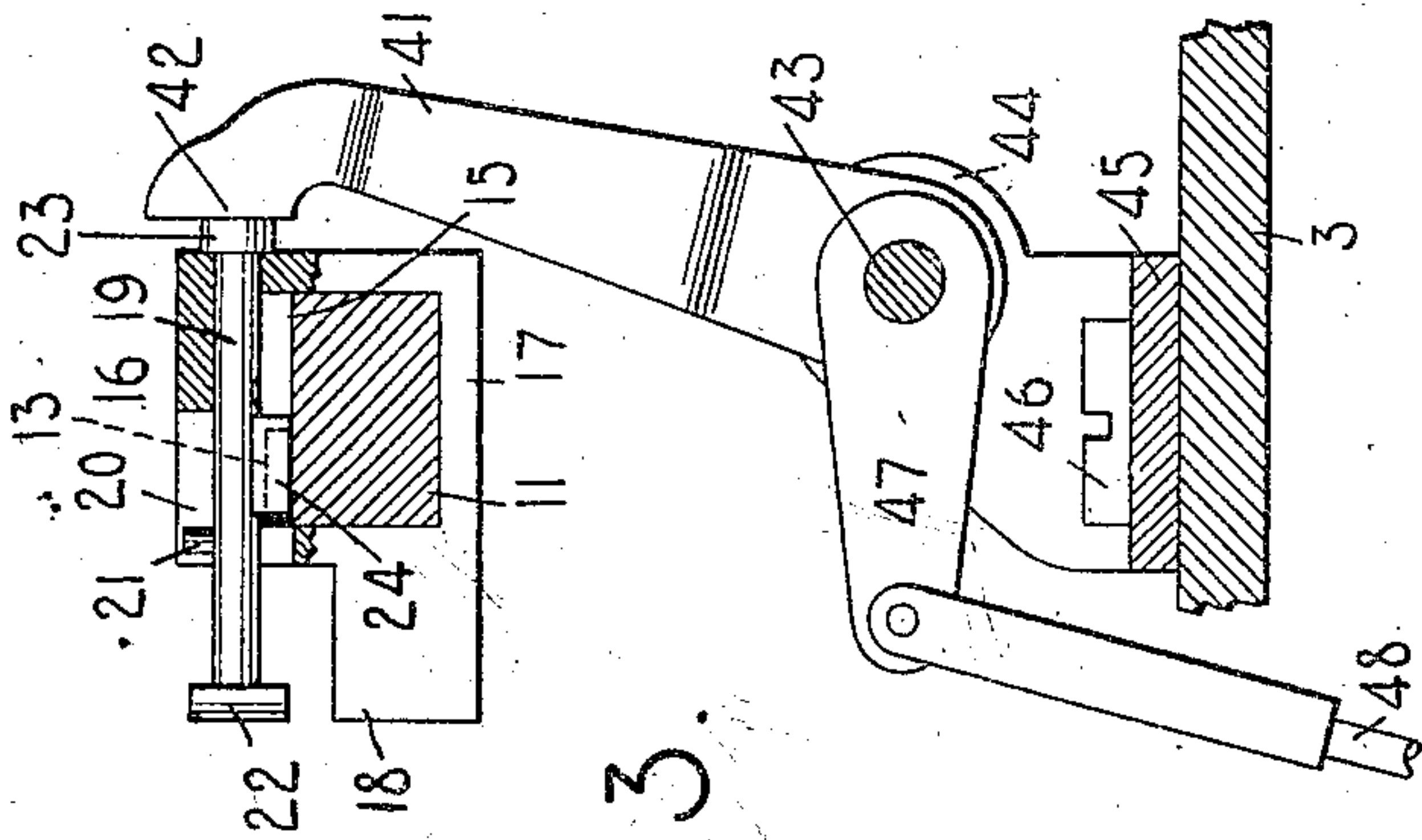


FIG. 3.

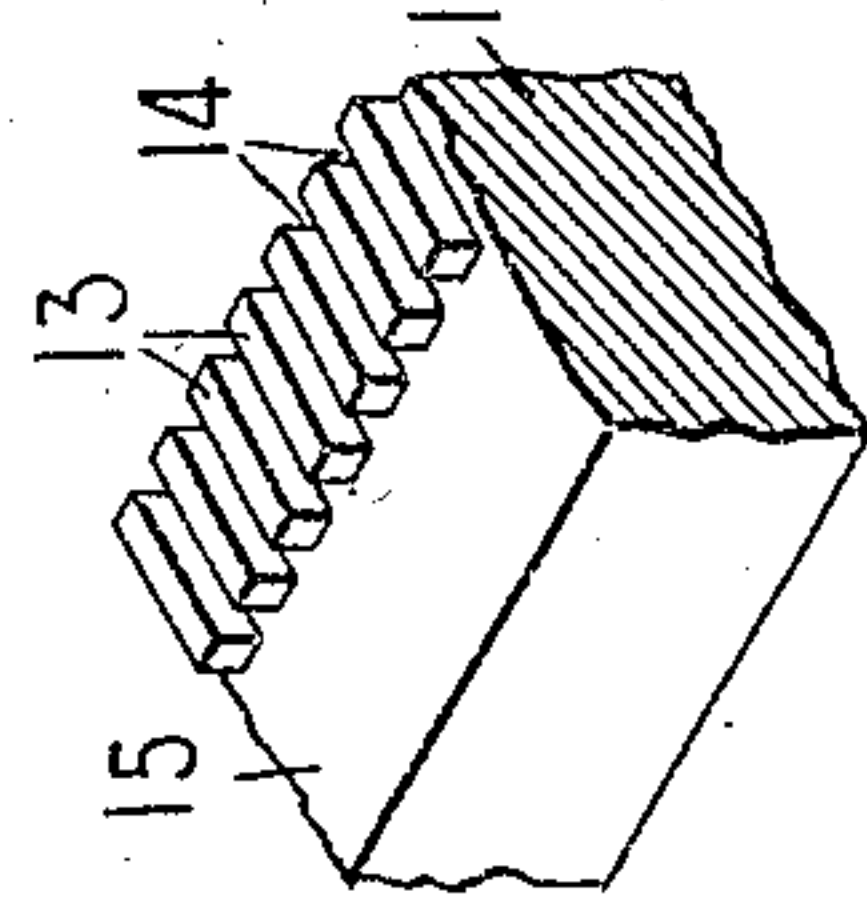


FIG. 4.

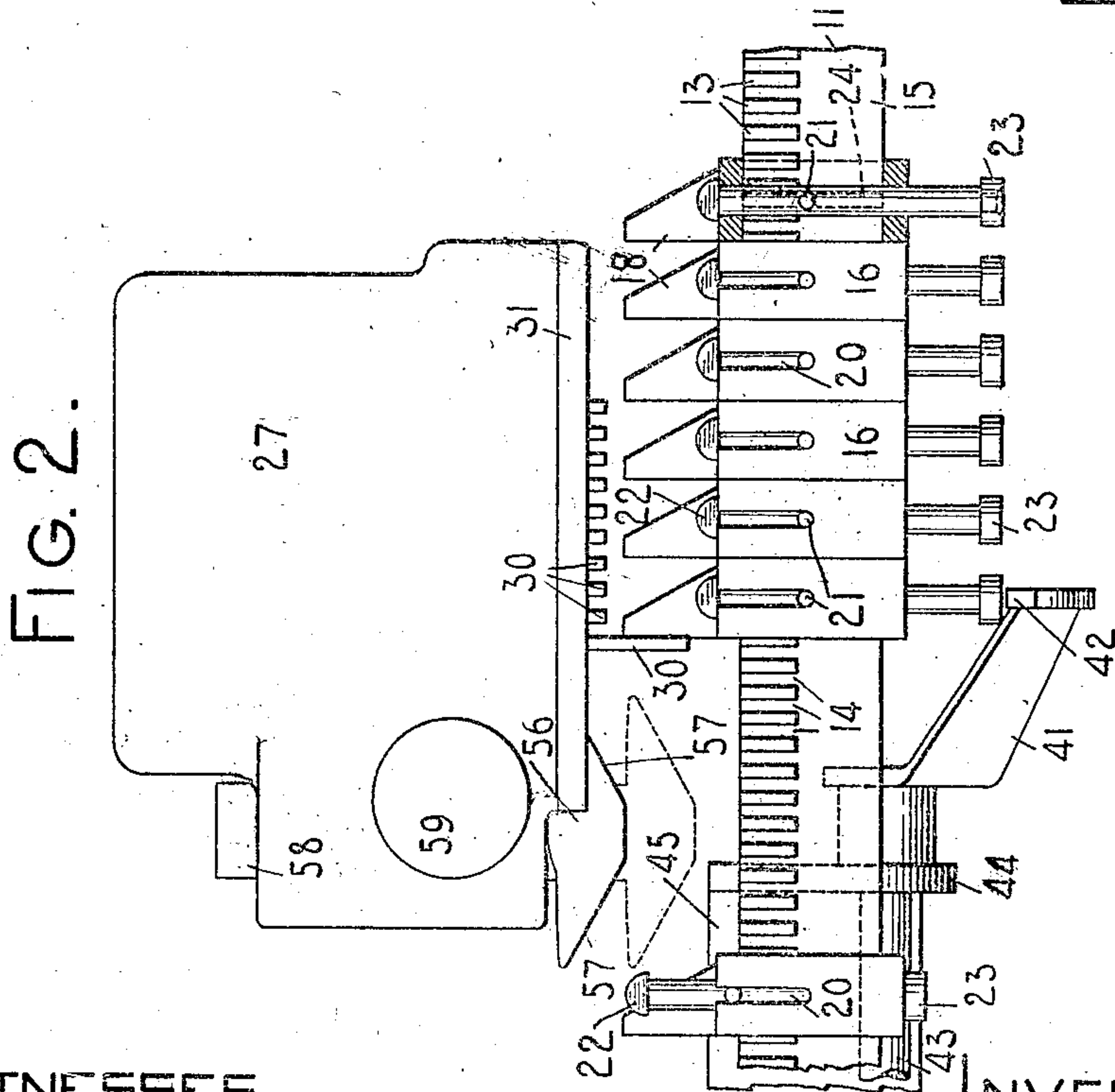


FIG. 2.

WITNESSES:

E. M. Wells
M. H. Hannover

INVENTOR:

Charles E. Smith
His Attorney

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.

979,216.

Specification of Letters Patent. Patented Dec. 20, 1910.

Application filed August 26, 1910. Serial No. 579,133.

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.

10 My invention relates to typewriting machines and more particularly to tabulating mechanism.

The main object of my invention, generally stated, is to provide means whereby the 15 positions where the column stops are to be used may be readily selected and the stops "set" accordingly, when the character of the work is such as to require a change in the "setting" of the column stops.

20 A further object of the invention is to provide means whereby the stops in use may be readily "cleared" preliminary to a "re-setting" of the stops.

To the above and other ends which will 25 hereinafter appear, 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.

30 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 and parts broken away of one 35 form of typewriting machine embodying my invention, only a sufficient number of parts being shown to illustrate my invention in its embodiment therein. Fig. 2 is a fragmentary plan view with parts in section, the view showing portions of the tabulator mechanism and the means for controlling and locking the column stops. Fig. 3 is a side elevation with parts in section, the view showing a column stop bar, a column stop 45 and the device by which the column stops are unlocked from the bar. Fig. 4 is a fragmentary detail perspective view showing a portion of the column stop bar.

50 My invention has some of the same general objects in view, and is in the nature of improvements 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; 55 Oscar Woodward, Serial No. 565,846; and John Waldheim, Serial No. 575,504.

I have shown my invention embodied in the present instance in a No. 11 Remington machine, although it should be understood 60 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 on antifriction balls 65 or rollers 5 to travel from side to side of the machine over the top plate. A cylindrical platen 6 is represented mounted in a conventional manner on the carriage. The front cross bar of the carriage carries a carriage 70 scale 7 with which a fixed pointer 8 coöperates. Projecting rearwardly from the carriage are supporting arms 9 secured to the carriage near the ends thereof by screws 10. A column stop bar 11 is detachably secured 75 to the rear ends of the arms 9 by screws 12. The column stop bar as shown in Fig. 4 is provided with upwardly projecting teeth 13 on the rear half of the upper side of the bar. Interdental spaces 14 are provided between 80 the teeth 13; there preferably being as many interdental spaces as there are letter space positions of the carriage in its travel from side to side of the machine, or as there are letter space indices on the carriage scale 7. 85 The front half of the upper side of the column stop bar 11 is cut away or untoothed as indicated at 15 for purposes which will hereinafter more clearly appear.

A series of column stops, seven being 90 shown in the present instance, are mounted on the column stop bar to slide thereon from end to end or in the direction of the travel of the carriage for adjustment to different positions along the bar. Each of these col- 95 umn stops is designated as a whole by the reference numeral 16 and comprises a carrying or supporting portion 17 which surrounds the column stop bar, and a contact portion 18 with which suitable tabulator 100 mechanism is adapted to coöperate to arrest the carriage, as will hereinafter more clearly

appear. The upper portion of each stop is provided with a bearing opening in which a cylindrical stem 19 of a locking device is adapted to slide and to fit friction tight so that the locking device may remain in the position to which it is moved. The bearing openings extend through the stops fore and aft of the machine and afford a fore and aft movement of the locking devices. The upper side of each stop is slotted at 20 to receive a pin 21 which projects laterally from the stem 19 of the associated locking device, to prevent the same from turning in its bearing and to guide the locking device in its movements fore and aft of the machine. The rear end of each stem is provided with a head 22 curved on its contact face as indicated in Fig. 2. The forward end of each stem 19 is provided with a head 23 preferably secured thereto by riveting as indicated in dotted lines in Fig. 2. This is in order to enable the locking devices to be connected with the stops as will hereinafter appear. An elongated tooth 24 projects laterally from each stem 19 and is adapted to be received in any of the interdental spaces 14 in the column stop bar when the locking device is moved rearwardly to the engaging position shown in Fig. 3. When, however, the locking devices are moved forwardly to the normal position, as indicated in Fig. 1 and at the right-hand stop in Fig. 2, the engaging tooth 24 registers with the plain or untoothed portion 15 of the column stop bar, so that at this time the disengaged column stop is free to move along the column stop bar. It will therefore be understood that each locking device may be moved rearwardly to lock the associated column stop to the column stop bar and may be moved forwardly to free the column stop from the bar in order to afford an adjustment of the stop along the bar.

The stops may be slipped over an end of the bar 11 before the latter is secured to the carriage and after the locking devices have been moved to bring the projections 24 thereon in register with the untoothed part 15 on the bar. Each locking device may be inserted from the rear through the bearing opening and slot 20 in the associated stop and the head 23 may then be riveted or otherwise connected to the stem 19 to connect the locking device with its stop.

For the purpose of my present invention any suitable tabulator mechanism may be employed to cooperate with the column stops. In the present instance I have shown tabulator mechanism such as that employed in the No. 11 Remington machine. This mechanism comprises a series of denominational stop levers 25, which levers are pivoted at 26 to a tabulator frame 27, secured to the frame of the machine by screws 28 and 29. The upper forwardly extending ends of

the denominational stop levers constitute denominational stops 30 which project through guide slots in a plate 31 secured to the tabulator frame. The lower end of each lever 25 is pivotally connected to a forwardly extending link 32, connected at its forward end to a depending arm 33 of an angular actuating lever pivoted on a rod 34, the latter being secured to the base of the machine. The forwardly extending arm 35 of each actuating lever is operatively connected to a key stem 36, provided with a tabulator key 37. Each key stem moves in guide openings in plates 38 and 39 secured to the base of the machine. A coiled contractile spring 40 is connected at one end to the depending arm 33 of an angular actuating lever, and at its opposite end to the plate 39, to restore each actuating lever and the parts controlled thereby to normal position. It will be understood that a depression of any of the tabulator keys 37 is effective to move the corresponding denominational stop into the path of the column stops 16 which are at all times maintained in the operative position. A depression of a tabulator key 37 is likewise effective to release the carriage from its escapement mechanism by suitable carriage release devices such, for instance, as those employed in the No. 11 Remington machine and which are not shown.

In order to lock the different column stops to the column stop bar or rod 11, I have provided a controlling, actuating or locking device 41 which is in the nature of a crank arm and is provided with a contact or engaging portion 42 off-set from the lower portion of the arm, as indicated in Fig. 2. This is in order to bring said contact portion 42 in substantial alignment fore and aft of the machine, or just to the right of the left-hand or decimal stop of the series of denominational stops 30. This decimal stop is shown in Fig. 2 projected to the operative position and may be understood to be in a position which corresponds to the printing point or in or substantially in a fore and aft vertical plane passing through the printing point. The crank arm 41 is secured to a rock shaft 43, mounted in bearings in upwardly extending arms 44, of a bracket 45, secured to the top plate of the machine by screws 46. The rock shaft 43 is also provided with a rearwardly extending crank arm 47 to which the upper end of a link 48 is pivoted. The link is bent at 49 to clear the top plate of the machine and extends downwardly to a point 50 where it is pivotally connected to a key lever 51, fulcrumed at 52 and provided with a finger key 53. A restoring spring 54 is connected at one end to a plate 55 and at its opposite end to the key lever 51, to return the key lever and the parts controlled thereby to normal position. It will be understood that a depression of

the finger key 53 is effective to move the arm 41 rearwardly, and thus move the locking device in register therewith rearwardly to the locking position as indicated in Fig. 3.

5 The parts are so related, constructed and arranged that when any of the column stops is in contact with the decimal stop, as shown in Fig. 2, the associated locking device on said stop will be in register with the controlling device 41, to enable said controlling device to move the locking device to engaging position. It has been explained that the decimal stop may be understood to be in a vertical fore and aft plane which extends through the printing point, or substantially in such a plane and it follows that when the decimal stop co-acts with one of the column stops, said column stop will be in a corresponding position. Thus, for instance, if a column stop co-acts with the decimal stop when the carriage is at, say, "20" on the carriage scale, and the column stop is locked in this position, then the same column stop, when co-acting with the decimal stop, will always arrest the carriage at "20." It will be seen, moreover, that the controlling device 41 is cooperative with but one locking device at a time, and that the controlling device being carried by the frame of the machine and the locking devices being carried on the carriage, a relative movement between the locking devices and said controlling device will be effected during the travel of the carriage and in the direction of the travel of the carriage. It will also be seen that a corresponding relative movement is effected between the column stops and the decimal stop.

10 In selecting the positions of the different column stops for use, and for locking them in such positions, it may be assumed that the locking devices of all of the column stops 16 are in the released position and that all of the column stops have been moved by hand to the extreme left along the column stop bar and are carried along therewith by frictional engagement alone. The carriage is then moved to the extreme right and the paper inserted in the machine. The decimal stop key may then be depressed and the carriage moved to the left to a position where the first column is to be begun. During the movement of the carriage to the left, the column stops will be carried by friction along with the column stop bar and the first of the column stops, say, that indicated at the left in Fig. 2, is brought into engagement with the projected decimal stop. The engaged column stop, as well as the others to the right thereof, will be held by the decimal stop against further movement to the left, allowing the carriage to carry the column stop bar independently of said stops until the point where the first column is to be begun is reached. The carriage is then

reengaged with the escapement mechanism and the decimal stop key is released. A depression of the finger key 53 at this time is effective to move the controlling device 41 rearwardly, to lock the column stop which was engaged with the decimal stop in position on the column stop bar. The decimal stop may then be again projected forward into the path of the next column stop, as shown in Fig. 2, and said column stop, as well as the remaining column stops to the right thereof, will be arrested by the decimal stop during the further movement of the carriage to the left; affording if necessary, a movement of the column stop bar with the carriage independently of those column stops which are held by the decimal stop. When the position where the second column is to be begun is reached, it may be assumed that the parts are positioned as represented in Fig. 2. A depression of the finger key 53 at this time is effective to actuate the member 41 and the locking device which is in register therewith, thus locking the second column stop to the stop bar, and so on until the desired number of column stops are positioned and locked to the stop bar. If any column stops remain, which are not to be used, they may be moved by hand to the extreme right, beyond the field where the column stops are ordinarily adjusted, and only those column stops will be brought into use which have been positioned and locked to the column stop rod in the manner described.

From the foregoing description it will be understood that the travel of the carriage brings the different column stops successively into cooperative relation with the decimal stop, which aids in selecting the positions where such stops are to be used and the decimal stop at this time constitutes an arresting device to arrest each of the column stops in a position where the locking device thereon is in register with the controlling device 41. The travel of the carriage also brings the different locking devices successively into register and cooperative relation with the controlling device 41 by which the locking devices are moved, to lock the stops to the stop rod.

In order to "clear" the various column stops, preparatory to resetting them in new positions, it is necessary to move the locking devices of the different locked column stops to inoperative, unlocked or released positions. Any suitable means may be employed for this purpose. In the present instance I have shown a device such as that disclosed in the application of Oscar Woodward hereinbefore referred to. This construction comprises a wiper or cam 56, provided with oppositely inclined contact faces 57, and a stem 58. The stem is mounted in a suitable bearing opening in the tabulator frame for

movement fore and aft of the machine, from the full to the dotted line position, indicated in Fig. 2, or vice versa. The movement of the cam 56 into and out of operative position is controlled by a finger piece 59, provided with a cam (not shown), which co-operates with a cam (not shown) on the stem 58. A depression of the finger piece 59 is effective to move the cam 56 from the full to the dotted line position in Fig. 2, to bring said cam into coöperative relation with the contact heads 22 on the locking devices of the different stops. It will be understood, therefore, that when the cam 56 is in the operative or dotted line position in Fig. 2, it will be effective to cam or move the locking devices forwardly when the carriage is moved in either direction to bring about a relative movement between said locking devices and the cam 56. The column stops may then all be moved to the right-hand end of the stop rod and the setting of the stops in the new positions may be effected in the manner hereinbefore described.

It will be seen that in accordance with my present invention it is only necessary to provide as many column stops as are to be used at any one time, seven being shown in the present instance. This provides for the use of as many as seven columns, which, in most instances, is as many as is necessary. It should be understood, nevertheless, that the number of stops employed may be varied in accordance with the requirements of the work or the length of the carriage employed. Additional stops may be placed on the stop rod by withdrawing the screws 12 and removing the rod. Additional stops may then be slid over the end of the rod or some of those shown may be removed from the rod. The construction is such that as many or as few of the stops which are on the rod, may be used as are required, and they may each be readily set or adjusted to different selected letter space positions along the rod as determined by the position of the carriage in its travel; the carriage aiding in the positioning of the stops on the column stop rod. This is regarded as a distinct advantage over certain prior constructions in which a separate column stop is employed for each letter space position of the carriage.

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

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

1. In a typewriting machine and tabulating mechanism, the combination of a carriage; a frame of the machine; a series of column stops carried by one of said parts and mounted for adjustment thereon in the direction of the travel of the carriage; and means for so adjusting the stops and for retaining them in their adjusted positions,

said means comprising a controlling device carried by the other of said frame and carriage parts and with which the different stops are adapted to be brought into co-operative relation by the travel of the carriage.

2. In a typewriting machine and tabulating mechanism, the combination of a carriage; a frame of the machine; a series of column stops carried by one of said parts and mounted for adjustment thereon in the direction of the travel of the carriage; and means for so adjusting the stops and for retaining them in their adjusted positions, said means comprising means for arresting any of said stops at a given point, and means at said point for locking the arrested stop to the part which carries it.

3. In a typewriting machine and tabulating mechanism, the combination of a carriage; a frame of the machine; a series of column stops carried by one of said parts and mounted for adjustment thereon in the direction of the travel of the carriage; and means for so adjusting the stops and for retaining them in their adjusted positions, said means comprising key controlled means operable at will and coöperative with any of said column stops to arrest it at a point corresponding to the printing point, and key controlled controlling means for locking each stop to the part which carries it and with which each stop registers when it is arrested by said arresting means.

4. In a typewriting machine and tabulating mechanism, the combination of a carriage; a column stop bar carried by the carriage; a series of column stops mounted on said column stop bar for adjustment thereon in the direction of the travel of the carriage; and means for so adjusting said stops and for locking them to the column stop bar in their adjusted positions, said means comprising a device carried by the frame of the machine for arresting each stop at a given point, and a device carried by the frame of the machine and coöperative only at said point with each of the stops to lock the stops to the column stop bar.

5. In a typewriting machine and tabulating mechanism, the combination of a carriage; a column stop bar carried by the carriage; a series of column stops mounted on said column stop bar for relative adjustment thereon in the direction of the travel of the carriage; and means for so adjusting said stops and for locking them to the column stop bar in their adjusted positions, said means comprising a key controlled tabulator stop carried by the frame of the machine and movable into and out of co-operative relation with said column stops and operative to arrest any column stop at a point corresponding to the printing point,

and key controlled controlling means carried by the frame of the machine and in co-operative relation with any column stop engaged by said tabulator stop to lock said engaged column stop to the column stop bar.

6. In a typewriting machine and tabulating mechanism, the combination of a carriage, a frame of the machine, a column stop carried by one of said parts, means for locking said column stop to the part which carries it, and means carried by the other of said parts for controlling said locking means.

7. In a typewriting machine and tabulating mechanism, the combination of a carriage, a frame of the machine, a column stop carried by one of said parts, means for locking said column stop to the part which carries it, and key controlled means carried by the other of said parts and disconnected from but operative to control said locking means.

8. In a typewriting machine and tabulating mechanism, the combination of a carriage, a column stop carried thereby, a locking device for said column stop, said locking device being carried by and movable independently of said stop, and means on the frame of the machine for controlling said lock.

9. In a typewriting machine and tabulating mechanism, the combination of a carriage, a column stop carried thereby, a locking device for said column stop, said locking device being carried by and movable independently of said stop, and means controlled from the keyboard of the machine for controlling said locking means.

10. In a typewriting machine and tabulating mechanism, the combination of a carriage, a column stop, a stop rod on which said stop is supported and along which the stop is adapted to move, means for holding one of said stop and stop rod members against movement while the other is moved relatively thereto by the movement of the carriage, and key controlled means for locking the stop to the stop rod.

11. In a typewriting machine and tabulating mechanism, the combination of a carriage, a series of column stops, a stop rod on which said column stops are mounted and along which the column stops are adapted to move, locking devices carried by each stop for locking the associated stop against movement along the stop rod, and a single key actuated controlling device operative on said locking devices.

12. In a typewriting machine and tabulating mechanism, the combination of a carriage, a series of column stops, a stop rod on which said column stops are mounted and along which the column stops are adapted to move, locking devices carried by each stop for locking the associated stop against move-

ment along the stop rod, a single key actuated controlling device operative on said locking devices one at a time, and means for effecting a relative movement between said locking devices and said controlling device during the travel of the carriage, to bring the locking devices successively into coöperative relation with said controlling device.

13. In a typewriting machine and tabulating mechanism, the combination of a carriage, a column stop bar, a series of column stops carried thereby, a locking device carried by each column stop, and a key actuated controlling device coöperative with but one of said locking devices at a time, the travel of the carriage effecting a relative movement between said locking devices and said controlling device to bring the locking devices of the different stops successively into co-operative relation with said controlling device.

14. In a typewriting machine and tabulating mechanism, the combination of a carriage, a column stop bar, a series of column stops carried thereby, a locking device carried by each column stop, a key actuated controlling device coöperative with but one of said locking devices at a time, the travel of the carriage effecting a relative movement between said locking devices and said controlling device to bring the locking devices of the different stops successively into co-operative relation with said controlling device, and means coöperative with each column stop to hold it against movement during the travel of the carriage and in a position where its locking device will be in co-operative relation with said controlling device.

15. In a typewriting machine and tabulating mechanism, the combination of a carriage, a column stop, a support on which said column stop is mounted and adapted to move to different positions in the direction of the travel of the carriage, a locking device carried by said column stop for locking the stop to its support, a tabulator stop co-operative with the column stop to hold it during the travel of the carriage and thus effect a relative adjustment between the column stop and its support, and key actuated controlling means separate from said locking device and in position to coöperate with the locking device when the column stop is arrested by the tabulator stop.

16. In a typewriting machine and tabulating mechanism, the combination of a carriage; a column stop bar carried by the carriage; a series of column stops mounted on said column stop bar for relative adjustment thereon in the direction of the travel of the carriage; a separate locking device carried by each column stop; and means for so adjusting said column stops and for controlling said locking devices to lock the col-

umn stops in their adjusted positions, said means comprising a device carried by the frame of the machine for arresting any of said column stops at a given point, and a key actuated controlling device carried by the frame of the machine and coöperative with the locking device of any stop when it is engaged by said arresting device, the controlling device being operative to actuate the locking device of the engaged stop to lock said stop to the column stop bar.

17. In a typewriting machine and tabulating mechanism, the combination of a carriage, a column stop at all times in operative position, a support for said column stop, a locking device carried by said stop and adapted to lock the stop to or free it from said support, and a controlling device for effecting an actuation of said locking device, a travel of the carriage effecting a relative movement between said locking device and said controlling device.

18. In a typewriting machine and tabulating mechanism, the combination of a carriage, a column stop at all times in operative position, a support for said column stop, a locking device carried by said stop and adapted to lock the stop to or free it from said support, said locking device being adapted to remain indefinitely in either the locking or releasing position to which it may be moved, and controlling means for moving said locking device to either of the said positions, the travel of the carriage effecting a relative movement between said locking device and said controlling means.

19. In a typewriting machine and tabulating mechanism, the combination of a carriage, a frame of the machine, a series of column stops carried by one of said parts and separately movable thereon in the direction of the travel of the carriage to vary the adjustment of the stops, and means on the other of said parts coöperative with said stops to control such adjustment and to control the engagement of the stops with the part which carries them.

20. In a typewriting machine and tabulating mechanism, the combination of a carriage, a column stop adjustable in the direction of the travel of the carriage to different set positions on the part that carries it in order to vary the columnar position of arrest of the carriage, a locking device carried by said stop to lock it to the part which carries it, and means controlled from the keyboard of the machine for actuating said locking device to lock the stop.

21. In a typewriting machine and tabulating mechanism, the combination of a carriage, a column stop carried thereby and adjustable to different set positions thereon to determine the columnar position of arrest of the carriage, the adjustment of the column stop being in the direction of the travel

of the carriage, a locking device carried by said stop to lock it in different adjusted positions on the carriage, and means controlled from the keyboard of the machine to actuate said locking device to lock the stop.

22. In a typewriting machine and tabulating mechanism, the combination of a carriage, a frame of the machine, a series of column stops carried by one of said parts, a locking device for each of said stops for locking the stops to the part that carries them, and a wiper carried by the other of said parts and coöperative with said locking devices.

23. In a typewriting machine and tabulating mechanism, the combination of a carriage, a frame of the machine, a series of column stops carried by one of said parts, a locking device for each of said stops for locking the stops to the part that carries them, a cam carried by the other of said parts, and hand actuated means operable at will for controlling the movement of said cam into and out of coöperative relation with said locking devices.

24. In a typewriting machine and tabulating mechanism, the combination of a carriage, a series of column stops; a locking device for each of said stops, said locking devices being movable to lock each stop to or to free it from the part that carries it; and means whereby the movement of the carriage is rendered effective to move said locking devices to the releasing positions.

25. In a typewriting machine and tabulating mechanism, the combination of a carriage, a series of column stops movable relatively to each other in the direction of the travel of the carriage on the part that supports them, means for locking said stops to the part that supports them, and means whereby the travel of the carriage aids in positioning each stop on its support and for locking it in the place where it is positioned.

26. In a typewriting machine and tabulating mechanism, the combination of a carriage, a series of column stops movable relatively to each other in the direction of the travel of the carriage on the part that supports them, a locking device carried by each of said stops, each locking device being movable in one direction to lock the associated stop to its support and being movable in the opposite direction to free the stop, and controlling means for moving each locking device in one direction or the other, the travel of the carriage effecting a relative movement between said locking devices and said controlling means to bring the locking means on different stops into coöperative relation with said controlling means.

27. In a typewriting machine and tabulating mechanism, the combination of a carriage, a column stop support, a column stop mounted for adjustment thereon in the di-

rection of the travel of the carriage and
adapted to be connected to said support at
different points along said support, and
means whereby the travel of the carriage
5 aids in selecting the point on said support
where the stop may be connected thereto.

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.