A. T. BROWN.

TYPE WRITING MACHINE.

APPLICATION FILED APR. 17, 1908.

937,414.

Patented Oct. 19, 1909.

4 SHEETS—SHEET 1.

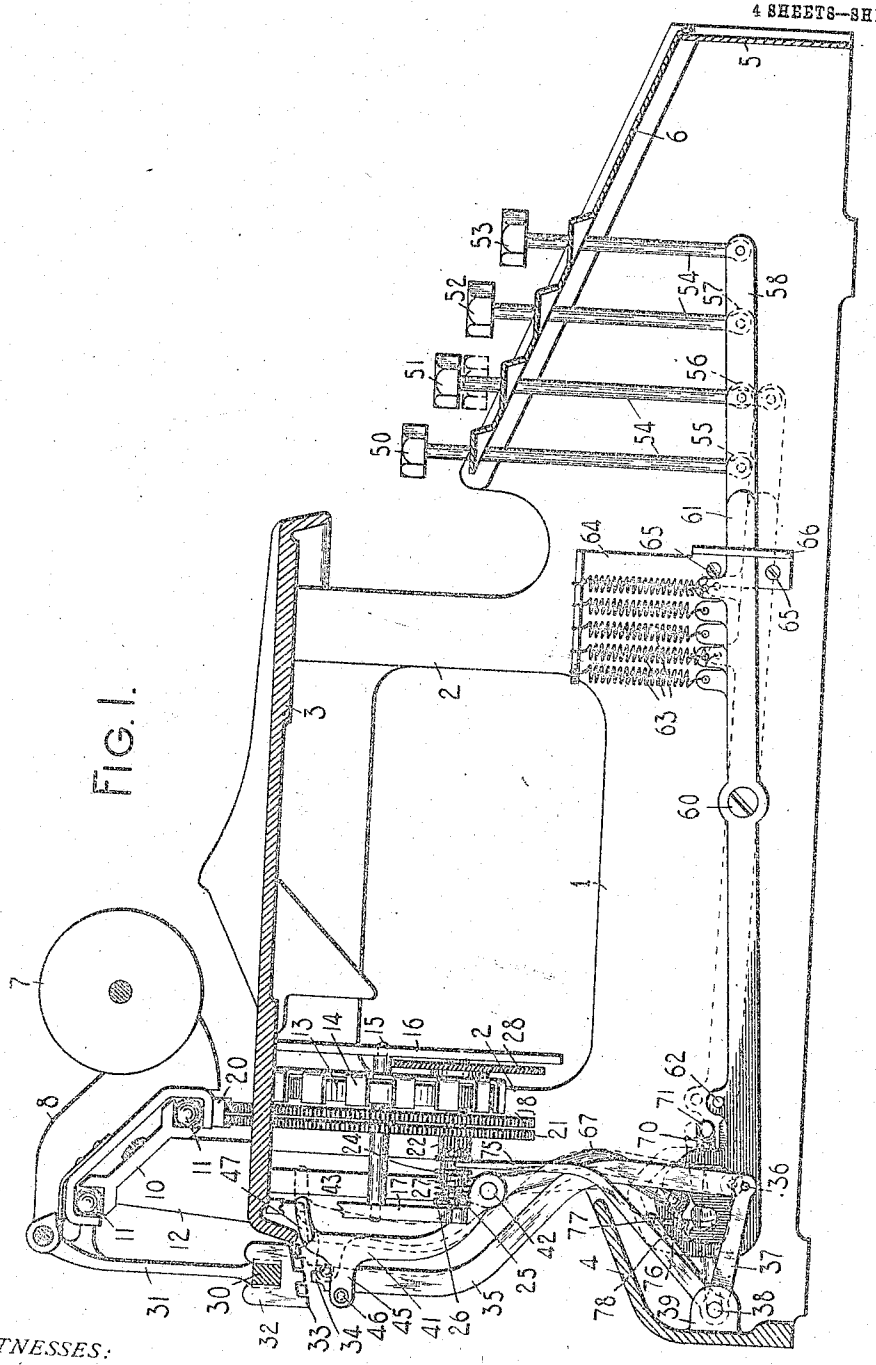

FIG. 1.

WITNESSES:

E. M. Wells.

R. H. Strother.

INVENTOR.

Alexander T. Brown

BY

Jacob Tebbe

ATTORNEY.

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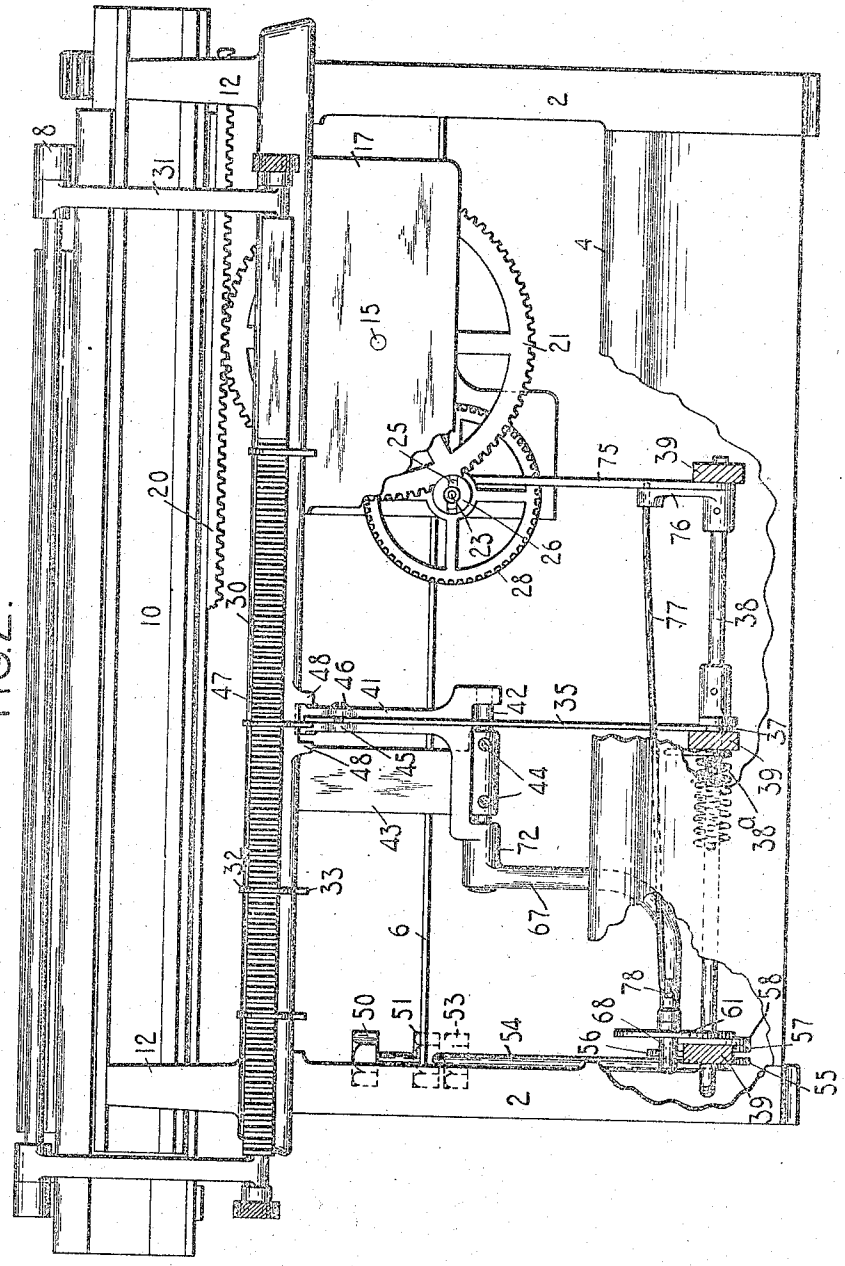
4 SHEETS—SHEET 2.

FIG. 2.



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4 SHEETS—SHEET 3.

FIG. 4.

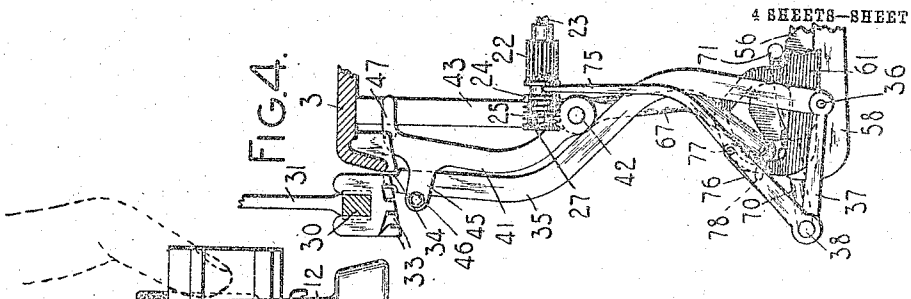
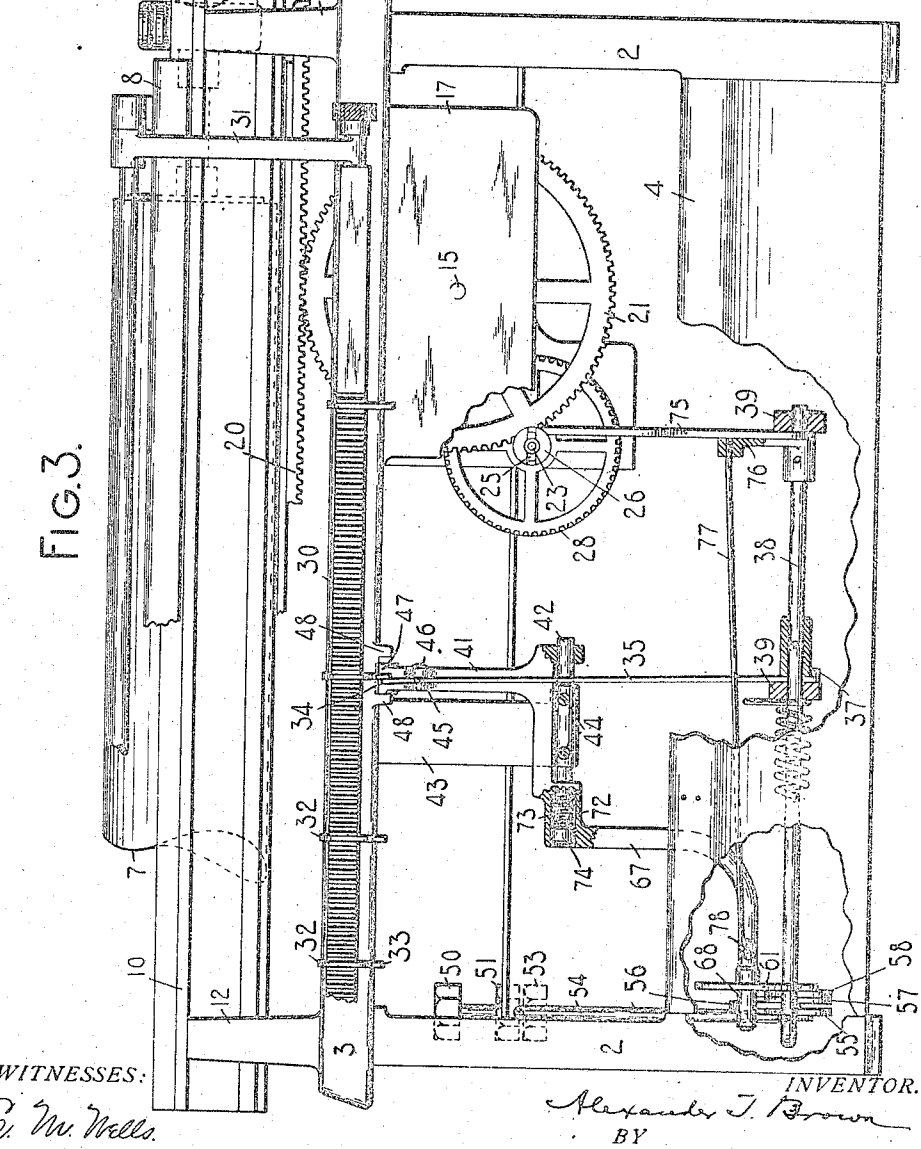


FIG. 3.



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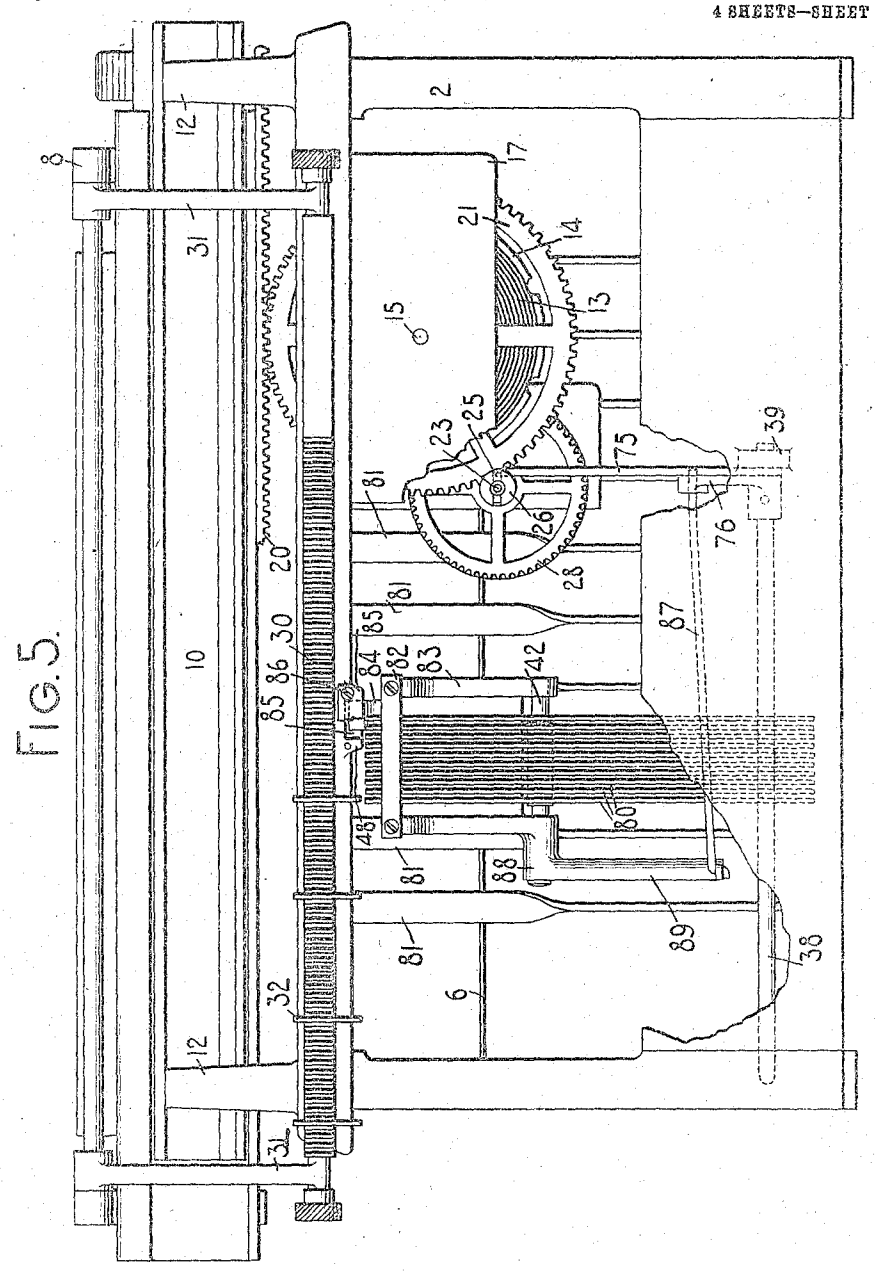
4 SHEETS—SHEET 4.

FIG. 5.



WITNESSES:

E. M. Wells

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HIS ATTORNEY

UNITED STATES PATENT OFFICE.

ALEXANDER T. BROWN, OF SYRACUSE, NEW YORK.

TYPE-WRITING MACHINE.

937,414. Specification of Letters Patent. Patented Oct. 19, 1909.

Application filed April 17, 1906. Serial No. 427,615.

To all whom it may concern:

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

My invention relates to typewriting machines and more particularly to tabulator mechanism for such machines.

My invention has for its principal object to provide means whereby a tabulator may be used to arrest the carriage at the same predetermined letter space position whether the carriage be moving in letter space direction under the impulse of its driving spring or whether it be moved in return direction by hand.

Another object is to provide a carriage release operated by the tabulator key or keys, and means whereby said carriage release is automatically restored by the engagement of the tabulator stops in arresting the carriage.

To the above and other ends which will hereinafter appear, my invention consists in certain features of construction and combinations and arrangements of parts, all of which will be fully set forth hereinafter and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a tabulator constructed in accordance with my invention, parts of the typewriting machine to which said tabulator is applied being shown in vertical section. The parts are shown by full lines in their normal positions, and some of the parts by broken lines in operated positions. Fig. 2 is a rear elevation of the mechanism shown in Fig. 1 but with parts broken away and the tabulator shown as it appears when it arrests the carriage in the ordinary manner; that is to say, when the carriage has moved from the right toward the left. Fig. 3 is a view similar to Fig. 2 but showing the tabulator operated for reverse tabulation; that is to say, in the act of arresting the carriage when said carriage has been moved toward the right by hand. Fig. 4 is a detail side elevation of some of the parts in the positions shown in Fig. 3. Fig. 5 is a rear elevation with the parts in their normal positions, my invention being shown in this figure applied to a denominational tabulator.

My invention is applicable to typewriting machines generally and to tabulating mechanism generally, but in the present instance I have shown it applied to a front-strike typewriter in which the key and type actions are stationary and the carriage carries the platen.

The typewriting machine shown in the drawings comprises a main frame having side plates 1 with corner posts 2 integral therewith, which corner posts support a top plate 3. The side plates 1 are connected together at the rear by a back plate or bar 4 and at the front by a front plate 5 and also by a key board plate 6, through which the stems of the printing keys are arranged to pass. The printing mechanism may be of any suitable sort and it is not shown in the present instance, but it may comprise type bars, the types on which strike against the front face of a plate 7 mounted on a carriage 8. Said carriage is supported on a stationary rail 10 by means of anti-friction balls or rollers 11 which run in suitable race-ways formed in the rail 10 and in the carriage. Said rail 10 is supported by standards 12 rising from the top plate 3. The carriage is fed from right to left by a driving spring 13 coiled within a spring drum 14 which is mounted on a shaft 15 journaled at its ends in frame plates 16 and 17 depending from the top plate 3. The spring 13 is connected in any suitable manner with a driving gear 18 which extends up through a suitable slot in the top plate and meshes with a feed rack 20 mounted on the underside of the paper carriage. A second gear wheel 21 is loosely mounted on the shaft 15 by the side of the gear 18 and said gear 21 meshes with a pinion 22 which is mounted on a shaft 23 journaled at its ends in the frame plate 16—17, the pinion being mounted on said shaft with freedom to turn thereon but held against motion endwise of the shaft. The rear face of the pinion 22 is formed with ratchet clutch teeth as shown in Fig. 1, said clutch teeth meshing with corresponding teeth on a slidable clutch member 24 which is mounted on the shaft 23 with freedom to slide longitudinally of said shaft but constrained to turn with the shaft by splines 25 which

play in suitable slots or notches formed in a flange 26 integral with the shaft 23. The clutch member 24 is normally held in its forward position with the clutch teeth thereon in engagement with the clutch teeth of the gear 22 by means of a spring 27 coiled about the clutch member and compressed between the flange 26 and a suitable flange on the clutch member 24. Any suitable escapement mechanism controlled by the usual printing keys and space key of the machine may be connected in any suitable way with the shaft 23. I have not shown the escapement in the present case but have shown a spiral gear wheel 28 rigidly mounted on the shaft 23 and adapted to mesh with a pinion having an escapement wheel connected therewith. An escapement adapted to be connected up with the carriage in this manner is shown in a prior application of mine. It will be understood that when the clutch member 24 is in normal position as shown in Fig. 1, the carriage is under the control of the escapement and that the carriage may be released from such control by moving the clutch member 24 toward the rear of the machine against the tension of its spring 27.

The tabulator illustrated in the present instance comprises a column stop bar 30 supported by arms 31 depending from the carriage, said arms hanging down behind the carriage in such fashion that the column stop bar is just behind the rear edge of the top plate 3. Said column stop bar is formed in two of its opposite edges or faces with the usual slots spaced a letter space distance apart and adapted for the reception of a series of column stop pieces 32. These stop pieces are U-shaped pieces of sheet metal which straddle the column stop bar, the two upwardly extending arms of each stop piece being inserted into two opposite slots in the faces of the stop bar. It will of course be understood that these column stop pieces are adjustable longitudinally of the stop bar by removing them from the bar and inserting them into any selected pair of the slots.

Each of the column stop pieces 32 has a stop portion or lug 33 projecting downward from its under edge and, as is clearly shown in Fig. 1, these different stop lugs are not arranged in line but are arranged at different positions fore and aft of the machine. These stop lugs are adapted to coöperate with a key controlled stop 34 which consists of the upper end of an upright bar 35 which is pivoted at its lower end at 36 to an arm 37 rigidly secured to and projecting toward the front of the machine from a transverse rock shaft 38 pivoted in brackets 39 projecting from the back plate 4 of the main frame. The bar 35 is guided near its upper end in a frame 41 which is pivotally and slidably mounted on a transverse horizontal pivot rod 42 fixed in a bracket 43 that depends from the top plate 3, said pivot rod having its longitudinal axis parallel to the direction of carriage travel. The rod 42 passes through a suitable hole in the lower end of the bracket 43 and is rigidly secured in place by set screws 44. Near its upper end the frame 41 has a slotted ear 45 and the upper part of the bar 35 is guided in the slot in this ear of the frame. As here shown said slot extends through the back of the ear and is closed by a screw 46 threaded transversely through said ear. The construction is such that the bar is free to slide up and down in the slot and to have a slight rocking motion in said slot in a fore and aft plane but the bar is prevented from moving relatively to the frame 41 either in a right and left-hand direction or in a front and rear direction. The bar 35 is moved upward to bring the stop 34 to the same elevation as one of the stop lugs 33 by rocking the shaft 38 in a manner which will be presently described and it is caused to coöperate with one or another of said stop lugs 33 by rocking the frame 41 about its pivot 42, thus moving the stop 34 toward the front or toward the rear of the machine a suitable distance to bring said stop 34 into the path of the selected one of the stop lugs 33, and by moving the bar 35 upward. The frame 41 has at its upper end an arm 47 which is directed toward the front of the machine into the space between two lugs 48 which depend from the top plate, leaving a slot between them.

The bar 35 is elevated and the frame 41 is rocked to bring the stop 34 into coöperation with any selected one of the stop lugs 33 by means of any one of a series of column selecting keys 50, 51, 52 and 53, which keys are mounted on the upper ends of key stems 54 passing through the keyboard plate 6. The column keys are arranged in a row at the extreme right-hand side of the keyboard. The stems of the keys 50, 51, 52 and 53 are respectively pivoted to the front ends of key levers 55, 56, 57 and 58, said key levers extending side by side toward the rear of the machine and being pivoted about midway of their length on a pivot screw 60 threaded into the right-hand side plate 1. A universal lever 61 is pivoted on the screw 60 by the side of the key levers and said universal lever near its rear end has a pin 62 projecting therefrom and lying over the tops of all of the key levers 55, 56, 57 and 58, the construction being such that when any one of said key levers is depressed at its forward end and thereby elevated at its rear end, rocking about the pivot screw 60, the universal lever 61 will be rocked in unison therewith. Each of these five levers is provided with a returning spring 63, all of said springs 63 being secured at their upper ends to a bracket 64 secured to the side plate

1 by screws 65. Said bracket 64 has a part 66 which serves as a guide for the forward ends of the key levers and of the universal lever.

The frame 41 has an arm 67 which extends downward and toward the right from the pivot rod 42, the lower end of said arm 67 extending horizontally over the rear ends of the several column key levers and having mounted thereon an anti-friction follower roller 68 which coöperates with cams on the rear ends of key levers and of the universal lever. As shown in Figs. 1 and 4, the universal lever 61 is formed at its rear end with an opening, the upper part of which is in the shape of an inverted V and the roller 68 passed through this opening. The rear end of the universal lever is normally held down as shown in Fig. 1 by its spring 63 and the V-shaped end of the lever engages the roller 68 and normally maintains said roller and with it the frame 41 in a middle position. Each of the key levers 55, 56, 57 and 58 has its rear end formed with a cam which is adapted to move the roller 68 one way or the other from its normal middle position to an exactly predetermined extent. In Fig. 1 it will be seen that the end of the lever 58 has a cam surface and a deep notch so formed that when said lever is operated it moves the roller one unit's distance toward the rear and the upper part of the frame 41 correspondingly toward the front of the machine. In Figs. 2, 3 and 4 the lever 56 is shown operated and as appears in Fig. 4 this lever has a cam that moves the roller 68 to its extreme rear position where it abuts against a part of the universal lever 61, thus moving the key controlled stop 34 to its extreme forward position for coöperation with the foremost one of the stop lugs 33. The lever 57 has a cam similar to that of lever 56 but so disposed as to move the roller 68 to its extreme forward position and the lever 55 has a cam similar to that of the lever 58 but adapted to move the roller a short distance toward the front instead of a short distance toward the rear. It will thus be seen that when any one of the column keys is depressed the frame 41 is rocked toward the front or back of the machine.

The rock shaft 38 at its right-hand end is bent toward the front, forming an arm 70 which at its forward end is bent toward the left, forming a universal bar 71 which lies over the tops of all of the column key levers. The construction is such that whenever any one of said levers is operated the shaft 38 is rocked, thus moving the bar 35 upward to bring the stop end 34 thereof into the path of one of the column stops. The shaft 38 is provided with a restoring spring 38^a.

The frame 41 where it is mounted on the rod 42 has an elongated hub 72 and the hole through which the rod 42 passes is enlarged at its right-hand end, thus forming an annular space around the rod 42 terminating at the left in a shoulder. A spring 73 is coiled around the rod 42 and is compressed between said shoulder and a head or enlargement 74 of the right-hand end of the rod 42. The construction is such that the spring 74 presses the frame 41 toward the left. The lugs 48 between which the arm 47 of the frame 41 is adapted to play, are spaced apart a distance greater than the width of said arms 47 so that the frame is capable of a slight motion toward the right or toward the left, which motion is limited by the lugs 48. The frame 41 is normally held in its left-hand position as shown in Fig. 2 by the spring 73. The amount of sliding motion which the frame 41 is free to have is designed to be equal to the combined thickness of the stop 34 and any one of the column stops. In Fig. 2 the tabulator is shown arresting the carriage in the ordinary manner; that is to say, at the end of the motion of the carriage in letter space direction, whereas in Fig. 3 the same column stop is shown coöperating with the stop 34 to arrest the carriage when said carriage is pushed toward the right by hand. It will be seen in said Fig. 3 that the stop 34 and frame 41 have been moved toward the left against the tension of the spring 73 until the arm 47 has engaged the right-hand one of the lugs 48 with the result that the carriage is arrested in the same position when operated in this fashion that it was when operated in the manner indicated in Fig. 2, so that the carriage is stopped at the same letter space position whether ordinary tabulation or reverse tabulation is effected.

Means are provided for automatically releasing the carriage from its escapement mechanism whenever any one of the tabulator keys is depressed and I have so constructed this releasing means that when the carriage is arrested in reverse tabulating as shown in Fig. 3, the carriage release device is automatically thrown out of operation and the carriage is again connected with its escapement without waiting for the release of the tabulator key. The release of the carriage is effected by an arm 75 loosely mounted on the shaft 38 and having its upper end engaging in a peripheral slot formed in the clutch member 24. An arm 76 is rigidly mounted on the rock shaft 38 by the side of the arm 75 and said arm 76 has a hole through its free end through which there passes a rod 77, the left-hand end of which normally stands in front of the arm 75 as shown in Fig. 1. The arm 77 is connected at its right-hand end to a lug 78 projecting from the arm 67. The construction is such that when any tabulator key is depressed and the shaft 38 is rocked the end of the rod 77 forces the lever arm 75 toward the

rear of the machine, disconnecting the clutch member 24. When a tabulator is used in the ordinary way the effect is practically the same as if the arm 75 were rigidly mounted on the shaft 38, the clutch member 24 remaining in its releasing position until the tabulator key is released. When, however, the device is used for reverse tabulation the carriage is pushed toward the right by hand until one of the column stops engages the stop 34 and moves the frame 41 toward the right. This motion carries the rod 77 also toward the right, withdrawing its left-hand end from in front of the lever arm 75 as is clearly indicated in Fig. 3. When the two coöperating stops come into engagement in this manner, the arm 75 is therefore instantly released and the clutch member 24 is thrown forward into its operative position by its spring 27. It will thus be seen that in reverse tabulation the carriage release device is automatically restored or thrown out of operation when the stops come into engagement. This feature is very important and renders reverse tabulation practicable. In tabulators as heretofore constructed it has not been practicable to use the tabulator to arrest the carriage in its return motion for the following reasons:— When the operator depresses a tabulator key and thus releases the carriage from its escapement and pushes the carriage toward the right, he is in the position of holding down a tabulator key with one hand and pressing the tabulator stops into engagement with the other, holding the carriage against the tension of the spring. He must then either release the tabulator key or else release the carriage. If he releases the carriage first, it will immediately begin to run toward the left under the impulse of its driving spring; on the other hand, if he releases the tabulator key while he continues pushing toward the right on the carriage, as soon as the tabulator stops get out of engagement the carriage is likely to yield to the pressure of the hand and to move a few letter spaces toward the right. It is only by the exercise of a very considerable amount of care that an operator can perform this operation of reverse tabulation with tabulators as heretofore constructed, and in fact the amount of care necessary has been so great that this operation is not ordinarily performed in practice. With my device the operator can push the carriage to the right and instantly let go of the carriage, because as soon as the tabulator stops come into operation to arrest the carriage the carriage is automatically and instantly replaced under the control of its escapement. In fact, it is not necessary for the operator to follow the carriage with his hand through its entire motion. He may start it toward the right with sufficient speed to cause its momentum to carry it to the point where it is arrested by the tabulator and when the carriage is so arrested it automatically causes itself to be reconnected with the escapement and it is held in the position in which it was stopped. The operator can then release the tabulator key and the carriage will be accurately positioned.

The advantages of the present construction are no doubt obvious. Where an operator is writing matter that is arranged in columns he can go instantly from any column to any other column no matter whether this involves a motion of the carriage toward the right or toward the left. If he has just written something in the first column and wishes to go to the third or fourth he has only to depress the appropriate column selecting key and the carriage will be arrested at the selected column. If the next entry is to be made in the first or second column he does not have to push the carriage clear back to the right and then depress a tabulator key, thus involving two operations to get to the selected position, but he depresses the tabulator key first and draws the carriage back until it is arrested, thus bringing it to its proper position at a single operation.

My invention is equally applicable to denominational tabulators, and I have shown it in Fig. 5 embodied in such a tabulator. In said Fig. 5 the parts which are like those in the other views are designated by the same reference numerals as in the other views. The framework of the machine, the carriage and its mounting, the column stop bar, the carriage feed mechanism, the release arm 75 and the arm 76 rigidly mounted on the rock shaft 38, are all the same in this figure as in the other figures of the drawing and so also is the rod 42 which is secured in the depending bracket 43. Instead of a single stop bar 35, however, there is a series of such bars 80 mounted side by side and each arranged to be pushed longitudinally upward by a lever or other means, which means may be operated by a series of denomination keys mounted on key stems 81 at the back of the keyboard of the machine. In these respects the denominational tabulator may be similar to that shown in a prior application of mine and the rock shaft 38 may be oscillated by any suitable universal bar when any one of the tabulator stops is moved upward into the path of one of the column stops.

The stop bars 80 are guided at their upper ends in a comb plate 82 forming part of, or secured at the upper end of, a frame 83 which is mounted on the rod 42 in the same way as the frame 41 in the other figures of the drawings. The frame 83 has an arm 84 which stands between the lugs 48 with freedom to move in a right and left-hand direction to the same extent as in the first form of the invention. The arm 84 and frame 83

are prevented from rocking in a fore and aft direction by plates 85 secured to the lugs 48 by screws 86, one of these plates standing in front of the upper end of the arm 84 and the other at the back of said arm. The frame 83 has a depending arm 89 to the lower end of which is pivoted the rod 87 corresponding to the rod 77 of the other form of the invention. The frame 83 also comprises a hub 88 in which there is coiled a spring in the same manner and for the same purpose as the spring 73 shown in Fig. 3. The construction is such that when a denominational key is depressed one of the stop bars 80 is elevated to move its upper end into the path of one of the column stops, the rock shaft 38 is oscillated and the end of the rod 87 moves the release arm 75 toward the back of the machine, thus releasing the carriage from its escapement. If the carriage is permitted to run under the impulse of its driving spring it is arrested by the operated denomination stop and a column stop in the ordinary manner; but if, when the tabulator key is operated, the carriage is pushed toward the right it will be arrested by one of the column stops striking the operated denomination stop and said denomination stop, together with the frame 83 and the entire gang of denomination stops, will be moved toward the right, sliding on the rod 42 until these parts are arrested by the arm 85 striking the right-hand one of the lugs 48. In this motion of the parts the rod 87 will be withdrawn from in front of the arm 75 and the carriage will be restored to the control of the escapement, the operation being similar to that in the other form of the invention.

Various other changes may be made in the details of construction and arrangement without departing from my invention.

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

1. In a typewriting machine and in tabulating mechanism, the combination of a carriage, one or more column stops, a tabulator stop, means for moving one of said stops into the path of another, a carriage release device operated by said moving means, and means operated by the engagement of said stops for restoring said carriage release device independently of the restoration of said movable stop to normal position.

2. In a typewriting machine and in tabulating mechanism, the combination with a carriage, means for controlling the step-by-step feed of said carriage, tabulating mechanism comprising two coöperating stops, key controlled means for moving one of said stops into the path of the other, a carriage release device operated by said key controlled means, and means for automatically restoring said carriage release device when said stops come into engagement and independently of the restoration of the key-controlled stop to normal position.

3. In a typewriting machine and in tabulating mechanism, the combination of a carriage; a motor for moving said carriage in letter space direction; means for controlling the step-by-step feed of said carriage; tabulating mechanism comprising coöperating stops, key controlled means for moving one of said stops into the path of the other, one of said stops being mounted to yield when the carriage is moved in a direction the reverse of letter feed direction; a carriage release device operated by said key controlled means, and means operated by the yielding motion of said yieldingly mounted stop for restoring said carriage to the control of the feed mechanism.

4. In a typewriting machine and in tabulating mechanism, the combination with a carriage, of tabulating mechanism comprising two coöperating stops, key controlled means for moving one of said stops into the path of the other, a carriage release device, a connection between said carriage release device and said key controlled means, and means for automatically disconnecting said carriage release device from said key controlled means by the engagement of said coöperating stops.

5. In a typewriting machine and in tabulating mechanism, the combination with a carriage, of tabulating mechanism comprising coöperating stops, a plurality of tabulator keys, a universal member operated by any of said tabulator keys, a carriage release device operated by said universal member, and means operated by the engagement of the coöperating stops for disconnecting said carriage release device from said universal member.

6. In a typewriting machine and in tabulating mechanism, the combination with a carriage, of tabulating mechanism comprising coöperating stops, one of said stops being mounted for motion in the direction of carriage feed, means for limiting the extent of such motion, a spring normally holding said stop at one limit of its motion, the construction and arrangement being such that when two stops come into engagement by a motion of the carriage in letter space direction, said movably mounted stop will not be moved, and when said stops come into engagement by a reverse motion of the carriage said movably mounted stop will be moved against the tension of said spring; key controlled means for moving one of said stops into the path of another; and a carriage release device operated by said key controlled means and disconnected from said key controlled means by a movement of said movably mounted stop when the carriage is arrested after a motion in a reverse direction.

7. In a typewriting machine and in tabulating mechanism, the combination with a carriage, of tabulating mechanism comprising coöperating stops, key controlled means for moving one of said stops into the path of the other, a carriage release device, a connection between said key controlled means and said carriage release device comprising an endwise movable rod, and means operated by an engagement of the coöperating stops for withdrawing said rod to disconnect said carriage release device from said key controlled means.

8. In a typewriting machine and in tabulating mechanism, the combination with a carriage, of one or more column stops, one or more key controlled stops, a guide for said key controlled stop or stops, said guide being mounted for limited motion in the direction of carriage travel whereby said carriage will be arrested at the same letter space position by the coöperation of a key controlled stop and a column stop whether said carriage be moving in letter space direction or in reverse direction.

9. In a typewriting machine and in tabulating mechanism, the combination with a carriage, of one or more column stops, one or more key controlled stops, a guide for said key controlled stop or stops, said guide being mounted for limited motion in the direction of carriage travel, key controlled means for moving a key controlled stop into the path of a column stop, a carriage release device operated by said key controlled means, and means controlled by a movement of said guide for restoring said carriage to the control of the feed mechanism.

10. In a typewriting machine and in tabulating mechanism, the combination with a carriage, of a series of column stops having contact surfaces out of line with one another, a key controlled stop, a guide for said key controlled stop mounted to swing on a pivot the axis of which is parallel with the travel of the carriage and to slide longitudinally of said pivot for a limited distance, a plurality of column selecting keys, means operated by said keys for swinging said guide about its pivot and for projecting said key operated stop into the path of any one of said column stops, a carriage release device operated by any of said keys, and means operated by the motion of said guide longitudinally of its pivot for restoring said carriage to the control of the feed mechanism.

11. In a typewriting machine and in tabulating mechanism the combination with a carriage, of tabulating mechanism comprising column stops and a key operated stop, a guide for said key operated stop, a support for said guide along which said guide is adapted to slide in the direction of carriage travel to a limited extent such that the carriage will be arrested at the same letter space position whether said carriage be moving in letter space direction or in reverse direction, and a spring for normally maintaining said guide at one limit of its sliding motion, whereby said guide may move with the carriage when the key operated stop is engaged by a column stop when the carriage is moving in one direction.

12. In a typewriting machine and in tabulating mechanism, the combination with a carriage, of column stops mounted on said carriage and having stop surfaces out of line with one another, a cooperating key controlled stop, a guide for said key controlled stop, said guide being pivoted to swing about an axis parallel with the direction of carriage travel, means for swinging said guide about its pivot and for moving said key controlled stop to operative position, whereby said key controlled stop may be brought into the path of any one of said column stops, said guide being mounted for a limited motion longitudinally of the pivot whereby said carriage is arrested in the same letter space position whether it be moving in letter space direction or in reverse direction.

13. In a typewriting machine and in tabulating mechanism, the combination with a carriage, of tabulating mechanism comprising one or more column stops, and a cooperating key controlled stop, said key controlled stop being mounted for a motion of adjustment transversely of the direction of carriage travel to bring it into coöperation with one or another of said column stops, for a motion in another direction into the path of one of said column stops, and for a limited motion in the direction of carriage travel.

14. In a typewriting machine, the combination with the carriage, of two carriage arresting stops, one of said stops being operative against either side of the other, means to render the carriage movable toward the right a distance equal to the thickness of both stops while the stops are in contact with each other, a key connected with one of said stops, carriage releasing mechanism connected with said key, and means operative by the carriage, while it moves toward the right and while the stops are in contact with each other, to restore the carriage to the control of the carriage feed mechanism when the carriage is arrested.

15. In a typewriting machine, the combination with the carriage, of two carriage arresting stops, one of said stops being on the carriage and being operative against either side of the other, and one of said stops being on the frame of the machine, means to render the stop on the frame movable by the other stop toward the right a distance equal to the thickness of both stops, a key connected with the stop on the frame, carriage releasing mechanism connected with said key,

and means operative by the stop on the frame when this stop is moved toward the right, to restore the carriage to the control of the carriage feed mechanism when the carriage is arrested.

Signed at the borough of Manhattan, city of New York, in the county of New York and State of New York this 14th day of April A. D. 1908.

ALEXANDER T. BROWN.

Witnesses:
ARTHUR E. PARSONS,
CHARLES E. SMITH.