Oct. 27, 1925.

1,558,708

L. C. MYERS

TYPEWRITING MACHINE

Filed May 15, 1924

4 Sheets-Sheet 1

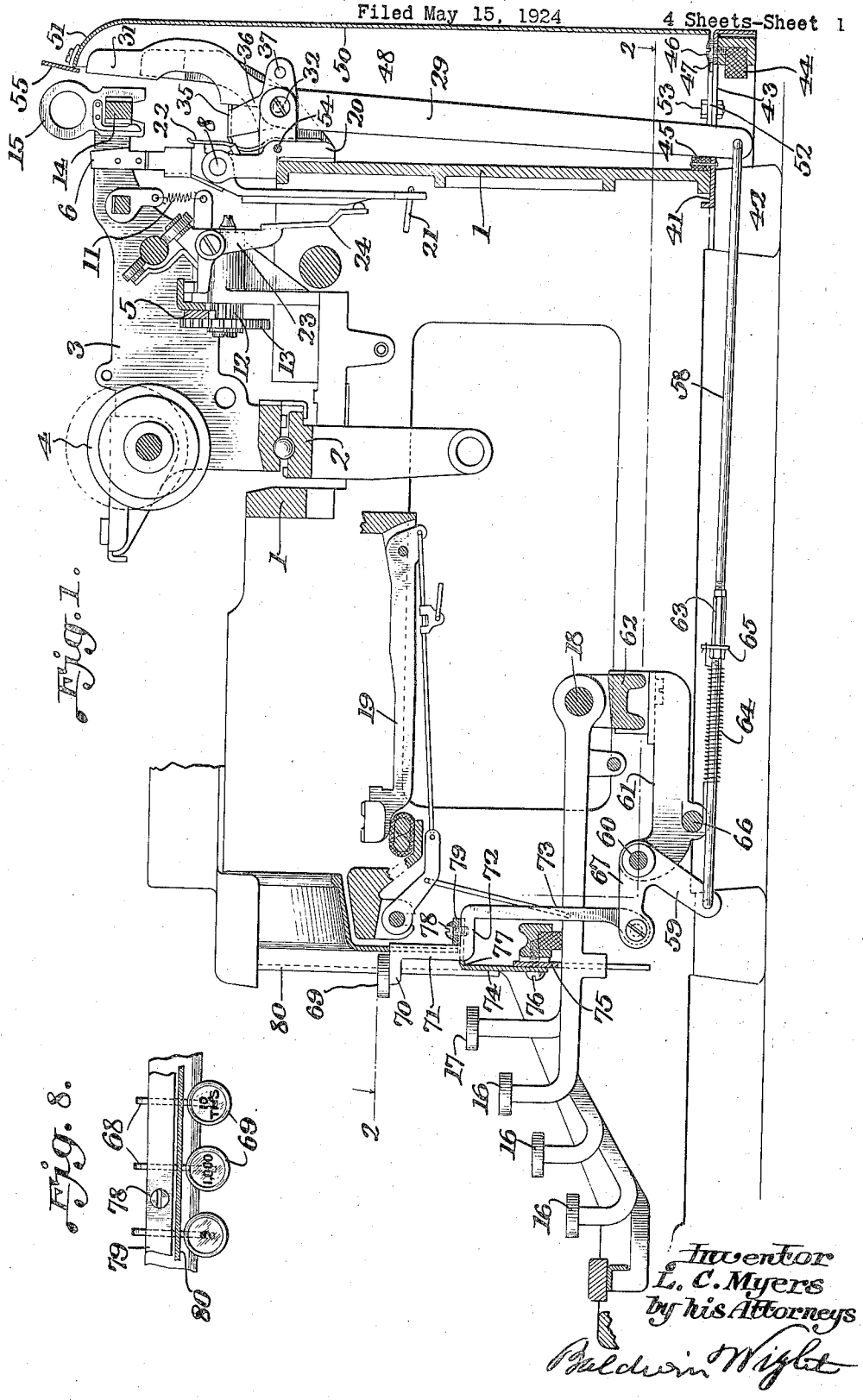

Fig. 1.



Fig. 8.

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4 Sheets-Sheet 2

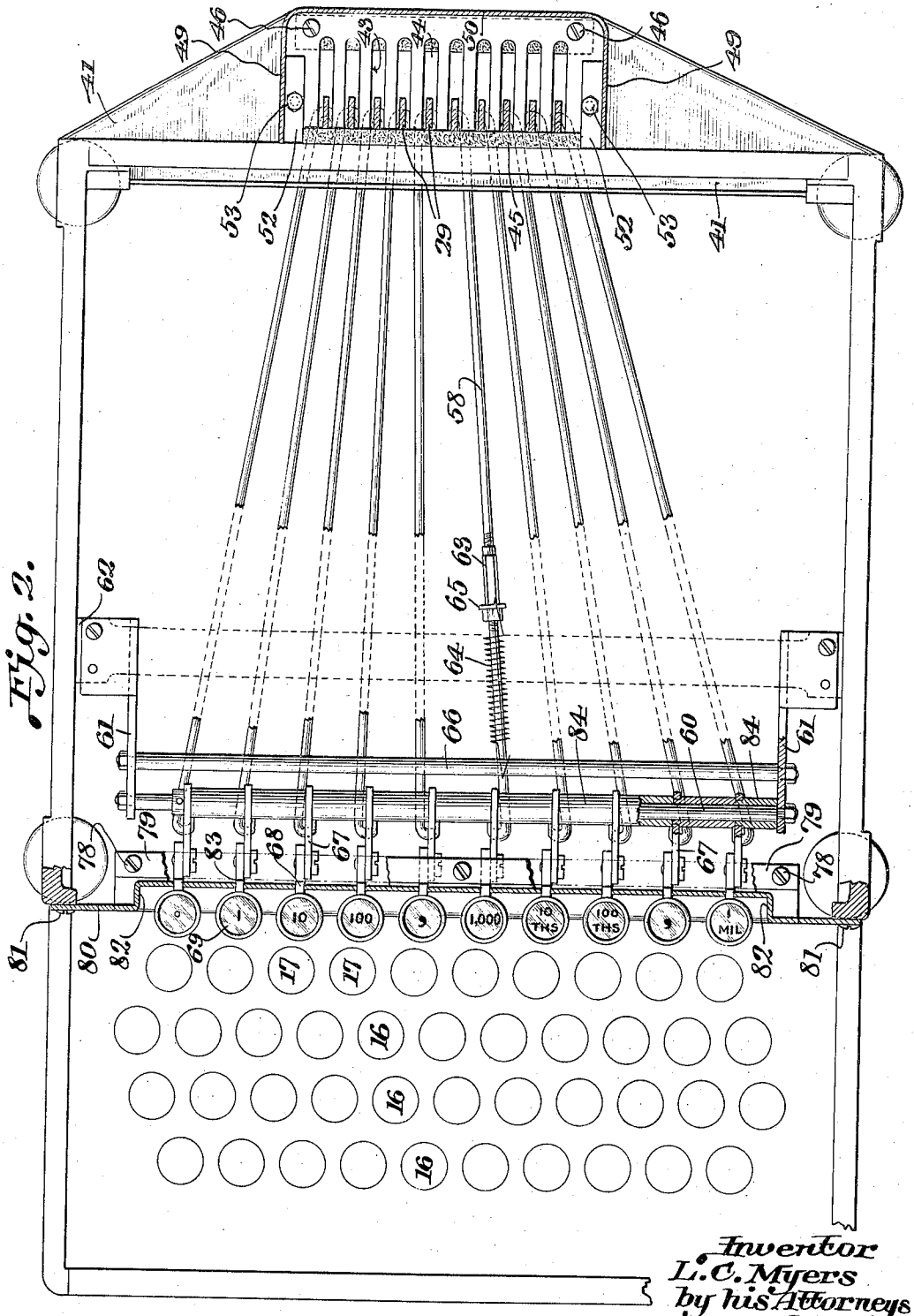


Fig. 2.

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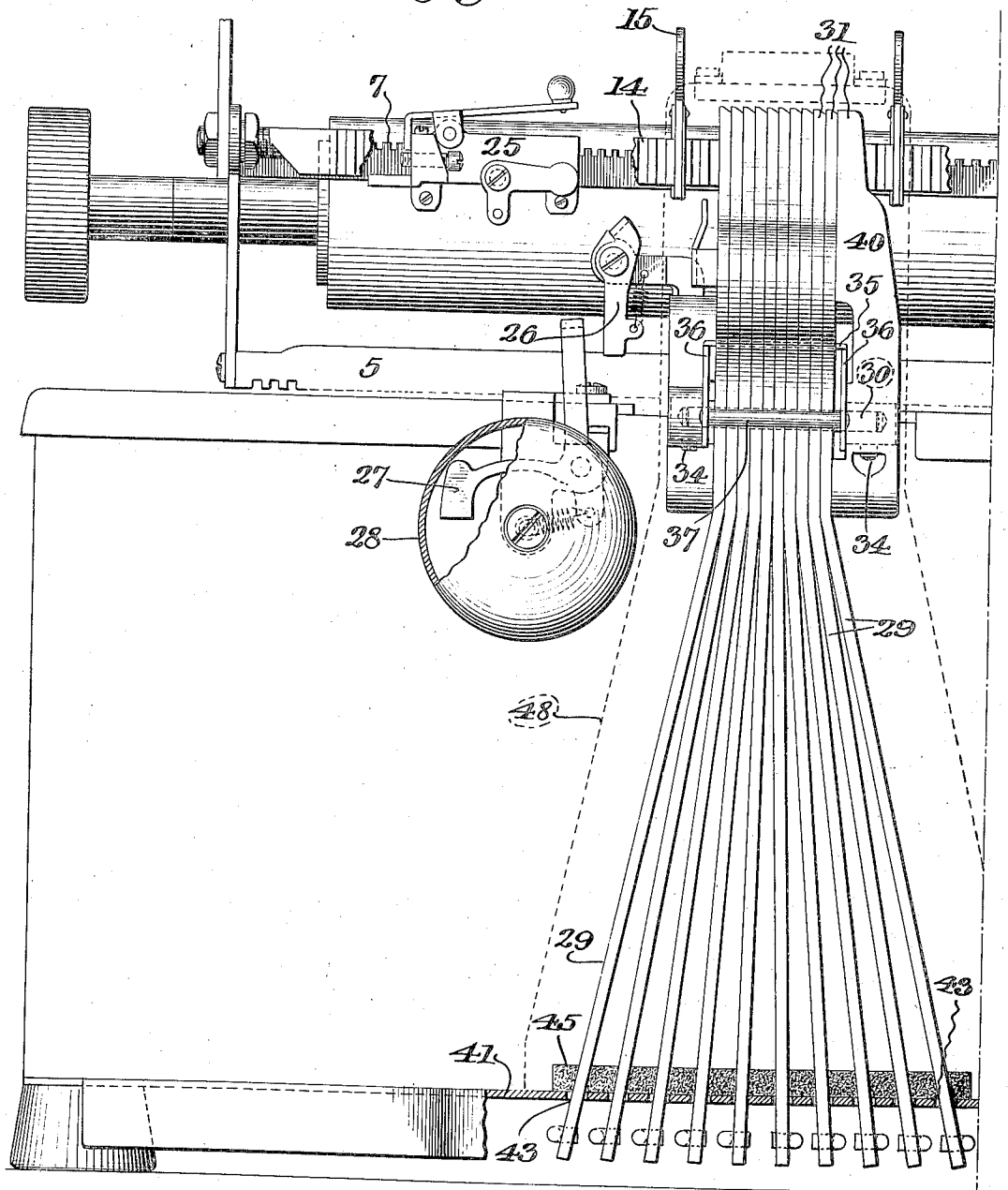
Fig. 3.

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TYPEWRITING MACHINE

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Fig. 6.

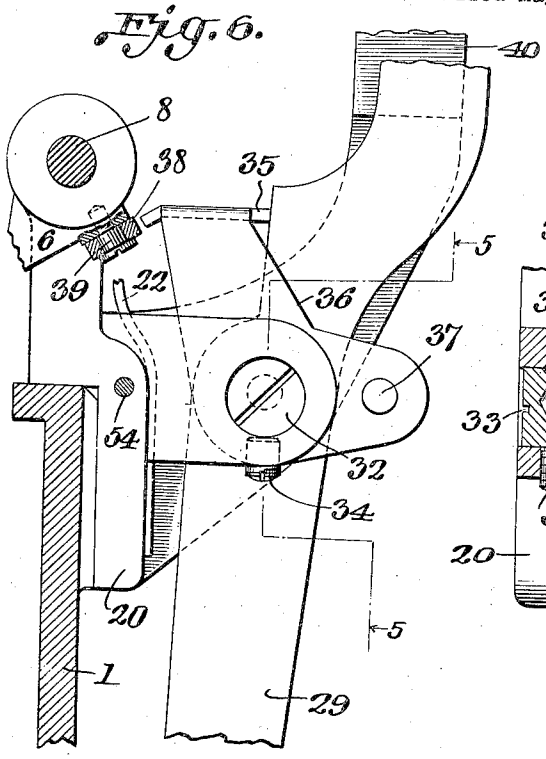
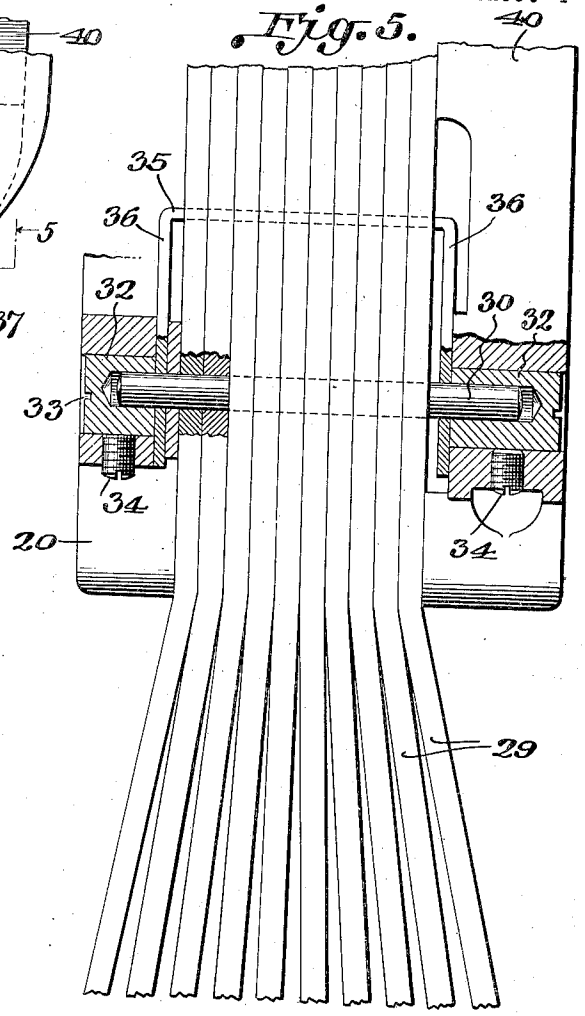



Fig. 5.



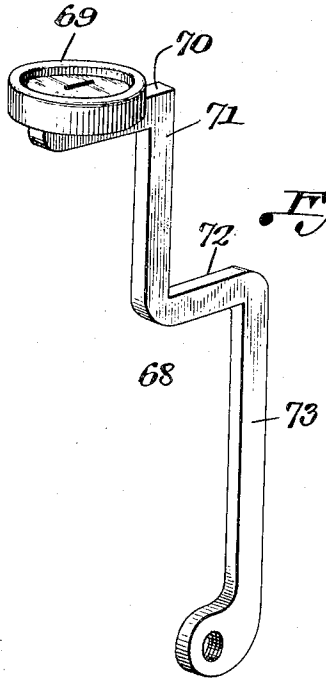
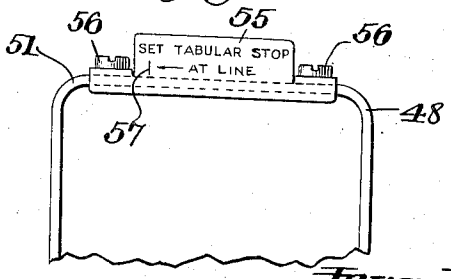




Fig. 4.

Fig. 7.




Inventor
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by his Attorneys
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Patented Oct. 27, 1925. 1,558,708

# UNITED STATES PATENT OFFICE.

LEWIS C. MYERS, OF FREEPORT, NEW YORK, ASSIGNOR TO ROYAL TYPEWRITER COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## TYPEWRITING MACHINE.

Application filed May 15, 1924. Serial No. 713,525.

*To all whom it may concern:*

Be it known that I, LEWIS C. MYERS, a citizen of the United States, residing at Freeport, in the county of Nassau and State of New York, have invented certain new and useful Improvements in Typewriting Machines, of which the following is a specification.

This invention relates to tabulating mechanism for typewriting machines, particularly such as is known as a decimal tabulator. It is an improvement upon the construction shown in my Patent No. 1,306,832, granted June 17, 1919.

This patent discloses decimal tabulator mechanism comprising a stop bar carried by the carriage, a series of cooperating stops carried by the frame of the machine, and a series of push rods having their key bearing ends located below the keyboard at the front of the machine.

An object of my present invention is to provide keys for actuating the push rods which are connected to the cooperating stops, and to locate said keys above and in the rear of the numeral keys so that they can be actuated by a downward movement similar to that employed in operating the remainder of the keyboard.

Another object of the invention is to so locate this row of decimal tabulator keys that they will be ready of access but will not interfere with the operation of the usual printing keys in any manner, and moreover will present a pleasing appearance.

A further object of the invention is to provide means for accurately adjusting the position of the bank of cooperating stops.

Another object of the invention is to provide a means for facilitating the ready and accurate setting of the stops on the stop bar when the carriage is in the desired position without comparing the scale on the stop bar with the usual carriage scale.

Other objects will be apparent from the following detailed description and the appended claims.

In the drawings:

Figure 1 is a vertical longitudinal section through a typewriting machine embodying my invention, certain parts being omitted for clearness and others being shown in elevation.

Figure 2 is a horizontal section substantially on the line 2—2 of Figure 1 with parts in elevation.

Figure 3 is a rear elevation with parts in section and parts omitted showing the tabulator attachment in position.

Figure 4 is an elevation on an enlarged scale, of one of the tabulator keys.

Figure 5 is a vertical section on the line 5—5 of Figure 6, showing the pivot for the tabulator stops or blades.

Figure 6 is a side elevation with parts in section showing the carriage release mechanism operated by the decimal tabulator.

Figure 7 is a fragmentary view showing the indicator for the setting of the tabulator stops.

Figure 8 is a detail view, partly in section, showing the mounting of the decimal tabulator keys.

The invention is illustrated as applied to the well known "Royal" machine, but many of the features thereof are applicable to other typewriters. There is shown a frame 1 which movably support a shift frame 2 upon which runs a carriage 3 provided with a platen 4. A rack bar 5 is pivotally supported by the carriage and normally drawn by a spring 11 into engagement with a pinion 12 mounted on a shaft supported in the shift frame and also carrying the escapement wheel 13 with which cooperate the usual or any desired form of escapement dogs not shown. A rack bar 14 is mounted in the carriage and is grooved at letter space intervals for the reception of stops 15 of the usual or any desired type.

Letter keys 16 and numeral keys 17 operate the usual levers which are pivoted to a rod 18 carried by the comb guide, and these levers are connected to operate the type bars 19 in the usual manner of the Royal machine. The ordinary column tabulating stop 6 is pivotally supported intermediate its ends at 8 on a bracket 20 secured to the frame of the machine. It is operated by a link 21 attached to its lower end and extending forward to the usual tabulating key not shown. A spring 22 fast at one end to the bracket 20 normally holds the stop 6 in its forward position. A carriage releasing lever 23 which is pivotally supported on the frame work has an arm extending forwardly under a ledge on the rack bar 14 so that when the lever 23 is rocked, the rack is lifted

out of engagement with the pinion 12 and the carriage is free to move under the influence of the ordinary driving spring. The lever 23 has a downwardly extending arm 24 which bears against the lower portion of the tabulating stop 6 so that when the latter is pulled forward, the lever 23 will be rocked and the carriage released for a free run.

All of the parts thus far described are, or may be, the same as those embodied in the Royal machine, and are for the most part shown in my prior patent above identified.

There is also illustrated in Figure 3, a bell ringing mechanism comprising a margin stop 25 mounted adjustably on a stop bar 7, a pivoted trip member 26 spring drawn in one direction, and a pivoted spring drawn bell hammer 27 cooperating with the bell 28. These parts form no part of the present invention and are merely illustrated to show the relation of the invention to the other parts of the machine.

A series of decimal tabulator stops for cooperation with the stops 15 comprises levers 29 pivoted intermediate their ends on a shaft 30 carried by the bracket 20. These levers occupy a substantially vertical position and their upper ends 31 form the stops proper. They are mounted to turn freely on the shaft 30, and in order that the position of this shaft may be accurately adjusted, its ends are mounted in eccentric bushings 32 fitting within openings in the bracket 20 and provided with notches 33 at their ends for the reception of a tool whereby the position thereof may be adjusted. When in their desired positions, they are held firmly by tightening set screws 34. In this manner independent adjustment of each end of the shaft 30 can be obtained readily and thereby the series of stops 31 properly positioned for cooperation with the stops 15.

It is obviously necessary to release the carriage from control of the escapement mechanism when any of the stop levers 29 are actuated and to effect this the following construction is employed. A bail 35 is mounted by arms 36 on the shaft 30 and these side arms are connected by a cross bar 37 in the rear of the levers 29. The tabulating stop 6 has an abutment 38 (Figure 6) in the form of an eccentric washer secured to the stop by a set screw 39. When one of the decimal tabulator levers 29 is operated it rocks the bail 35 forward into engagement with the abutment 38 thereby rocking the ordinary tabulator stop 6 just enough to actuate the carriage release mechanism described above but not enough to bring said stop 6 into cooperative relation with the carriage stops 15.

The bracket 20 is provided with an upward extension 40 adjacent one side of the series of stops 29 and this receives the shock of the carriage when it strikes one of the stops 31.

A plate 41 is secured to the frame 1 at the bottom of the rear thereof by being clamped between the frame and the foot pieces 42. This plate has slots 43 through which the lower ends of the levers 29 pass and by which they are guided. A stop member 44 limits the rearward movement of the levers 29 and another stop member 45 limits the forward movement thereof. Both of these stops are in the nature of buffers and are carried by the plate 41. The rear stop is preferably supported by set screws 46 which pass through enlarged openings 47 in the plate 41, thereby permitting adjustment of the stop 44.

The decimal stop mechanism is enclosed by a casing 48 having side walls 49, a rear wall 50 and a top extension 51. It is also provided with foot pieces 52 through which pass bolts or similar fastenings 53 thus attaching the casing to the plate 41. Projections from the side walls are attached to the bracket 20 by screws 54.

Attached to the top of the casing 48 and extending adjacent the stops 15 is an indicator mechanism 55, shown in Figure 7. This is attached to the casing 48 by screws 56, and is provided with a line 57 designating the position in which a stop should be set in order that the lowest denomination will stop the carriage at that point. It frequently happens when writing on forms, that it is desired to set the stops after the form is placed in the machine. By this invention, it is only necessary to move the carriage until the desired point on the form registers with the printing point, and then set a stop 15 in alignment with the line 57. This avoids any necessity of comparing the letter space scale on the machine with the corresponding scale on the stop bar and enables a more rapid and accurate setting of stops to be attained.

The mechanism by which the decimal stop levers is actuated differs considerably from that in my prior patent and will now be described. Connected to the lower end of each lever 29 and extending forwardly therefrom is a rod 58, pivoted at its forward end to the downwardly extending arm 59 of a bell crank lever mounted on a rod 60 carried in a bracket 61 which is attached to the same key lever comb guide 62 which supports the pivot rod 18 for the key levers. The rod 58 is provided with a turnbuckle 63 for adjusting the length thereof, and a return spring 64 has one end attached to a washer or collar 65 on the rod and the other end attached to a rod 66 carried by the bracket 61.

The other arm 67 of the bell crank extends nearly horizontally toward the front of the machine and has pivoted to it the lower end of a key stem 68 shown in Figure 4, and pro-

vided with a key 69. This key stem has a short horizontal portion 70 to which the key is attached, a vertical portion 71, and a second horizontal offset portion 72, together with the final vertical portion 73 to the lower end of which the arm of the bell crank lever is attached. The vertical portion 71 is guided in a slot in the horizontal portion 77 of an angular plate member 74 attached to the key lever guide plate 75 by screws 76. Attached to the part 77 of the plate 74 by screws 78 is a plate 79 which lies above the horizontal portion 72 of the key stem and acts to limit its movement, thereby preserving the alignment of the keys in the keyboard, and also affords ease of assembly. This plate 79 is provided with buffer material and also acts to prevent noise.

The usual front plate 80 of the machine which is attached to the frame by screws 81, has been inset adjacent the tabulator keys as clearly shown at 82 in Figure 2 and indicated by dotted lines in Figure 1. This not only enables the additional row of keys to be placed above the numeral keys without in any manner interfering therewith but presents a pleasing appearance. Moreover, slots 83 in the insert portion of this front plate provide guides for the vertical portions 71 of the key stems.

The bell cranks on the rod 60 are spaced properly by means of sleeves 84 thereon. As shown, each bell crank turns on a reduced portion of a sleeve formed at the end thereof, but if desired the bell cranks may turn directly on the rod 60 and the spacing sleeves abut thereagainst on either side.

The decimal keys will be provided with the desired indications, and except as pointed out and claimed, other features of the machine will be of any usual or desired construction. Various detailed changes may be made and parts of the invention may be used without other parts, without in any way departing from the spirit of the invention. In general it is to be understood that the invention is to be regarded as limited only by the scope of the appended claims.

I claim as my invention:

1. Tabulating mechanism for typewriting machines comprising a stop bar, a plurality of removable stops adapted to be placed manually on said bar at desired letter space positions while said bar retains its normal position, a plurality of key actuated stops cooperating therewith, and fixed means adjacent said key actuated stops indicating the position in which an adjustable stop should be set to stop the carriage at the position which it then occupies.

2. Tabulating mechanism for typewriting machines comprising a stop bar, a plurality of removable stops adapted to be placed manually on said bar at desired letter space positions while said bar retains its normal position, a plurality of key actuated stops cooperating therewith, a casing for said last mentioned stops, and fixed means carried by said casing indicating the position in which an adjustable stop should be set to stop the carriage at the position which it then occupies, said means comprising a substantially vertical plate having an indicating mark thereon.

3. Tabulating mechanism for typewriting machines comprising a stop bar, a plurality of removable stops adapted to be placed manually on said bar at desired letter space positions while said bar retains its normal position, a plurality of key actuated stops cooperating therewith, a casing for said last mentioned stops, and a fixed indication on said casing in register with which an adjustable stop should be set to stop the carriage at the position which it then occupies.

4. Tabulating mechanism for typewriting machines comprising a stop bar, a removable stop adapted to be placed manually on said bar at any desired letter space interval while the said bar occupies its normal position, a key operated stop cooperating therewith, and fixed indicating means carried by a fixed part adjacent said key actuated stop in register with which the adjustable stop should be set to stop the carriage at the position which it then occupies, said means comprising a substantially vertical plate having an indicating mark thereon.

5. Tabulating mechanism for typewriting machines comprising a set of key actuated levers, a common pivot rod for said levers, and a mounting for said pivot rod permitting independent adjustment of each end thereof.

6. Tabulating mechanism for typewriting machines comprising a set of key actuated levers, a common pivot rod for said levers, and a mounting for said pivot rod including a support having alined openings and an eccentric bushing for each end of the rod fitting in the corresponding opening.

7. Tabulating mechanism for typewriting machines comprising a set of key actuated levers, a common pivot rod for said levers, and a mounting for said pivot rod including a support having alined openings, an adjustable eccentric bushing receiving each end of the rod and mounted in the corresponding opening, and means for locking the bushings in adjusted position.

8. In tabulating mechanism for typewriting machines embodying a plurality of decimal stops, means for operating said stops comprising a plurality of bell crank levers, means connecting one arm of each bell crank lever with a stop, and a sliding key stem connected to the other arm of each bell crank lever, each key stem having two vertical portions connected by a substantially horizontal

portion, and means co-operating with the horizontal portion for guiding the key stem.

9. In tabulating mechanism for typewriting machines embodying a plurality of decimal stops, means for operating said stops comprising a link connected to each stop, a bracket carried by the machine frame, a plurality of bell crank levers supported on said bracket and connected to said links, vertically movable key stems connected to said bell crank levers, a rod on said bracket and returning springs connected to the links and to said rod.

10. In tabulating mechanism for typewriting machines embodying a plurality of decimal stops, means for operating said stops comprising a plurality of vertically slidable key stems, each having two vertical portions connected by a substantially horizontal portion, and a front plate for the machine having an inset portion provided with slots which guide one of said vertical portions in its movement.

11. In tabulating mechanism for typewriting machines embodying a plurality of decimal stops, means for operating said stops comprising a plurality of vertically slidable key stems, each having a vertical and a horizontal portion, a front plate for the machine having an inset portion provided with slots which guide the vertical portion in its movement, and an auxiliary plate having a horizontal portion which also guides said vertical portion.

12. In tabulating mechanism for typewriting machines embodying a plurality of decimal stops, means for operating said stops comprising a plurality of vertically slidable key stems, each having a vertical and a horizontal portion, an auxiliary plate attached to the front of the machine and having a slotted horizontal portion for guiding said key stems, and a buffer plate carried by said auxiliary plate and limiting the upward movement of said key stems.

13. In tabulating mechanism for typewriting machines embodying a plurality of decimal stops, means for operating said stops comprising a plurality of vertically slidable key stems each having an intermediate horizontal portion, an auxiliary plate attached to the front of the machine and having a slotted horizontal portion for guiding said key stems, and a buffer plate carried by said auxiliary plate and engaged by the horizontal portion of the key stems to limit their upward movement.

14. In tabulating mechanism for typewriting machines, a front plate for the machine having an inset portion provided with slots, an auxiliary plate having a horizontal portion provided with registering slots, and tabulator key stems guided in their movement in said slots.

15. In tabulating mechanism for typewriting machines, a front plate for the machine having an inset portion provided with slots, an auxiliary plate having a horizontal portion provided with registering slots, a buffer plate carried by the horizontal portion of said auxiliary plate, and tabulator key stems guided in their movement in said slots and limited in their return movement by said buffer plate.

In testimony whereof, I have hereunto subscribed my name.

LEWIS C. MYERS.