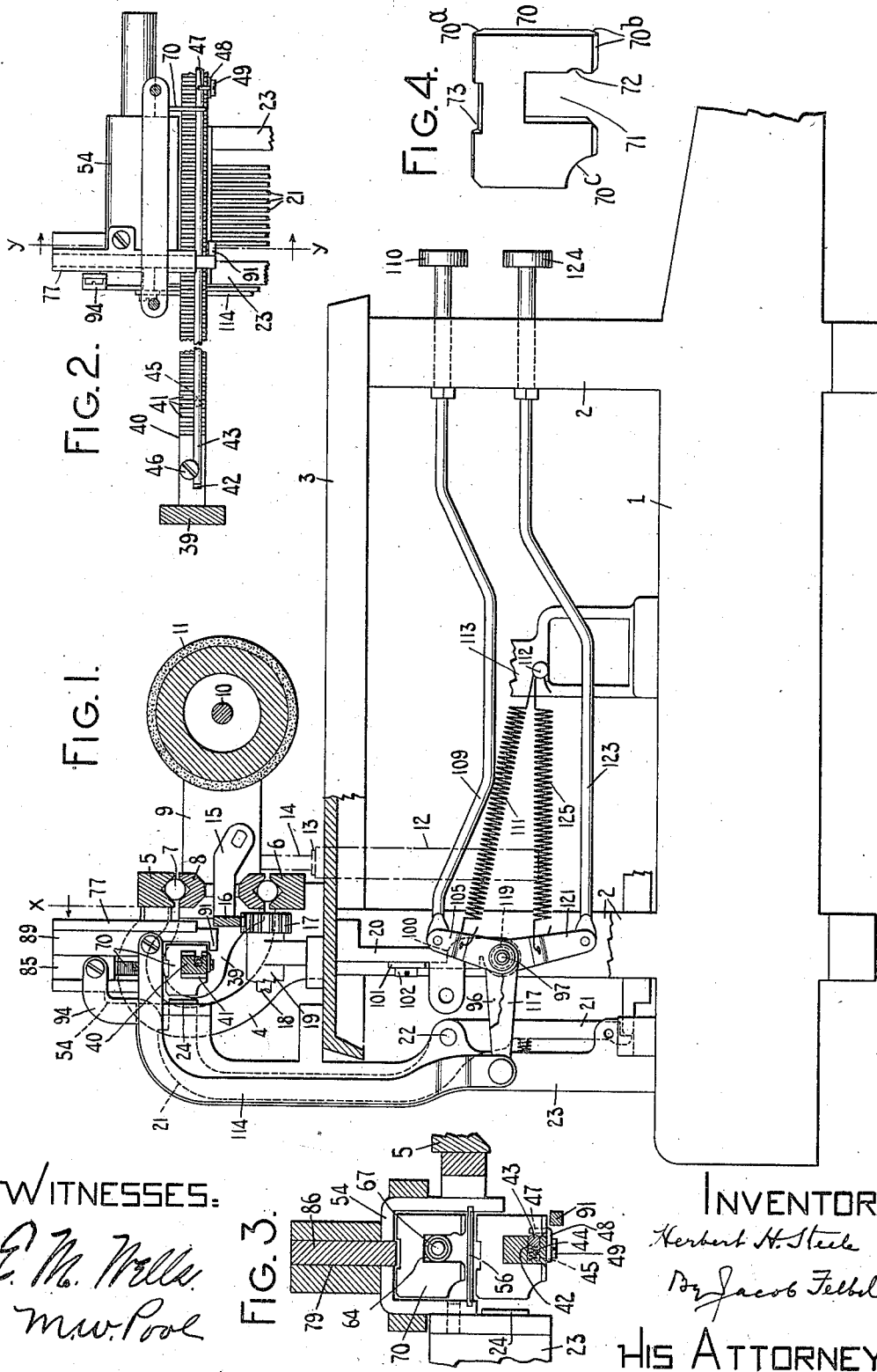


H. H. STEELE.
TYPE WRITING MACHINE.
APPLICATION FILED JULY 6, 1912.

1,045,452.

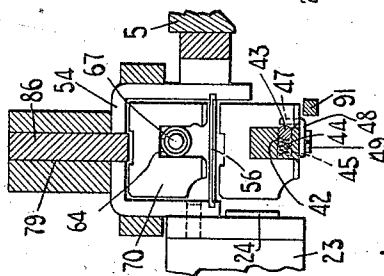
Patented Nov. 26, 1912.



WITNESSES:

E. M. Wells
M. W. Pool

FIG. 3.



INVENTOR:

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UNITED STATES PATENT OFFICE.

HERBERT H. STEELE, OF MARCELLUS, NEW YORK, ASSIGNOR TO MONARCH TYPE-WRITER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

1,045,452.

Specification of Letters Patent.

Patented Nov. 26, 1912.

Original application filed March 27, 1912, Serial No. 686,575. Divided and this application filed July 6, 1912. Serial No. 707,976.

To all whom it may concern:

Be it known that I, HERBERT H. STEELE, citizen of the United States, and resident of Marcellus, 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 present invention relates to tabulator stops and devices for retaining said stops on a stop support and the principal objects of the invention are to provide improved tabulator stops and improved retaining devices of the character specified.

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

The present application is a division of my prior Patent, No. 1,037,076, granted August 27, 1912.

In the accompanying drawings, Figure 1 is a fragmentary side elevation, partly in section, of a Monarch typewriting machine embodying my invention, parts of the machine being omitted and parts broken away. Fig. 2 is a fragmentary vertical sectional view taken on a plane indicated by the dotted line $x-x$ in Fig. 1 and looking in the direction of the arrow at said line. Fig. 3 is a vertical sectional view taken on a plane indicated by the dotted line $y-y$ in Fig. 2 and looking in the direction of the arrows at said line. Fig. 4 is a perspective view of a tabulator stop.

As shown in Fig. 1, the main frame comprises a base 1, posts 2 and a top plate 3, said top plate supporting standards 4 to which are secured fixed track-ways 5 and 6 cooperating through anti-friction balls 7 with the rear bar 8 of a platen carrier or carriage which further includes forwardly extending end bars 9. Said end bars provide bearings for the axle 10 of a rotary platen 11, with the front face of which cooperate printing instrumentalities of the usual description. The carriage is urged leftward by a spring drum 12 which is connected by a strap 13 with an arm 14 depending from the carriage. The end bars 9 pivotally support the arms 15 of a feed rack 16 which normally meshes with a feed pinion 17 secured to a shaft 18 bearing in a bracket 19

on the top plate. Operatively connected to the shaft 18 is an escapement wheel with which cooperate the usual escapement dogs that are pivotally supported on a bracket 20 depending from the top plate, said wheel and dogs being omitted from the drawings.

Tabulating mechanism is shown herein comprising a set of upright denominational stop levers 21 pivoted at 22 in a frame 23 detachably secured to the main frame. The upper portions of the levers 21 are curved forward, terminating in denominational stops proper 24, these stops being adapted to be actuated by the usual key controlled devices and thereby projected forward to cooperate with the novel column stops herein-after described. The actuation of the stop levers 21 operates carriage releasing devices, not shown herein but disclosed in the parent application aforesaid.

Projecting rearward from the slide bar 8 are arms 39 which provide a support for a column stop bar 40 toothed at its front and rear faces, the notches 41 between the teeth being a letter space distance apart. The stop bar 40 is of ordinary construction but is provided with novel stop retaining or locking devices for the column or tabulator stops which said stop bar 40 is adapted to receive. To accommodate these retaining devices the front face of the bar 40 is formed with a longitudinal groove 42. Said groove receives a rod 43 circular in cross section, which is constantly pressed forward by springs 44 seated in depressions 45 in the rod, there being preferably three of these springs, two near the ends and one midway between. Said springs tend to force the rod 43 out of its seat 42 but this is prevented by screws 46 one near each end of the rod, and further by a central restraining finger 47. Said finger registers with the upper portion of one of the teeth at the front of the stop bar 40, the lower portion of said tooth below the rod 43 being cut away to accommodate the finger 47 which is so narrow that it does not encroach on the neighboring notches and so prevent the adjustment of stops therein. The finger 47 is part of an angular bracket 48, the body portion of which extends beneath the stop bar and is secured thereto by a screw 49.

A rectangular column stop magazine or container 54 is provided, said container hav-

ing a floor plate 56. Said container is rigidly secured to the rear of the upper guide rail 5 and overhangs or overlies the stop bar 40. Secured within the container is a rod 64, the left-hand end of which receives a spring plunger 67 having a coned outer end.

Housed in the magazine 54 is a set or series of column stops 70. Each column stop may be described generally as a rectangular plate of such size as to fit loosely within the container 54, the internal cross dimensions of which are slightly greater than the corresponding dimensions of the stop. Each stop is formed with a notch 71 which enables it to fit over and rest on the supporting rod 64. The forward edge of each notch 71 is provided with a slight depression 72 to cooperate with the retaining or locking rod 43 when the stop is ejected on to the stop bar 40. The upper edge of each stop is beveled or inclined from right to left, as indicated at 70^a, while the lower edge is pointed or formed with a double bevel 70^b. The bevel 70^a facilitates the reëntrance of the stop into the magazine, enabling it to cam back such stops as may be within the magazine at the time, and also to cooperate with the pointed or beveled end of the plunger 67 to force said plunger backward in its seat. The pointed bevel 70^b at the bottom of each stop facilitates its coopération with the notches 41 in the stop bar 40 during stop setting operations. At the top, each stop is formed with a notch or recess 73 to cooperate with an ejector hereinafter described. The magazine may be adapted to receive any desired number of column or tabulator stops, that illustrated herein accommodating some twenty-five stops. These stops are strung together face to face on the rod 64 and are forced along the same toward the left by a spring pressed follower, not shown herein but fully disclosed in my parent application aforesaid. The left-hand end of the magazine 54 is closed by a guide member or head 77 between which and the floor plate 56 is an opening or mouth through which the column stops pass out of and into the magazine.

The stops are ejected from the magazine by devices comprising a slide 85 provided with a central rib 86 which is guided in a vertical groove or slot 79 in the head 77. Forward of the slide 85 is a retracting slide 89 which is also vertically guided in the head 87. Normally the ejector 85 is maintained so that its bottom face is above the underlying column stop in the magazine, but when the slide is pushed down its rib 86 will engage in the notch 73 of the outermost column stop and will force said column stop vertically downward out of the magazine through the mouth therein and on to the stop bar 40, the notch 71 enabling the stop to straddle the stop bar and fit into the ap-

propriate notches 41 therein. The fit of the rib 86 in the notch 73 is comparatively close and the parts will cooperate to guide the downwardly moving stop in a straight course and to prevent wobbling of said stop. During its passage downward over the stop bar the forward edge of the notch 71 will force the retaining rod 43 slightly rearward against its spring, but as soon as the depression 72 comes opposite said rod the rod will slide outward again and engage with said depression to lock or retain the stop on the stop bar 40, as shown in Fig. 3. The retaining or locking devices are quite efficient in operation but owing to the fact that the surface of the rod 43 is rounded as is also the edge of the depression 72, said devices will readily engage and disengage with a minimum of friction, increasing the facility with which the locking and unlocking is accomplished, and lessening the liability of sticking which frequently occurs in locking devices having straight or angularly disposed faces.

The operation above described may be repeated until the desired number of column stops have been properly set in position on the column stop bar. The rear lower corner of each column stop is cut away, as indicated at 70^c, so that the column stops when set on the stop bar may clear the escapement wheel (not shown).

The slide or retractor 89 terminates at its lower end in a toe piece or lug 91 which underlies portions of the set column stops when said stops are brought into register with the part 91. The retractor 89 is adapted to be slid up or lifted from normal position in order to cooperate with the set column stops and force them upward back into the magazine, thus clearing the column stop bar.

The ejector or stop setter 85 is operated by key controlled devices comprising a link 94 which connects said ejector with a crank arm 96 on a rock shaft 97 bearing at its right-hand end in an ear 100 of a bracket 101 secured by screws 102 to the bracket 20. The left-hand of the rock shaft bears in a stationary bracket (not shown). Secured to the rock shaft 97 near its left end is a crank arm 105 to which is pivotally connected a push rod 109 provided with a stop-setting key 110. A restoring spring 111 is connected to said crank arm 105. The retractor 89 is actuated to clear the stop bar of stops by devices comprising a link 114 which connects said retractor with a crank arm 117 secured to a sleeve 119 which bears on the shaft 97. Said sleeve is also provided with a crank arm 121 to which is pivotally connected a push rod 123 provided with a "clearing" key 124. A restoring spring 125 is connected to the crank arm 121.

Aside from the column stops and the associate locking devices therefor that are on

the column stop bar, various novel features shown herein are described at length and are claimed in my parent application aforesaid.

It will be observed that by my present invention I provide a column or tabulator stop which is notched out so that it comprises three sides one of which is formed with a recess and another of which is formed with a notch, in other words the stop consists of two parallel legs and a connecting cross bar, the latter being notched and one of the legs being formed with a recess; that the notch, in the present instance 73, is rectangular; that the recess 72 is rounded; that by notching or cutting out the tabulator stop as at 71, a bifurcated tabular stop is provided one fork of which is recessed and the top side of which is notched; that said notch is centrally arranged; that the fork aforesaid is recessed on its inner edge while the other fork of the bifurcated stop is provided with a cutaway; that a column stop bar is provided which has a longitudinal recess; that a spring pressed locking member is supported within the recess; that in the present instance said locking member is a cylindrical bar extending lengthwise of the slot formed in the front side of the column stop bar; that the column stop bar is adapted to receive a plurality of column stops from a stop magazine, said column stop being provided with a centrally arranged notch; and that an ejecting device is provided which registers with the column stops as they are successively brought into position to be ejected.

It will further be understood that the novel stops herein described may be used in connection with stop setting and retracting devices different in character from those shown; also that parts of the invention may be used without other parts; that various features of the invention may be adapted for use in other connections than with key set tabulating mechanism; and that various detailed changes may be made without departing from the spirit and scope of said 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 column stop bar, column stops notched to straddle the same, cooperating stops, and devices for retaining said column stops on said stop bar, said devices comprising a spring pressed circular rod extending lengthwise of said bar and seated in a groove therein, said rod cooperating with rounded depressions in the notches of said column stops.

2. In a typewriting machine and tabulating mechanism, the combination of a column stop bar, column stops thereon, cooperating

stops, and devices for retaining said column stops on said stop bar, said devices comprising a rod extending lengthwise of said stop bar and seated in a depression therein, springs behind said rod tending constantly to press it out of said depression, and limiting stops on said stop bar limiting the outward movement of said rod, said rod cooperating with depressions in said column stops.

3. In a typewriting machine and tabulating mechanism, the combination of a column stop bar; notched column stops thereon; a cooperating stop; and devices for retaining said column stops on said stop bar, said devices comprising a rod extending lengthwise of said stop bar and seated in a depression therein, springs behind said rod tending constantly to press it out of said depression, and limiting stops on said stop bar limiting the outward movement of said rod, said rod cooperating with depressions in the notches of said column stops, said rod being circular in cross section and said depressions being rounded to correspond with said rod.

4. In a typewriting machine and in tabulating mechanism, a tabulator stop having two leg portions and a connecting cross bar portion, one of the legs being provided with a recess and the cross bar portion being provided with a notch.

5. In a typewriting machine and in tabulating mechanism, a bifurcated tabulator stop one fork of which is recessed and the top side of which stop is notched.

6. In a typewriting machine and in tabulating mechanism, a bifurcated tabulator stop notched centrally at its upper portion and provided on the inner edge of one fork with a recess and on the outer edge of the other fork with a cut-away.

7. In a typewriting machine and in tabulating mechanism, the combination of a column stop bar provided with a longitudinal recess, a spring pressed locking member supported within said recess, and a bifurcated column stop formed to engage said locking member.

8. In a typewriting machine and in tabulating mechanism, the combination of a column stop bar provided with a longitudinal recess, a spring pressed locking member supported within said recess, and a bifurcated column stop having one fork thereof recessed to engage said locking member.

Signed at Syracuse, in the county of Onondaga, and State of New York, this 1st day of July, A. D. 1912.

HERBERT H. STEELE.

Witnesses:

BERNICE E. FOX,
HARRY BARRY.