Oct. 13, 1931. C. GABRIELSON 1,826,763

TYPEWRITING MACHINE

Filed Oct. 24, 1929 2 Sheets-Sheet 1

Fig. 1.

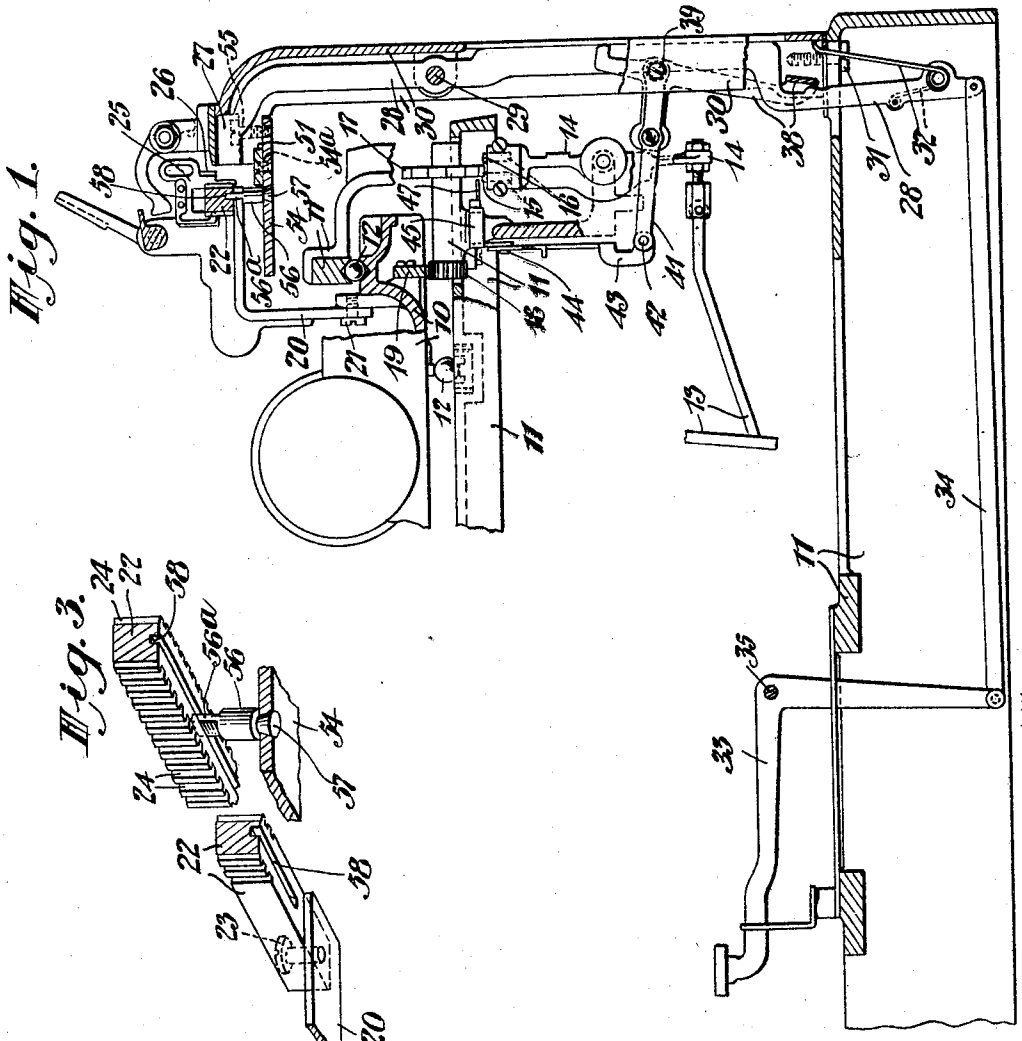
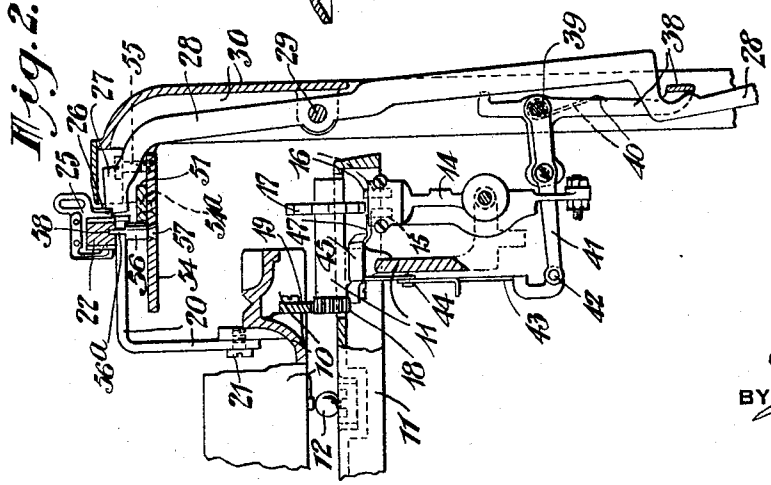


Fig. 3.

Fig. 2.



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Filed Oct. 24, 1929 2 Sheets-Sheet 2

Fig. 4.

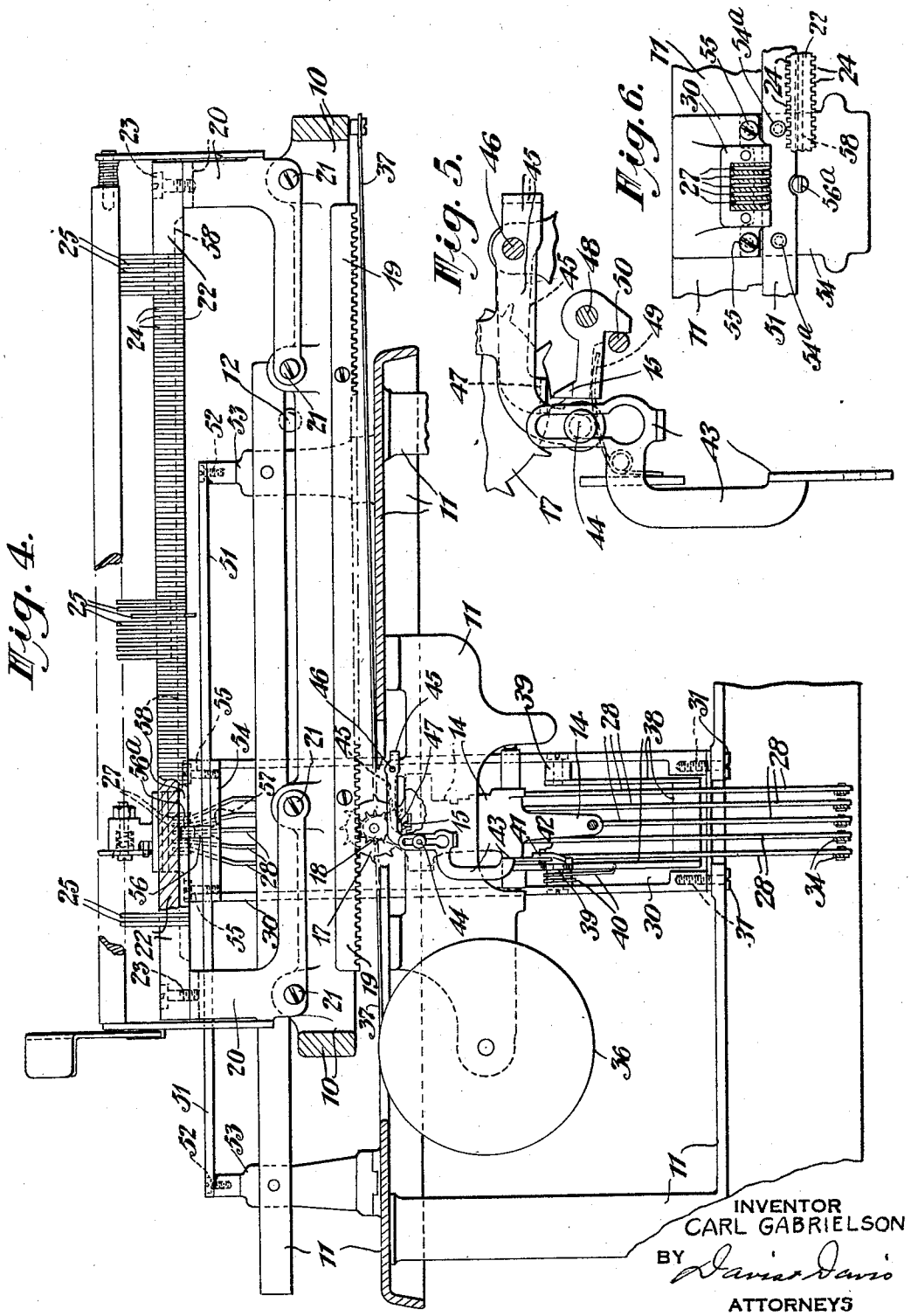

Fig. 5.

Fig. 6.

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UNITED STATES PATENT OFFICE

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TYPEWRITING MACHINE

Application filed October 24, 1929. Serial No. 402,082.

This invention relates to improvements in typewriting machines, and more particularly to tabulating mechanism therefor.

In tabulating, and especially in operations involving relatively long jumps of the platen carriage, the column stop bar frequently bends or flexes sufficiently to cause a failure to arrest the carriage. This is particularly apt to occur in the operation of wide carriage machines.

Generally stated, the purpose of the invention is to make provision for the elimination of such failures of the tabulating mechanism to arrest the carriage at the desired point. More particular objects of the invention are to provide simple, efficient and inexpensive means for preventing bending or flexing of a column stop bar upon impacting of coactive traveling and counter stops of a tabulating mechanism; to provide a tabulating mechanism with means for preventing such bending or flexing of the column stop bar which will permit carrying of column stops at any letter space point or points along the bar without the necessity of removing or shifting of the preventing means or any part thereof; to provide stationary means coactive with a column stop bar of a traveling platen carriage substantially at the point of engagement of any one of the column stops on said bar with a non-traveling counter stop or any one of a series of non-traveling denominational stops; and to provide fixed bracing means on the stationary framework of the machine located substantially mid-length of the travel of the platen carriage and so engaged with a notched column stop bar on the carriage as to prevent bending or flexing of the bar upon engagement of a column stop on the bar with a counter-stop on the framework; and to provide a bracing means of the kind last described which will permit the notched bar to carry a set of column stops, one for each letter space position of the carriage, any one or desired ones of which may be shifted transversely of the bar from inactive position to set or active position.

The improvements have been shown embodied in an L. C. Smith typewriting machine equipped with denominational tabulating mechanism, but it will be understood that the invention may be embodied in other machines and is not limited to use in connection with a denominational tabulating mechanism.

In the drawings:

Fig. 1 is a fragmentary view of the machine, partly in vertical longitudinal section, with the stops all in inactive position;

Fig. 2 a view similar to Fig. 1, showing the carriage arrested by engagement of a column stop with a denominational stop;

Fig. 3 a detail view showing the construction and mounting of the improved column stop bar and the stationary bracing device therefor;

Fig. 4 a fragmentary vertical transverse sectional view of the machine looking from the front;

Fig. 5 a detail plan view showing associated parts of the carriage escapement and escapement releasing mechanism; and

Fig. 6 a detail view showing the denominational stops and the column stop bar bracing pin and its mounting.

The platen carriage 10 of the machine is mounted on the stationary main framework 11, and travels on ball bearings 12. The carriage is letter spaced through the medium of the usual escapement mechanism actuated by the usual universal bar 13. The escapement mechanism comprises dog rocker 14 connected with the universal bar, escapement dogs 15 and 16, escapement wheel 17 and feed pinion 18 mounted on the usual shaft journalled on the framework 11, and the feed rack 19 fixed on the carriage and meshing with pinion 18.

A pair of sheet metal brackets 20 located adjacent opposite sides of the carriage are each held to the rear cross bar by suitable screws as shown at 21, each of said brackets having a rearwardly extending arm lying in a horizontal plane. Upon the top faces of the rear ends of said bracket arms are seated the end portions of a column stop bar 22 of rectangular cross-section. The stop bar 22 is held to the bracket arms by a pair of screws 23 which pass downwardly through holes in

the bar and are screwed into threaded holes in the bracket arms.

The front and rear faces of the column stop bar are provided with vertical notches or grooves 24 in which are vertically slidable, and frictionally held in vertically adjusted; relation to the bar, the pendent legs of the sheet metal column stops 25. The rear leg of each stop is provided with a contact portion 26 which is located at a level above the upper contact ends 27 of the series of five pivoted denominational stops 28, in the upper inactive adjusted position of the column stops as shown in Figs. 1 and 4. The bar notches are spaced one letter space distance apart and, preferably, a set of column stops 25 are mounted on bar 22, one stop for each letter space position of the carriage. Any desired one or ones of the stops 25 may be set in active position by pushing the stop down until the upper transverse portion thereof engages the top face of the bar, one of these stops being shown in set or active position in Figs. 2 and 4.

The denominational or non-traveling counter-stops 28 are pivoted between their upper and lower ends on a transverse rod 29 in a denominational stop housing comprising a vertically disposed metal casting 30 rigidly held at its lower end by screws 31 to the main frame 11 and located approximately midway between the sides of the machine. Stops 28 are normally held in inactive position by springs 32 carried thereby and bearing against the stop housing and are individually rockable to active position by key levers 33 pivoted on a rod 35 in the main frame and links 34 connecting each stop with its associated operating or setting key lever 33. One stop 28 is shown set in Fig. 2.

The carriage is released from control of the escapement for a jump movement under the pull of its spring drum 36 and cable 37 upon setting of either of the stops 28 and during the last part of the setting movement of the stop by reason of the rocking of a release bail 38 by the actuated stop. Bail 38 is pivoted at 39 in housing 30 and is normally held in the position shown in Fig. 1 by a spring 40. This bail is provided with a forwardly extending arm 41 to which is pivotally connected at 42 the lower end of a pull link 43 having a vertical lost-motion pin-and-slot connection at 44 with the forward arm of a transversely extending U-shaped lever 45. Lever 45 is pivoted at 46 on the main frame and its rear arm is provided with a rearwardly extending lug 47 partly overhanging the nose of escapement dog 15. Dog 15 is normally engaged with escapement wheel 17 as shown in Figs. 1, 4 and 5, being pivoted at 48 in the dog rocker and yieldably held up by a spring 49 in the rocker. A stop 50 in the rocker limits the pivotal movement of the dog. When link 43 is drawn fully down to the position shown in Fig. 2 it draws down the U-shaped lever until lug 47 depresses the pivoted dog 15 out of engagement with the escapement wheel, thus freeing the carriage.

A steel bar 51 extends transversely of the machine below the forwardly extending upper extremities of the denominational stops, said bar lying flatwise in a horizontal plane and being rigidly held by screws 52 on a pair of standards 53 forming part of the stationary framework of the machine. A steel plate 54 is held adjacent its rear end to said bar 51 by rivets 51ª and to the upper end portion of housing 30 by screws 55. Plate 54 is located midway the sides of the machine, lies flatwise in a horizontal plane, and extends forwardly under and close to the bottom face of the column stop bar 22 and carries a brace member for the stop bar. This brace member preferably comprises a hard steel pin or vertical short post 56 having a reduced end portion 57 extending through a countersunk or downwardly and outwardly flaring hole in plate 54 and peened or headed as shown to rigidly lock the pin to the plate. The upper end portion of pin 56 is flattened or cut away at the front and rear, as shown, to form a flat stiff tongue 56ª lying flatwise in a vertical plane parallel with column stop bar 22 and lying between the vertical planes of the root surfaces of the fore-and-aft stop bar notches and preferably approximately in the vertical medial plane of the bar.

Tongue 56ª extends upwardly into and has a close sliding fit in a longitudinal kerf or channel 58 cut in the bottom face of stop bar 22, which channel extends the full length of the notched or stop carrying portion of the bar and approximately the full length of the bar, as shown, the bar and channel being of sufficient length to permit full travel of the platen carriage.

Pin 56 is held to plate 54 midway, or approximately midway, between the sides of the machine and directly in front of the compactly arranged upper end portions of the set of denominational stops, being preferably directly forward of the central denominational stop, so as to always contact and brace the bar at a point in, or substantially in, the contact plane of the pair of traveling and non-traveling stops which coact to arrest the carriage in a tabulating operation. The bar is thus solidly backed up or braced directly at the point of application of the bar bending or flexing force no matter which two stops impact against each other so that it is impossible for the active column stop to skip or cam past the active denominational stop.

It will, of course, be understood that the novel bracing means may be employed in connection with tabulating mechanism having a single non-traveling stop, as well as in con-

nection with tabulating mechanism wherein the stop bar is not provided with a stop for each letter space position of the carriage or is not provided with stops which are slidably adjustable transversely of the bar into and out of active position.

It will be observed that the bracing means does not interfere with either the mounting of a column stop or the sliding setting adjustment thereof in any letter space position along the column stop bar.

What I claim is:

1. In a typewriting machine having a main frame and a power-driven escapement-controlled platen carriage thereon, the combination with said frame and carriage of tabulating means comprising a pair of supports adjacent opposite ends of the carriage, a stop carrying bar rigidly secured at its ends to said supports and having its fore and aft sides vertically grooved and its under side provided with a longitudinal channel extending substantially the full length of the bar, stops each having a pair of pendent legs engaged in vertical grooves in the front and rear sides of said bar, an upstanding rigid brace member fixedly held to the main frame and having its upper end portion slidably engaged in the longitudinal channel of the bar, a stop on the main frame shiftable by its key to position an abutment portion thereof adjacent the rear side of the stop bar in the path of movement of the rear legs of the stops on the bar, escapement releasing means, key-operated means for setting the frame stop and releasing the carriage from control of its escapement, said upper end portion of the brace member and abutment portion of the frame stop both being located substantially midway the sides of the frame.

2. In a typewriting machine, the combination of a main frame, a power driven escapement controlled platen carriage on said frame, a tabulator stop carrying bar held adjacent its ends only to said carriage and having a longitudinal channel, bifurcate tabulator stops each mounted on said bar with said bar channel open between the unconnected extremities of the stop furcations, a rigid brace nember held to the main frame at a fixed point substantially midway the sides of the machine and slidably engaged in said bar channel, a counter stop on the main frame settable for abutment thereagainst at a point adjacent the brace member of those furcations of the bar carried stops that are located at one side of said channel, and key-operated means for setting said counter stop and freeing said carriage from control of its escapement.

In testimony whereof I hereunto affix my signature.

CARL GABRIELSON.