

964,638.

2 SHEETS—SHEET 1.



Fig. 2.

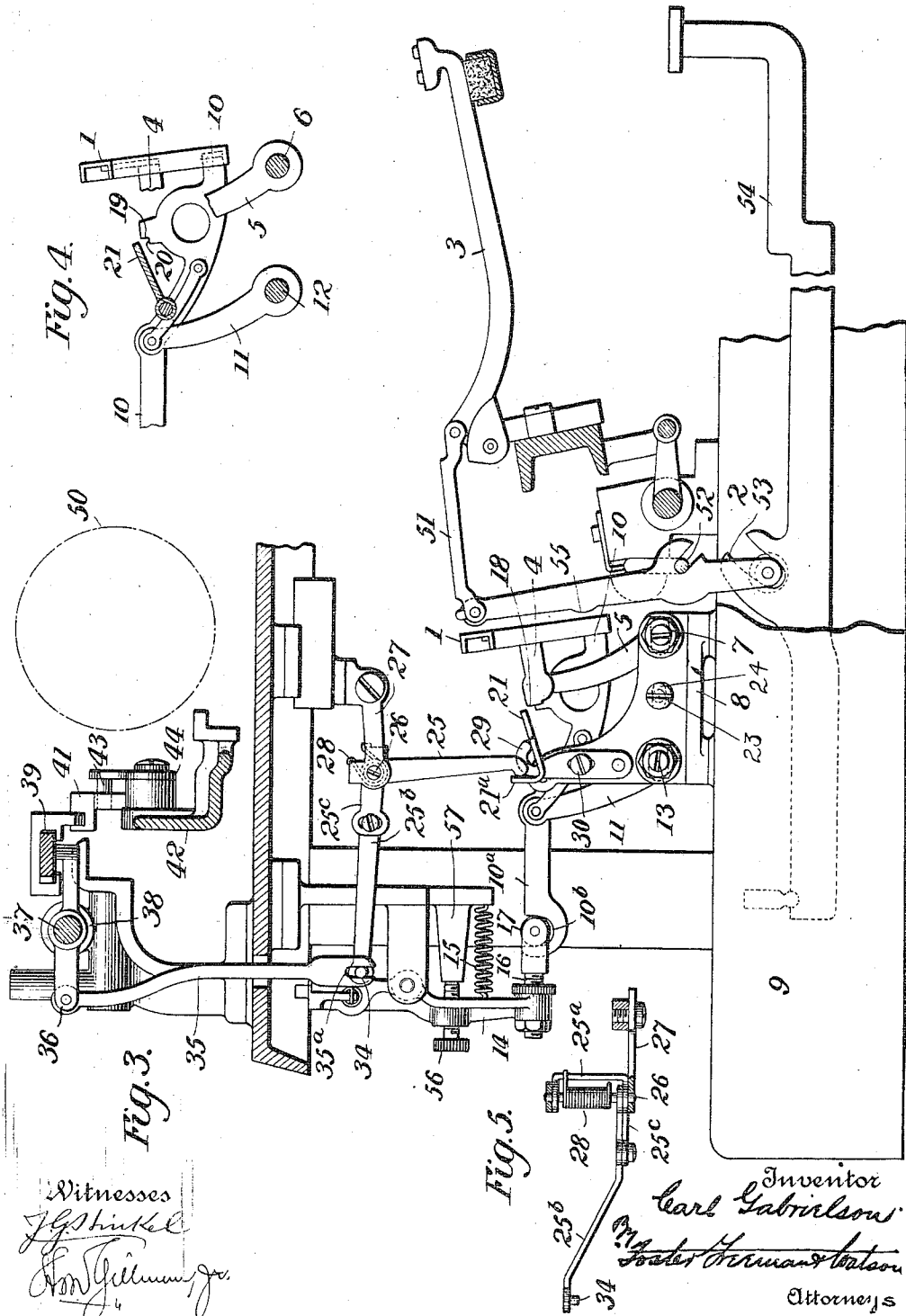
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2 SHEETS—SHEET 2.



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CARL GABRIELSON, OF SYRACUSE, NEW YORK, ASSIGNOR TO L. C. SMITH AND BROS. TYPEWRITER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

964,638.

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To all whom it may concern:

Be it known that I, CARL GABRIELSON, a citizen of the United States, and residing at Syracuse, 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.

The present invention relates particularly to the mechanism for locking the key-levers of a typewriter at the end of a line, to prevent making additional impressions over the last letter of a line after the carriage has stopped. This mechanism in typewriting machines is usually called line-locking mechanism.

The invention will be described in the following specification, reference being had to the accompanying drawings, in which,
Figure 1 is a front view of the line-locking mechanism; Fig. 2 is a top plan view of the universal bar, the locking bar and its supporting brackets, and the stop for the locking bar; Fig. 3 is a side elevation of the line-locking mechanism, some parts of the machine being shown in section; Fig. 4 is a section on the line A—A of Fig. 1; and Fig. 5 is a detail.

Referring to the drawing, 1 indicates the universal bar, which is segmental in form and preferably of channel section which renders it light and rigid. In order to further stiffen the universal bar and support it in such manner that all parts of the bar will move rearwardly in parallel relation, when acted upon by any of the sub-levers 2, which operate the type-bars 3, bracket arms or ears 4 are rigidly secured to the bar near its ends, and project rearwardly therefrom, and these arms are pivotally connected to the ends of a pair of rocker arms 5 of a rock-shaft 6, the latter having its ends journaled upon bearings 7 mounted in brackets 8 which are secured to the base 9 at opposite sides of the machine. A bracket arm 10, secured to the central portion of the universal bar and longer than the arms 4, projects rearwardly and upwardly and is pivotally connected to a rocker arm 11 secured upon a rock-shaft 12, arranged parallel with and in the rear of the rock-shaft 6 and journaled upon bearings 13 in the brackets 8. A rearward extension 10^a of the bracket 10, is connected to

the escapement rocker 14, and the spring 15 holds the rocker and the universal bar normally in forward position. As shown, the rod or extension 10^a is connected to the rocker 14 by an adjustable stud 16 threaded into the rocker and having a forked end carrying a roller 17 which engages a recess 10^b in the extension 10^a. The rear ends of the arms 4 are faced off parallel with the universal bar, forming stops 18, and the central arm 10 has an upward projection, upon which is formed a stop 19 preferably in line with the stops 18, and a rest or step 20 in the rear of and below said stop. The sub-levers are, as shown, arranged vertically and the universal bar has a substantially horizontal movement imparted to it by the sub-levers.

A locking bar 21 is hinged, in the rear of the stops 18 and 19, in brackets 22 which are adjustably secured to the brackets 8 by screws 23 passing through slots 24 (shown in dotted lines in Fig. 3) in the brackets 22. The locking bar is normally held out of the path of the stops 18 and 19 by the vertical arm of a bell-crank lever 25, which engages an arm or projection 21^a on the end of the locking bar. The lever 25 has a U-shaped portion 25^a (Figs. 1 and 5) which is pivoted on a pin 26, which extends through the branches of a U-shaped bracket 27, suitably connected with the frame of the machine. A spring 28, coiled about the pin 26, tends to throw the vertical arm of lever 25 rearward and normally holds the locking bar 21 against a stop 29 (Figs. 1 and 3). A screw 30, passing through a slot in the piece carrying the stop 29, connects said stop adjustably with one of the brackets 22, as shown in Fig. 1. The horizontal arm of lever 25 has a portion 25^b adjustably connected to a portion 25^c, for the purpose of regulating the movement of the locking bar 21, the two parts being connected by a screw passing through a slot in one and threaded into the other. The pivot pin 26 passes through both parts 25^b and 25^c. The lever 25 is rocked to permit the locking bar 21 to drop by gravity into position to engage the stops 18 and 19 by the downward movement of a link 35, which depends from an arm 36 of a rock-shaft 37. The lower end of the link 35 has a slot 35^a, in which is a pin 34 pro-

jecting from the horizontal arm of lever 25, (Figs. 3 and 5). The rock-shaft 37 is journaled in bearings 38 on the frame of the machine and it is provided with forwardly extending arms carrying the margin bar 39.

Upon the margin rack 39 is arranged an adjustable margin stop 40 having two cam surfaces 40^a and 40^b which are adapted to be engaged successively by a stop 41 upon the back bar 42 of the carriage, as the carriage nears its left-hand position at the completion of a line of print. When the stop 41 engages the inclined surface 40^a, the rack bar will be tilted sufficiently to cause the bell to sound, (by connections not necessary to illustrate herein); but, on account of the lost motion between the rod 35 and the pin 34 upon the bell crank lever 25, this slight movement of the rack bar will not cause the operation of the line-locking devices. After the bell has been rung, the further movement of the carriage to the left brings the pivotal carriage stop 41 into engagement with the incline 40^b, which is deeper than the incline 40^a, and the rack bar is therefore tilted to such an extent as to cause the rod 35 to move the bell crank lever 25 and permit the locking bar 21 to drop onto the rest or stop 20 behind the shoulders 18 and 19 of the universal bar. The further operation of the escapement mechanism, type-bars, and the universal bar are thus prevented. The carriage is then arrested by the engagement of the stop 41 with a shoulder 40^c at the end of the incline 40^b on the margin stop, the carriage stop 41 resting against a pin 43 secured to a bracket 44 upon the back bar of the carriage, as indicated in dotted lines, Fig. 1.

When it is desired to print beyond the right-hand margin for which the margin stop is set, (the stop 40 being adjustable on the margin bar 39) the margin bar may be raised by means of a key (not shown), thus allowing the carriage stop 41 to be rocked into its normal position, shown in full lines in Fig. 1, by its spring 45, so as to clear the margin stop, and the rack bar, when the key is released, will drop to normal position, thus raising the rod 35 and allowing the bell crank 25 to be returned to its normal position by the spring 28. The locking bar will thus be raised out of the path of the stops 18 and 19 and against its stop 29 by the bell crank lever 25.

The line-locking mechanism herein described is capable of use with any system of key-levers, sub-levers and type-bars, but is especially adapted to a front-strike typewriter such as that partially illustrated. The type-bars 3 are arranged to strike upwardly and rearwardly against a platen 50, indicated in dotted lines in Fig. 3. As shown, the type-bars are connected with the sub-levers 2 by links 51, and the sub-levers

are rocked on their pivots 52 by the engagement of their lower ends with cam surfaces 53 upon the key-levers 54. The sub-levers are preferably provided with projecting portions 55 which engage the universal bar 1. When the universal bar is locked the sub-levers are prevented from rocking on their pivots and the type-bars and key-levers are thus locked.

The adjustable brackets 22, which support the locking bar, permit of the nice adjustment of said bar to the stops 18 and 19, and the universal bar is thus firmly supported at three points in its length.

If necessary to give it proper rigidity and to effectually lock the keys, additional stops may be used on the universal bar. For convenience the stops 18 and 19 are arranged in a common line, and the locking bar has a straight edge to cooperate with them. It will be evident that the locking bar might be used in various ways to effect the stoppage of the universal bar.

It is necessary that the devices for bringing the line locking bar into operation should be sensitive and that the locking should take place exactly at the proper time, that is, at the time, or immediately after, the last type impression in the line is formed. The adjustable stop 29 for the locking bar and the adjustment for the horizontal arm of the elbow lever 25, permit delicate adjustment between the margin bar and locking bar, so that by properly adjusting these parts the locking bar is brought into operation exactly at the proper time.

The rocker 14 has a normal position which is determined by the adjustable stop 56 which cooperates with the abutment 57. The position of the universal bar with relation to the rocker can be accurately adjusted by means of the adjustable stud 16. The universal bar must be so adjusted that when it is locked, the sub-levers 2 cannot move sufficiently to throw their respective type-bars against the platen.

I claim—

1. In a typewriting machine, a line locking mechanism comprising, in combination, a key lever, a vertically arranged sub-lever, a type bar suitably connected to the sub-lever, a horizontally movable universal bar operated by the sub-lever, a line locking bar movable into and out of position to engage the universal bar, and means for moving said line locking bar to intercept the universal bar at the completion of a line, whereby the operation of the type bar and key lever is prevented.

2. In a typewriting machine, a line locking mechanism comprising, in combination, a vertically arranged sub-lever, a horizontally movable universal bar in the path of the sub-lever, and a line locking bar movable

into and out of position to intercept said universal bar and arranged to engage said universal bar at a plurality of points.

3. In a typewriting machine, a line locking mechanism comprising in combination a movable carriage, a universal bar, vertically arranged sub-levers arranged to contact with said bar, and a line locking bar movably mounted and adapted to engage the universal bar at a plurality of points, said line locking bar being movable into and out of engagement with the universal bar and being controlled in its movements by the carriage.

4. In a line locking mechanism for typewriting machines, the combination of a universal bar, a pivoted line locking bar arranged to engage said universal bar at a plurality of points, and adjustable brackets in which said locking bar is pivoted, for the purpose set forth.

5. In a front strike typewriting machine, the combination with the universal bar having arms of different lengths, of the rockers pivotally connected with said arms and supporting the bar.

6. In a typewriting machine, the combination with the pivoted line locking bar, of an elbow lever arranged to operate said bar, and means controlled by the movement of the carriage for rocking the elbow lever, said elbow lever having an angularly adjustable arm, and means for holding said arm in any desired adjustment, for the purpose set forth.

7. In a typewriting machine, the combination with a margin bar and margin stop, of the elbow lever 25, the link 35 connecting the margin bar with said lever, the line locking bar arranged to be operated by said lever, and the universal bar arranged to be locked by said line locking bar.

8. In a typewriting machine, the combination with the margin bar and the rock shaft 45 carrying said bar, of an arm on said rock shaft, a link depending from said arm, an elbow lever operated by said link, and a line locking bar operated by said elbow lever.

9. In a typewriting machine, the combination of the line locking bar, the adjustable stop for said bar, the elbow lever for operating said locking bar, the adjustable arm on

said lever, the link arranged to operate said adjustable arm, and connections between said link and the margin bar.

10. In a typewriting machine, the combination with the rock shaft, the margin bar carried by said rock shaft, and the adjustable margin stop carried by said bar, of the pivoted stop on the carriage adapted to move in either direction from its normal position and provided with a spring for holding it in normal position, the said pivoted stop being adapted to cooperate with the stop on the margin bar, for the purpose set forth.

11. In a typewriting machine, the combination with key levers, upright sub-levers, and connections between said key levers and sub-levers for rocking the latter, of a curved universal bar arranged in proximity to the sub-levers and movable in substantially horizontal lines by said sub-levers.

12. In a typewriting machine, the combination with key levers, upright sub-levers, and connections between said key levers and sub-levers for rocking the latter, of a curved universal bar adapted to be moved by the sub-levers, said bar having pivotal supports arranged in different vertical planes.

13. In a typewriting machine, the combination with key levers, upright sub-levers, and connections between said key levers and sub-levers for rocking the latter, of a curved universal bar and a plurality of rocking arms supporting said bar, said supporting arms being out of line with each other, whereby the universal bar is prevented from rocking.

14. In a typewriting machine, the combination with key levers, upright sub-levers, and connections between said key levers and sub-levers for rocking the latter, of a curved universal bar arranged in an upright plane and adapted to move horizontally and suitable supports for sustaining and guiding said bar.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CARL GABRIELSON.

Witnesses:

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C. F. PARSONS.