

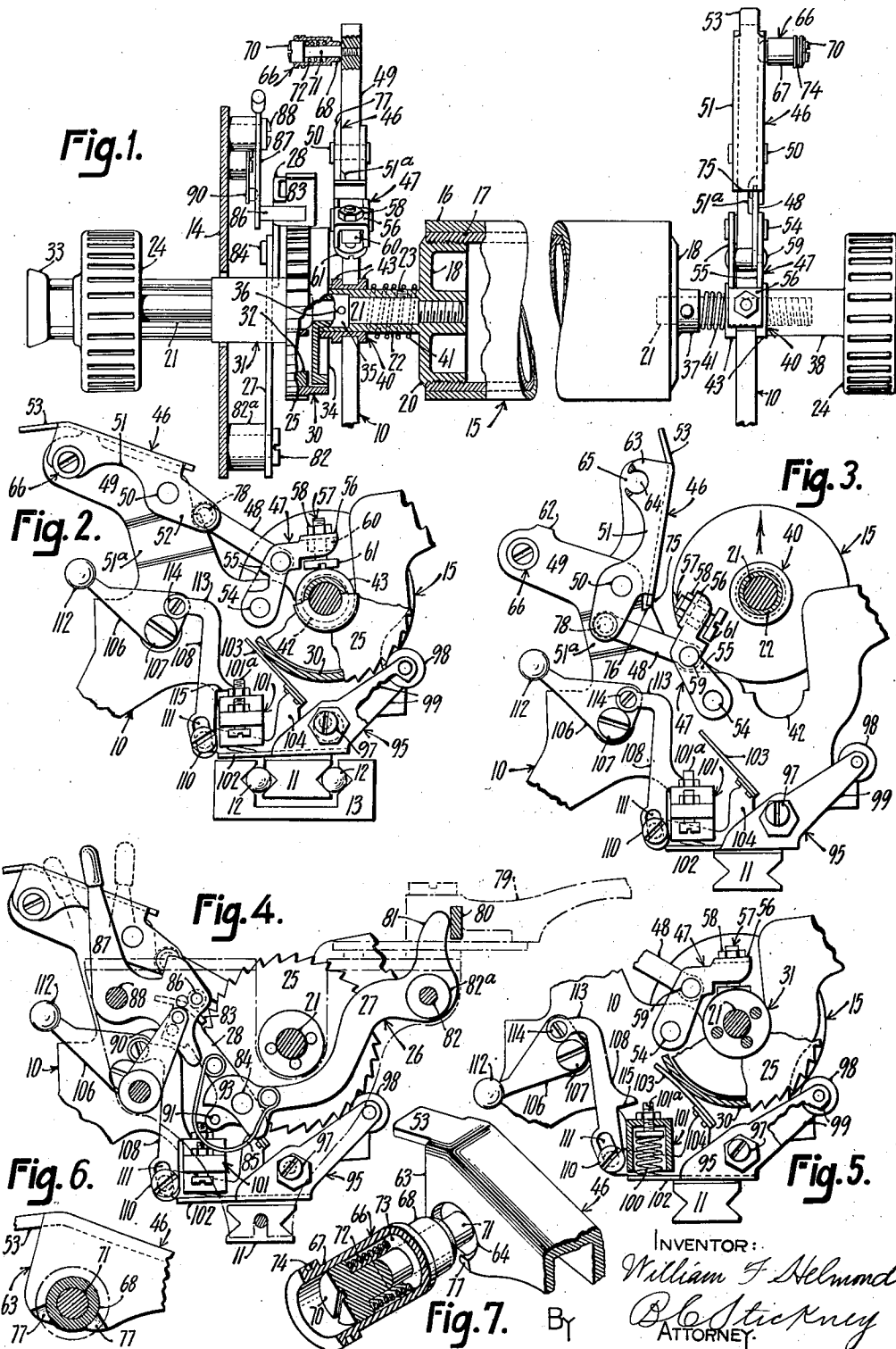
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TYPEWRITING MACHINE

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2,172,008

TYPEWRITING MACHINE

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16 Claims. (Cl. 197—145)

This invention relates to the platen-carriage of typewriting machines.

Fill-in work on government bid-forms or similar material, in which a number of ruled sheets are secured by fasteners which prevent the insertion of the work in the usual way, can be efficiently performed in a typewriter having a detachable platen, which permits the work-sheets to be set directly into the machine and the platen returned to position, thus eliminating the necessity of separating the sheets for individual insertion. A difficulty presented by such work-sheets, however, is that the spacing of the lines does not always conform to the spacing established by the line-spacing mechanism of the typewriter, and it has previously been necessary either to perform the work independently of the line-spacing control, or to readjust the work-sheet as each new line is being typed.

It is an object of this invention to provide an improved platen-carriage in which the platen is releasably held by finger-operated clamps which are automatically locked against accidental opening or loosening. It is a further object to provide means effective to restrain the "creeping" or vibration-induced rotation of the platen when the normal platen-detent has been released, so that interlineated or other fractionally-line-spaced work may be accurately performed.

In this invention, the platen-carriage end-pieces have open-mouthed bearings to receive bearings in which the platen stub-shafts are journaled. Each end-piece is provided with a toggle-jointed platen-securing clamp comprising a finger-lever linked to a pivotally mounted keeper, the latter being arranged to press downwardly on the platen-shaft bearings by manipulation of the finger-lever. Spring-actuated draw-bolts are provided to lock the finger-levers in platen-securing position.

To prevent platen-creeping when the line-space detent has been released to permit fractional line-spacing, there is provided an auxiliary detent including a brake-shoe arranged to engage a suitable brake-drum on the platen-shaft, conjointly with the release of the line-space detent, thus permitting fractional line-spacing under positive control.

It is a feature of this invention that with the clamp-operating finger-levers in platen-securing position, the pivot points of the toggle-jointed clamps are aligned to prevent the accidental "breaking" or relaxing of the said joints, and the said clamps are thus unyieldingly resistant to upward pressure caused by the resistance of the

bulky work-pack to confinement between the platen and the feed-rolls, or by the inertia of the platen-unit during the case-shifting movement thereof.

It is a second feature that because the platen-clamps are in this manner self-locking, a comparatively loose engagement is permitted between the draw-bolts and the finger-levers, and light compression springs are effective to drive the said bolts into lever-locking position.

A third feature is that the platen-clamp locking-means require no adjustment, and the operation thereof, being unaffected by the vibration or jarring of the machine, is positive and uniform.

Other features and advantages will hereinafter appear.

In the accompanying drawing,

Figure 1 is a fragmentary plan view of an Underwood typewriter, partly in section, showing details of the platen and platen-carriage construction.

Figure 2 is a fragmentary end-elevation of the carriage of Figure 1, illustrating the platen-clamps and the line-space detents, the former in platen-securing position.

Figure 3, similar to Figure 2, shows the platen released for removal.

Figure 4 is an end-elevation of the carriage, illustrating the organization of the line-space feed and detent mechanism.

Figure 5 illustrates the co-operative action of the normal and auxiliary line-space detents.

Figure 6 is a magnified view of the yoke-end of the clamp-operating lever, illustrating its co-operation with the draw-bolt in locking the clamps in platen-securing position.

Figure 7 is an enlarged perspective, partly in section, of the draw-bolt and the associated clamp-operating lever.

End-pieces 10 of a typewriter platen-carriage, Figure 1, are spanned at the bottom by a transverse, grooved bar 11, Figure 2, supported on anti-friction balls 12 within a co-operatively grooved runway 13. It will be understood that the carriage may also include a paper-shelf, additional transverse tie-bars and main and upper feed-rolls, which have not been shown in the drawing because they are of familiar design and are unimportant as respects this invention. Each end-piece 10 may be provided with the usual ornamental mask, of which a side-wall 14 of the left-hand mask has been shown in section in Figure 1.

The platen-unit 15 includes an outer shell 16 overlying a cylindrical metal core 17 into which

end-pieces 18 are screw-threadedly inserted to the depth permitted by a gaging shoulder 20. Stub-shafts 21 are threaded into the said end-pieces to a fixed depth. The left-hand stub-shaft 21, Figure 1, passes through a hub or extension 22 of the left-hand end-piece 18, and is secured to the said hub by a set-screw 23. Knobs 24 are fixed to the stub-shafts.

A line-spacing ratchet 25 is arranged to co-operate with a line-space-feeding mechanism 26 (Figure 4), a lever 27 and a pawl 28 of which are carried below the platen-shaft to permit the free removal of the platen-unit. The ratchet 25 is formed on the outer surface of a brake-drum 30, which comprises one element of a line-space release-clutch 31 for freeing the platen from the line-space-feeding mechanism. The drum 30 additionally co-operates with an auxiliary line-space detent, as later described. The said release-clutch, which in this invention is considered a part of the platen-unit 15, is disclosed in my Patent No. 1,432,695, issued October 17, 1922. The release-clutch includes a brake-shoe 32, Figure 1, which is normally in frictional contact with the inner surface of the brake-drum 30 to maintain an operative engagement between the drum 30 and the platen-shaft 21 so that the platen-unit may be rotated by the line-space feed 26. The platen-unit 15 may be disconnected from the line-spacing feed by drawing outwardly on a knob 33, which brings the brake-shoe 32 out of engagement with the said drum, all as described in my said prior patent.

A disk 34, Figure 1, also an element of the line-space release-clutch, is fixed to the left stub-shaft 21 by a collar 35 and set-screw 36, and abuts against the end of the hub 22. At the right-hand stub-shaft, appropriate means are employed to establish the length of shaft between the collar 37 of the end-piece 18 and the hub 38 of the knob 24.

The right stub-shaft 21 and the hub 22 are smoothly machined to be freely rotatable within collar-like platen-bearings 40. Compression springs 41 urge the bearings 40 into contact with the disk 34 and the hub 38 at the left-and-right hand ends respectively of the platen.

The carriage end-pieces 10, which are preferably of cast metal, have open-mouthed bearings 42, Figure 3, in which the platen-bearings 40 are arranged to seat with a snug fit. The latter are provided with flanges 43 which slidably engage the sides of the end-pieces 10.

It can be seen that the assembly of the platen-unit 15 readily permits standardization of the span between the disk 34 and the hub 38, and a similar standardization of the center-to-center distance between the bearings 40. Thus, various types of platen-units 15, the printing surface characteristics of which may be suitable for various typing operations, may be used interchangeably with the same platen-carriage.

The platen-unit is releasably held within the platen-carriage by a platen-securing and release mechanism, hereinafter referred to as a "platen-clamp", which is provided at each carriage-end-piece.

Each platen-clamp includes an operating lever 46, a keeper 47 and a link 48, all of which are shown to advantage in Figure 3. The lever 46, preferably of pressed metal, is pivotally secured to an extension 49 of the carriage-end-pieces 10 by a rivet 50. As Figure 3 indicates, the arm 51 of the said lever is channel-shaped and as it is arranged to straddle the end-piece extension 49, it forms an attractive mask for the said end-

piece extensions. Grooves 51^a are provided in the end-pieces 10 to provide clearance for swinging the levers 46. A suitable finger-piece 53 is provided at the end of the lever 46, and overhangs the edge of the extension 49, as shown in Figure 2.

The keepers 47, suitably pivoted to the end-pieces 10 as at 54, include side-walls 55, spanned at the top by a web 56 which is arranged to overlie the platen-bearings 40. The web may be punched or drilled to accommodate a large-headed machine-screw 57 adjustably held by the oppositely disposed nuts 58, 60. The heads 61 of the machine-screws 57 span the flanges 43 of the platen-bearings 40 and as the said flanges are of substantial strength, the downward pressure exerted by the keeper does not cause a distortion of the bearings 40, or an impairment of the free rotation of the platen-shafts therein.

The link 48, which pivotally connects the work-arm 52 of the lever 46 and the keeper 47, engages the keeper at a point 59 intermediate its ends. The work-arm 52 and the link 48 form a toggle-joint, and a counterclockwise rotation of the lever 46 causes a clockwise movement of the keeper. With the platen seated in the carriage-end-pieces 10 as shown in Figures 1 and 2, a downward pressure on the levers 46 will cause the keepers to bear firmly down upon the platen-bearings 40, and the platen-unit 15 is held securely in operative position.

An abutment 62 is formed on the upper surface of each end-piece extension 49 to act as a stop for the operating levers. Suitable adjustment for wear or pressure standardization is provided by the adjustable mounting of the machine-screws 57.

The operating levers 46 have a yoke-end 63 formed with a draw-bolt-receiving hole 64 and a restricted passage 65 to co-operate with a draw-bolt 66 in locking the said levers in platen-securing position. The centers of the draw-bolts 66 and the holes 64 are circumferentially located with respect to the pivot points 50 of the levers 46, and the yokes 63 may be swung into and out of engagement with the draw-bolts.

The draw-bolts 66 are preferably cylindrical and have a head-portion 67 and a short neck 68, the latter being slightly smaller in diameter than the hole 64 of the yoke 63 but substantially larger than the width of the passage 65. Each drawbolt is slidably mounted on a machine-screw 70 which is inserted into the respective end-pieces 10 and projects at right angles therefrom. It will be noted that the threaded portions of the screws 70 are smaller than the shanks 71 thereof, and the latter thus form a gage for uniformly inserting the said screws into the end-plates. The shank diameter is less than the width of the passage 65, and thus the screws 70 do not conflict with the movement of the operating levers 46 when the latter are swung into or out of platen-securing position.

A light coil-spring 72 encompassing the shank 71 is confined within the head-portion of each draw-bolt 66, and reacts against a wall 73 thereof to drive the said draw-bolt into contact with the end-piece. It will be noted that the end-piece contacting edge of the neck 68 is slightly rounded; and it is preferable to provide the outer extremity of the draw-bolts with a grooved bead 74, to form a grip.

Each lever 46 may be provided with a stop 75, which, by striking a shoulder 76 formed in the associated end-piece, limits the clockwise rotation of said lever.

With the operating levers 46 in platen-securing position, as shown in Figures 2 and 6, the yokes 63 of the said levers encompass the necks 68 of the associated draw-bolts to an extent which prohibits upward movement of the levers 46 and the latter cannot be swung into platen-releasing position without first drawing the bolts out to bring the necks 68 clear of the said yokes, as shown in Figure 7.

The platen-clamp-releasing operation is accomplished with little effort, preferably by drawing the bolts outwardly with the thumb and forefinger, and simultaneously pressing upward against the finger-pieces 53 with the middle finger. As shown in Figure 3, the keepers 47 are thereby swung completely out of the path of the platen-bearings and the platen-unit 15 may be lifted directly out of the platen-carriage.

No adjustments of the draw-bolts are necessary, or, in fact, possible after the assembly of the device; they are free to turn on the screws 70, and the uniformity of operation of said bolts is unaffected by the vibration or shocks incident to the operation of the machine.

The operating levers 46 are relocked automatically as they are returned to the platen-clamp-securing position. As seen in Figures 6 and 7, the tips 77 of the yokes 63 are beveled inwardly. On the downward throw of the levers 46, the tips 77 contact the rounded edge of the necks 68 of the draw-bolts, and "knife in" between the necks and the end-plates, camming the draw-bolts outwardly against the action of the springs 72, and thus permitting the passages 65 to clear the shanks 71 of the screws 70. As the holes 64 come into position, the springs 72 drive the bolts inwardly, locking the levers in platen-securing position. It is obvious that no similar camming action can occur which would permit the release of the levers 46 by a mere upward pressure on the finger-pieces 53, because of the extent to which the yokes 63 encompass the necks 68 of the draw-bolts.

As shown in Figure 2, the levers 46 and links 48 are so organized that with the levers in platen-securing position, the pivot-points 78 thereof spring to a position of slight overthrow with respect to the pivots 50 and 59 of the levers 46 and keepers 47, respectively. The platen-securing clamps are in this manner self-locking; and the draw-bolts are called on merely to lock the clamp-operating levers 46 against accidental clamp-opening displacement. It is not essential, therefore, that the draw-bolts 66 engage the yokes 63 with a tight fit, and the springs 72 may drive the bolts home without obstruction.

From reference to Figure 4, it will be evident that the platen-line-spacing mechanism 26 and its associated detent-devices are organized in such manner as not to overlie the platen-unit or in any way interfere with its removal. Said line-space-feeding mechanism includes the usual line-spacing and carriage-return lever 79 pivotally mounted on an upper plate of the left-hand carriage-end-piece mask, all as indicated in dotted lines in Figure 4. An arm 80 is associated with the lever 79 so as to be swung thereby, and bears against an arm 81 of the feed-pawl-operating lever 27 which, as shown, is carried beneath and to the rear of the platen-shaft 21. The lever 27 is pivotally mounted in spaced relationship with the wall 14 of the carriage-end-piece mask by a screw 82 and a collar 82^a, and a rotation of the lever 79 is thereby effective to swing the lever 27 in a counterclockwise direction about

the pivot 82. Lever 27 is held in normal position, illustrated in Figure 4, by a suitable contractile spring (not shown). The pawl 28 which includes a curved operating head 83 is pivotally secured to the lever 27, as at 84, and said lever and pawl thus form a substantially U-shaped structure, the closed bottom of which is entirely below the platen-shaft.

The operating head 83 is kept in operative association with the ratchet 25 by a spring-link 85, which urges the head 83 into slidable contact with a pin 86 projecting laterally from a line-space-setting lever 87, Figures 1 and 4. The lever 87 is pivotally secured to the mask side-wall 14, as at 88, and is arranged to be yieldably held in a plurality of operating positions through the co-operation of a spring-detent 90. The position of the lever 87 so controls the point of engagement of the pawl-head 83 with the ratchet 25 as to cause a rotation of the platen equivalent to one, two or three line-spaces in the familiar manner. A pin 91 is secured to the lower end of the pawl 28 to co-operate with a toe 93 of the pawl-operating lever 27 to prevent the excessive clockwise rotation of said pawl with respect to the lever 27.

It is customary to provide a detent operative on the line-spacing ratchet to prevent platen-rotation while typing, and to provide said detent with disengaging means to permit fractional line-spacing. The detent-disengaging means should not be confused with the release-clutch 31, previously referred to. The release of the line-spacing detent from engagement with the ratchet does not disengage the latter from the platen-shaft, and the platen may still be fully or fractionally line-spaced by manipulation of the lever 79. In this invention, an auxiliary detent is provided which is brought into platen-restraining operation conjointly with the release of the line-space-ratchet detent, and control of the platen is maintained.

Referring to Figures 2 and 4, a platen line-space-detent rocker 95 is pivotally mounted intermediate its ends on the carriage-end-plate 10 by an eccentrically shouldered pivot-screw 97, which permits an adjustment of the rocker 95 with respect to the platen-unit 15. A roller 98, journaled between the side-pieces forming an arm 99 of the rocker, is normally held in yieldable platen-restraining contact with the teeth of the ratchet 25 through the action of a compression-spring 100, Figure 5; said spring being mounted within a bracket 101 fixed to said end-piece, and adjustable by a screw 101^a. Said spring presses against an arm 102 of said rocker, urging the latter into rotation counterclockwise of Figure 5, and bringing the roller 98 into engagement with said ratchet.

A brake-shoe 103, Figure 2, preferably in the form of a finger of spring metal, is secured to a bracket 104, which may be formed as an integral part of the rocker 95. It will be noted that the brake-shoe 103 and roller 98 are oppositely located with respect to the pivot-screw 97, and a rotation of the rocker 95 in a direction clockwise of Figure 5 would carry the roller 98 out of engagement with the ratchet 25 and bring the brake-shoe 103 into contact with the brake-drum 30, as presently described.

As shown in Figure 2, with the roller 98 in platen-restraining position, the brake-shoe is free of engagement with the brake-drum 30 adjacent the ratchet 25.

A lever 106, preferably in the form of a bell-

crank, is provided to cause a displacement of said rocker about its pivot 97. Said lever is pivoted to the end-piece 10 on a large-headed screw 107 and pivotally connected to the detent-rocker 95 by a link 108 engaging the rocker by a lost-motion, screw-and-slot connection 110, 111, which permits the normal oscillatory movement of the detent-rocker 95 during rotation of the platen.

10 A downward pressure on the knob 112 of the lever 106 causes a clockwise movement of the rocker 95, throwing the roller 98 out of engagement with the ratchet 25, thus freeing the platen from the normal line-space detent and conjointly bringing the brake-shoe 103 into frictional contact with the brake-drum 30. As illustrated in Figure 5, said brake-shoe is distorted by its contact with the drum, and the friction engendered by such contact is sufficient to restrain the accidental rotation of the platen when work is being performed independently of line-space control. The use of a single drum to accommodate the ratchet 25 and the necessary braking surface for co-operation with the brake-shoe 103 effects economies in manufacturing cost and provides a large-diameter brake-drum which increases the braking effect of said shoe. It has been found unnecessary to provide the brake-shoe 103 with a frictional sleeve or coating, but such modification is within the scope of the invention.

It will be seen in Figure 5 that the link 108 has an offset 113 which is sufficient to permit the pivot-point 114 of said link to overthrow the line of action between the screws 107 and 110, and the lever 106 is thereby held in release position against the pressure of the spring 100. The link 108, being in the same plane as the lever pivot-screw 107, abuts against said screw and limits the amount of rotation of said lever. Upward or clockwise rotation of the release-lever 106 is limited by a projection 115 formed in the link 108 to overlie the surface of the bracket 101 and to abut thereagainst to prevent the excessive rotation of said lever.

The clamps are effective to firmly seat the platen in the open bearings 42 against the tension of either the line-space-detent rocker 95, as seen in Figure 2, or the brake shoe 103, as seen in Figure 5.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others.

Having thus described my invention, I claim:

1. In a platen-carriage for a typewriting machine, having spaced end-pieces with open-mouthed bearings arranged to receive platen-shaft bearings, clamps arranged to hold said platen-shaft bearings releasably in the end-piece bearings, the said clamps comprising, in combination, a finger-lever, a pivoted keeper linked to the said finger-lever and arranged to bear upon the platen-shaft bearings or to be swung clear thereof by the action of the said finger-lever to permit the removal of the platen from the carriage, and a slidable locking-bolt arranged to co-operate with an open-ended yoke formed in the said finger-lever to lock the latter in platen-securing position.

2. In a platen-carriage for a typewriting machine, having spaced end-pieces with open-mouthed bearings arranged to receive platen-shaft bearings, clamps arranged to hold said platen-shaft bearings releasably in the end-piece bearings, the said clamps comprising, in combination, a finger-lever, a pivoted keeper linked to

the said finger-lever and arranged to bear upon the platen-shaft bearings or to be swung clear thereof by the action of the said finger-lever to permit the removal of the platen from the carriage, and a spring-actuated locking-bolt slidably mounted on the said end-pieces and arranged to co-operate with a yoke formed in the said finger-lever, the said yoke formed with a locking-bolt-receiving opening and an edge-located passage to the said opening, the passage being substantially smaller than the diameter of the locking-bolt, means arranged to displace the locking-bolt to permit the said yoke to pass the locking-bolt mounting as the finger-lever is moved into platen-securing position, whereupon the bolt is spring-actuated into platen-securing engagement with the said yoke.

3. In a typewriting machine, the combination with a platen-carriage having open-mouthed bearings, a platen detachably mounted in said bearings and line-spacing and line-spacing-detent devices associated with the said platen, of platen-securing clamps pivotally mounted on the platen-carriage to hold the platen releasably in the said bearings, the said clamps comprising a finger-lever, a keeper operatively associated with the said lever and arranged to be swung down against the platen or upwardly away therefrom to hold or release the platen, means for securing the keeper against upward movement when in platen-securing position, and independent means for locking the finger-lever against accidental displacement.

4. In a typewriting machine, the combination with a platen-carriage having open-mouthed bearings, a platen detachably mounted in said bearings and line-spacing and line-spacing-detent devices associated with the said platen, of platen-securing clamps pivotally mounted on the platen-carriage end-pieces to hold the platen releasably in the said bearings, the said clamps comprising finger-levers, keepers pivoted to the said end-pieces adjacent the platen-bearings, and links operatively connecting the said keepers with the finger-levers, the keepers arranged to be swung into or out of platen-securing engagement with the platen by manipulation of the finger-levers, the organization of the lever, link and keeper of each clamp forming a toggle-joint in which the pivot points thereof are overthrown when the said clamp is in platen-securing position, thus preventing a force directed upwardly against the keeper from relaxing the said clamp.

5. In a typewriting machine, the combination with a platen-carriage having open-mouthed bearings, a platen detachably mounted in said bearings and line-spacing and line-spacing-detent devices associated with the said platen, of platen-securing clamps pivotally mounted on the platen-carriage end-pieces to hold the platen releasably in the said bearings, the said clamps comprising finger-levers, keepers pivoted to the said end-pieces adjacent the platen-bearings, links operatively connecting the said keepers with the finger-levers, the keepers arranged to be swung into or out of platen-securing engagement with the platen by manipulation of the finger-levers, the organization of the lever, link, and keeper of each clamp forming a toggle-joint in which the pivot-points thereof are overthrown when the said clamp is in platen-securing position, and locks operative on the finger-levers to prevent accidental, clamp-releasing movement of the said levers.

6. A platen-carriage for a typewriting machine,

including, in combination, spaced end-plates having open-mouthed bearings arranged to receive a platen, clamps co-operating with said end-plate bearings to hold the platen releasably therein, levers for operating the clamps, and spring-operated draw-bolts arranged to engage the clamp-operating levers to lock the said levers automatically in platen-securing position.

7. In a typewriter, an improved platen-carriage including a rotatable cylindrical platen mounted on axial shafting, bearings on each side of the carriage on which said shafting is detachably mounted, clamps for frictionally engaging said shafting and locking said shafting on said bearings, said clamps being movable into and out of engaging position, finger-pieces for moving said clamps, said finger-pieces also locking said clamps unyieldably in the operative position, and means for automatically locking said finger-pieces in the operative position of the clamps.

8. A platen-carriage for a typewriting machine, including, in combination, spaced end-plates having open bearings arranged to rotatably support a platen, clamps co-operating with said end-plate bearings to hold the platen detachably therein, levers for operating the clamps and spring-operated means arranged to engage the clamp-operating levers to lock said levers in platen-securing position automatically.

9. A platen-carriage for a typewriting machine, including, in combination, spaced end-plates having open bearings arranged to rotatably support a platen, clamps co-operating with said end-plate bearings to hold the platen detachably therein, levers for operating the clamps and spring-operated means arranged to engage the clamp-operating levers to lock said levers in platen-securing position automatically, said means being mounted on the outer sides of said end-plates.

10. A platen-carriage for a tabulating machine, including, in combination, spaced end-plates having open bearings arranged to rotatably support a platen, clamps co-operating with said end-plate bearings to hold the platen detachably therein, levers for operating the clamps and spring-operated draw-bolts arranged to engage the clamp-operating levers to lock the said levers in platen-securing position automatically, said draw-bolts being mounted opposite each other on the outsides of the end-plates of the carriage.

11. A platen-carriage for a tabulating machine, including, in combination, spaced end-plates having open bearings arranged to rotatably support a platen, clamps co-operating with said end-plate bearings to hold the platen detachably therein, levers having finger-pieces for operating the clamps, and spring-operated draw-bolts arranged to engage the clamp-operating levers to lock the said levers in platen-securing position automatically, said draw-bolts being mounted opposite each other on the outsides of the end-plates of the carriage, and below and in front of the ends of the finger-pieces whereby the draw-bolts may be gripped and pulled out readily by the middle finger and thumb of each hand, and the ends of the finger-pieces be lifted by the fore-finger of each hand simultaneously.

12. A platen-carriage for a typewriting machine, comprising, in combination, a support having an open bearing adapted to journal a

platen, a keeper movable into and out of engageable position with the platen to retain same in said bearing and permit removal of the platen therefrom, and a linkage including articulated members pivoted on said support and said keeper respectively and having a stop in aligned condition, said linkage in aligned condition holding said keeper in engaging position and foldable to move said keeper free of the platen.

13. A platen-carriage for a typewriting machine, comprising, in combination, a support having an open bearing adapted to journal a platen, a keeper movable into and out of engageable position with the platen to retain same in said bearing and permit removal of the platen therefrom, a lever having a pivot on said support, a link having a pivot on said keeper and flexibly connected to said lever, and a stop for limiting movement of said lever in alignment with said link, said lever and link in aligned condition co-operating to hold said keeper in platen-engaging position and foldable to move said keeper free of the platen.

14. A platen-carriage for a typewriting machine, comprising, in combination, a support having an open bearing adapted to journal a platen, a keeper movable into and out of engageable position with the platen to retain same in said bearing and permit removal of the platen therefrom, a lever having a pivot on said support, a link having a pivot on said keeper and flexibly connected to said lever, a stop for limiting movement of said lever in alignment with said link, said lever and link in aligned condition co-operating to hold said keeper in platen-engaging position and foldable to move said keeper free of the platen, and means for automatically locking said lever in platen-retaining position.

15. A platen-carriage for a typewriting machine, comprising, in combination, a support having an open bearing adapted to journal a platen, a keeper movable into and out of engageable position with the platen to retain same in said bearing and permit removal of the platen therefrom, a lever having a pivot on said support, a link having a pivot on said keeper and flexibly connected to said lever, a stop for limiting movement of said lever in alignment with said link, said lever and link in aligned condition co-operating to hold said keeper in platen-engaging position and foldable to move said keeper free of the platen, said lever having a locking recess, and a retractible spring-pressed bolt arranged to engage said recess to hold said lever in effective position.

16. A platen-carriage for a typewriting machine, comprising, in combination, a support having an open bearing adapted to journal a platen, a keeper movable into and out of engageable position with the platen to retain same in said bearing and permit removal of the platen therefrom, and a linkage including articulated members pivoted on said support and said keeper respectively, and having a stop in aligned condition, said linkage in aligned condition holding said keeper in engaging position and foldable to move said keeper free of the platen, said keeper including a member adjustable relatively to the platen whereby to vary the effect of said linkage.

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