

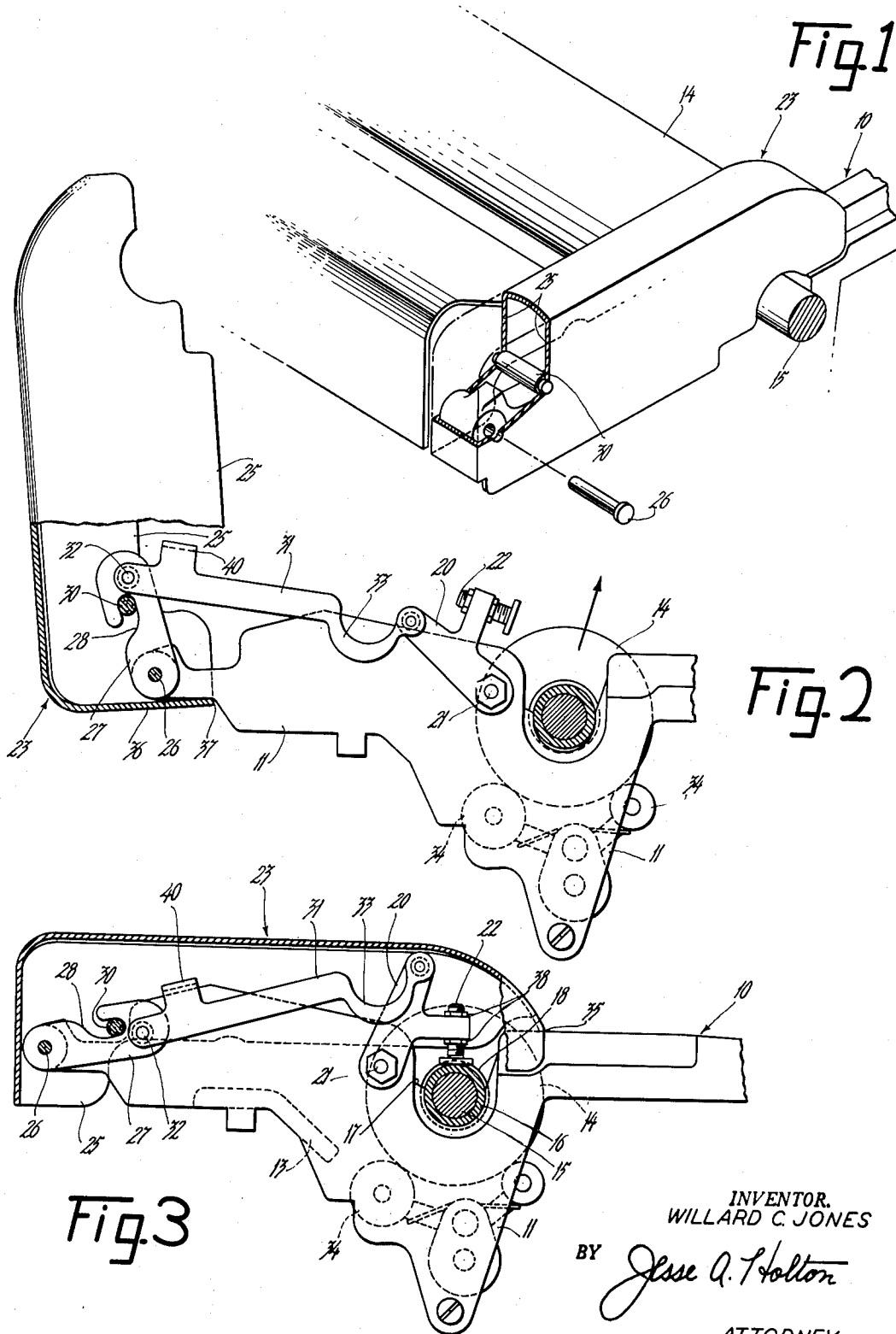
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W. C. JONES

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PLATEN REMOVING FACILITY

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INVENTOR.
WILLARD C. JONES

BY

Jesse A. Tolton

ATTORNEY

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PLATEN REMOVING FACILITY

Willard C. Jones, West Hartford, Conn., assignor to Underwood Corporation, New York, N. Y., a corporation of Delaware

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This invention relates to typewriters and the like, and more particularly to devices therein to hold a platen removably or exchangeably in position.

Devices for this generally are well known and in wide use. The patent to Helmond, No. 2,172,008, dated September 5, 1939 discloses such a device. In such patent, a platen, by means of bushings on projecting shaft ends of the platen, is removably seated in saddles that are provided on a platen supporting frame, and high-leverage, toggle-action clamps bear normally firmly down on the bushings. The stated structure very efficiently and firmly holds the platen turnably in position but the aesthetic qualities of the machine are adversely affected by the exposed clamp parts and the saddle provisions for the platen.

It is a main object of the invention to provide a platen hold-down clamp which normally holds the platen securely and accurately in position, and which embodies as an operating handle for said clamp a platen frame and cover that shrouds normally from view the clamping mechanism as well as the general area where the saddle for the platen is situated, the said cover being movable to release the clamp and to provide a free path for removal of the platen.

It is also an object of the invention to provide in a clamp constructed in accordance with the foregoing object further a feature whereby as such clamp is applied by operation of the said cover into said shrouding position, certain members of the clamping mechanism which constitute a clamp actuating toggle will become strained and will automatically snap into an over-center position for the clamp to stay applied and further for the cover to bear resiliently down upon the platen frame to the end of preventing rattling thereof during operation of the typewriter.

Still other objects and features of the invention will be apparent upon consideration of the detailed description which follows, as the description is read in the light of the accompanying drawings.

Now specifically referring to the drawings, Figure 1 is a fractional rear perspective view looking down at an angle on the right end rear portion of a typewriter carriage, the view showing a pivoted carriage end cover constituting a platen clamp operating handle.

Figure 2 is a fractional left hand side elevation of a platen carriage or frame showing the details of the platen clamp-down device of the invention, the clamp being in a cast-off position permitting free removal of the platen.

Finally, Figure 3 is a side elevation similar to Figure 2, but showing the platen clamp in effective position.

Now directing attention more particularly to Figure 3, the numeral 10 identifies a platen frame comprising two spaced upright carriage ends 11 of which only the left one is shown, such carriage ends being connected by a tie bar 13 extending between the said carriage ends.

A conventional platen roll 14 having at least one end thereof a shaft 15 rigidly extending therefrom and having at such end an axially confined bushing 16, is seated by means of such bushing 16 in an open saddle formation 17 provided in the carriage end 11. The said bushing 16 has usual end flanges 18 flanking the lateral

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sides of the saddle 17 and thereby locates the platen axially upon the frame 10. A mechanism is provided to clamp releasably the bushing 16 tightly seated upon the saddle formation 17. This clamping mechanism comprises a clamp lever 20 pivotally supported at 21 behind the saddle formation 17 on the platen frame end 11. Said clamp lever 20 has adjustably supported thereon a screw 22 having a head bearing normally with pressure upon the bushing 16. Said clamping mechanism moreover includes as an operating element therefor a cover or shroud 23 which overlies normally the carriage end 11 in a manner to conceal the parts at the saddle 17 and certain parts of the clamping mechanism. The said cover or shroud 23 comprises a box-like structure which is open at the bottom and includes a left and a right side wall 25, both reaching down to flank oppositely the carriage end 11. The said cover or shroud 23 is pivotally carried upon the carriage end 11 by means of a pin 26 which extends through perforations provided in the two side walls 25 of the cover and also a perforation in the rear of the carriage end 11. Pivoted also on said pin 26, to move unitarily with said cover 23, is an arm 27. The said arm 27 pivots as a unit with said cover 23 in that it is formed with a slot 28 whereby it has a hooked association with a pin 30 extending between the two side walls 25 of the cover, the said pin 30 at both ends being riveted to the cover walls 25. The said arm 27 has a pivotal connection at 32 with one end of a link 31. At the other end the said link 31 has a pivotal connection with the clamp lever 20. The said arm 27 and the link 31 constitute an operating toggle for the clamp 20. The toggle 27, 31 is operable from a folded to a straightened position to apply the clamp 20 and reversely to release the clamp. In being applied by said toggle 27, 31, the clamp is first moved rapidly to take a position over the platen bushing 16, and then at decreasing speed but rapidly increasing leverage. The toggle 27, 31 becomes somewhat strained as the clamp 20 reliably and forcibly, at high leverage, presses the platen bushing 16 firmly into the saddle 17, the toggle link 31 preferably being formed with a gooseneck 33 to permit it to flex as the toggle 27, 31 straightens fully. However, this capacity for yield may be provided for in some other way in the clamping mechanism. The said toggle 27, 31 is preferably arranged for operation beyond dead center position, for the pivotal point 32 to transgress an imaginary straight line drawn between the center of the pivot pin 26 and the point of articulation of the link 31 with the lever 20. As the said straight line is transgressed by said pivotal point 32, the strained gooseneck 33 by expanding will act to maintain the clamp 20 fully applied.

It will be observed that a conventional feed roll mechanism comprising feed rolls 34 for paper feeding cooperation with the platen 14 is provided on the frame 10 and that said feed rolls 34 resiliently oppose downward seating of the platen 14. The said feed rolls yield downwardly under the superior toggle pressure applied to the clamp 20.

As has been stated, the toggle 27, 31 is forced past dead center position in order that the clamp 20 will stay applied. The toggle link 31 then exerts a reacting force below the center of the pivotal pin 26, thereby urging the arm 27 along with the associated cover 23 clockwise with reference to the showing of Figure 3. However, the front end of the cover 23 at 35 meets the top of the carriage end piece 11, and the toggle thereby is stopped against further movement beyond dead center position. The clamp 20 therefore will not only stay applied firmly upon the platen bushing 16 but the cover 23 under the resilient force supplied by the gooseneck 33 will firmly seat at 35 and will not rattle during operation of the typewriter. The clamp 20 is readily releasable by grasping the front end of the cover 23 and swinging it upwardly and rear-

wardly to the position illustrated in Figure 2. The cover thus takes up a position rearwardly of the saddle 17, and the toggle 27, 31 moves the clamp upwardly to a position also rearward of the saddle 17, whereby a clear path is provided for upward removal of the platen 14, it being understood that another platen may thus be substituted. The limit of rearward swinging movement of the cover 23 is determined by a rear wall 36 striking a lower edge of the platen frame as at 37 in Figure 2.

The strength of clamping exerted by the screw 22 of the clamp 20 is adjustable by turning the screw 22 on the clamp and fixing the obtained adjustment by drawing up nuts 38 tightly. Preferably the adjustment is made so that the yield afforded by the gooseneck 33 is almost fully recovered in the position of the parts seen in Figure 3. In order to effect the stated adjustment without interference by the cover 23, the latter may temporarily be removed from the platen frame by withdrawing the pin 26 and moving the cover to disassociate the pin 30 from the slot 28. With the pin 26 then reinserted to pivot the arm 27, the clamp 20 may then be operated and tested by simply operating the toggle 27, 31, appropriate adjustment of the clamp screw 22 being made to exert the desired pressure on the bushing 16. To limit the throw of the toggle beyond dead center position in the absence of the cover, the toggle link 31 is provided with a bent-off ear 40 to strike the top edge of the side piece 11. The proper action of the clamp having been obtained, the cover is then added to the assembly. The said ear 40 is located so that if the clamp is applied by operation of the cover 23, it will just be short of striking the end piece 11, as is evident from Figure 3, wherein there is shown a small space under said ear.

Variations may be resorted to within the scope of the invention.

What is claimed is:

1. The combination with a platen frame end piece having a saddle for seating a removable platen, of a clamp mounted on said end piece to swing in the general plane thereof oppositely to an applied position and to a released position respectively to hold said platen seated in said saddle and to free it for removal from said saddle, a toggle operable from a folded to slightly beyond a straightened condition to apply said clamp and hold it applied and reversely operable to release said clamp, a cover normally in a position overlying said end piece and said clamp, means mounting said cover for movement between said overlying position and a raised position, the cover in the latter position allowing removal of the platen, a stop engageable by said cover in reaching said overlying position, and means to actuate the toggle to folded condition by movement of the cover from said overlying position to the said raised position, and to actuate said toggle to the said slightly beyond straightened condition by movement of the cover from said raised to said overlying position, said toggle in being operated beyond said straightened condition holding said clamp applied and also exerting a force on the cover directionally to urge it resiliently against said stop.

2. The combination with a platen frame end having a saddle for seating a removable platen, of a cover normally in a position overlying said platen frame end, means mounting said cover for movement between said overlying and a raised position, applicable and releasable platen hold-down means comprising, a clamp mounted on said frame end to swing oppositely to an applied position and to a released position, a toggle operable from a folded condition to slightly beyond a straightened condition by the movement of said cover to said overlying position, thereby to apply said clamp and hold it applied, said toggle operable to release said clamp by movement of the cover to the said raised position, an abutment engageable by said cover in reaching said overlying position, and resilient means included in said hold-down means and effective when the toggle is in the said slightly be-

yond straightened condition to keep said clamp resiliently active and at the same time to exert a resilient force directionally on said cover for it to contact said abutment.

3. The combination with a platen frame end having a saddle for seating a removable platen, of a cover normally in a position overlying said platen frame end, means mounting said cover for movement between said overlying and a raised position, a clamp mounted on said frame end to swing oppositely to an applied position and to a released position, a toggle comprised of two members, operable from a folded condition to slightly beyond a straightened condition by the movement of said cover to said overlying position, thereby to apply said clamp and hold it applied, said toggle operable to release said clamp by movement of the cover to the said raised position, and an abutment on said frame engageable by said cover in reaching said overlying position, one member of said toggle being flexible in length and effective when the toggle is in the said slightly beyond straightened condition to keep said clamp resiliently active and at the same time effective to exert a resilient force directionally on said cover for it to contact said abutment.

4. The combination with a platen frame end piece having a saddle for seating a removable platen, of a clamp pivotally mounted on said end piece closely behind said saddle, to swing from behind said saddle forwardly and downwardly to a platen hold-down position over the saddle, and to swing oppositely to a released position behind said saddle to free said platen for upward removal from said saddle, a toggle linked to said clamp and by operation to a straightened condition swinging said clamp to said hold-down position and by operation to an upwardly broken condition swinging said clamp to said released position, a cover normally overlying and concealing said end piece, the said saddle and the said toggle, means pivotally mounting said cover on said end piece near its rear extremity to swing upwardly and rearwardly from its overlying position to a raised position clear to the rear of said saddle, and means associating said cover operatively with said toggle so that movement of the cover downwardly from said raised to said overlying position will straighten the toggle and apply the clamp, and so that movement of the cover from said overlying to said raised position will break the toggle upwardly and will release the clamp, thereby rendering the platen freely removable.

5. The combination with a platen frame end piece having a saddle for seating a removable platen, of a clamp pivotally mounted on said end piece closely behind said saddle, to swing from behind said saddle forwardly and downwardly to a platen hold-down position over the saddle, and to swing oppositely to a released position behind said saddle to free said platen for upward removal from said saddle, a cover normally overlying and concealing the said end piece, the said saddle and the said clamp, axis means near the rear extremity of the cover mounting the latter to swing upwardly and rearwardly from its overlying position to a raised position clear to the rear of the saddle, and means to actuate said clamp oppositely between said two positions by oppositely swinging said cover between said overlying and said raised position, comprising, a link having at one end a pivotal connection with said clamp and having at the other end another pivotal connection in a constant relation to said cover, the said other pivotal connection when the cover is in said overlying position being disposed substantially on a straight line intermediate said cover-axis and the first said pivotal connection, and swinging upwardly and rearwardly with the cover to release the clamp.

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