

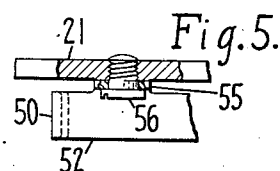
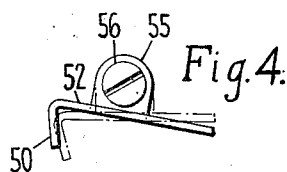
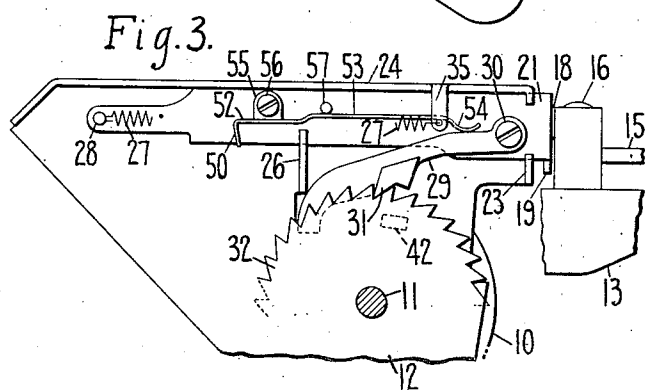
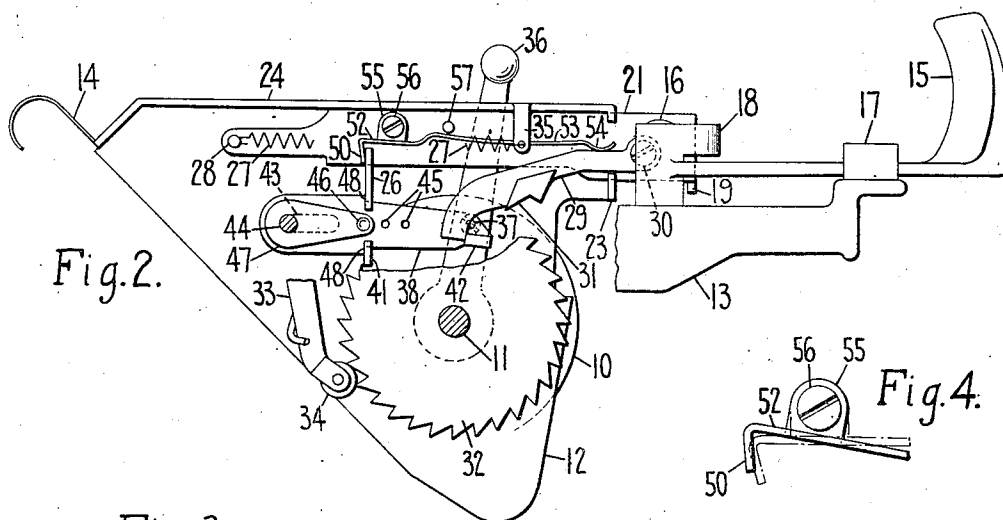
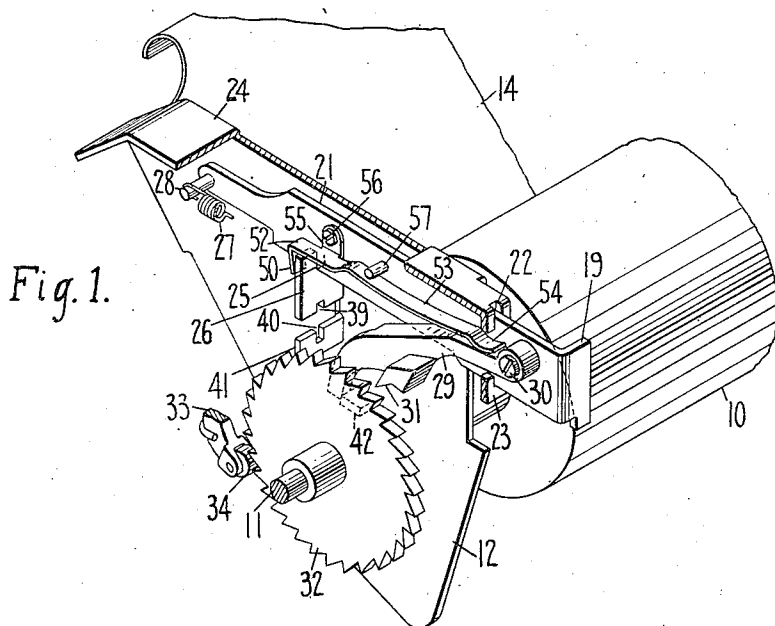
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TYPEWRITING MACHINE

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2,184,742

TYPEWRITING MACHINE

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6 Claims. (Cl. 197—114)

This invention relates to typewriters and more particularly to line-spacing mechanisms for rotatable platens, and especially to means for muting them.

It is the purpose of the present invention to arrange a part, which forms a spring for the line-space pawl, to serve also, at practically negligible extra cost, as a yieldable stop device for quietly arresting the return movement of the line-space-pawl carrier, and to obviate breakage.

It is a feature of the present invention to provide a single automatic-machine product or unit in the form of a lever, or bell-crank, made of spring metal and oscillating about a pivot upon the slidable line-space-ratchet-pawl carrier. This has a spring-stop at the rear, and has at the front a spring for holding the pawl against the ratchet. A stop-pin on the carrier, when the latter is operated, may limit the upward movement of the pawl-spring as the nose of the pawl passes over the top of the ratchet wheel. The spring-stop is formed near the pivot, and the pawl-spring may have an elongated upwardly-extending arch, the front support of which engages the top of the pawl. One of the brackets on the carriage, furnishing a slide groove for the carrier, may have a rigid lateral fin for engaging the spring-stop which latter may yield pivotally and therefore distribute any stresses or strains along the pawl-spring and throughout the unit, thereby substantially eradicating shock as a cause of fracture in the unit. The pivot mounting of the unit on the pivot screw may include an ear upwardly turned on the edge of the unit and pierced for the screw. The unit may be preferably formed of flat spring metal.

Other features and advantages will hereinafter appear.

In the accompanying drawing,

Figure 1 is a perspective view of the left end of a platen-carriage with parts removed to show the improved spring-stop construction.

Figure 2 is a side view of the spring-stop construction but also showing the line-space lever in the inoperative position and the line-space adjusting control set for three line-spaces.

Figure 3 is like Figure 2 but the line-space pawl and plunger are in the extreme left operative position.

Figure 4 is a side view of the left end of the spring-stop, the supporting ear being tilted on its pivot screw into the stopping position as in Figure 2, but the dot-dash lines show the disengaged position as in Figure 3.

Figure 5 is a plan sectioned to show the pivot screw.

A platen 10 is rotatably mounted on an axle 11 in a side 12 of an Underwood typewriter carriage 13 having a paper-table 14. A combined line-space and carriage-return lever 15 is pivotally mounted by a screw 16 on the front of the carriage 13 and in the inoperative position shown in Figure 2 engages a stop 17 upstanding on the front of the carriage 13. When the lever 15 is pushed away from the stop 17 an arm 18 of the lever 15 presses back on a front right-angled bend 19 of a plunger or carrier 21 which is guided in a stop 22 formed in a downwardly projecting front extension 23 of a side cover 24 turned outwardly from the carriage side 12 and a slot 25 formed in a lateral fin 26 on the outer wall of the side 12. A coil spring 27 anchored to a lateral pin 28 fastened to the rear of the carrier 21 and to an ear 35 tends to hold the carrier 21 and its lever-engaging bend 19 in the forward or inoperative position and so also tends to hold the lever 15 in the inoperative position against the stop 17. A line-space-lever pawl 29 extends to the rear alongside the carrier 21 and is pivoted thereon by a lateral screw 30. A tooth 31 is mounted on the side of the pawl 29 and is engageable with a line-space ratchet wheel 32 fixed on the platen axle 11. At the rear a spring-pressed detent-lever 33 carries a roller 34 which detents the ratchet wheel 32. As shown in Figures 2 and 3, as the lever 15 is pushed to the right the tooth 31 picks up the ratchet wheel 32 at a point in front of the top of the wheel 32, and the tooth 31 and the pawl 29 travel rearwards to turn the platen 10 the number of line-spaces permitted by the setting of a lever 36 pivotally mounted on the axle 11 and which is pivotally connected by a screw 37 to an arm 38 which is slidable forwards and backwards in a slot 39 formed in the bottom of the fin 26 and a slot 40 symmetrical to the slot 39 and formed in a supplemental fin 41 projecting laterally from the side wall 12 below the fin 26. A lateral cam 42 projects from the forward end of the arm 38, the rear end of which has an elongated slot 43 by means of which the arm 38 is guided on a lateral pin 44 mounted on the side 12. In the outer wall of the arm 38 are three indentations 45 in the left of which, as shown in Figure 2, lies a hummock 46 formed by impressing the right end of a spring-arm 47 fastened on the pin 44. When the lever 36 is pushed back so that the hummock 46 lies in the central indentation 45 the cam 42 at the right underlies the end of the pawl 29 and holds the

tooth 31 up out of contact with the ratchet 32 so that the carrier 21 moves back the equivalent of one line-space before the ratchet wheel 32 is engaged and turned. Likewise when the hummock 46 is in the indentation 45 at the extreme right, cam 42 holds up the pawl 29 in the same manner until the carrier 21 is pushed back two line-spaces. Shoulders 48 formed on arm 38 at the top and bottom engage the rear walls of the fins 26 and 41 in the three-line space position. The fins 26 and 41 act as a stop for the pawl 29 in the rear position.

The return of the line-space-pawl carrier or slide 21 by the spring 27 is arrested quietly by a spring-stop 50.

The resilient stop 50 is formed by bending down and forwards the end of a piece 52 of resilient material, preferably flat spring-steel, the forward portion of the piece 52 being formed as an arch 53 having the forward base 54 lying on and engaging the top of the pawl 29. Not far from the stop 50 and on the inner edge of the piece 52 is an upstanding ear 55 centrally pierced and swingable on a screw 56 which is partially threaded to enter a screw-hole in the side 12 and to leave a cylindrical bearing for the ear 55 as shown in Figure 5. When the stop 50 is pushed back to be free from the fin 26 the arch 53, when relieved of the stop-stress, rises to engage a stop pin 57 on the side 12. When the stop 50 engages the fin 26 the piece 52 tilts forwardly as shown in Figure 4 so that the shock of impact is resiliently distributed throughout the piece and the danger of stresses and strains beyond the point of fracture is eliminated, thereby conducing to enhanced longevity.

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 typewriter mechanism including a swingable element and a reciprocatory element, in combination, a leaf-spring for yieldably actuating the swingable element and limiting movement of the reciprocatory element, means mounting said spring for rocking movement, said spring comprising an elongate extension acting on said swingable element and a detent portion limiting movement of said reciprocatory element, said spring mounting means being intermediate said detent portion and extension, and means maintaining said spring, swingable element, and reciprocatory element in substantially constant relation; the movement-limiting function of said spring causing a rocking movement thereof whereby to transmit the shock of impact for absorption in the extension of said spring.

2. In a typewriter mechanism including a swingable element and a reciprocatory element, in combination, a leaf-spring for yieldably actuating the swingable element and limiting movement of the reciprocatory element, said spring having a pivot intermediate its ends for rocking movement thereof and including an elongate extension beyond said pivot, acting on said swingable element and an offset detent portion adjacent said pivot, limiting movement of said reciprocatory element, and means maintaining said spring, swingable element, and reciprocatory element in substantially constant relation; the

movement-limiting function of said spring causing a rocking movement thereof about said pivot so as to transmit the shock of impact for absorption in the extension of said spring.

3. In a line-space mechanism for typewriters, having a swingable ratchet pawl and a stop, in combination, a spring mounted for rocking movement, said spring and said stop being relatively reciprocatory, said spring including an elongate portion yieldably acting upon said pawl and a detent portion adjacent the rocking axis of said spring, engageable with said stop to limit relative movement of said spring and stop, and means maintaining said spring and pawl in substantially constant relation; the engagement of said detent portion with said stop imparting the rocking movement to said spring, whereby the shock of impact is absorbed in the elongate portion of said spring.

4. In a line-space mechanism for typewriters, having a swingable ratchet pawl and a stop, in combination, a spring mounted for rocking movement, said spring and stop being relatively reciprocatory, said spring including an elongate portion yieldably acting upon said pawl and a detent portion engageable with said stop to limit relative movement of said spring and stop, a pivot for said spring intermediate said detent and elongate portions, and means maintaining said spring and pawl in substantially constant relation; the engagement of said detent portion with said stop imparting the rocking movement to said spring, whereby the shock of impact is absorbed in the elongate portion of said spring.

5. In a line-space mechanism for typewriters, having a reciprocatory ratchet pawl carrier, a ratchet pawl swingable on said carrier and a stop, in combination, a spring reciprocable with said carrier, means mounting said spring on said carrier for rocking movement independently thereof, said spring including an elongate extension yieldably acting upon said pawl and an offset portion adjacent said mounting means, engageable with said stop to yieldably limit movement of said carrier, and means maintaining said pawl and spring in substantially constant relation; the engagement of said offset portion with said stop imparting the rocking movement to said spring, whereby the shock of impact is absorbed in the extension of said spring.

6. In a line-space mechanism for typewriters having a reciprocatory ratchet pawl carrier, a ratchet pawl swingable on said carrier and a stop, in combination, a spring reciprocable with said carrier, a pivot mounting said spring on said carrier for rocking movement independently thereof, said spring including an elongate extension yieldably acting on said pawl and an offset portion adjacent said spring pivot, engageable with said stop to yieldably limit movement of said carrier, and means maintaining said pawl and spring in substantially constant relation including a pin abutting said extension to maintain said spring in contact with said pawl; the engagement of said offset portion with said stop imparting the rocking movement to said spring, whereby the shock of impact is absorbed in the extension of said spring.

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