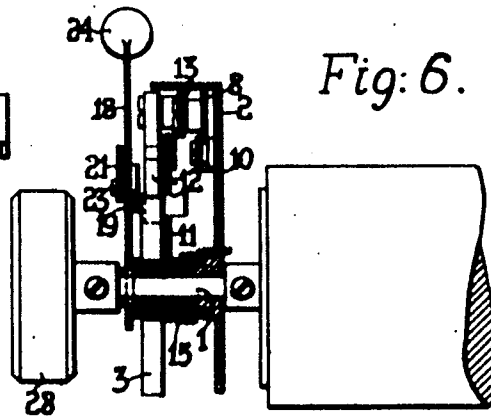
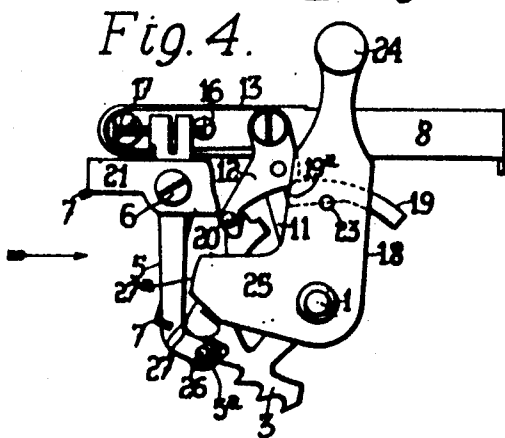
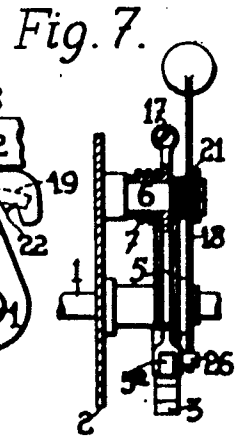
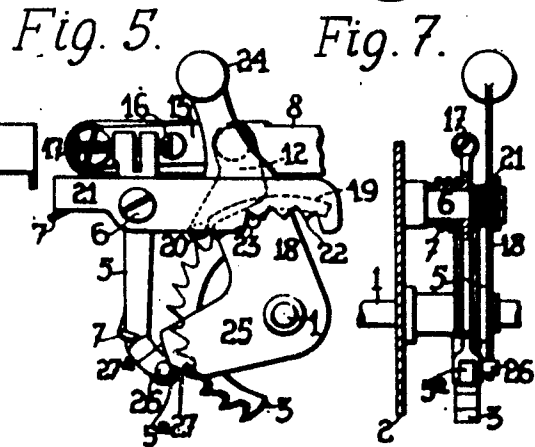
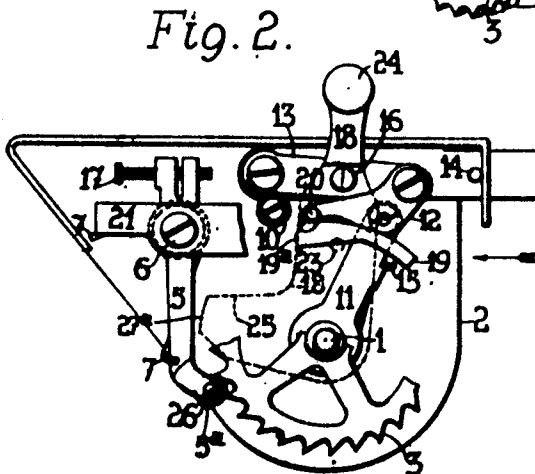
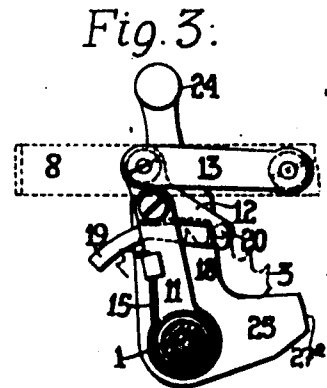
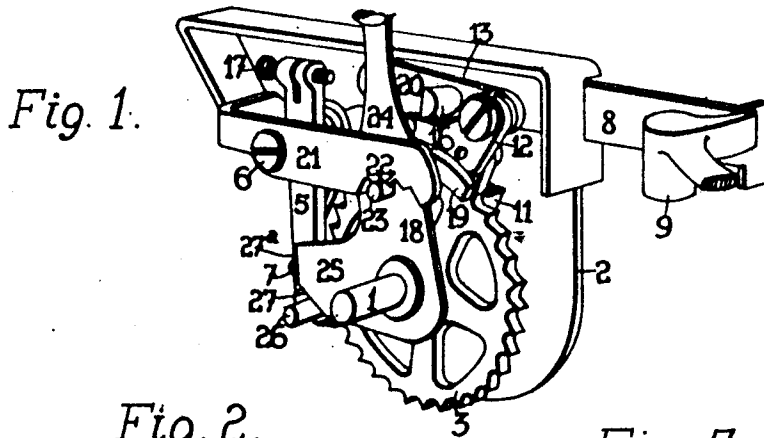


L. D. BROUGHTON.
TYPE WRITING MACHINE.
APPLICATION FILED AUG. 19, 1909.

962,121.

Patented June 21, 1910.



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UNITED STATES PATENT OFFICE.

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TYPE-WRITING MACHINE.

962,121.

Specification of Letters Patent. Patented June 21, 1910.

Application filed August 19, 1909. Serial No. 513,549.

To all whom it may concern:

Be it known that I, LYMAN D. BROUGHTON, a citizen of the United States, residing in Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to the line-spacing devices of typewriting machines.

The object of the invention is to provide a simple and inexpensive pawl mechanism, which may readily be applied to existing machines, and not liable to get out of order, the improvements relating more particularly to machines in which the pawl is carried upon an arm which is pivoted upon the platen axle, one arm of the pawl being acted upon in a manner to force the pawl positively into engagement with the line-space wheel upon the operation of the line-spacing lever.

Another feature of the invention relates to improved means for preventing overthrow of the platen, by causing the usual detent to be pressed more forcibly into engagement with the line-space wheel at the moment that the line-spacing devices are arrested; said extra pressure of the detent being occasioned by a stop provided upon said detent to arrest said line-spacing devices. I provide for effecting fine adjustments of the stop, so that the desired pressure may be secured at the exact point when the detent roll is seated perfectly in a notch in the wheel.

Another feature of the invention relates to improved means for releasing said detent so that the platen may be left free from the control of the line-space wheel, for irregular line-spacing.

Other features and advantages will hereinafter appear.

In the accompanying drawings, Figure 1 is a perspective view of one embodiment of my invention, showing its application to the Underwood type of front strike machine, a part of the casing being omitted. Fig. 2 is a side view, parts being broken away and dotted in to better disclose the construction. Fig. 3 is a detail view of the line-space wheel-operating means and regulator, taken from the side opposite to that shown in Fig. 2, the slide being dotted. Fig. 4 is a detail side view of the detent and regulating lever, parts being broken away. Fig. 5 is a

similar view showing the detent in released position. Fig. 6 is a part sectional view, through the platen axle looking in the direction of the arrow, Fig. 2, the line space wheel being broken away. Fig. 7 is a part sectional view through the pivotal point of the detent lever and rack bar and looking in the direction of the arrow, Fig. 4.

A indicates a platen rotatably mounted by means of an axle 1 in the ends 2 of a platen frame, the axle being provided with a notched line-spacing wheel 3 normally engaged by a detent lever 5 pivoted intermediate its ends, as at 6, and yieldingly held in engagement with the wheel by means of a spring 7.

A slide 8 is mounted in one end of the platen frame, and actuated by the usual lever 9, a roll 10 assisting in guiding the slide. An idle arm 11 connected to said slide is journaled, preferably, on the axle 1, and a driving pawl 12 is pivoted thereon to engage the line-space wheel. The pawl is preferably of elbow-form and is pivoted at the angle of its two arms. The motion imparted to the slide by the lever is transmitted to the pawl by means of a link 13, connected to the tail of the pawl in a manner to throw the opposite toothed end of the pawl into engagement with the line-space wheel. The opposite end of the link is connected to the slide. A returning spring 15 engages idle arm 11 and normally holds a stop 14 on slide 8 against a part of the platen frame.

In operation, the backward throw of the slide 8, through the link connection, will draw the arm 11 and pawl 12 rearwardly against the tension of the spring 15, the pawl taking into the notches of the line-space wheel to partially rotate the latter and the platen connected thereto. The spring 15 tends to prevent the idle arm 11 from yielding to the rearward pull of the link 13 until the pawl has been turned into engagement with the wheel, when the pawl, idle arm and wheel rotate together. To prevent overthrow of the platen, the detent lever 5, carrying a roll 5^a to seat in the notches of the line-space wheel, has been pivotally supported intermediate its ends in the path of an abutment carried by the slide, as shown in Patent No. 907,632 dated December 22, 1908. I have mounted a stud 16 on the spacing wheel actuating means, preferably

on the link 13, in position to engage an adjustable stop, as a screw 17, carried by the detent lever 5, the adjustment of which screw will take up the wear between the actuating lever 9 and the slide, and insure that at the termination of the throw of the spacing wheel, the detent lever shall always be firmly seated in a notch in the wheel and overthrow prevented, since pressure on the line-spacing mechanism is transmitted to the detent, whereby the latter more firmly locks the spacing wheel against movement. The adjustable stop 17 may be finely adjusted, to come into play at the exact point when the detent roll 5^a seats perfectly in a notch in the wheel, or, if desired, a little in advance of such point. A regulating lever 18 is journaled, for convenience, on the platen axle, and provided with a preferably arc-shaped pawl-releasing shunt or trip 19, substantially concentric with and alongside of the periphery of the line-space wheel, adjacent to the driving pawl 12.

The driving pawl is provided with a pin 20, normally resting upon the trip, the latter provided with an inclined or beveled cam or nose 19^a, up which the pin 20 rides, to disengage the pawl from the wheel upon the return stroke. By swinging the regulating lever to cause the trip to extend over more or less of the path traversed by the pawl, the latter is permitted to engage the line-spacing wheel through less or more of its length of travel and hence the wheel may be rotated to space either one or more lines.

A detent arm 21 for the regulating lever 24 may be conveniently pivoted on the same support 6 as the detent lever 5, and engaged by the same spring 7 that holds said detent lever 5 in engagement with the line-space wheel. This arm 21 is toothed, as at 22, to engage a stud 23 on the regulating lever, the manipulation of the handle 24 of which lever will force the stud over successive teeth against the tension of the spring. When the stud is seated in the front notch 22, the lever 9 will throw the platen three line spaces. The next notch is used for adjusting for two line spaces, and the next for a single line space. The use of the fourth or rear notch will now be explained. The regulating lever is provided with an arm 25 to engage a pin 26 on the detent lever 5, whereby to force said detent lever away from the line-space wheel and retain it in such inoperative position. This arm 25 is preferably provided with an inclined or cam edge 27, which is brought into engagement with the pin 26 to cam the detent away from the line-space wheel. It also has a dwell portion or edge 27^a, concentric with the axle 1, which engages the pin 26, to hold the detent released (Fig. 5), to leave both hands of the operator free. Simultaneously with this releasing movement, the regulating lever

moves the trip 19, so that the latter occupies the entire space through which the driving pawl travels, thereby preventing engagement of the pawl and line-space wheel, the stud 20 of the pawl merely riding back and forth on the trip 19. With the parts in this position the platen can be turned freely by manipulating the hand wheel 28. Thus the written lines may be spaced, one two or three spaces apart, or the line-spacing mechanism thrown out of use from any position in which the regulating lever may happen to be.

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 typewriting machine, the combination with a platen and a line-spacing wheel for actuating the platen, of a line-spacing mechanism including a pawl to drive the wheel, a regulating lever having a trip to engage a part on said pawl to control the duration of engagement of the pawl and spacing wheel, a pivotally supported detent for the spacing wheel, a pivotally supported notched member, a spring for yieldingly retaining both the detent and notched member in operative positions, and a part on the regulating lever engaged by the notched member to retain the lever in adjusted position.
2. In a typewriting machine, the combination with a platen and a line-space wheel connected thereto, of a line-spacing mechanism including a lever-operated slide, a link connected thereto, an arm connected to said link and pivoted upon the platen axle, a driving pawl pivoted upon said arm, a stud upon said link, and a detent lever for said spacing wheel, said lever lying in the path of said stud to be engaged thereby at the completion of the line-spacing operation to force the detent more firmly against the spacing wheel to prevent overthrow of the platen.

3. In a typewriting machine, the combination with a platen and a line-space wheel connected thereto, of a line-spacing mechanism including a lever-operated slide, a link connected thereto, an arm connected to said link and pivoted upon the platen axle, a driving pawl pivoted upon said arm, a stud upon said link, and a detent lever for said spacing wheel, said lever lying in the path of said stud to be engaged thereby at the completion of the line-spacing operation to force the detent more firmly against the spacing wheel to prevent overthrow of the platen, means being provided for effecting line adjustments between said lever and said stud, to determine the point of arrest of the line-spacing devices.

4. In a typewriting machine, the combi-

nation with a platen and a line-spacing wheel for actuating the platen, of a line-spacing mechanism including a lever operated slide, a swinging arm, a driving pawl actuated thereby for engagement with the wheel, a connection between the slide and arm, an abutment carried by the connection for engagement with a stop, means being provided for effecting fine adjustments to determine the point of arrest of the line-spacing mechanism.

5. In a typewriting machine, the combination with a platen and a line-space wheel for actuating the platen, of a spacing wheel actuating mechanism including a swinging member, a driving pawl actuated thereby for engagement with the wheel, means for operating the swinging member, an abutment carried by said means, and a detent normally engaging the line-space wheel, the detent lying in the path of movement of the operating means to be engaged thereby at the completion of the line-spacing stroke, means being provided for effecting fine adjustments between the detent and the abutment to determine the point of arrest of the line-spacing mechanism.

6. In a typewriting machine, the combination with a platen and a spacing-wheel for actuating the same, of a spacing wheel-actuating mechanism including a pivotally supported idle arm, a driving pawl carried by the arm and cooperating with the spacing wheel, means for rocking the arm and pawl, and a coiled spring on the axle of the platen and engaging the spacing wheel actuating mechanism to yieldingly retain the same at one limit of its movement.

7. In a typewriting machine, the combination with a platen and a spacing wheel for actuating the same, of a spacing wheel actuating mechanism including a lever-operated slide, and a pawl actuated therefrom and engaging the wheel, means being provided and lying in the path of movement of the slide for effecting fine adjustments to determine the length of throw imparted to the spacing wheel by its actuating mechanism.

8. In a typewriting machine, the combination with a platen, a spacing wheel for actuating the platen, and a detent lever pivotally supported intermediate its ends and normally engaging the wheel, of a spacing wheel-actuating mechanism, means being provided on the detent lever and engaged by the spacing wheel-actuating mechanism for effecting fine adjustments to determine the length of throw of the spacing wheel actuating mechanism.

9. In a typewriting machine, the combination with a platen, a ratchet wheel therefor, and a platen axle, of an actuator, an arm swinging about the platen axle, a pawl pivoted upon the arm to engage the ratchet

wheel, a link connecting said arm to said actuator, an abutment carried by said link, and a detent normally in engagement with said ratchet wheel and engageable by said abutment to force the detent against the ratchet wheel.

10. In a typewriting machine, the combination with a platen, a ratchet wheel therefor, and a platen axle, of an actuator, an arm swinging about the platen axle, a pawl pivoted upon the arm to engage the ratchet wheel, a link connecting said arm to said actuator, an abutment carried by said link, and a detent normally in engagement with said ratchet wheel and engageable by said abutment to force the detent against the ratchet wheel; means being provided for effecting fine adjustments to determine the point of arrest of the line-spacing mechanism.

11. In a typewriting machine, the combination of a platen, a ratchet wheel therefor, a platen axle, a spring-pressed detent arm normally in engagement with said ratchet wheel, a slide actuated at its forward end, a link pivoted to the rear end of the slide and extending forwardly therefrom, a tappet connected to said link to engage said detent lever and arrest the slide and simultaneously force the detent into engagement with the ratchet, a pawl having an upwardly extending arm to which the forward end of said link is connected, and an arm pivoted upon the platen axle; said pawl pivoted to said arm.

12. In a typewriting machine, the combination of a platen, a ratchet wheel therefor, a platen axle, a spring-pressed detent arm normally in engagement with said ratchet wheel, a slide actuated at its forward end, a link pivoted to the rear end of the slide and extending forwardly therefrom, a tappet connected to said link to engage said detent lever and arrest the slide and simultaneously force the detent into engagement with the ratchet, a pawl having an upwardly extending arm to which the forward end of said link is connected, an arm pivoted upon the platen axle; said pawl pivoted to said arm, a regulating lever also pivoted upon the platen axle extending upwardly and carrying a finger-piece at its upper end, and an abutment or guard upon the side of said regulating lever, said pawl having a laterally projecting pin to ride upon said abutment, whereby the pawl is held out of engagement with the ratchet-wheel.

13. In a typewriting machine, the combination of a platen, a ratchet wheel therefor, a platen axle, a spring-pressed detent arm normally in engagement with said ratchet wheel, a slide actuated at its forward end, a link pivoted to the rear end of the slide and extending forwardly therefrom, a tappet connected to said link to engage said detent

lever and arrest the slide and simultaneously
force the detent into engagement with the
ratchet, a pawl having an upwardly extend-
ing arm to which the forward end of said
5 link is connected, an arm pivoted upon the
platen axle; said pawl pivoted to said arm,
a regulating lever also pivoted upon the
platen axle extending upwardly and carry-
ing a finger-piece at its upper end, and an
10 abutment or guard upon the side of said reg-

ulating lever, said pawl having a laterally
projecting pin to ride upon said abutment,
whereby the pawl is held out of engagement
with the ratchet wheel; said regulating lever
having a cam to engage said detent and 15
force it away from said ratchet wheel.

LYMAN DAVID BROUGHTON.

Witnesses:

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