A. G. F. KUROWSKI.

TYPEWRITING MACHINE.

APPLICATION FILED SEPT. 21, 1918.

1,340,900.

Patented May 25, 1920.

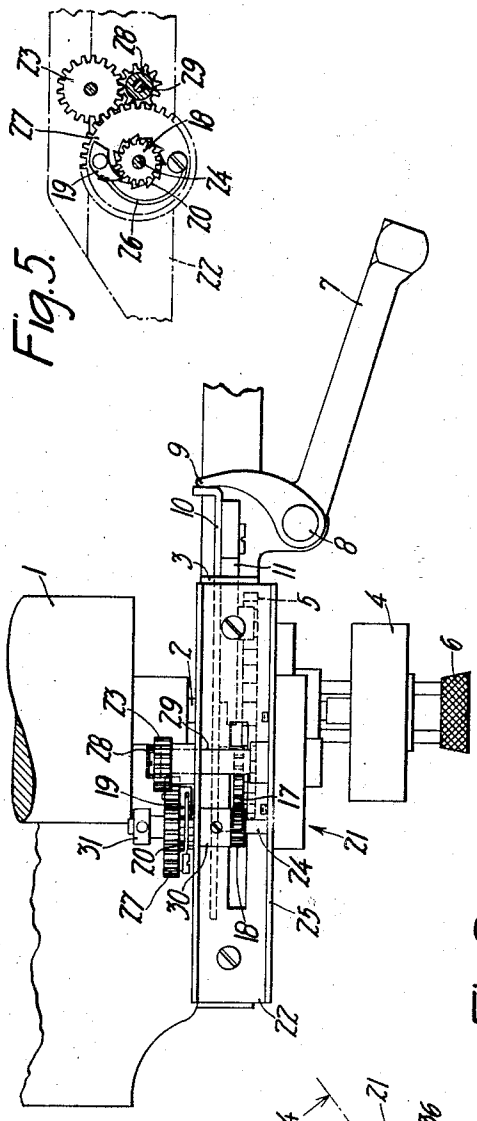


Fig. 1.

Fig. 5.

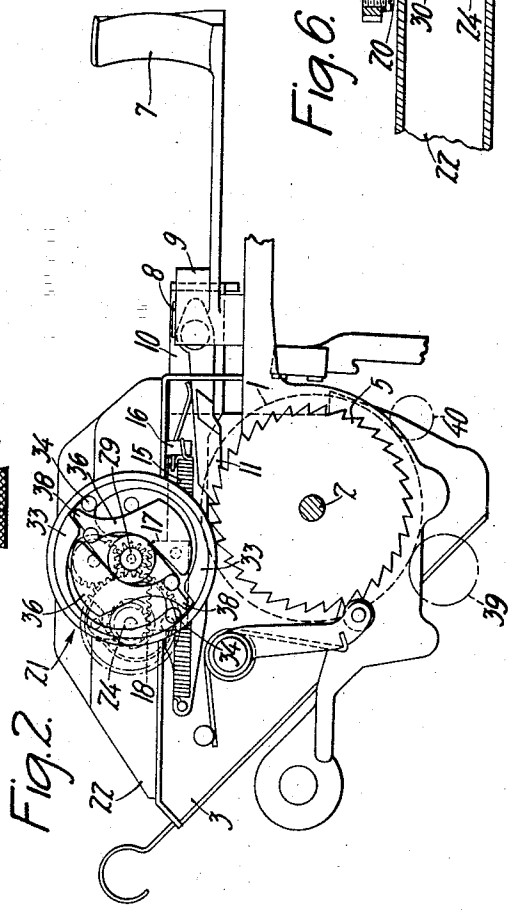


Fig. 2.

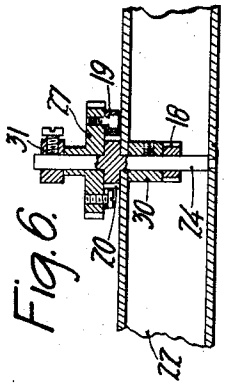


Fig. 6.

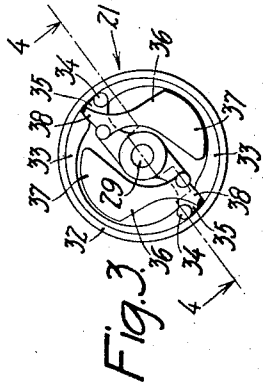


Fig. 3.

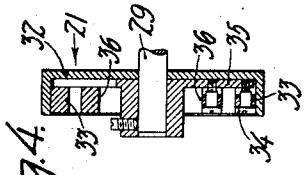


Fig. 4.

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UNITED STATES PATENT OFFICE.

ALFRED G. F. KUROWSKI, OF BROOKLYN, NEW YORK, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPEWRITING-MACHINE.

1,340,900. Specification of Letters Patent. **Patented May 25, 1920.**

Application filed September 21, 1918. Serial No. 255,101.

To all whom it may concern:

Be it known that I, ALFRED G. F. KUROWSKI, a subject of the Emperor of Germany, but having taken out preliminary United States naturalization papers, residing in Brooklyn borough, in the county of Kings, city and State of New York, have invented certain new and useful Improvements in Typewriting-Machines, of which the following is a specification.

This invention relates to typewriting machines, and more especially to line-space mechanism for such machines. It is herein shown applied to an Underwood typewriting machine having a platen-release mechanism, as well as many of the usual line-space elements.

It has been found in typewriting machines having a rotatable platen around which a work-sheet is passed, that the platen, if advanced very rapidly in a line-space operation, is likely to start ahead of the paper, or to move faster, leaving the paper behind, thus making an irregularity in the line spaces, and sometimes skewing the paper. Besides this, it has been found that in rapid operation there is great liability to cause the platen to overthrow when the line-spacing handle is thrown violently. This danger is aggravated where a platen-release mechanism is employed, because such a release is usually in the nature of a clutch, and is therefore more likely to yield than a solid structure. Moreover, it has been found that in many types of machines, an overthrow-preventing mechanism of the usual type may be very effective when the machine is new, but continued use results in wear of the parts and thus tends to increase the liability to overthrow.

I have found it possible to overcome this over-rapid advance and overthrowing of the platen by providing a governor for the line-space mechanism, this governor being adapted to prevent too rapid operations thereof, while permitting the line-space mechanism to return to normal position easily or without material delay.

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a plan view of one end of the platen frame of an ordinary Underwood typewriting machine with some of the parts removed, and having my invention applied thereto.

Fig. 2 is an end elevation of the same.

Fig. 3 is an end elevational of the clutch.

Fig. 4 is a sectional view of the clutch, taken on the line 4—4 of Fig. 3.

Fig. 5 is a side view of part of the gearing between the line-spacing slide and the clutch.

Fig. 6 is a sectional plan view of part of the gearing.

In the Underwood typewriting machine, the platen 1 is provided with an axle 2, by which it is journaled in the platen frame 3, so that it can be turned either by the usual knob 4, or by the line-space detent-wheel 5, said wheel being adapted to be clutched to the axle 2 by operation of a finger-piece 6, in the manner disclosed in the patent to Helmond, No. 1,225,331, dated May 8, 1917. In order to line-space the platen, the usual handle 7, pivoted on the carriage-frame at 8, may be operated to swing its usual bell-crank extension 9, carrying rearwardly a slide 10 on the platen frame, to which is pivoted a pawl 11, said pawl being adapted to engage the teeth of the line-space wheel 5. The throw of the slide 10 and therefore the throw of the line-space wheel may also be limited by the overthrow stop (not shown). This also arrests the line-space wheel with the pawl 11 deeply set into the teeth of the line-space wheel. In order to return the handle 7 and the pawl 11 to their normal position after a line-spacing operation, the slide 10 is adapted to be drawn forward by the usual spring 15, anchored in a post 16 in the platen frame. In order to limit the speed at which the slide 10 can be carried rearwardly, said slide has fast thereto a rack 17, which is constantly in mesh with a pinion 18, connected by a pawl and ratchet wheel 19 and 20 to a governor 21 in such a way that the ratchet is effective to turn the governor only during the rearward stroke of the slide 10.

The pinion 18 is journaled in a bracket 22 on the cover of the platen frame, and to give the pinion steadiness, its shaft 24 extends entirely across the bracket, so that the left-hand end thereof is journaled in the plate 25, which rises at the left-hand side of the bracket. Besides carrying the pinion 18, the shaft 24 has fast to it the ratchet wheel 20 against which the pawl 19 is

pressed by the spring 26, the pawl and the teeth of the wheel 20 being so formed that the ratchet wheel is effective on the teeth only during the rearward stroke of the slide 10. In order to enable the pawl to drive the governor 21, the pawl 19 is pivoted on a pinion 27, which is constantly in mesh with a pinion 23, which in turn is in mesh with a pinion 28 fast to the shaft 29 of the governor.

In order to enable the governor to be effective at the requisite comparatively low speeds of the slide 10, the pinion 18 is comparatively small, and the pinion 27 is very much larger than the pinion 28, with the result that the speed of the slide 10 is multiplied several times in turning the governor 21. In order to hold the shaft 24 in place, the large collar 30 bears against the plate forming one side of the bracket 22, and the ratchet wheel 20 lies against the other side of the same plate of the bracket, thus preventing any sliding of the shaft 24. The pinion 27 is kept from sliding off the end of the shaft 24 by a collar 31. In order to give the requisite steadiness to the governor shaft 29, it passes entirely through the two sides of the bracket 22, and the governor 21 is located outside the bracket-wall 25. In order to have a governor which will act quickly enough and at the proper speed, the governor comprises an outer rim 32, screwed to the wall 25. Within this rim, and almost touching it, lie two almost semi-circular friction arms 33, pivoted at their ends 34, on arms 35, fast to the shaft 29. The friction arms 33, it will be seen, will fly out against the rim 32 when the shaft 29 begins to revolve. In order to assist them in doing this, there are a pair of weighted arms 36 also pivoted to the arms 35, each arm 36 having a long, heavy outer end 37, which is adapted to fly out, and also having a short end 38, adjacent the free end of one arm 33, the arrangement being such that when the heavy end 37 flies out, the short end 38 cams the arm 33 against the rim 32, and thereby increases the friction of the arm 33. The heavy ends 37 lie in the cut-away portions of the arms 33.

To hold work-sheets against the platen, there are provided the usual feed rolls 39 and 40, which may be provided with the usual release mechanism (not shown).

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. The combination with a revoluble platen and a line-space handle therefor, of a pawl adapted to be driven by said handle to line-space the platen, a governor, connections for turning the platen independently of the governor, and connections whereby the pawl has its speed limited by the governor in line-spacing the platen.

2. The combination with a revoluble platen and a line-space handle therefor, of a pawl adapted to be driven by said handle, a ratchet wheel fast to the platen adapted to be driven by said pawl, a spring detent adapted to hold the ratchet wheel arrested, a reciprocating slide connected to said pawl, a rack fast to said slide, and a governor geared to said rack to be effective in one direction only to prevent the pawl from overthrowing the platen.

3. The combination with a revoluble platen and a line-space handle therefor, of a pawl adapted to be driven by said handle, a ratchet wheel fast to the platen adapted to be driven by said pawl, a spring detent adapted to hold the ratchet wheel arrested, a reciprocating slide connected to said pawl, a rack fast to said slide, a pinion meshing with said rack, a pawl and ratchet wheel adapted to be driven by said pinion during the driving stroke of the pawl, and a governor geared to said pinion.

4. The combination with a revoluble platen and a line-space handle therefor, of a detent wheel fast to the platen, a spring detent effective on said wheel to hold the platen, a device whereby said handle turns said platen, a governor geared to turn with said platen during the effective stroke of the handle, and a spring for returning the handle independently of the governor.

5. The combination with a revoluble platen and a line-space handle therefor, of a detent wheel fast to the platen, a spring detent effective on said wheel to hold the platen, a device whereby said handle turns said platen, a governor, and gearing between said device and said governor including a pawl and ratchet wheel adapted to turn the governor during the effective stroke of the handle.

6. The combination with a revoluble platen and a line-space handle therefor, of a detent wheel fast to the platen, a spring detent effective on said wheel to hold the platen, a device whereby said handle turns said platen, a governor, and gearing between said device and said governor including means effective during the driving stroke of said device, to drive the governor and to be ineffective on the return stroke of the device.

7. The combination with a revoluble platen, of a one-way governor for said platen including a rim, a shaft having arms, friction arms pivoted to said shaft arms, and weighted devices for forcing said friction arms against said rim.

8. The combination with a revoluble platen, of a one-way governor for said platen including a rim, a shaft having arms, friction arms pivoted to said shaft arms, weighted arms also pivoted on said shaft

arms, and extensions on said weighted arms adapted to bear against said friction arms to carry the latter against the rim.

9. The combination with a revoluble platen, of a one-way governor for said platen including a rim, a shaft having arms, friction arms pivoted to said shaft arms, weighted arms also pivoted on said shaft arms, and short extensions on said weighted arms comprising cam surfaces lying adjacent to the ends of the friction arms adapted to cam the latter against the rim.

10. The combination with a revoluble platen, of a one-way governor for said platen including a rim, a shaft having arms, friction arms pivoted to said shaft arms, weighted arms also pivoted on said shaft arms, and short extensions on said weighted arms comprising cam surfaces lying adjacent to the ends of the friction arms and pivoted on the opposite shaft arms.

11. The combination with a revoluble platen and a line-space handle therefor, of a pawl adapted to be driven by said handle, a ratchet wheel fast to the platen adapted to be driven by said pawl, a spring detent adapted to hold the ratchet wheel arrested, a reciprocating slide connected to said pawl, a rack fast to said slide, a pinion constantly meshing with said rack, a pawl and ratchet wheel adapted to be driven by said pinion during the driving stroke of the pawl, and a governor geared to said pinion.

12. The combination with a platen and a frame end in which it is journaled, of a bracket on said end, a governor journaled upon said bracket, a line-spacing lever, and connections including a gear journaled in the bracket to enable the governor to limit the speed of the lever in rotating the platen.

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Witnesses:
EDITH B. LIBBEY,
CATHERINE A. NEWELL.