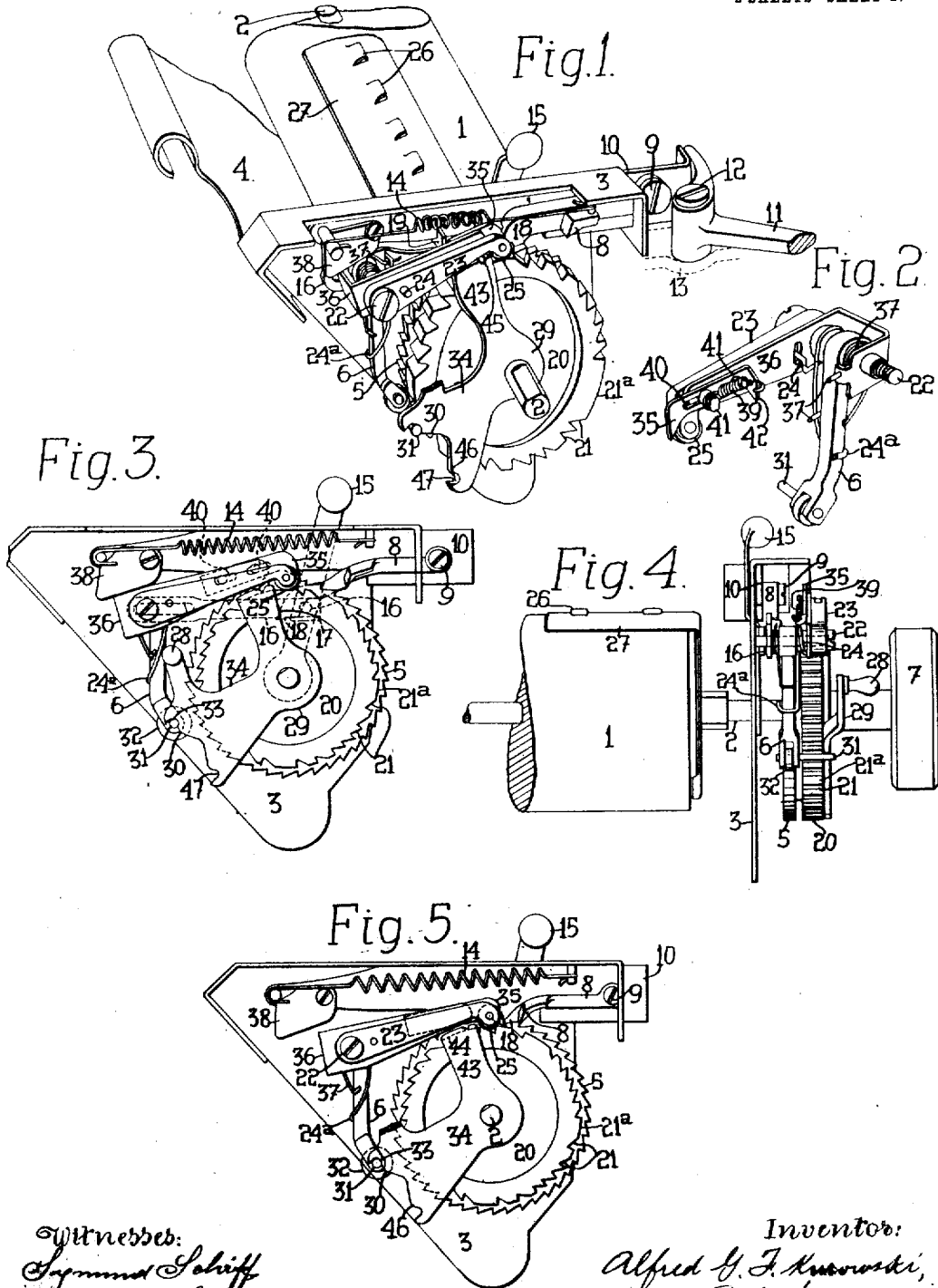


A. G. F. KUROWSKI.
TYPE WRITING MACHINE.
APPLICATION FILED JAN. 3, 1910.

954,637.

Patented Apr. 12, 1910.

2 SHEETS—SHEET 1.



Witnesses:
Symond Schiff
John O. Seifert

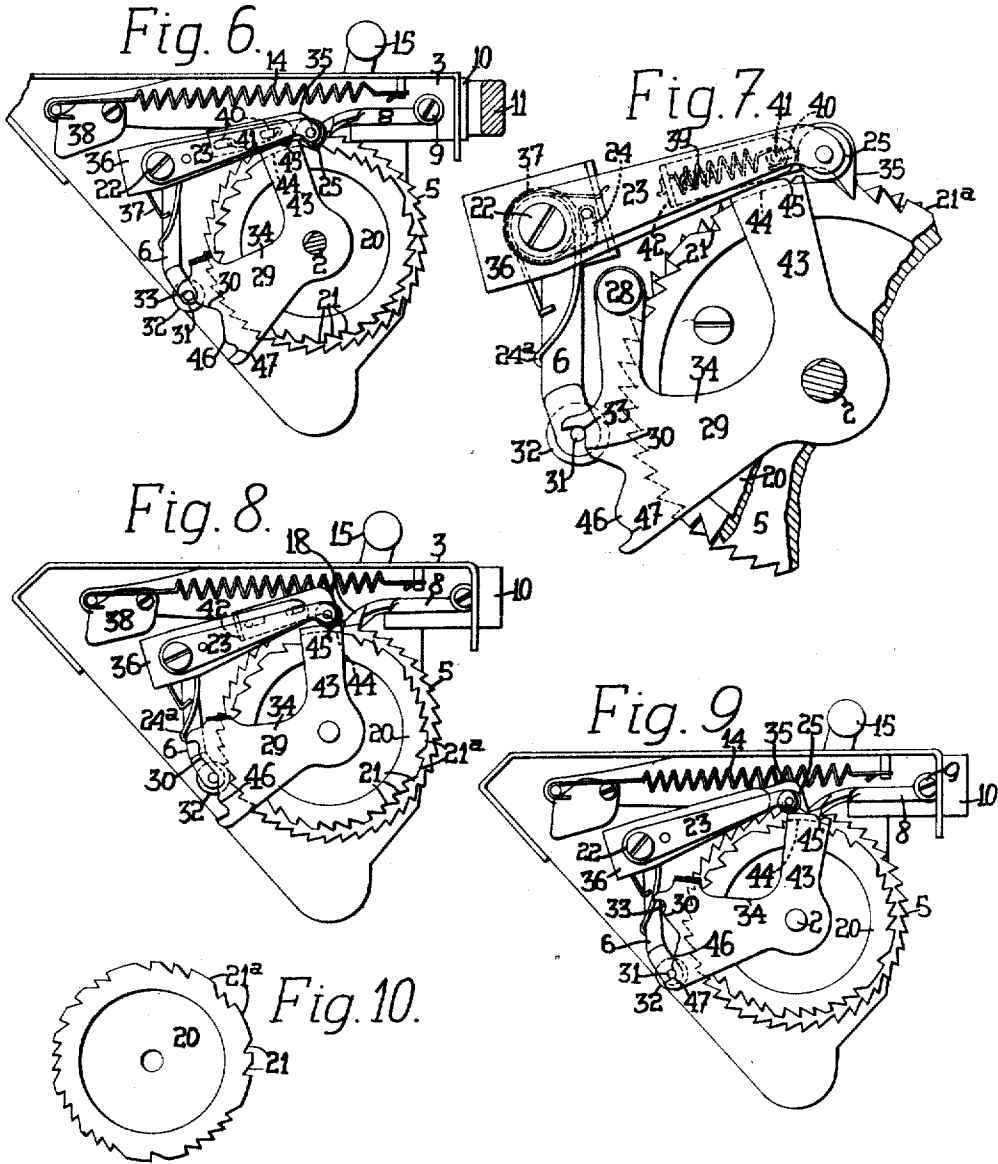
Inventor:
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28 SHEETS—SHEET 2.



Witnesses:
Symund Schiff
John C. Seifert

Inventor:
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UNITED STATES PATENT OFFICE.

ALFRED G. F. KUROWSKI, OF NEW YORK, N. Y., ASSIGNOR TO UNDERWOOD TYPE-
WRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

954,637.

Specification of Letters Patent.

Patented Apr. 12, 1910.

Application filed January 8, 1910. Serial No. 538.

To all whom it may concern:

Be it known that I, ALFRED G. F. KUROWSKI, a citizen of the United States, residing in New York city, borough of Bronx, in the
5 county of New York and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to line-feeding devices for typewriting machines, especially
10 those in which a revoluble cylindrical platen is employed.

One of the main objects of the invention is to equip a machine of this class, as for
15 instance the well known Underwood typewriting machine, with inexpensive and readily applied mechanism for enabling the operator to effect line-spacing at intervals not agreeing or corresponding with the
20 usual intervals. This enables the operator to write upon special ruled blanks.

In the form of the invention illustrated in the drawings, the machine is equipped with means for enabling the operator to produce
25 uneven or irregular line-spacing. For this purpose, a special line-space wheel is employed, the notches therein corresponding to the spacing of the lines on the ruled blank which is to be written upon. A spring detent engages the notches of this special line-space wheel to hold the platen steady during
30 the writing operation.

The platen is advanced either by means of the knob usually fixed on the platen axle or
35 by means of a line-space lever and driving pawl. Preferably the lever and pawl are employed and overthrow of the platen at the line-spacing operation is prevented by means of a stop pawl which rides upon the
40 periphery of the irregular line-space wheels, and clicks into the notches thereof one after another, always serving to arrest the platen at the proper point; the line-space detent already mentioned being arranged to become
45 seated in the same notch that is occupied by said stop pawl. The latter, upon the return stroke of the line-space lever, is automatically withdrawn from the irregular line-space wheel, to permit independent rotation
50 of the platen in either direction; but upon the succeeding advance stroke of the line-spacing lever the stop-pawl falls into the succeeding notch of the irregular line-space wheel, to arrest the same again.

55 In order to enable the use of the same

machine for writing evenly spaced lines in the ordinary manner, whenever desired, said line-space lever and pawl are caused to co-operate with an evenly spaced line-space wheel, the latter having the usual detent and
80 the usual means to prevent overthrow at the line-spacing operation.

A switching lever is provided to throw out either detent when the other is in use, so that the platen may be controlled alter-
65 natively by said detents. Said switching lever, when throwing off the detent from the regular line-spacing ratchet, concomitantly silences the stop-pawl above mentioned, so that the entire special irregular spacing de-
70 vices are silenced when the machine is used for even line spacing. Said switching lever may also be thrown to a third position to release both of the spring detents as well as the stop-pawl, to permit fine or irregular
75 rotative adjustments of the platen by means of the usual knob, when required.

It will be understood that both the even and uneven line-feeding movements of the platen may be effected by the line-feeding
80 lever and drive-pawl usually provided on said Underwood machine, said pawl always engaging the teeth of the regular ratchet wheel, and the latter being fixed to the irregular ratchet wheel. The strokes of the
85 line-feeding lever vary in length according to the distance between the succeeding teeth of the irregular ratchet wheel; but it is found in practice that the irregular line-feeding can be effected in this way, the
90 range of movement of said lever and pawl being great enough for the purpose of ordinary irregular line-spacing. In other words, the capacity of the usual line-spacing means, being equal to three notches of the usual
95 evenly spaced ratchet, is found great enough to accommodate the longest movement required in ordinary irregular line-spacing. Of course the range of movement of the line-spacing lever and pawl may be in-
100 creased, as required. The addition of the irregular line-spacing devices does not interfere with the operation of the usual space regulator when the machine is used for even line-spacing.

Other objects and advantages will herein-
after appear.

In the accompanying drawings, Figure 1 is a perspective view of one end of the platen frame and platen of an Underwood
110

front strike writing machine, showing the present improvements applied thereto. Fig. 2 is a perspective view of two spring detents and the stop-pawl, together with a single stud upon which they may all be pivoted. Fig. 3 is an end view of the mechanism, showing the parts in normal positions, but arranged for irregular line-spacing. Fig. 4 is a rear view of one end of the platen and its appurtenances. Fig. 5 is a view similar to Fig. 3, but showing the platen as being rotated for uneven line-spacing. Fig. 6 is a view similar to Fig. 5, but showing the parts at the end of a line-spacing stroke, the platen being arrested by the engagement of the stop-pawl with a notch of the irregular line-space wheel. Fig. 7 is a view similar to Fig. 6, but on a larger scale, and showing the engagement of the stop-pawl with the notch a little in advance of the seating of the spring-detent in the same notch; the stop-pawl having a yielding construction to permit a slight farther advance of the ratchet wheel before arresting the same. Fig. 8 is a view similar to Fig. 6, but showing the irregular line-spacing devices as silenced, and the platen as under the control of the regular or even line-spacing mechanism. Fig. 9 is a view showing the platen released from the control of all the line-spacing devices. Fig. 10 is an elevation of one form of irregular line-spacing ratchet wheel. It will be understood that the ratchet wheels may be cut in various ways to suit various requirements.

In said Underwood machine, types strike upon the front side of a platen 1, to which is fixed an axle 2, whereby it is revolvably mounted in the ends 3 of a platen frame 4. Upon said axle is fixed an evenly spaced line-space wheel 5, with which engages a spring-detent 6, which holds the platen steady during the writing. The line-feeding may be effected either by a knob 7 on the platen axle, or by a drive-pawl 8 pivoted at 9 on a slide 10, guided for forward and backward movement in the end 3 of the platen frame. A lever 11, fulcrumed at 12 upon the carriage 13, is employed for driving said slide; the latter being returned by a spring 14. The length of the stroke of the slide 10 is determined by a regulator 15. Said regulator 15 is pivoted to a horizontal link 16, Fig. 3, having a projection 17 to engage a nose or beak 18 formed upon the pawl 8, to lift said pawl clear of the ratchet wheel 5 on the completion of the return stroke of the slide 10. Overthrow of the platen at the regular line-spacing operation is prevented by the engagement of said nose with a stop 19 fixed upon the platen frame end 3. As so far described, the several parts have long been in use upon said Underwood machine. A second ratchet wheel 20, having any desired irregularly or unevenly

spaced notches 21, is fixed to the even line-space wheel 5, or to the platen axle 2, so as to rotate with the platen. Pivoted upon the same stud 22 that carries the usual detent 6, is a second detent arm 23 pressed down by a spring 24 (Fig. 2) to seat a roll 25 in one of the notches 21 of the irregular line-space wheel 20; said roll being pivoted upon the forward end of the detent arm 23, and said spring 24 being preferably coiled around the screw stud 22, and at its opposite end 24^a hooked around the detent-arm 6 to press the latter forwardly. The wheel 20 is provided, between the notches, with substantially full or uncut dead spaces or surfaces 21^a, upon which the detent-roll 25 rides idly, said roll controlling the platen only by falling into the notches 21.

When using the machine for even line-spacing, the lever 11, slide 10, and the pawl 8, cooperate with the ratchet wheel 5 in the usual manner; the length of the spacing being determined by the position of the regulator 15, which is shown in the drawings as set for a triple line-space movement of the platen at every stroke of the lever 11.

When it is desired to write upon a card or blank having lines ruled unevenly to correspond with the spacing of the notches 21 in the wheel 20, the card is inserted under the teeth 26 of a card-holder 27, or is gripped by a card-holder such as shown in the patent to John C. McLaughlin, No. 816,174 of March 27, 1906; the card-holder having a fixed position relatively to the platen, and hence to the irregular line-space wheel 20, so that when the detent 25 is seated in any notch 21, the corresponding ruled line on the blank card or sheet is in register with the printing point, so that the type impressions will fall properly upon said line. A handle 28 is grasped and thrown downwardly from the position at Fig. 8 to that at Fig. 3, thus swinging backwardly and downwardly a two-armed switch or switch-lever 29, which is pivoted loosely upon the platen axle 2. Said lever has on one arm a cam 30, which engages the projecting axle pin 31, upon which is pivoted the detent-roll 32 of the detent 6, and swings said roll 32 clear of the ratchet wheel 5; said pin 31 then seating itself in a notch 33 in the arm 34 of said switch lever, whereby the detent roll 32 is mechanically held in silenced position. The spring 24 now presses the detent roll 25 against the periphery of the wheel 20 and into the notches thereof. Operation of the lever 11 will cause the pawl 8 to engage the teeth of the ratchet wheel 5 and rotate the platen; but the extent of such rotation is now determined by a stop-pawl 35 mounted upon a frame 36, which is pivoted upon said screw-stud 22. A spring 37 coiled about said stud 22 tends to swing said frame in a direction to carry the pawl 35 down into en-

engagement with the irregular line-space wheel; said spring preferably having a bearing at one end against the back of the detent arm 6. Owing to the pressure of said spring, the pawl 35 is forced into the succeeding notch of the advancing line-space wheel 20, and positively arrests the platen, and thereby mechanically determines the extent of the line-feeding movement thereof. At the same time the detent 25 falls into the same notch 21 that is occupied by said stop-pawl 35; the wheel 20 being made extra wide for this purpose as seen at Fig. 4. The detent 25 holds the platen steady during the writing of a line.

Upon release of the lever 11, the spring 14 returns the slide 10, pawl 8, and the lever 11 back to normal positions; and a cam 38 upon the rear end of the slide 10 engages the pawl frame 26 at a point back of the pivot 22 and depresses said frame, causing its forward end to rise, thus lifting the stop-pawl 35 clear of the irregular line-space wheel 20, as at Figs. 1 and 3. This permits independent advance rotation of the platen, if it should be desired. At this moment, a spring 39 snaps the pawl 35 forwardly toward the succeeding tooth or notch in the irregular line-space wheel 20, so that said pawl cannot immediately reengage the same tooth, but must cooperate with said succeeding tooth to effect the next arrest of the platen.

It will be understood that at the initial portion of the next rearward stroke of the slide 10, said cam will release the pawl frame 36 and permit the spring 37 to swing the stop-pawl 35 down into the succeeding notch of the wheel 20, to arrest the same. The movement of the pawl 35, independent of the frame 36, is permitted and limited by reason of the engagement of slots 40 formed in said pawl with guiding pins 41 provided on the inner side of the frame 36. The spring 39 pulls the pawl forwardly, the front end of the spring being caught on the front pin 41 and the rear end thereof being caught upon an ear 42 formed on the pawl. When it is desired again to use the machine for even line-spacing, the handle 28 is swung from the position at Fig. 3 to the position at Fig. 8, permitting the detent 32 to resume its normal relation with the even ratchet wheel 5. At the same time, an arm 43 of said two-armed lever 29 swings forwardly, so that a lip 44 on said arm engages and forces up the detent 25, thus silencing the same; said detent seating in a notch 45 in the arm 43 or in the lip 44, and holding the two-armed lever 29 stationary. Said lip 44 also cams the stop-pawl 35 upwardly, thereby silencing the same as at Fig. 8. By pressing the handle 28 still farther upwardly, the switch-lever is swung to the position at Fig. 9, to throw off the detent-roll 32 as well as detent-roll 25 and stop-pawl 35. A cam 46

on said switch-lever engages the pin 31 of the detent-roll 32, and swings said roll clear of the wheel 5, said pin falling into a notch 47 to hold the switch-lever steady. The lip 44 is long enough to hold the detent-roll 25 and the stop-pawl 35 both out of use at this time, as at Fig. 9. The platen may now be turned freely in either direction to any point required.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others; certain features of the invention, for instance, not being limited to machines in which an even line-spacing mechanism is employed.

Having thus described my invention, I claim:

1. The combination of a platen, a ratchet having unevenly spaced teeth or notches, a detent to engage said teeth or notches to hold the platen stationary during the writing of a line, means to advance said platen, and a stop pawl to engage the teeth of said ratchet to limit the advance movement of the platen.

2. The combination of a platen, a ratchet having unevenly spaced teeth or notches, a detent to engage said teeth or notches to hold the platen stationary during the writing of a line, means, including a reciprocatory lever, to advance said platen step by step, and a stop pawl to engage the teeth of said ratchet to limit the advance movement of the platen.

3. The combination of a revoluble platen, a ratchet wheel therefor having unevenly spaced teeth or notches, a platen frame, a spring detent to engage the teeth or notches of said ratchet wheel to hold the platen stationary, means, including a reciprocatory lever and driving pawl, to effect the uneven line-feeding rotative movements of said platen, and a stop pawl to engage the teeth or notches of said ratchet wheel to determine the extent of the line-spacing movements of the platen.

4. The combination of a revoluble platen, a ratchet wheel therefor having unevenly spaced teeth or notches, a platen frame, a spring detent to engage the teeth or notches of said ratchet wheel to hold the platen stationary, means, including a reciprocatory lever and driving pawl, to effect the uneven line-feeding rotative movements of said platen, and a stop pawl to engage the teeth or notches of said ratchet wheel to determine the extent of the line-spacing movements of the platen; means being connected to said lever and effective upon the return thereof to normal position, to release said stop pawl from said ratchet wheel and to effect an advance movement of the stop pawl toward the succeeding tooth or notch in said ratchet wheel.

5. The combination with a platen, of a reciprocatory line-feeding mechanism therefor, including a pawl and ratchet, a second ratchet, the latter having unevenly spaced teeth, a detent to engage the second ratchet to hold the platen stationary during the writing of a line, and a stop pawl to engage the teeth of the second ratchet to limit the line-spacing stroke of said reciprocating devices.
6. The combination with a platen, of a reciprocatory line-feeding mechanism therefor, including a pawl and ratchet, a second ratchet, the latter having unevenly spaced teeth, a detent to engage the second ratchet to hold the platen stationary during the writing of line, and a stop pawl to engage the teeth of the second ratchet to limit the line-spacing stroke of said reciprocating devices, means being connected to said reciprocatory devices to release said stop pawl after the arrest of the platen thereby.
7. The combination with a platen, of a reciprocatory line-feeding mechanism therefor, including a pawl and ratchet, a second ratchet, the latter having unevenly spaced teeth, a detent to engage the second ratchet to hold the platen stationary during the writing of a line, and a stop pawl to engage the teeth of the second ratchet to limit the line-spacing stroke of said reciprocating devices, means being connected to said reciprocatory devices to release said stop pawl after the arrest of the platen thereby, and means being provided to cause said stop pawl, when released, to advance toward the next tooth of the second ratchet.
8. The combination with a platen, of a reciprocatory line-feeding mechanism therefor, including a pawl and ratchet, a second ratchet, the latter having unevenly spaced teeth, a detent to engage the second ratchet to hold the platen stationary during the writing of a line, a stop pawl to engage the teeth of the second ratchet to limit the line-spacing stroke of said reciprocating devices, a returning spring for said line-feeding mechanism, a cam caused by said spring to engage said stop pawl to release the same, and a spring to advance said stop pawl, when released, toward the next tooth of the second ratchet.
9. The combination with a movable platen and means to advance the same in line-space direction, of a line space wheel or device therefor having separated groups of line space notches formed therein, and a spring detent to ride upon the periphery or surface of said wheel to snap in the notches and hold the platen steady during the writing of the lines; the portions of the wheel between the notches or groups being left substantially full or uncut, to make dead surfaces for the detent to ride idly over, so that it may control the platen only by falling into the line-spacing notches.
10. The combination with a movable platen provided with both an evenly-spaced ratchet and an unevenly spaced ratchet, of detents for said ratchets, and shiftable means for silencing either detent and concomitantly bringing the other detent into use.
11. The combination with a movable platen provided with differently spaced ratchets, of a detent for one of said ratchets, both a detent and a stop pawl for the other of said ratchets, and means shiftable to silence either the first detent or said stop pawl together with the second detent.
12. The combination with a movable platen provided with differently spaced ratchets, of a detent for one of said ratchets, both a detent and a stop pawl for the other of said ratchets, means shiftable to silence either the first detent or said stop pawl together with the second detent, and a driving pawl and lever for one of said ratchets.
13. The combination with a movable platen provided with differently spaced ratchets, of a detent for one of said ratchets, both a detent and a stop pawl for the other of said ratchets, means shiftable to silence either the first detent or said stop pawl together with the second detent, a driving pawl and lever for one of said ratchets, and a shiftable regulating device for controlling the length of the line-feeding movement of the platen effected by said pawl and lever.
14. The combination with a revoluble platen, of an evenly-spaced ratchet connected thereto, a driving pawl for said ratchet, a lever for said driving pawl, a detent for said ratchet, a second ratchet, the latter having unevenly spaced teeth and also connected to said platen, a detent for said second ratchet, and means for silencing either detent at will.
15. The combination with a revoluble platen, of an evenly-spaced ratchet connected thereto, a driving pawl for said ratchet, a lever for said driving pawl, a detent for said ratchet, a second ratchet, the latter having unevenly spaced teeth and also connected to said platen, a detent for said second ratchet, a stop pawl to engage said second ratchet, and means for silencing either the first detent, or said stop pawl together with the second detent.
16. The combination of a platen, a ratchet having unevenly spaced teeth or notches, a detent to engage said teeth or notches to hold the platen stationary during the writing of a line, means to advance said platen, a stop pawl to engage the teeth of said ratchet to limit the advance movement of the platen, and means for silencing said detent and said stop pawl concomitantly.

17. The combination with a movable platen, of means, including an evenly-spaced ratchet connected therewith and a driving pawl for said ratchet, for feeding the platen line by line through even intervals, and means, including an unevenly-spaced ratchet and a detent therefor, for effecting uneven line-spacing or feeding of the platen at will.

18. The combination of a revoluble platen, a ratchet wheel therefor having unevenly spaced teeth or notches, a platen frame, a spring detent to engage the teeth or notches of said ratchet wheel to hold the platen stationary, means, including a reciprocatory lever and driving pawl, to effect the uneven line-feeding rotative movements of said platen, a stop pawl to engage the teeth or notches of said ratchet wheel to determine the extent of the line-spacing movements of the platen, and means to enable said lever and pawl to effect uniform line-feeding movements of said platen to an indefinite extent, at will.

19. The combination of a revoluble platen, a ratchet wheel therefor having unevenly spaced teeth or notches, a platen frame, a spring detent to engage the teeth or notches of said ratchet wheel to hold the platen stationary, means, including a reciprocatory lever and driving pawl, to effect the uneven line-feeding rotative movements of said platen, a stop pawl to engage the teeth or notches of said ratchet wheel to determine the extent of the line-spacing movements of the platen, means being connected to said reciprocatory devices to release said stop pawl after the arrest of the platen thereby, and means to enable said lever and pawl to effect uniform line-feeding movements of said platen to an indefinite extent, at will.

20. The combination with a movable platen provided with differently spaced ratchets, of a detent for each of said ratchets, and shiftable means for either silencing both ratchets concomitantly or silencing either detent and concomitantly bringing the other detent into use.

21. The combination with a platen provided with differently spaced ratchets, of detents for said ratchets, a stop pawl for one of said ratchets, and shiftable means for either silencing both said detents and said pawl concomitantly, or silencing either one of said detents or said stop pawl together with the other of said detents.

22. The combination with a revoluble platen provided with both an evenly-spaced ratchet wheel and an unevenly-spaced ratchet wheel, of means to engage the ratchet wheels to hold the platen steady during the writing operation, and shiftable means for enabling the platen to be controlled or detained by either ratchet wheel at will.

23. The combination with a revoluble platen provided with both an evenly-spaced

ratchet wheel and an unevenly-spaced ratchet wheel, of means to engage the ratchet wheels to hold the platen steady during the writing operation, and shiftable means for enabling the platen to be controlled or detained by either ratchet wheel at will, or to free the platen from the control of both said ratchet wheels at will.

24. The combination with a platen, of a ratchet wheel connected thereto, a lever having means to drive the ratchet wheel, a stop pawl, a pivoted frame upon which said stop pawl is mounted for independent movement, a spring to press said pawl into engagement with said wheel, means to hold said frame in pawl releasing position when the line spacing devices are in normal position, and to permit the pawl to engage the ratchet wheel at the initial portion of the platen driving stroke of the line spacing devices, means tending to advance said pawl upon said frame toward the succeeding tooth of the ratchet wheel, and means to limit the backward movement imparted by said ratchet wheel to said pawl.

25. The combination with a platen, of a ratchet wheel connected thereto, a lever having means to drive the ratchet wheel, a stop pawl, a pivoted frame upon which said stop pawl is mounted for independent movement, a spring to press said pawl into engagement with said wheel, means to hold said frame in pawl releasing position when the line spacing devices are in normal position, and to permit the pawl to engage the ratchet wheel at the initial portion of the platen driving stroke of the line spacing devices, means tending to advance said pawl upon said frame toward the succeeding tooth of the ratchet wheel, means to limit the backward movement imparted by said ratchet wheel to said pawl, and a detent to engage the same notch in the ratchet wheel as said pawl.

26. The combination with a revoluble platen, of a ratchet wheel connected thereto, reciprocatory devices to drive said ratchet wheel and platen, a second ratchet wheel, the latter differently spaced from the first, and a stop pawl to engage said second wheel to arrest the platen when driven by said reciprocatory devices.

27. The combination with a revoluble platen, of a ratchet wheel connected thereto, reciprocatory devices to drive said ratchet wheel and platen, a second ratchet wheel, the latter differently spaced from the first, a stop pawl to engage said second wheel to arrest the platen when driven by said reciprocatory devices, and a spring detent to engage the same notch in said second wheel as said stop pawl.

28. The combination of a platen, a ratchet having unevenly spaced teeth or notches, a detent to engage said teeth or notches to hold the platen stationary during the writ-

ing of a line, means to advance said platen, a stop pawl to engage the teeth of said ratchet to limit the advance movement of the platen, and means to release the platen from the control of said detent.

29. The combination of a revoluble platen, a ratchet wheel therefor having unevenly spaced teeth or notches, a platen frame, a spring detent to engage the teeth or notches of said ratchet wheel to hold the platen stationary, means including a reciprocatory lever and driving pawl, to effect the uneven line-feeding rotative movements of said platen, a stop pawl to engage the teeth or notches of said ratchet wheel to determine the extent of the line-spacing movements of the platen; means being connected to said lever and effective upon the return thereof to normal position, to release said stop-pawl from said ratchet wheel and to effect an advance movement of the stop-pawl toward the succeeding tooth or notch in said ratchet wheel, and a single device to move and lock said detent and stop-pawl away from said ratchet wheel.

30. The combination with a platen, of a reciprocatory line-feeding mechanism therefor, including a pawl and ratchet, a detent for said ratchet, a second ratchet, the latter having unevenly spaced teeth, a detent to engage the second ratchet to hold the platen stationary during the writing of a line, a stop-pawl to engage the teeth of the second ratchet to limit the line-spacing stroke of said reciprocating devices, and a lever having means to release said detents in alternation.

31. The combination with a platen, of a reciprocatory line-feeding mechanism therefor, including a pawl and ratchet, a detent for said ratchet, a second ratchet, the latter having unevenly spaced teeth, a detent to engage the second ratchet to hold the platen stationary during the writing of a line, a stop-pawl to engage the teeth of the second ratchet to limit the line-spacing stroke of said reciprocating devices, and a lever having means to release said detents either concomitantly or in alternation.

32. The combination with a platen, of a reciprocatory line-feeding mechanism therefor, including a pawl and ratchet, a detent for said ratchet, a second ratchet, the latter having unevenly spaced teeth, a detent to engage the second ratchet to hold the platen stationary during the writing of a line, a stop-pawl to engage the teeth of the second ratchet to limit the line-spacing stroke of said reciprocating devices, means being connected to said reciprocatory devices to release said stop-pawl after the arrest of the platen thereby, and means being provided to cause said stop-pawl, when released, to advance toward the next tooth of the second ratchet, and a lever having means to move

and lock said detents either concomitantly or alternatively away from said ratchets, and to move and lock said stop-pawl away from its ratchet together with its associated detent.

33. The combination with a platen, of a reciprocatory line-feeding mechanism therefor, including a pawl, a ratchet wheel, and a detent for said ratchet wheel, a second ratchet wheel, the latter having unevenly spaced teeth, a detent to engage the second ratchet wheel to hold the platen stationary during the writing of a line, a stop-pawl to engage the teeth of the second ratchet wheel to limit the line-spacing stroke of said reciprocating devices, a lever having two cams to move the first detent away from its ratchet wheel, and means also connected to said lever to release the second detent, together with said stop pawl, either when both of said cams are idle or when one of said cams is in effective position.

34. The combination with a movable platen and means to advance the same in line-space direction, of a line space wheel or device therefor having separated groups of line space notches formed therein, a spring detent to ride upon the periphery or surface of said wheel to snap in the notches and hold the platen steady during the writing of the lines; the portions of the wheel between the notches or groups being left substantially full or uncut, to make dead surfaces for the detent to ride idly over, so that it may control the platen only by falling into the line-spacing notches; and means to release the platen from the control of said line-space wheel and detent.

35. The combination with a movable platen provided with differently spaced ratchet wheels, of a detent for one of said ratchet wheels, both a detent and a stop-pawl for the other of said ratchet wheels, and a lever having two cams either of which may release the first detent, said lever also having thereon a third releasing cam or device to release the second detent together with said stop-pawl, either when one of said two cams is effective or when both are in idle positions.

36. The combination with a movable platen provided with differently spaced ratchets, of a spring-pressed detent for one of said ratchets, a spring-pressed detent for the other of said ratchets, and a lever having cams thereon for releasing either detent from its ratchet and concomitantly permitting the other detent to move into engagement with its ratchet.

37. The combination with a platen, of an evenly-spaced ratchet connected thereto, a detent for said ratchet, a second ratchet, the latter having unevenly spaced teeth and also connected to said platen, a detent for said second ratchet, and a lever having cams

thereon for silencing said detents either alternatively or concomitantly.

38. The combination with a movable platen, of means, including an evenly-spaced ratchet connected therewith and a driving pawl and a detent for said ratchet, for feeding the platen line by line through even intervals, and means, including an unevenly-spaced ratchet and a detent therefor, for effecting predetermined uneven line-spacing or feeding of the platen at will, and means to release the platen from the control of said ratchets either alternatively or concomitantly, at will.

39. The combination with a revoluble platen, of reciprocatory devices to drive said wheel and platen, a ratchet wheel having uneven notches or teeth, a stop-pawl to engage said ratchet wheel to arrest the platen

when driven by said reciprocatory devices, and means to lock said stop-pawl away from said ratchet wheel.

40. The combination with a revoluble platen, of a ratchet wheel connected thereto, reciprocatory devices to drive said ratchet wheel and platen, a second ratchet wheel, the latter differently spaced from the first, a stop-pawl to engage said second wheel to arrest the platen when driven by said reciprocatory devices, a spring detent to engage the same notch in said second wheel as said stop pawl, and means to lock said detent and stop-pawl away from said second ratchet wheel.

ALFRED G. F. KUROWSKI.

Witnesses:

RALPH S. WARFIELD,
JOHN O. SEIFERT.