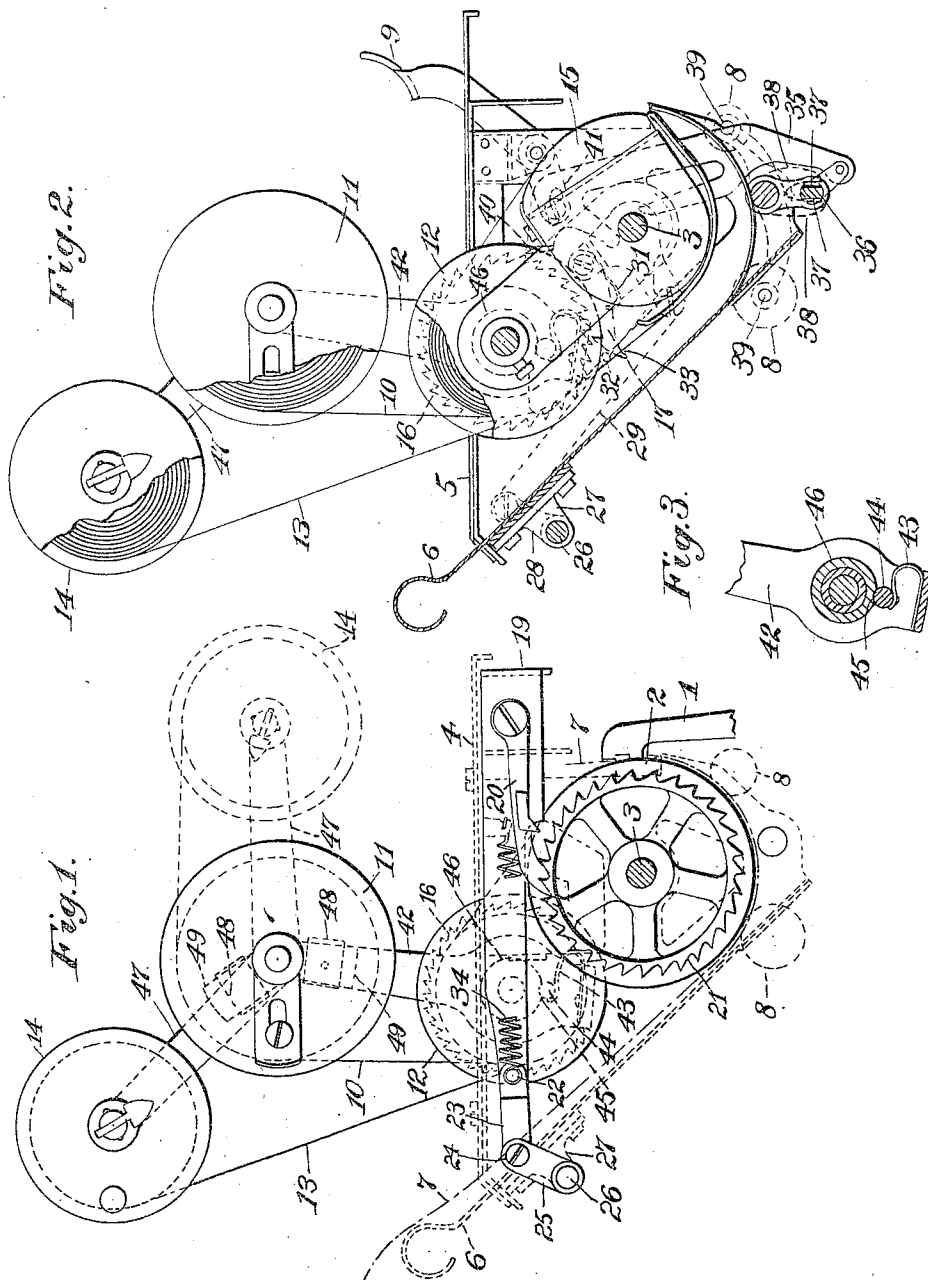


972,566.

H. S. McCORMACK.
TYPE WRITING MACHINE.
APPLICATION FILED JUNE 4, 1908.

Patented Oct. 11, 1910.

2 SHEETS—SHEET 1.



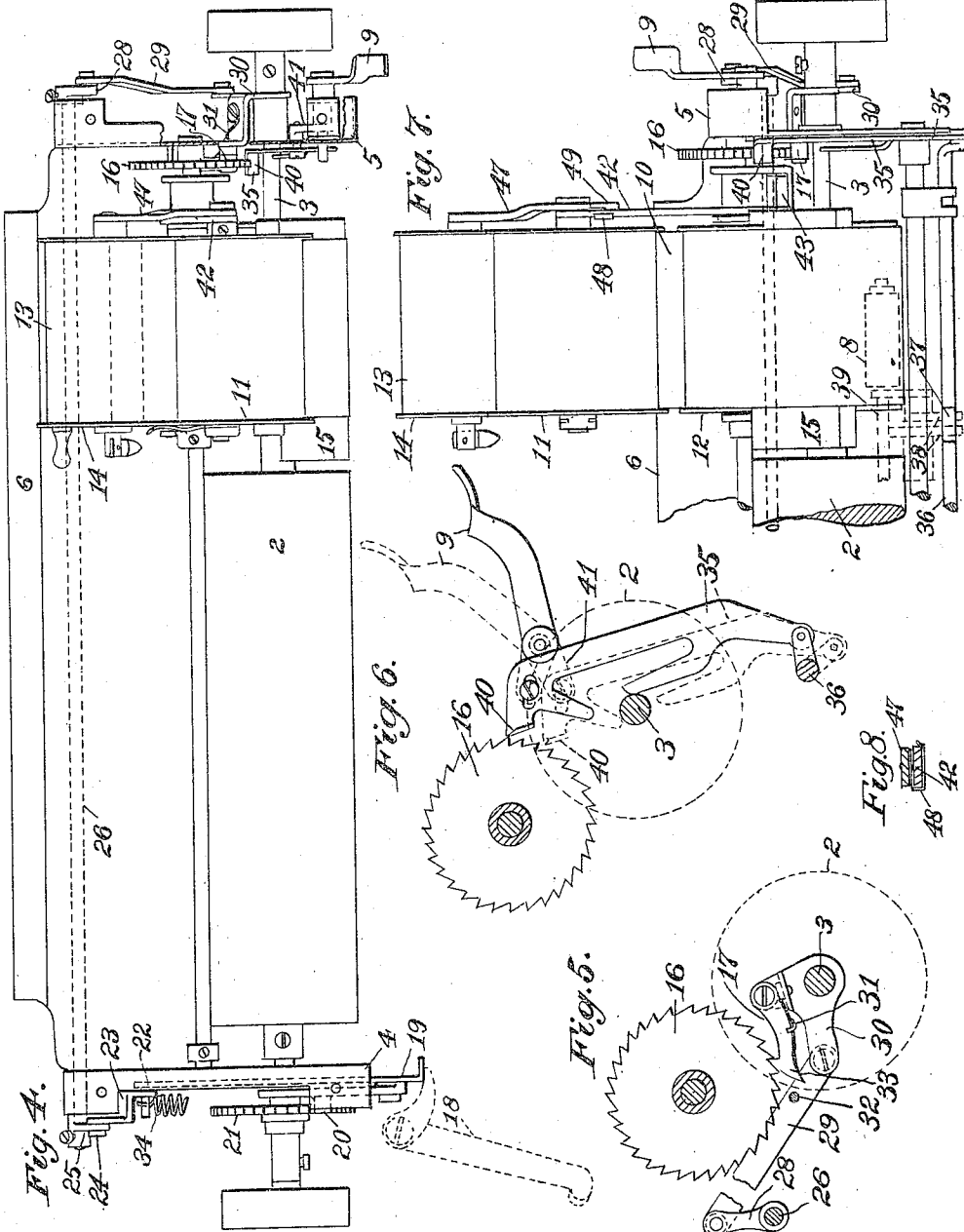
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Inventor:
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By his Attorney
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Patented Oct. 11, 1910.

2 SHEETS—SHEET 2.

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UNITED STATES PATENT OFFICE.

HARRY S. McCORMACK, OF NEW ROCHELLE, NEW YORK, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

972,566.

Specification of Letters Patent. Patented Oct. 11, 1910.

Application filed June 4, 1908. Serial No. 436,541.

To all whom it may concern:

Be it known that I, HARRY S. McCORMACK, a citizen of the United States, residing in New Rochelle, in the county of Westchester 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 the paper-feeding and controlling devices of typewriting machines, and particularly to means for feeding tally strips in conjunction with record sheets, that is long sheets which remain in the machine to receive carbon copies of successive short bills.

The invention is in the nature of an improvement upon mechanism shown in application No. 432,775, filed May 14, 1908, by Henry T. Foddrill. According to said application a tally strip is line-spaced simultaneously with the main sheet, by means of a line-spacing mechanism which is operated by the platen line-spacing mechanism, so as to effect an advance of the tally-strip for every line of writing on the bill and record sheet.

One of the principal objects of the present invention is to simplify and improve the tally-strip mechanism, especially with a view to enabling the tally-strip to be advanced automatically, not only when the platen is spaced, but also when the pressure rolls are cast off to permit the withdrawal of a written bill and the insertion of a new bill while the record sheet remains in the machine; whereby the spacing is automatically produced on the tally-strip between the last item on one bill and the first item on the next. This spacing of the tally strip between bills is effected by the pressure-roll release key, and the construction is such as to cause the platen strip to feed twice as far at the operation of said space-key as at the operation of the line-feeding mechanism of the platen, whereby the successive amounts on the tally-strip are divided into groups, one group for each bill.

According to the present invention, the tally-strip spool is provided with a ratchet wheel, which may be operated by either of two pawls, one connected to the pressure-roll release-key, and the other connected to the line-spacing mechanism of the platen.

Other features and advantages will hereinafter appear.

In the accompanying drawings, Figure 1 is an end elevation of the platen frame of an Underwood typewriting machine, showing my improvements applied thereto. Fig. 2 is a sectional elevation, showing the details of the tally strip mechanism. Fig. 3 is a sectional view showing the manner in which a spool-arm is yieldingly held in working position. Fig. 4 is a plan of the platen frame and tally-strip devices. Fig. 5 is a sectional elevation illustrating the manner of operating the tally-strip by means of the platen-feeding mechanism. Fig. 6 is a sectional elevation illustrating the manner of operating the tally strip by means of the pressure-roll releasing key. Fig. 7 is a front elevation showing the right hand end of the platen frame and the tally-strip mechanism. Fig. 8 is a sectional detail of a yielding detent for holding an auxiliary spool-carrying arm in working position.

Type bars 1 strike upon the front side of a platen 2, which is revolvably mounted by means of an axle 3 in a platen frame comprising ends 4, 5, and having a paper shelf 6, which extends from end to end of the platen frame behind the platen and inclines downwardly and forwardly to the lower side of the platen. A bill or main sheet 7 may be introduced in the usual manner and fed forwardly around the platen by the usual pressure rolls 8, the latter provided with the usual release key 9.

A tally strip 10 is carried down from a delivery spool 11, and looped around the platen, and led upwardly and backwardly to a winding spool 12. A second tally strip 13 may be led from a spool 14 downwardly and looped around the tally strip platen 15, and wound upon the spool 12 simultaneously with the strip 10; the strip being preferably carbonized only upon the side which is next to the strip 10, whereby an original record may be made on the uncarbonized surface 13, and a duplicate record may also be made upon the strip 10.

The winding spool 12 is operated by a ratchet wheel 16. A pawl 17 to operate the latter is connected to the usual line-spacing lever 18 which rotates the main platen 2, so that the tally strips 10 and 13 are advanced line by line automatically at the line-spacing movements of the main platen. The lever 18 usually operates a slide 19, which carries a pawl 20 to engage a line-space wheel 21 mounted on the platen axle, whereby the

platen is rotated, and to the rear end of said slide 1 pivot at 22 one end of a link 23, the other end of which is pivoted at 24 to the end of a crank 25, which extends up from a rock shaft 26. Said shaft is mounted in suitable bearings 27 and extends from end to end of the paper shelf 6 in rear thereof, and carries at its right hand end a crank 28, which is connected by a link 29 to an arm 30 hung upon the platen axle 3 and carrying said pawl 17. The latter is provided with a spring 31 which normally presses the pawl against the ratchet wheel 16. When the slide 19 is in its normal position, Figs. 2 and 4, the pawl is thrown and held out of engagement with the ratchet wheel 16 by an ear 33 formed upon the pawl contacting with a pin 32, so that the pawl stands normally out of engagement with the ratchet wheel 16, to permit the latter to be turned backwardly by the operator, as desired.

When each line of writing is completed on the bill, the operator repeats the item on the tally strip 13, making a carbon duplicate on the strip 10, and then presses the lever 18 to the left to advance the platen a line, the backward movement of the slide 19 operating through the link 23 to rock the crank 25 and the shaft 26 and the crank 28; the link 29 being caused to pull the arm 30, and the pawl 17 being swung into engagement with the ratchet 16 and caused to turn the same a single notch, thereby line-spacing the tally-strips. When the operator releases the lever 18, the parts are returned to normal positions by the spring 34, which is usually provided for the slide 19. Thus entries are made line by line on the tally strip as the writing of the bill proceeds.

At the completion of the bill, the key 9 is depressed to operate through a link 35 and rock-shaft 36 in the usual manner to release the pressure rolls 8, said rock-shaft having flats or cams 37 engaged by levers 38 which carry the pressure roll shafts 39, and the rocking of the shaft 36 forcing the arms or levers to release the rolls. The link 35 is formed with a tooth or pawl 40 to engage the teeth of the ratchet wheel 16 to advance the tally-strip; the movement of the strip being about twice as great as is effected by the lever 18, so as to produce a space of extra depth between the groups of entries on the tally-strip. The key 9 is formed upon a lever 41 which has sufficient purchase on the link or pawl 35 to give the latter a stroke equal to two or more notches or teeth of the wheel 16 for this purpose. The pawl tooth 40 normally stands out of engagement with the tooth 16 as illustrated, to permit the latter to be turned back as required.

The tally-strip spool 11 is carried upon an arm 42, which is mounted to swing about the axis of the spool 12 backwardly out of

the way when not in use; a spring 43 upon the lower part of said arm pressing a roll 44 into a seat 45 formed in a stationary bearing 46, to hold the arm yieldingly in working position. To the upper end of said arm 42 is pivoted, concentrically with the spool 11, another arm 47, which carries at its upper end the spool 14, and may be swung forwardly to the dotted line position at Fig. 1, to reduce the height of the machine when the spools are not in use. A yielding latch or detent 48 is provided upon an extension 49 of the arm 47 to catch over the arm 42, Fig. 8, to retain the arm 47 in working position.

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, of a line-spacing mechanism therefor, a tally-strip spool having a ratchet wheel, a pawl to operate said ratchet wheel, said pawl connected to said line-spacing mechanism, and a key operating a separate pawl to turn said ratchet wheel independently of the line-spacing mechanism.

2. In a typewriting machine, the combination with a platen, of a line-spacing mechanism therefor, a tally-strip spool having a ratchet wheel, a pawl to operate said ratchet wheel, said pawl connected to said line-spacing mechanism, and a key operating a separate pawl to turn said ratchet wheel independently of the line-spacing mechanism; both pawls normally out of engagement with the ratchet wheel.

3. In a typewriting machine, the combination with a platen, a line-spacing mechanism therefor, and pressure rolls to run on the platen, of a tally-strip spool having a ratchet wheel, a pawl connected to said line-spacing mechanism to operate said ratchet wheel, a key to release the pressure rolls, and means to enable said key to turn the ratchet wheel to advance the tally strip.

4. In a typewriting machine, the combination with a platen, a line-spacing mechanism therefor, and pressure rolls to run on the platen, of a tally-strip spool having a ratchet wheel, a pawl connected to said line-spacing mechanism to operate said ratchet wheel, and a key to release the pressure rolls; said key having a separate pawl to engage and turn the ratchet wheel.

5. In a typewriting machine, the combination with a revoluble platen, a pressure roll to run thereon, and a platen frame, of a line-spacing mechanism for the platen, a rock-shaft extending along the platen frame and connected to the line-spacing mechanism to be operated thereby, means connected to said rock-shaft to operate a pawl, a ratchet wheel turned by said pawl and connected to

a tally strip spool, and a pressure-roll release-key having a separate pawl to turn said ratchet wheel.

6. In a typewriting machine, the combination with a revoluble platen, a pressure roll to run thereon, and a platen frame, of a line-spacing mechanism for the platen, a rock-shaft extending along the platen frame and connected to the line-spacing mechanism to be operated thereby, means connected to said rock-shaft to operate a pawl, a ratchet wheel turned by said pawl and connected to a tally strip spool, and a pressure-roll release-key having means to advance said ratchet wheel at the roll-releasing operation.

7. In a typewriting machine, the combination with a revoluble platen, a pressure roll to run thereon, and a platen frame, of a line-spacing mechanism for the platen, a rock-shaft extending along the platen frame and connected to the line-spacing mechanism to be operated thereby, means connected to said rock-shaft to operate a pawl, a ratchet wheel turned by said pawl and connected to a tally strip spool, and a pressure-roll release-key having a separate pawl to turn said ratchet wheel; said pawl mounted on an arm that turns about the platen axle, and said arm connected by a link to a crank upon said rock-shaft.

8. In a typewriting machine, the combination with a revoluble platen and a platen frame, of a line-spacing mechanism for the platen, a rock-shaft extending along the platen frame and connected to the line-spacing mechanism to be operated thereby, means connected to said rock-shaft to operate a pawl, and a ratchet wheel turned by said pawl and connected to a tally strip spool.

9. In a typewriting machine, the combination with a revoluble platen and a platen frame, of a line-spacing mechanism for the platen, a rock-shaft extending along the platen frame and connected to the line-spacing mechanism to be operated thereby, means connected to said rock-shaft to operate a pawl, and a ratchet wheel turned by said pawl and connected to a tally strip spool; said pawl mounted on an arm that turns about the platen axle, and said arm connected by a link to a crank upon said rock-shaft.

10. In a typewriting machine, the combination with a revoluble platen, a platen frame, a line-space wheel for the platen, and a pawl-and-ratchet mechanism to operate said line-space wheel, said mechanism including a pawl-carrying slide, a link connecting said slide to a crank provided upon a rock shaft which is mounted upon the platen-frame, a second crank upon said rock shaft, a link connecting the second crank to an arm hinged to turn about the platen axis, a pawl upon said arm, and a tally-strip wind-

ing-spool having a ratchet wheel to be engaged by said pawl to effect line-spacing of the strip simultaneously with the line-spacing of the main sheet.

11. In a typewriting machine, the combination with a revoluble platen, a platen frame, a line-space wheel for the platen, and a pawl-and-ratchet mechanism to operate said line-space wheel, said mechanism including a pawl-carrying slide, a link connecting said slide to a crank provided upon a rock shaft which is mounted upon the platen-frame, a second crank upon said rock shaft, a link connecting the second crank to an arm hinged to turn about the platen axis, a pawl upon said arm, a tally-strip winding-spool having a ratchet wheel to be engaged by said pawl to effect line-spacing of the strip simultaneously with the line-spacing of the main sheet, and a pawl connected to a pressure-roll release key to engage the second ratchet wheel and advance the tally strip when the pressure roll is released to permit withdrawal of the main sheet and insertion of a new one.

12. In a typewriting machine, the combination with a platen having a line-spacing mechanism, of a tally-strip spool, means connected to said line-spacing mechanism to effect single line-spacing movements of said spool, and a key having means to effect by a single stroke a double line-spacing movement of the spool.

13. In a typewriting machine, the combination with a platen having a line-spacing mechanism, of a tally-strip spool, means connected to said line-spacing mechanism to effect single line-spacing movements of said spool, and a key having means to effect by a single stroke a double line-spacing movement of the spool while the platen is stationary.

14. In a typewriting machine, the combination with line-spacing mechanism for main sheets, of a tally-strip spool, means connected to said line-spacing mechanism for effecting single-line advance rotation of the spool, and a key having means to effect by a single stroke a two-line advance movement of the tally-strip while said line-spacing mechanism is stationary.

15. In a typewriting machine, the combination with a platen, of a line-spacing mechanism therefor, a tally-strip spool having a ratchet wheel, a pawl to operate said ratchet wheel, said pawl connected to said line-spacing mechanism, a key, and a separate pawl caused by a single stroke of said key to turn said ratchet wheel independently of the line-spacing mechanism, sufficiently to produce a space on the tally strip greater than the space produced by said line-spacing mechanism.

16. In a typewriting machine, the combination with a platen, a line-spacing mechanism

nism therefor, and pressure rolls to run on the platen, of a tally-strip spool having a ratchet wheel, a pawl connected to said line-spacing mechanism to operate said ratchet wheel, a key to release the pressure rolls, and means to enable said key to turn the ratchet wheel to advance the tally strip sufficiently to produce a greater space between entries than is produced by said line-spacing mechanism.

17. In a typewriting machine, the combination with a platen, a line-spacing mechanism therefor, and pressure rolls to run on the platen, of a tally-strip spool having a ratchet wheel, a pawl connected to said line-spacing mechanism to operate said ratchet wheel, and a key to release the pressure rolls; said key having a separate pawl to engage and turn the ratchet wheel sufficiently to produce a greater space between entries than is produced by said line-spacing mechanism.

18. In a typewriting machine, the combination with line-spacing mechanism for main sheets, of a tally-strip spool having a ratchet wheel and two pawls to operate said ratchet wheels independently, one pawl operated by said line-spacing mechanism, and the other pawl provided with an operating device, a single stroke of which effects a greater advance of the tally strip and the first pawl.

19. In a typewriting machine, the combination with a platen and sheet-holding means, of a tally-strip mechanism including a spool, a ratchet wheel therefor and two pawls to operate said ratchet wheels, said pawls being connected to different mechanisms to be operated independently and automatically thereby; means being provided to give one pawl a greater stroke than the other.

20. In a typewriting machine, the combination with a platen, line-spacing mechanism therefor, and releasable means to hold sheets on the platen, of a tally-strip spool, automatic means to wind said spool when the platen is advanced for line-spacing, and automatic means to advance said spool to a greater extent when the sheet-holding means is released from the platen.

21. In a typewriting machine, the combination with means to hold a main sheet and means to hold a tally strip, of means to line-space the main sheet and the tally-strip simultaneously, and means to release the main sheet and simultaneously impart to the tally strip an advance movement of greater length than is imparted thereto at the line-spacing of the sheet.

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