J. WALDHEIM.

TYPEWRITING MACHINE.

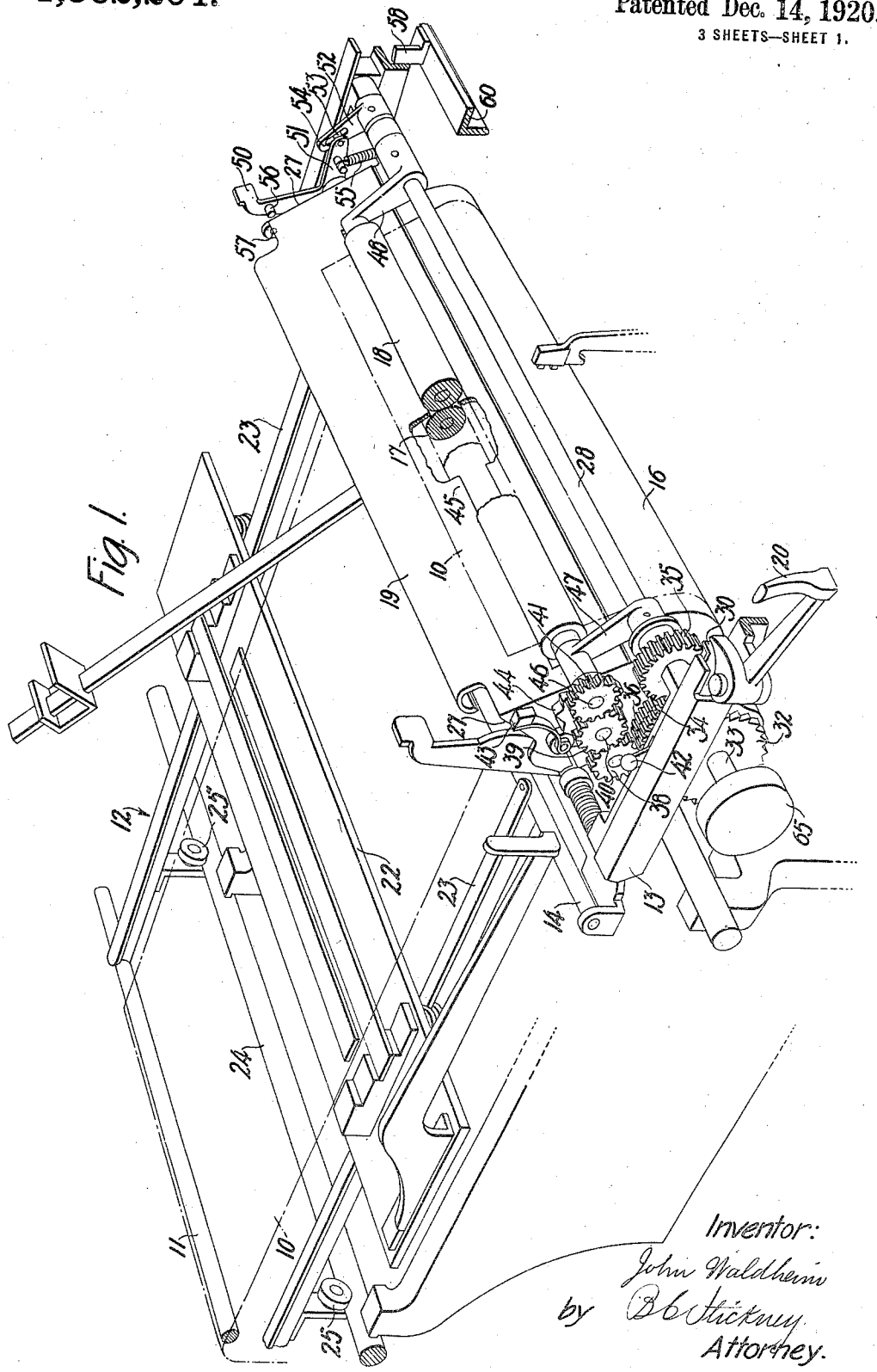
APPLICATION FILED DEC. 24, 1918.

1,362,204.

Patented Dec. 14, 1920.

3 SHEETS—SHEET 1.

Fig. 1.



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3 SHEETS—SHEET 2.

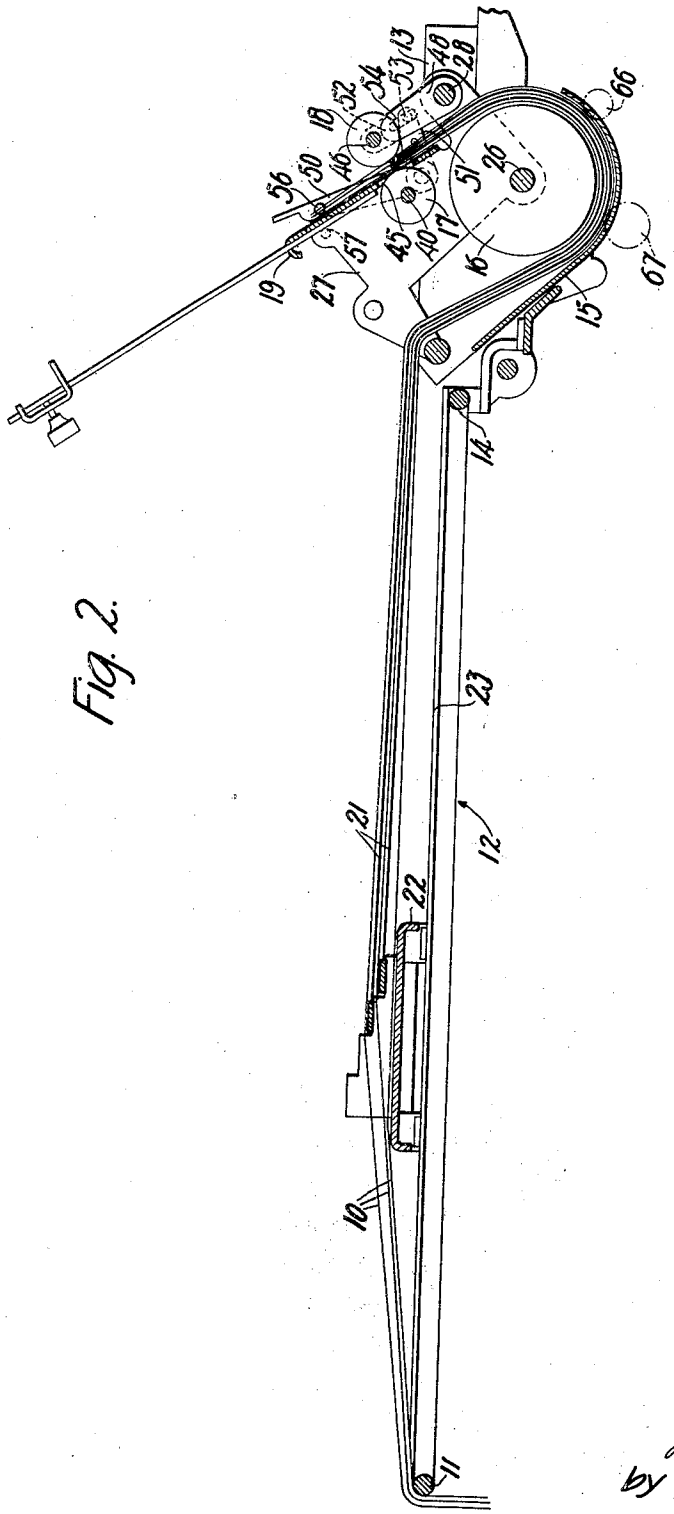


Fig. 2.

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3 SHEETS—SHEET 3.

Fig. 4.

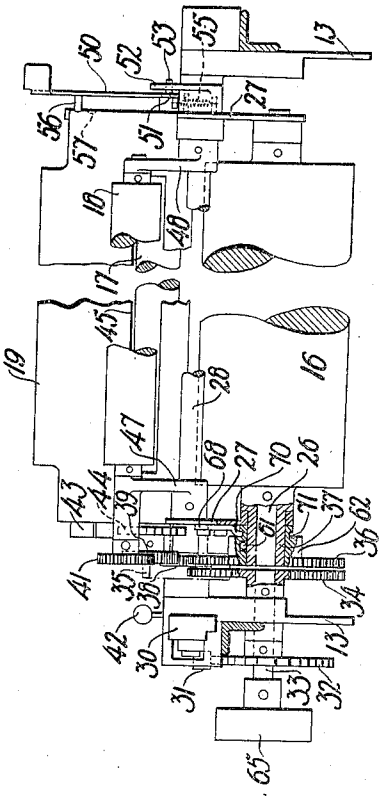


Fig. 6.

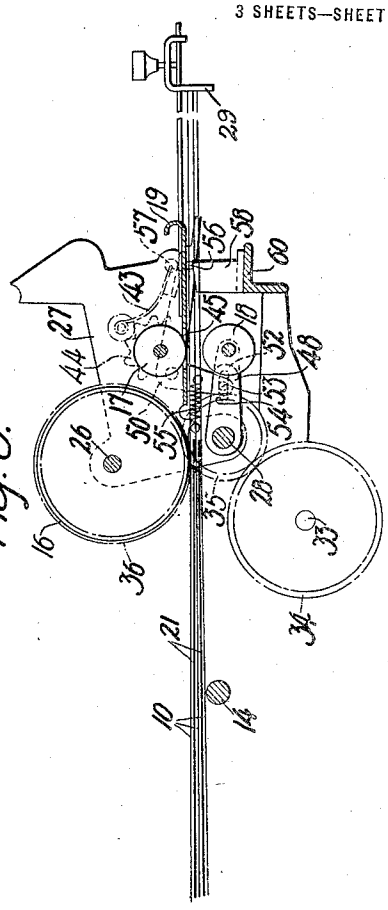


Fig. 3.

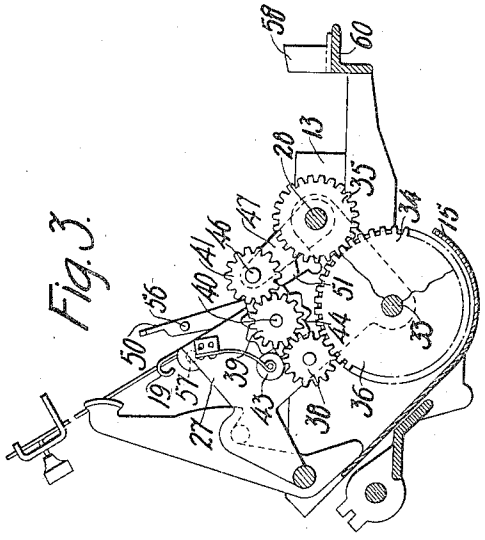
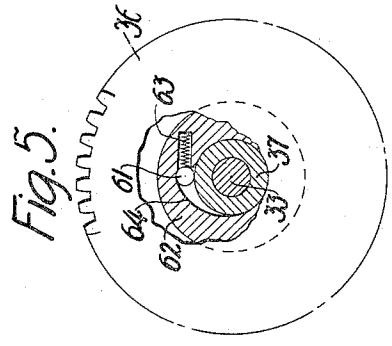


Fig. 5.



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UNITED STATES PATENT OFFICE.

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TYPEWRITING-MACHINE.

1,362,204. Specification of Letters Patent. Patented Dec. 14, 1920.

Application filed December 24, 1918. Serial No. 268,184.

To all whom it may concern:

Be it known that I, JOHN WALDHEIM, a citizen of the United States, residing in Elizabeth, in the county of Union and State of New Jersey, 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 particularly to means for feeding a pack of work-sheets around a cylindrical platen.

The platen is usually operated directly by line-spacing mechanism, and thus serves as a driver; and with the aid of auxiliary feed rolls, which are usually arranged beneath the platen, work-sheets are fed to the printing line. With this paper-feeding arrangement, when feeding a pack of work-sheets around the platen, there is a tendency for some of the sheets to feed faster than others, thus causing a creep of the sheets relatively to each other. This relative creeping of the work-sheets is objectionable, especially when printed forms on continuous webs are used, as the creep between the work-sheets is cumulative and thus causes the forms to get out of adjustment relatively to one another.

An object of the present invention is to reduce or avoid creep between the work-sheets. To do this, there may be provided two paper-feeding elements or rolls, arranged at the delivery side of the platen and adapted to grasp the pack of work-sheets and to be rotated by the line-spacing mechanism; the platen being mounted to rotate freely through the medium of the pack of sheets when they are being fed forwardly.

I have preferably shown my invention applied to a machine disclosed in the patent to Wernery & Smith, No. 1,132,055, in which the work-sheets may be fed forward from any suitable source of supply, and in which the platen is mounted in a swingable frame so that it may be swung upwardly in order to straighten out the pack of work-sheets, so that carbons, carried by a carbon-carriage, may be moved to new forms on the webs; said carbon-carriage moving forwardly with the carbons during line-spacing operations.

There is provided a line-space detent to coöperate directly with one of the paper-feeding elements instead of the line-space wheel. As before stated, in the present invention the platen rotates freely when the webs are fed forwardly. In other words, the line-spacing mechanism will not be effective to rotate the platen to advance the paper. It is sometimes desirable, however, to reversely feed the work-sheets. To do this, there is provided a one-way connection, preferably in the form of a ball-clutch connected with the finger-wheel

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a perspective view of part of a typewriting machine showing the invention applied thereto.

Fig. 2 is a sectional side elevation showing the paper-feeding elements arranged at the delivery side of the platen and grasping a pack of work-sheets and carbons extending from the back of the machine and down around the platen, parts being shown in normal working condition.

Fig. 3 is a sectional side elevation showing the connections from the gear (connected to the line-space wheel) to the paper-feeding elements.

Fig. 4 is a front view of the parts shown in Fig. 3.

Fig. 5 is a detail view of one of the gear wheels in the train of gearing from the line-space wheel to the driving elements and shows the one-way connection of said gear with the platen.

Fig. 6 shows the platen thrown up and the paper-feeding elements separated or released, so that the pack of work-sheets may be straightened out for the purpose of shifting the carbons relatively thereto.

The work-sheets 10 may be fed from any suitable source of supply from the back of the machine and guided over a cross-bar 11 forming part of a traveling frame 12 secured to the typewriter carriage 13, and stretch forwardly over a second bar 14 of said traveling frame from whence they take a downward course between a paper apron 15 and a cylindrical platen 16. They are then guided upward in front of the platen where they are grasped between two feeding elements 17 and 18, which are pressed one against the other, as will hereinafter be described, and by which they may be fed forwardly by line-spacing mechanism including a line-spacing handle 20. A paper table

19 is provided to guide the work-sheets in their upward path from the platen to the feeding elements 17 and 18.

Suitable carbons 21 interleaved between the work-sheets 10 are also fed forwardly therewith and extend from a carbon carriage 22 arranged to travel back and forth on suitable rails 23 of the frame 12 connected to and in back of the typewriter carriage, said frame being adapted to travel with the typewriter carriage during letter-feeding operations on a fixed rail 24 which is engaged by rollers 25 on said frame.

The platen 16 is supported on a shaft 26 in a frame 27, which may be swung about a shaft 28 extending from one side to the other of the carriage frame 13, to bring the platen from its normal position in Fig. 2 to the position in Fig. 6, for the purpose of straightening out the webs prior to moving the carbons to a fresh portion of the webs. At this time it is customary to gage the webs against the usual adjustable gage 29.

To permit the platen to be swung to this abnormal position in Fig. 6, the train of connections between the line-space handle and the paper-feeding elements or rolls may comprise a slide 30, Figs. 1 and 4, which is moved rearwardly against the tension of a return spring, not shown. The slide 30 has pivotally mounted thereon a pawl 31, which rotates a line-space wheel 32 secured to a shaft 33 mounted in the carriage frame 13. The inner end of the shaft 33 has secured thereto a gear wheel 34, which rotates a pinion 35 loosely mounted on the shaft 28 about which the platen frame 27 may swing, as on a hinge. The pinion 35 drives a gear wheel 36, which is located adjacent to the gear wheel 34, supported on a hub 37 extending from one side of the platen 16, and is free to rotate on said hub when the line-space handle is actuated. The rotative movement of said gear wheel 36 is transferred by an intermediate pinion 38 to a gear wheel 39 secured to one end of a shaft 40, which takes a bearing in the platen frame 27, and upon which the feed roll 17 is rigidly mounted. To drive the other feeding element 18 in unison with the element 17, it is geared thereto by means of a gear wheel 41, which meshes with the gear wheel 39.

The number of line-space distances through which the feed rolls are rotated at each operation of the line-space handle 20 may be controlled by a regulator 42, as in the Underwood typewriting machine, which allows the line-space pawl 31 to engage with the line-space ratchet wheel 32 sooner or later during the movement of said handle to obtain one, two, or three line-space movements of the work-sheets. A suitable line-space detent 43 is carried by the platen frame 27 and engages with a star wheel 44 secured to the end of the feed-roll shaft 40.

The feed roll 17 extends through a slot 45 in the paper table 19, lying nearly flush with its upper surface, so that the pack of work-sheets may be grasped by the roll 17 and the roll 18.

The feed roll 18 is secured to a shaft 46, which also is fast to the gear wheel 41 and is rotatably mounted in upwardly-extending arms 47 and 48 secured to the shaft 28. The feed roll 18 may be moved away from the feed roll 17, or, in other words, released, by means of an L-shaped finger-piece 50 pivotally mounted on the platen frame 27. The finger-piece 50, when moved rearwardly, engages, by means of a forwardly-extending arm 51, with an upwardly-extending arm 52 secured to the shaft 28 to rotate the latter in a clockwise direction, thus moving the feed roll 18 away from the feed roll 17, so that the pack of work-sheets may be passed freely between said feed rolls, as, for example, when introducing the work-sheets into the machine. The connection between the finger-piece 50 and the upwardly-extending arm 52 on the shaft 28 may comprise a pin 53 on the arm 52, which pin projects into a cam slot 54 in the upwardly-projecting arm 52. A suitable return spring 55 (Figs. 1 and 4) is connected to the finger-piece 50 to press the feed roll 18 against the feed roll 17, and cause a gripping action of said rolls on the pack of work-sheets.

The finger-piece may be maintained in its actuated position to hold the feed roll 18 released. To do this, the finger-piece may be slightly flexible, so that a round-headed pin 56, projecting laterally therefrom, may snap into a depression 57 in the platen frame 27, and from which it may readily be removed by the operator by pulling forwardly on the finger-piece.

When the platen is swung forward to the Fig. 6 position, it is desirable to hold the pack of work-sheets between the feed rolls until the latter part of the movement of said platen, when said feed rolls may be automatically released. To do this, there is provided a lug 58, on the front cross-bar 60 of the carriage frame, with which the pin 56 on said finger-piece engages to actuate the latter and cast off the feed roll 18. It will be seen, however, by inspection of Fig. 6, that this movement of the finger-piece is not sufficient to move the pin to the depression 57 in the platen frame, and consequently after the work-sheets have been adjusted relatively to the carbons, the finger-piece 50 will be free to permit the spring 55 to draw the roll 18 against the roll 17 and thus grasp the pack of work-sheets during the early part of the return movement of the platen to its printing position.

From the foregoing, it will be understood that the platen is not rotatable to feed the webs forwardly, that the webs are fed for-

wardly by the feed rolls 17 and 18, and that the platen is rotated freely during such operation through the medium of the webs which extend around said platen.

It is sometimes desired to reversely feed the work-sheets, so as to bring previously written matter back to the printing line. To do this, I have provided a one-way connection between the finger-wheel and the platen, which connection is effective to permit the platen to be rotated in a reverse line-space direction only by said finger-piece. This connection may be in the form of a ball-clutch, as shown in Figs. 4 and 5, and may comprise a ball 61 contained within a hub 62 of the gear wheel 36; a suitable spring 63 being provided to press the ball 61 against an inclined surface 64 within said hub. It will be seen that the gear wheel 36, in Fig. 5, is moved in a counter-clockwise direction during ordinary line-spacing operations, and that the ball 61 rotates freely over the hub 37 of the platen. When, however, the gear wheel 36 is moved in a clockwise direction by means of a finger-wheel 65 secured to the outer end of the shaft 33, the ball will jam itself between the inclined face and the hub 37 of the platen, thus causing the platen to be rotated with the gear wheel 36; connections between the finger-wheel 65 and the gear wheel 36 being had through the gear 34 and pinion 35.

To assist in feeding the work-sheets in a reverse line-space direction, front and back auxiliary feed rolls 66 and 67 are arranged at the under side of said platen, as in the Underwood typewriting machine, and may be controlled by a release handle, not shown. These feed rolls are preferably released when the work-sheets are fed forward. Any possible creep that might be caused during the reverse line-spacing of the work-sheets, due to the auxiliary feed rolls, will be slight and not enough to cause the work-sheets to come out of alinement; it being understood that the platen is seldom rotated in reverse line-spacing direction, and when so rotated it amounts only from a one to a three line-space distance.

The gear wheel 36 may be retained in position endwise of the hub 37 by means of a plate 68, Fig. 4, conveniently secured to the left-hand side of the swingable platen frame 27, said plate having an offset 70 which projects into an annular groove 71 on the hub 62 of said gear wheel 36.

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, an anti-creep device adapted to feed a plurality of superposed webs, comprising a pair of rotary feeding elements between which the superposed work-webs may be grasped to feed them without relative slipping, a line-space lever adapted to actuate said elements to feed the webs line-space distances, a platen around which the webs pass, and a supporting frame for the platen upon which it rotates freely when the webs are drawn around it; said rotary line-feeding elements mounted at the delivery side of the platen.

2. In a typewriting machine, an anti-creep device adapted to feed a plurality of superposed webs, comprising a pair of feed-rolls between which the superposed work-webs are led to feed them without relative slipping, a line-space lever, a line-space wheel adapted to be actuated by said lever, gearing connecting said wheel to said rolls to feed the webs line-space distances, a platen around which the webs pass, and a supporting frame for the platen upon which it rotates freely independently of the line-space wheel when the webs are drawn around it.

3. In a typewriting machine, an anti-creep device adapted to feed a plurality of superposed webs, comprising a pair of feed-rolls between which the superposed webs are adapted to be led, a paper-table extending from said rolls in each direction, so that the webs enter and leave the bite of the rolls substantially in a straight line, a line-space lever, a line-space wheel adapted to be actuated by said lever, gearing connecting said wheel to said rolls to feed the webs line-space distances, a platen around which the webs pass, and a supporting frame for the platen upon which it rotates freely independently of the line-space wheel when the webs are drawn around it.

4. In a typewriting machine, an anti-creep device adapted to feed a plurality of superposed webs, comprising a pair of feed-rolls between which the superposed work-webs are led to feed them without relative slipping, a line-space lever, a line-space wheel adapted to be actuated by said lever, gears forming a meshed chain connecting said wheel to said rolls, a detent at the rolls adapted to hold them against turning, a platen around which the webs pass, and a supporting frame for the platen upon which it rotates freely independently of the line-space wheel when the webs are drawn around it.

5. In a typewriting machine, an anti-creep device adapted to feed a plurality of superposed webs, comprising a pair of feed-rolls between which the superposed work-webs are led to feed them without relative slipping, a traveling typewriter carriage carrying said rolls and in which said rolls are adapted to be displaced, a line-space lever in the carriage, a line-space wheel adapted to be actuated by said lever, gearing between said wheel and said rolls constantly in mesh during the displacement of the

rolls, a detent effective at the feed-rolls to hold them against turning during the displacement, a platen around which the webs pass, and means for supporting the platen in the carriage, so that it rotates freely independently of the line-space wheel when the webs are drawn around it.

6. In a typewriting machine, an anti-creep device adapted to feed a plurality of superposed webs, comprising a pair of feed-rolls between which the superposed work-webs are led to feed them without relative slipping, a traveling typewriter carriage, a shaft in said carriage about which said rolls are adapted to swing to be displaced, a line-space lever in the carriage, a line-space wheel adapted to be actuated by said lever, a gear wheel secured to the line-space wheel, a pinion on said shaft meshing with the line-space wheel, a pinion geared to said feed-rolls meshing with said shaft pinion, a detent adapted to arrest said rolls at line-space intervals, and swinging with the rolls at their displacing, a platen about which the webs are led, and means for supporting the platen in the carriage, so that it rotates freely independently of the line-space wheel when the webs are drawn around it.

7. In a typewriting machine, an anti-creep device adapted to feed a plurality of superposed webs, comprising a pair of feed-rolls between which the superposed work-webs are led to feed them without relative slipping, a traveling typewriter carriage, a shaft in said carriage about which said rolls are adapted to swing to be displaced, a line-space lever in the carriage, a line-space wheel adapted to be actuated by said lever, a gear wheel secured to the line-space wheel, a pinion on said shaft meshing with the line-space wheel, a pinion geared to said feed-rolls meshing with said shaft pinion, a detent adapted to arrest said rolls at line-space intervals, and swinging with the rolls at their displacing, a platen about which the webs are led, and a support common to the rolls and platen swinging on the shaft to displace the platen and rolls together, said platen rotating freely in said support independently of the line-space wheel when the webs are drawn around it.

8. In a typewriting machine, the combination with a traveling carriage and a rotatable platen, of a table above the platen, a line-space lever on the carriage, a line-space wheel adjacent the platen but adapted to turn independently thereof, a frame in which the platen is journaled, said frame including said table, a hinge on which the platen and table are adapted to be swung, and an anti-creep feeding device at the table, comprising a pair of feed-rolls adapted to grip and feed superposed webs, a train of gearing from the line-space wheel to the rolls, including a pinion journaled concentrically with said hinge, and a line-space detent for the rolls upon the table.

9. In a typewriting machine, the combination with a rotary platen, of a pair of feed rolls by which work-sheets may be fed over said platen, a finger-piece to rotate said feed rolls, said platen being adapted to rotate freely through the medium of said work-sheets when the latter are fed forwardly, said finger-piece having a one-way connection with said platen to reversely rotate the platen so as to feed the work-sheets in a reverse line-space direction, and auxiliary feed rolls coöperating with said platen.

10. In a typewriting machine, the combination with a traveling carriage and a rotatable platen, of a table above the platen, a line-space lever on the carriage, a line-space wheel adjacent the platen but adapted to turn independently thereof, a frame in which the platen is journaled, said frame including said table, a hinge on which the platen and table are adapted to be swung, and an anti-creep feeding device at the table, comprising a pair of feed-rolls adapted to grip and feed superposed webs, a train of gearing from the line-space wheel to the rolls, including a pinion journaled concentrically with said hinge, a line-space detent for the rolls upon the table, means normally causing said rolls to bite the webs, and means for automatically making the biting means ineffective when the frame is swung around the hinge.

11. In a typewriting machine, the combination with a traveling carriage, of a frame swingable in the carriage, a platen adapted to turn freely in the frame and swinging with it, a line-space device including a line-space wheel, an anti-creep feeding device upon said frame and geared to the line-space wheel, feed-rolls forming part of said device, a detent for said rolls upon the frame, and a gage upon the frame against which webs are adapted to be gaged when the frame is swung up, so that the detent holds the rolls when they seize the webs with the webs at their gaged position.

12. In a typewriting machine having a traveling carriage, a platen therein, and a line-space wheel alined with the platen, the combination with a frame in which the platen is journaled, of a hinge for said frame about which it is adapted to be swung to lift the platen, a table forming part of said frame, a gage upon the table against which work-webs are adapted to be gaged when the platen is lifted, feed-rolls upon the table forming an anti-creep device to feed superposed work-webs, gears between the wheel and the rolls to effect line-spacing of the webs, and including a pinion concentric with the hinge, a detent upon the table to hold the rolls at line-space positions,

means normally causing the rolls to bite, and means automatically holding the rolls apart during the gaging operation, but adapted to free them to bite the webs to hold the webs when gaging is effected.

13. In a typewriting machine, the combination of two feeding units, one feeding unit comprising a pair of feed rolls, the other feeding unit comprising a platen and auxiliary feed rolls, and a finger-piece, said finger-piece being effective to feed work-sheets forwardly by the first-mentioned feeding unit, and to reversely feed the work-sheets by the second-mentioned feeding unit.

14. In a typewriting machine, the combination of two feeding units, one feeding unit comprising a pair of feed rolls, the other feeding unit comprising the platen and auxiliary feed rolls, and a finger-piece, said finger-piece being effective to feed work-sheets forwardly by the first-mentioned feeding unit, and to reversely feed the work-sheets by the second-mentioned feeding unit, said finger-piece also being effective to directly rotate said platen in one direction only.

15. In a typewriting machine, the combination with a platen, of a pair of driving feed rolls between which work-sheets may be grasped, means to rotate said feed rolls to feed said work-sheets over said platen, said platen being adapted to rotate freely during the forward feeding of said work-sheets, auxiliary feed rolls for said platen, and a finger-piece to rotate said platen to reversely feed the work-sheets.

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