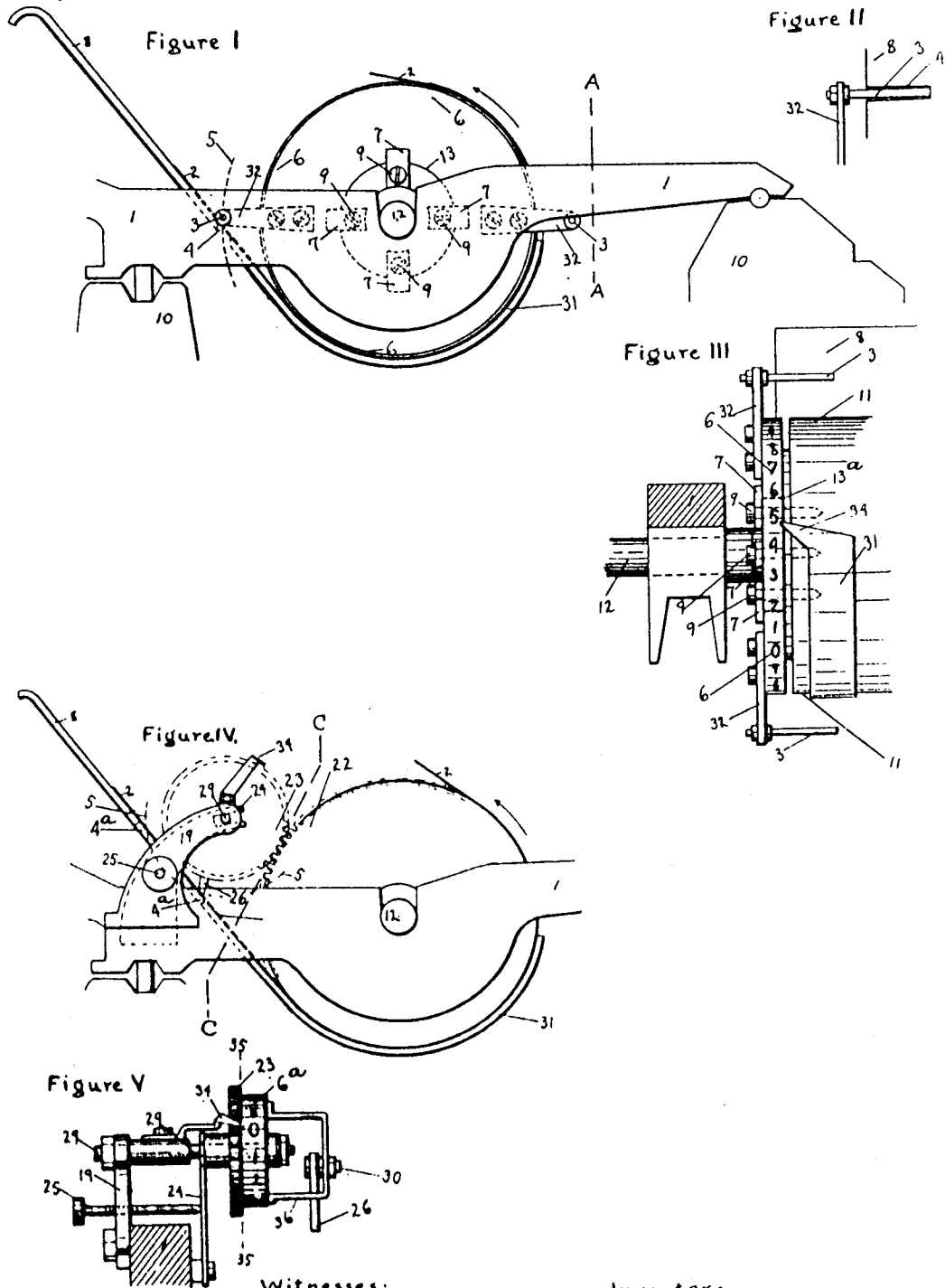


W. J. NEIDIG.
TYPE WRITING MACHINE.
APPLICATION FILED JUNE 16, 1908.

1,053,921.

Patented Feb. 18, 1913.



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TYPE-WRITING MACHINE.

1,053,921.

Specification of Letters Patent.

Patented Feb. 18, 1913.

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To all whom it may concern:

Be it known that I, WILLIAM JONATHAN NEIDIG, a citizen of the United States, residing at Madison, in the county of Dane and State of Wisconsin, have invented a new and useful Improvement in Type-Writing Machines, of which the following is a specification.

The present invention is a branch or division of that more broadly claimed in my divisional application filed March 30, 1912, Serial No. 687,463, and also is included within the generic invention which is described and claimed in my co-pending application filed April 20, 1908, Serial No. 428,212.

The objects of my invention are first, to give the operator of the typewriting machine a signal whereby he may know that the bottom of the paper sheet is near; and second, to indicate to him the distance remaining to the bottom of the said paper sheet from the current printing point, during the later stages in the progress of the sheet. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure I is an end view of a simple embodiment of my invention; Fig. II is a view of certain details thereof; Fig. III is a front view with the end of the carriage in vertical section on the line A A, Fig. I, with the paper sheet removed and with the indicator 6 turned one-fourth of a revolution in order to bring the orbital paper-feeler 3 into a position where it can be more clearly represented; Fig. IV is an end view of a second embodiment. Fig. V is a front view of certain portions of the same, in section on the line C C, of Fig. IV.

Referring to the several figures.—A portion of the machine frame is indicated at 10, and at 1 is shown a portion of the usual transversely-moving carriage-frame, in the ends of which latter is journaled the arbor 12 of the platen 11, as usual. The platen is rotated in practice by line-space mechanism not necessary to be shown herein.

At 8 is shown the paper-table, and at 31 the curved paper-fingers for holding the paper to the periphery of the platen. These parts may be of any approved type.

My invention provides an indicator that

normally revolves synchronously with the platen, but which under conditions of interference may remain stationary at a constant point in its revolution until the end of the paper sheet reaches a certain constant distance from the current printing point, the indicator thereupon resuming its revolving movements, and indicating thenceforth the relative position of the end of the sheet.

The indicator may take various forms. In Figs. I and III will be seen, at the end of the platen, a friction-wheel consisting of a passive revoluble section, an active revolving section, and means for adjusting the tension between the two. By "passive" I intend to convey the idea that the part which I term a passive revoluble section is the recipient of force by which it is propelled, i. e., it is the driven part of the said friction-wheel. By "active" is intended to be expressed the idea that the active revolving section acts as the driver in communicating movement of revolution to the section first mentioned. The passive section is the indicator 6. The active section is shown as a collar 13, formed with a radial flange 13^a and fitted upon the platen arbor 12, and revolving as a unit with the platen 11; and the passive section consists of an annulus mounted upon said collar and making contact by the inner side face thereof with the said flange. The said passive section sustains light frictional engagement with the active section through the normal friction of the wearing surfaces, and through the adjustable tension imparted by the pieces 7 and screws 9. The frictional engagement is intended to be extremely light—only sufficient to cause the passive section to turn simultaneously with the platen under normal conditions of non-interference.

The means whereby the indicator is stopped at a constant point during certain stages in the progress of the paper sheet, may be most easily explained by making reference first to Figs. I, II, and III. The indicator here bears the radial extension piece 32 and the laterally-extending rod-like orbital paper-feeler 3. The paper-table 8 is supplied with a laterally extending slot 4. In the absence of the sheet 2, paper-feeler 3 revolves without interference in its orbit 5, passing the paper-table through the

slot 4, its path thus intersecting the path taken by the paper-sheet 2 down the face of the paper-table 8. When, however, a sheet of paper lies upon the paper-table, as shown in Fig. I, the slot 4 is closed thereby, the movement of the paper-feeler is arrested by the sheet, and the indicator bearing said paper-feeler is brought to a stop until the end of the paper sheet passes the slot. In the illustrations I show how the indicator may be made to bear the orbital paper-feeler in duplicate, in order that a paper-feeler may normally pass through the slot 4 at each half revolution of the platen, the peripheral indices being duplicated to correspond. For any but small work like library card writing the duplication would not be made.

The advantages of using a paper-feeler of the form shown in Figs. I, II, III, in the case of a mechanism employing an indicator or controlling member similar to the member 6, are, first, that thereby sheet-insertion is facilitated, the paper-feeler never being in a position to obstruct the entering of a new sheet into the machine. If in some chance position of the mechanism the paper-feeler should lie too near the paper-table to permit of sheet-insertion between it and the paper-table, the sheet could be inserted above the paper-feeler just as well. The paper-feeler will eventually come into sheet-controlled position whatever its starting relation to the sheet. Second, in case of backing-up movement after the release of the paper-feeler by the sheet, the backing-up bottom edge of the sheet will encounter a minimum of obstruction from such a paper-feeler, if indeed any at all, and even if the sheet-end is picked up by the paper-feeler it will be released almost instantly thereby, the speed of the backing-up paper-feeler being greater than that of the platen surface and therefore than that of the backing-up sheet, as will be understood. Third, when the mechanism is backed-up from the position of parts shown in Fig. I, the paper-feeler under the actuation of the backwardly-turning platen recedes from contact with the sheet, so that the most delicate sheet may be backed up at any time without danger of clogging. Fourth, the broadside presentation to the sheet of such a paper-feeler constitutes in some of the embodiments of my invention a distinct advantage, since thereby the pressure is more evenly distributed upon the sheet. Such a construction also affords a convenient means for extending the working portion of a paper-feeler inward toward the center of the sheet past the printing margin as far as may be desired. There are other advantages in the construction shown for a mechanism of this character. It is not essential that such a paper-feeler be given orbital movement intersect-

ing the paper-path, nor is the portion of my invention involving the form of the paper-feeler necessarily limited to the use of a paper-feeler of the exact type or construction shown.

It will be borne in mind that the interference of the paper sheet stops the indicator at a constant point in its revolution, or at a plurality of constant points. It follows that it is given movement thereafter always from a relatively constant starting point. The pointer or index 34 (Fig. III) is attached conveniently to one of the paper-fingers 31. I can mark with the indicating mark 0 that point on the periphery which is opposite the pointer when the part 6 is in its arrested position. The mark 0 must obviously remain opposite the pointer until the member 6 resumes its revolving movement. As the member 6 resumes its movement the moment the bottom edge of the sheet clears slot 4, and as it then moves forward simultaneously with the platen, and thereafter with the sheet, the sheet being fed by the platen, it is plain that if I mark the next stopping point 9 to correspond with the distance at that moment from the printing point to the end of the sheet, which we will say equals nine double-spaced lines, I can mark the succeeding stopping-point 8, and so on down to 1 and the end of the sheet. Or, if it be desired to space by single lines, the first stopping-point after 0 could be marked say 19, the next 18, and so on down to 1. Or, other indicating units could be used. I have now a means of informing the operator of the exact extent of his remaining bottom margin at any point within the range of my device. I could mark my periphery to indicate the distance to the last line intended to be printed upon the sheet, just as well.

An indicator marked as I have described satisfies both the objects of my invention in what I regard as the most perfect manner, but I consider my invention sufficiently broad to include within its scope various known types of indicating or signaling devices, either visual or audible, which may prove suitable and convenient for use in practical embodiments of the main principles of the invention. I regard the moving surface as constituting an adequate signal to the operator; and in addition it informs him of the exact position of the bottom of the sheet.

It is to be noted that the passive revoluble section of the indicator may vary more or less in character and construction in practice, and the means and manner of actuating the same may vary. In Figs. I, II and III I have shown the same in the form of a ring, annulus, or, as it may generically be termed, band. The radial thickness of the said band may vary in practice.

In Figs. IV and V the friction-wheel of

which the indicator constitutes the passive section 6^a is divided vertically upon the friction line 35—35, instead of horizontally, and the tension is adjusted differently; namely, by means of the screw 25 and the spring 24. The indicator here is shown as revolving upon an axis 29 separate from that of the platen. The said axis is constituted by a laterally-extended shouldered axle or stud, carried by the frame-extension or bracket 19 upon the carriage-frame 1. In order that the normal movements of the indicator may be synchronized with the revolving movements of the platen, I show the active section of the friction-wheel as a toothed wheel 23, meshing with the toothed wheel 22 keyed to revolve with the platen; but any equivalent train of parts would answer the purpose. The said indicator or revoluble member 6^a and the said toothed wheel 23 are separately mounted to rotate upon axle 29, the spring 24 attached to the carriage-frame 1 serving to press them into lateral frictional engagement. The tension of such spring, and the frictional engagement, are regulated by the adjusting screw 25, as indicated above. The index or pointer 34 is attached to the axle or stud 29.

In Figs. IV and V the orbital paper-feeler 26 may be a fixed projection carried by the indicator; but I show it as pivoted upon the pin 30 carried by yoke 36 attached to the indicator, so as to be able to bend idly backward in the contingency of a backing-up movement of the paper sheet. The path here of the paper-feeler 26, like that of the orbital paper-feeler 3 in Fig. I, intersects the path of the paper sheet, passing through the slot 4^a in the paper table 8; and when the slot is closed by the paper sheet 2, as shown, the paper-feeler 26 cannot complete its movement and stops the indicator until the bottom of the paper sheet passes the slot. The yoke 36 is attached to the revoluble indicator 6^a so as to rotate therewith, and extends inward therefrom, to furnish a convenient support for the paper-feeler at a distance inward from the edge of the sheet. The pin 30, upon which the paper-feeler is pivoted or hinged, is mounted on the said yoke at a point eccentric to the axis of the yoke, and provides the paper-feeler with a secondary axis upon which it has movement relative to its carrier. The movement of the paper-feeler upon this secondary axis is limited by its contact with the laterally-extending portions of the yoke 36, so that it will not completely revolve on the pin 30, but will be stopped by one or the other of the said laterally-extending portions. Contact with one of these portions gives it the extended position shown in Figs. IV and V, in which it is effective to engage with the sheet, and in which it is effective in the presence of the sheet to detain the indicator

6^a. When the end of the sheet passes the paper-feeler, the paper-feeler, no longer detained by the sheet, enters slot 4^a in the paper-table, and the member 6^a, no longer detained by the paper-feeler, is given simultaneous movement with the platen under the impulse of its frictional connection with wheel 23. If the sheet be backed up after having released the paper-feeler, the backing-up bottom edge thereof will meet the paper-feeler and hinge it idly backward on pin 30 away from the laterally-extending portion of yoke 36 that previously controlled it, thus permitting free backing-up of the sheet from a late position. This backing-up provision is what might be termed a one-way joint, and it is not necessarily limited to a paper-feeler having orbital movement. Backing-up from the position shown in Fig. IV is similar to that previously described in connection with paper-feeler 3 of Figs. I, II and III, paper-feeler 26 likewise receding from contact with the sheet under the actuation of the backwardly turned platen.

Various modifications may be made in the construction and arrangement of parts, etc., without necessarily involving any departure from the general principles of the invention.

Although I show the indicator as the passive revoluble section, suitably marked, of a friction wheel, because I regard that as the most perfect form for it, it is to be understood that the claims are not necessarily restricted in respect thereof, or in respect of a frictional engagement between the indicator and the part that impels it, except in the case of those claims which are expressly limited thereto.

Although I show the intersecting parts 3 and 26 as intersecting the path of the paper sheet at the paper-table 8, it is to be understood that this is not essential in all cases.

The form which my invention would preferably take depends largely upon the make of machine to which it is to be attached. That shown in Figs. I, II, and III, would be named first, because of its simplicity; but it would be the most likely of the forms shown to interfere with feed roll mechanism under the platen. That shown in Figs. IV and V would be the easiest to apply to machines already assembled.

The devices shown in the drawings and described herein are part of a series of closely related inventions or improvements which are presented in a number of co-pending applications for Letters Patent filed by me. The said devices have the same general objects as those forming the subjects-matter of different applications in said series and to a certain extent embody and utilize various principles and features which are common to the devices shown and described in the said applications. Certain of the generic principles and features are

claimed broadly in my divisional application filed April 20, 1908, aforesaid; while other principles and features that are embodied in the devices shown in Figs. IV and V are made more particularly the subject of claim in my applications filed December 15, 1909, Serial No. 533,309; April 25, 1910, Serial No. 557,330; and April 4, 1912, Serial No. 688,358. The branch of the general invention that is covered hereby is distinguished by the characteristic features which are specified in the following claims.

By "orbit" and "orbital path" as employed in the claims hereof I contemplate a path of complete rotation around a given center of rotation, as contradistinguished from the path of a part having a swinging reciprocatory movement.

What I claim and desire to secure by Letters Patent is:—

1. In a typewriting machine having a revolving platen, the combination of a friction-wheel consisting of a passive revoluble section provided with indicating means and an active revolving section which revolves synchronously with the platen; and an orbital arresting part carried by the said passive section; the path of the said orbital arresting part intersecting the path of the paper sheet.

2. In a typewriting machine having a revolving platen, the combination of a friction-wheel consisting of a passive revoluble section and an active revolving section which revolves synchronously with the platen; an orbital arresting part carried by the passive section and the path whereof intersects the path of the paper sheet; and signaling means rendered effective by working movements of the said passive section.

3. In a typewriting machine, in combination, a platen, a series of indices, means for giving said indices simultaneous movement with the platen but permitting detention thereof independently of the platen, and an orbital paper-feeler connected to control the said movement.

4. In a typewriting machine having a revolving platen, the combination of a friction-wheel consisting of a passive revoluble section having indicating means and an active revolving section which revolves simultaneously with the platen; and means including an orbital paper-feeler whereby the said passive section is detained at a constant starting position until the end of the paper sheet reaches a certain constant distance from the printing point; and then allowed to have simultaneous movement with the platen.

5. In a typewriting machine having a revolving platen, the combination of a friction wheel consisting of a passive revoluble

section and an active revolving section which revolves synchronously with the platen; means including an orbital paper-feeler whereby the passive section is detained in a relatively constant starting position until the end of the paper sheet reaches a constant distance from the printing point, the said passive section thereupon resuming its revolving movements; and means whereby said passive section signals the approach of the end of the sheet.

6. In a typewriting machine, in combination, a platen, an indicator, and means for giving the indicator a constant starting position and thereafter coördinating its position with that of the sheet-end, such means including a paper-feeler, having an orbital path, by which the action of the parts is controlled.

7. In a typewriting machine, in combination, a platen, an operative member movable simultaneously with the platen but detachable independently thereof, indicating means called into operation through said member, and sheet-controlled means for detaining and releasing the said member, including a paper-feeler movable in an orbit intersecting the paper-path.

8. In a typewriting machine, in combination, a platen, an operative member, indicating means called into operation through said member, a paper-feeler movable in an orbit intersecting the paper-path and effective in the presence of the sheet for giving the said member a constant starting position, and means rendered effective by the passing of the sheet-end for giving the said member simultaneous movement with the platen from the said starting position.

9. In a typewriting machine, in combination, a platen, a revoluble paper-feeler capable of complete rotation having a path into the paper-path and detachable by the sheet, and indicating means controlled by the said paper-feeler.

10. In a typewriting machine, in combination, a platen, an operative member, indicating means called into operation through said member, means giving the said member simultaneous movement with the platen but permitting detention thereof independently of the platen, and means controlling the said movement, including a paper-backing having a transversely-extending slot and a co-operating paper-feeler having substantially a broadside presentation to the sheet.

11. In a typewriting machine, in combination, a platen, a revoluble member, indicating means called into operation through said member, means for giving the said member simultaneous movement with the platen but permitting detention thereof independently of the platen, and means for controlling the movement of the said mem-

ber, including a paper-feeler whose working portion is presented at the paper-path in a plane substantially parallel therewith.

12. In a typewriting machine, in combination, a platen, a member normally moving simultaneously with the platen but detachable independently thereof, indicating means called into operation through said member, and sheet-controlled means for detaining the said member, including a rod-like paper-feeler presented substantially flatwise to the sheet.

13. In a typewriting machine, in combination, a platen, a paper-feeler movable against the sheet and actuated from the platen out of contact with the sheet when the platen is rotated backwardly, and indicating means controlled by the said paper-feeler.

14. In a typewriting machine, in combination, a platen, an operative member, indicating means called into operation through said member, means giving the said operative member simultaneous movement with the platen, and sheet-controlled means controlling the said movement, including a paper-feeler movable against the sheet and ac-

tuated from the platen out of contact with the sheet when the platen is rotated backwardly.

15. In a typewriting machine, in combination, a platen, a member adapted to move progressively with the platen but detachable independently thereof in a plurality of starting positions, a plurality of paper-feeders whereby the movement of said member is controlled from the sheet, and indicating means made operative by the movement of said member from either of its starting positions.

16. In a typewriting machine, in combination, a platen, a member adapted to move progressively with the platen but detachable independently thereof in a plurality of starting positions, and having a corresponding number of series of indices, and a plurality of paper-feeders whereby the movement of said member is controlled.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."