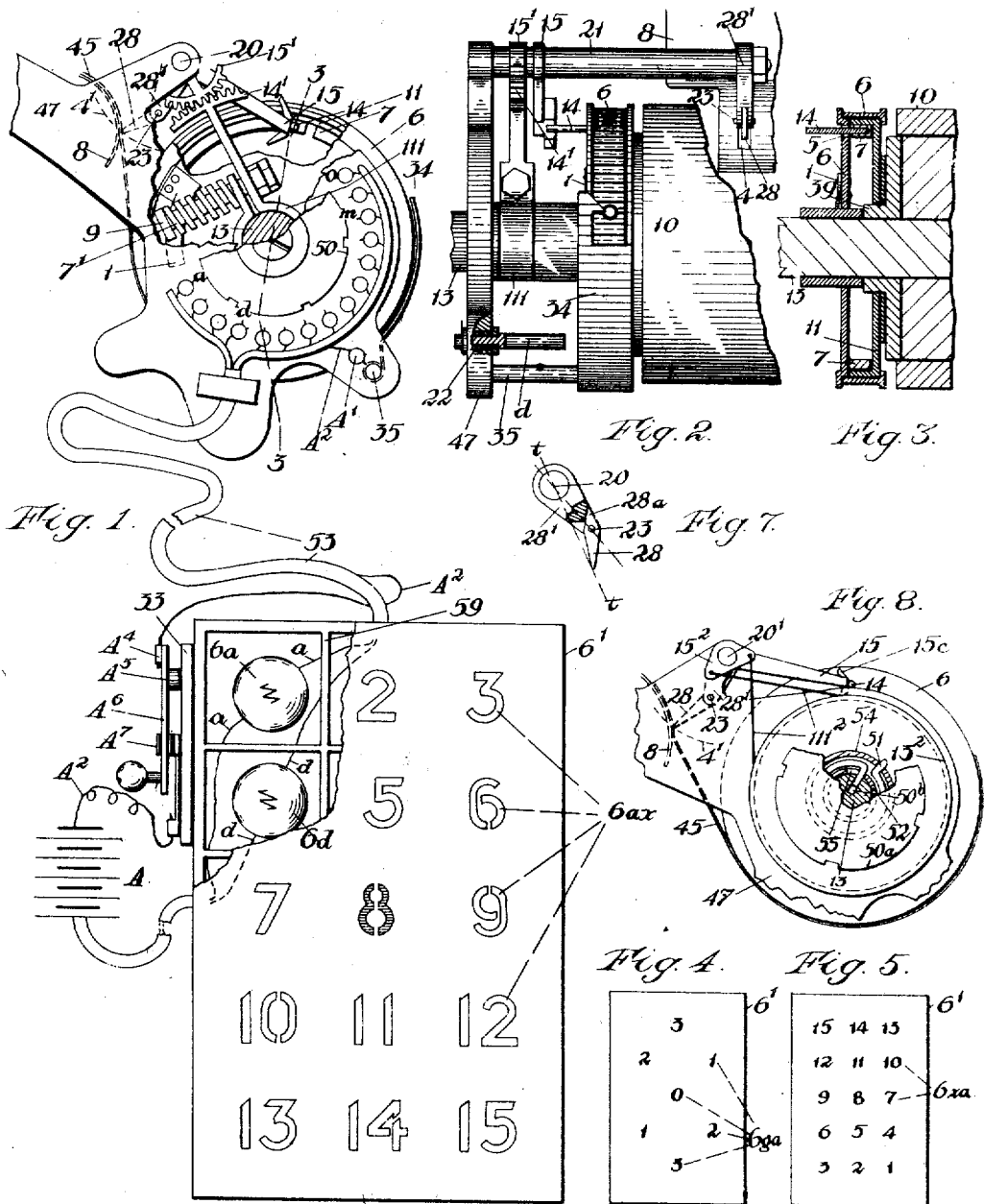


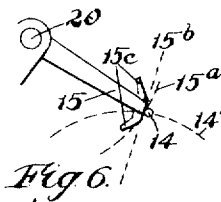
W. J. NEIDIG.
TYPE WRITING MACHINE.
APPLICATION FILED DEC. 9, 1912.

1,114,633.

Patented Oct. 20, 1914.



Witnesses:
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Ellen O. Spung



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UNITED STATES PATENT OFFICE.

WILLIAM J. NEIDIG, OF MADISON, WISCONSIN, ASSIGNOR TO NEIDIG TYPEWRITER CO., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

TYPE-WRITING MACHINE.

1,114,633.

Specification of Letters Patent.

Patented Oct. 20, 1914.

Application filed December 9, 1912. Serial No. 735,642.

To all whom it may concern:

Be it known that I, WILLIAM J. NEIDIG, a citizen of the United States, residing at Madison, in the county of Dane, State of Wisconsin, have invented a certain new and useful Improvement in Type-Writing Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

Certain principles and features of my invention as described herein are included within the generic invention which is described and claimed in my copending application filed April 30, 1908, Serial No. 428,212, on which Letters Patent No. 1,053,919 were granted February 18, 1913.

One of the objects of my general invention is to indicate to the operator of a type-writing machine the distance from the current printing point to one of the ends of the sheet, or to another point on the sheet, and this progressively, and without preliminary care on his part.

An additional object is to supply the operator with one or another type of indicating means whereby a signal is given in an improved manner at a predetermined sheet position.

The present embodiment of my invention is distinguished by various novel features, among them the use of novel electrically controlled indices; the use of glow-lamps to indicate progressive sheet-positions in various novel ways; the use of a paper-feeler of novel construction and having novel actuation both into and out of the paper-path, the use of a novel slant-faced stop, and also of novel means for actuating the same; and the use of certain novel combinations of elements adapted to render the invention more useful in practice.

In the accompanying drawings,—Figure 1 is a view from the end of a portion of a typewriter carriage having my device thereon, and of my electrical indicator, here given vertical position for clearer illustration, with certain portions of the structure broken away. Fig. 2 is a view from the front of portions of the same, partly in section. Fig. 3 is a view in section on the line 3—3, Fig. 1, of certain portions of the mechanism shown in Figs. 1 and 2. Figs. 4 and 5 are diagrammatical representations of additional indices-plates to be supplied with my

device. Fig. 6 is a detail view of stop 15. Fig. 7 is a detail view, partly in section, of the paper-feeler. Fig. 8 is an end view, partly in section, of a modification of the portions of the mechanism for actuating the paper-feeler and stop.

Referring to the drawings,—I show only such typewriter parts as are necessary to a full explanation of my invention, certain parts not shown being such as are in common use and well known in the art and not requiring detailed description, as will be understood. At 47 is indicated one end of the shifting platen frame on the usual laterally moving carriage of the machine, in which is journaled platen arbor 13 bearing platen 10, the same being fixedly attached upon the said arbor by means of platen head 39 in usual manner. The platen as considered herein is the principal feed-roll for advancing the sheet; and it is rotated by usual line-space mechanism of any approved type. The usual twirler 50 for independent rotation of the platen is shown. At 8 is the usual paper-table for the support of the entering sheet.

The embodiment of my invention shown in the drawings comprises an operative member 6 journaled on platen arbor 13 so as to revolve thereon independently of the platen. Said member 6 is in form a drum or index-carrier, having (Fig. 3) a rim portion, an upstanding portion, and a hub or bushing portion. Rotating loosely within the contour thereof is a driving element 11, the same being fixedly attached upon platen head 39 to revolve therewith. Within the contour of part 11 is friction-ring 7, preferably constructed of resilient material, and having a tendency to expand radially into frictional contact with part 11 so as to be driven thereby, said parts 11 and 7 constituting the driving and driven elements respectively of a convenient form of clutch mechanism. Said ring 7 bears a detent or pin 14, preferably near one end as shown. This pin projects outwardly through a short radial slot 5 (Fig. 3) in the upstanding portion of drum 6, thus coupling ring 7 and drum 6 together so that said drum must revolve with ring 7.

Frame 47 bears an inwardly projecting pin or axle 20, journaled upon which is sleeve 21. Fixedly attached upon said sleeve

in suitable lateral positions are toothed segment 15', stop 15, and paper-feeler butt 28'. Segment 15' engages with toothed segment 14', which is supplied with a split hub 111, on arbor 13. Clamp-bolt 9 and its lock-nuts and compression spring 7' serve to tighten said hub 111 upon arbor 13 into frictional engagement therewith, thereby giving said segment a tendency to revolve with said arbor.

A washer may be used against frame 47 to hold hub 111 in advantageous lateral position. Stop 15 has at times a position in the path of pin 14 and cooperates therewith as one of the detent elements to detain drum 6. The face of the stop is preferably slightly slanted back on line 15^b away from arc 15^a thereof (Fig. 6), and supplied with flanking safety guides 15^c. That is to say, it is given a cam contour, so that it will retreat from pin 14 during withdrawal. The fact that the stop is a cam segment, or slant-faced, facilitates its disengagement from pin 14. The paper-feeler employed is knuckle-jointed (see Fig. 7) and consists of a butt portion 28' and a paper-contacting or tip portion 28, one thereof journaled on the other by means of a pin 23. The butt portion is recessed to receive the tip portion, and a lug portion 28^a of said tip portion bears against the butt, thereby limiting the action of the tip on the butt, and holding the parts so that a straight line drawn through the principal feeler-axis at 20 and the paper-controlled feeler-tip will pass slightly to the paper side of the axis at 23 and a straight line drawn through said axes 20 and 23 will intersect the first line at an angle. A knuckle-feeler so constructed may conveniently be termed angle-jointed. Its purpose is to insure disengagement of the feeler-tip with the sheet in backing-up, backward pressure against the feeler-tip tending to knuckle the feeler away from the sheet independently of any other retracting force. Paper table 8 has a short opening or slot 4 therein, into which the paper-feeler has its path for a limited distance, the end of the slot constituting a stop to prevent the excessive movement of the feeler into the paper-path. An inwardly projecting pin on frame 47 has attached thereto the shield-pointer 34 to cooperate with drum 6.

The action of the mechanism thus far described is as follows: Platen-twirler 50 is given a slight backward actuation, thereby through arbor 13, split hub 111 and segments 14' and 15', rocking sleeve 21 and moving the paper-feeler into retracted position against the platen. The sheet is then entered into the machine, as usual, and the platen rotated to feed it forwardly. Thereupon segment 14', frictionally actuated from the platen arbor, acts upon segment 15', rocks sleeve 21, and through it brings paper-

feeler 28 against the sheet over slot 4. This action brings stop 15 into the path of projection 14 on drum 6. As the sheet is further advanced in printing, drum 6, frictionally connected with the platen through friction-ring 7, revolves until projection 14 is stopped by stop 15, as shown in Figs. 1 and 2. The pressure of stop 15 upon projection 14 seated as shown in the end of the friction-ring 7 stops said ring and connected drum, and at the same time tends to open the frictional surface and lessen the friction. In this position the parts will remain until the end of the sheet passes paper-feeler 28. The instant the end of the sheet clears the paper-feeler, the feeler, no longer detained by the sheet, and actuated by part 14', passes into slot 4, sleeve 21 is rocked, and stop 15 is withdrawn from the path of projection 14 in a positive action proportionate to the speed with which the machine is operated, releasing drum 6, which at once takes up its movement with the platen. In case of backward actuation of the platen at any time in the progress of the sheet, stop 15 is retracted from the path of projection 14 and the paper-feeler is retracted from sheet-controlled position, thereby permitting projection 14 to be backed past stop 15 and the sheet to be fed backwardly without interference from the paper-feeler, the retraction being accomplished under the actuation of part 14' on the platen arbor.

Through this drum or operative member 6 indicating means of the following nature are called into operation: First, I place on the periphery of the drum indices for indicating the sheet-position. Since drum 6, controlled as it is by the sheet, must bring always the same point on its periphery opposite pointer 34 when the end of the sheet attains any given distance from the printing point, I supply the drum with indices, using any unit of measurement desired, so that the distance from the printing point to the end of the sheet, or to a point on the sheet a definite distance therefrom, will be indicated from the time paper-feeler 28 is released by the sheet until the sheet leaves the machine. In the drawings the indication is by line units. I prefer to use upon this drum or index-carrier indices involving no mental calculation nor memorizing on the part of the operator. It is to be noted that the indicating surface upon index-carrier 6 is divided into two segments, only one of which, preferably colored black, is visible to the operator during the detention of the carrier, the other, that having the indices thereon and preferably colored white lying concealed behind shield-pointer 34 in this position of the carrier. When carrier 6 begins its indicating functions the black segment disappears and the white segment bearing the indices takes its place, the mere change in color serv-

ing as a signal to the operator that he is nearing the end of his sheet.

Additional indicating means of one or two useful types called into operation through said drum are shown in the drawings as follows: Upon the platen frame 47 is placed a series of inwardly projecting insulated contact points, preferably at line space intervals, lettered in the drawings from *a* to *o*. One of these, at *d*, is shown in partial cross-section in Fig. 2 as insulated from the frame 47 by the insulation bushing 22, and the rest may be regarded as having the same construction. From each of these contact points leads an insulated wire into a cable 53 and thence through an individual indicating device to the source of current A. For instance, the wire from the contact point *a* leads through the said cable to the glow-lamp 6^a and from it to the source of current A and the wire from *d* to the glow-lamp 6^d and thence to A, and so on. From the other side of the source of current A the insulated wire A² leads to the conducting piece A⁷ on the insulated switch-board 33; and thence through contact-lever A⁶ (pivoted at A⁵ on the said switchboard), connection A⁴, insulated wire A³, binding post A¹, frame 47, and arbor 13, an electrical connection is established between member 6 and the said source of current A, the said insulated wire A forming a part of the cable 53 for convenience. Operative member 6 bears a brush 1 in such position as to contact successively with the contact points *a—o* and form an electrical connection therewith, the said brush being preferably made of resilient conducting material. The glow-lamps 6^a, 6^d, and the others up to 6^o, which may be regarded as like the two shown, are preferably placed in a cabinet 59 supplied with insulating partitions and having a top-plate 6¹ in which are perforations 6^{2a} preferably in the form of indicating numerals, the perforations being so arranged that each lies over a compartment in the cabinet containing a glow-lamp. Extra top-plates having other arrangements of indices are contemplated for use with my mechanism, two of which are shown diagrammatically in Figs. 4 and 5. Glow-lamps suitable for this use are well known in the electrical art and need not be more closely described. One or more of these glow-lamps will preferably be distinguished from the others by color as well as by position, so as to give (say) a red signal when set a glow, like the one behind cabinet index 8 in Fig. 1.

This portion of the mechanism operates as follows: When the sheet passes feeler 28, stop 15 is removed from the path of projection 14 by the action of split-hub 111, thus releasing operative member 6 to revolve with the platen. Brush 1 is thereby eventu-

ally brought into with contact point *a*. It is clear that when the brush 1 contacts with any of the contact points *a—o* a complete electrical circuit is established through the individual insulated wire leading from the point *a* (say) to the glow-lamp 6^a and through it to the source of current, on the one side of the brush, and on the other through drum 6 and its bushing, arbor 13, frame 47, binding post A¹, insulated wire A³, connection A⁴, switch-lever A⁶, co-operating piece A⁷, to source of current A. That is to say, if the top-plate containing the indices 6^{2a} shown in Fig. 5 were placed on the cabinet 59, when the brush 1 contacted with the point *a*, not only would the index 15 appear before the pointer 34 but the glow-lamp 6^a would bring the index 15 in the said top-plate into indicating prominence at the same time, and the glow-lamp on the circuit *b* the index 14 when the sheet-end reached a distance of fourteen lines from the printing point, and so on. In the case of the top-plate containing the indices 6^{2a} shown in Fig. 1 however, the contact through *a* would bring the index 1 into indicating prominence through the glow-lamp 6^a, and the contact through *b* the index 2, and so on. If the operator wished (say) to remove his sheet when the glow-lamp under the index 8 made that index prominent, he would know at index 2 that he had six more lines to print of single-spaced writing, or three more lines of double-spaced writing, and if he wished he might substitute the top-plate shown in Fig. 4 containing the indices 6^{2a} which would indicate by double-space units the distance to a point on the sheet (say) four double lines from the end of the sheet, the contact through *b* in that case bringing the index 3 into indicating prominence. It would of course be possible to leave off the top-plate 6¹ altogether, for the operator would be able to tell by the mere position of the lamp at the moment aglow the position of the end of his sheet with respect to his printing point. A cabinet such as that described can be given a convenient position beside the keyboard.

It is to be noted that the electrical circuits described are closed only during certain later positions of the sheet, and that when the sheet is removed the circuits are automatically broken and ordinarily remain so until the end of the next sheet passes from under the feeler 28, and that consequently the consumption of electricity is minimized. If the operator desires to do so he can by means of the switch-lever A⁶ close the circuit only when consulting his electrically controlled indices and thus still further economize in current.

The embodiment of the invention represented in Fig. 8 is constructed in all respects like the one previously described in 130

respect to member 6, its driving mechanism, and the several types of indicating means called into operation through member 6. Segments 14' and 15' are however not employed. Frame 47 has journaled therein the inwardly extending rock-shaft 20'. Said rock-shaft on the outer side of said frame bears the fixedly attached lever 15², and inwardly of said frame the stop 15 and feeler-butt 28' are fixedly attached as before described in connection with Figs. 1 and 2, both stop and paper-feeler having the same construction as before. Instead of the usual platen-twirler, a twirler 50^a loosely journaled on the platen arbor is used, having an inwardly extending bushing or sleeve portion 52 and radially outward thereof an inwardly extending sleeve portion 54, with a space between the two for the reception of a contracting spring 51. Sleeve portion 52 of said twirler has a short slot 55 therein, underneath which is a hole 50^b adapted to receive the bent-in end of spring 51. A bent-out end of said spring passes through a hole in sleeve portion 54 of the twirler. The twirler is thus held in operative position laterally on the platen-arbor by the spring-ends, and has a limited rotative movement opposite to line-space direction against the action of the spring. Fixedly attached upon said twirler is pulley 13². A light cord or belt 111² encircles the pulley, the ends of which are attached to either arm of lever 15² in such manner that when the pulley is actuated in line-space direction shaft 20' is rocked to press paper-feeler 28 toward the paper-path, and when actuated in opposite direction paper-feeler 28 is retracted toward the platen. Said belt is adapted to slip frictionally upon said pulley, the engagement therewith being only sufficient to actuate rock-shaft 20' and its parts. Spring 51 is sufficiently strong to actuate said pulley against the friction of the belt, but is not strong enough to rotate the platen. In all other respects the mechanism is as has been hereinbefore described.

The action of the modification is as follows: In the event of backward actuation of the platen through the platen twirler, as in practice, twirler 50^a and pulley 13² are rotated a short distance against the action of spring 51 before the end of slot 55 meets the bent-in portion of the said spring and the platen is rotated; consequently paper-feeler 28 under the action of pulley 13², belt 111², lever 15², and rock-shaft 20', is or may be quite retracted from sheet-controlled position before the sheet begins to move backwardly. Stop 15 likewise is or may be quite retracted from the path of projection 14 before said projection begins to move backwardly. Forward actuation of the platen through the action

of the platen arbor, twirler 50^a spring 51, pulley 13², belt 111², lever 15², and rock-shaft 20', causes the paper-feeler to be actuated toward the sheet and the stop to be moved into detaining position in the path of projection 14. In all other respects the action is the same as has been described in connection with the earlier figures.

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 a number of general objects in common with those forming the subject-matter of different applications in the said series, and to a certain extent embody and utilize various principles and features which are common to the devices shown and described in one or another of the said applications. Some of the said common principles and features are claimed broadly in the Letters Patent granted upon my application filed April 20, 1908, aforesaid, and in other Letters Patent granted also upon Feb. 18, 1913, namely, No. 1,053,921, upon my application filed June 15, 1908, Serial No. 438,577; No. 1,053,922, upon my application filed Dec. 15, 1909, Serial No. 533,309; No. 1,053,925, upon my application filed April 25, 1910, Serial No. 557,330; No. 1,053,920, upon my application filed Mar. 30, 1912, Serial No. 687,463; No. 1,053,928, upon my application filed April 9, 1912, Serial No. 689,560; No. 1,053,930, upon my application filed May 20, 1912, Serial No. 698,440; and No. 1,053,929, upon my application filed May 27, 1912, Serial No. 699,958; and in my applications filed December 4, 1912, Serial No. 731,869; December 5, 1912, Serial No. 735,107; and December 5, 1912, Serial No. 735,108. The branch of the general invention that is covered hereby is distinguished by the characteristic features specified in the following claims. The devices shown and described herein also have certain principles and features in common with those shown and described in Letters Patent No. 1,071,780 granted Sept. 2, 1913, upon the co-pending application of William J. Neidig and Clinton B. Stewart, filed May 24, 1912, Serial No. 699,600, some of which common principles and features are more broadly claimed in said Letters Patent.

Having thus clearly described my invention, I claim as new and desire to secure by Letters Patent,—

1. In a typewriting machine, in combination, a platen, a plurality of electrical circuits, means controlled by the sheet for closing a given circuit when the end of the sheet attains one distance from the printing point and closing another given circuit when the end of the sheet attains another

distance from the printing point, and a plurality of glow-lamps for said circuits each having a distinguishable position relatively to the others.

5 2. In a typewriting machine, in combination, a platen, an operative member, means for giving said member a constant starting position, means for giving said member movement with the platen at a predetermined line position, one or more electrical circuits under the control of said member, and a glow-lamp in one or more of the said circuits.

15 3. In a typewriting machine, in combination, a platen, a paper-feeler, an operative member actuated from the platen under the control of said paper-feeler, one or more electrical circuits under the control of said operative member, one or more indices, and an electrical device in each of one or more of the said circuits adapted to bring a given index into indicating prominence.

20 4. In a typewriting machine, in combination, a platen and its arbor, a paper-feeler, an operative member actuated to move with the platen under the control of said paper-feeler, indicating means called into operation through said member, and a part on the platen-arbor connected to retract said paper-feeler from the paper-path when actuated backwardly.

30 5. In a typewriting machine, in combination, a platen and its arbor, an operative member, indicating means called into operation through said member, a paper-feeler, a part on the platen arbor connected to actuate said paper-feeler toward the paper-path, and means for giving said operative member movement coordinated with that of the platen under the control of said paper-feeler.

40 6. In a typewriting machine, in combination, a platen, a paper-feeler, a part actuated from the platen and having teeth whereby the paper-feeler is retracted from sheet-controlled position when the platen is turned backwardly, and indicating means controlled by the said paper-feeler.

50 7. In a typewriting machine, in combination, a platen for advancing the sheet, a paper-feeler, indicating means controlled by the paper-feeler, and means including a platen-actuated part having teeth and a feeler-connected part having teeth for actuating the paper-feeler against the sheet.

55 8. In a typewriting machine, in combination, a platen and its arbor, an operative member, indicating means called into operation through said member, means for giving said member simultaneous movement with the platen, a paper-feeler, cooperating detent elements, one thereof moving with said operative member and one of which is controlled by said paper-feeler, and means actuated from a part on the platen

arbor when moved backwardly for moving one of said detent elements out of engaging position so that one thereof may be operated past the other.

9. In a typewriting machine, in combination, a platen, a paper-feeler, constructed angle-jointed so as to tend to knuckle away from the sheet when the tip thereof is pressed against by the backwardly moving sheet, and indicating means controlled by the said paper-feeler.

10. In a typewriting machine, in combination, a platen, a paper-feeler constructed angle-jointed so as to tend to knuckle away from the backwardly moving sheet under the backward pressure thereof against the feeler-tip, an operative member actuated from the platen under the control of said paper-feeler, and indicating means called into operation through said member.

11. In a typewriting machine, in combination, a platen, an operative member actuated from the platen, indicating means called into operation through said member, and cooperating detent elements for detaining said member, one thereof adapted to be withdrawn from engagement with the other under the control of the sheet and one thereof constructed slant-faced to facilitate such withdrawal.

12. In a typewriting machine, in combination, a platen, an operative member, indicating means called into operation through said member, frictional means for operating said member from the platen, including a discontinuous or split member and a coating member upon which the former is adapted to press frictionally and a paper-feeler connected to control the movement of said operative member.

13. In a typewriting machine, in combination, a platen, an index-carrier having indices, frictional actuating devices for said carrier intermediate the same and the platen, including a split ring and a cooperating engaging member which are mounted in radial relation to each other and a paper-feeler connected to control the movement of said carrier.

14. In a typewriting machine, in combination, a platen, an operative member, indicating means called into operation through said member, frictional connecting means between said member and the platen including a split ring and a cooperating member upon which said ring presses frictionally, the said members mounted in radial relation to each other, and a sheet-controlled stop for controlling the movement of said member with the platen.

15. In a typewriting machine, in combination, a platen, an index-carrier bearing indices, frictional operating means for said carrier including a discontinuous or split member and a cooperating engaging mem-

ber mounted in radial relation to each other, and a sheet-controlled stop for controlling the movement of said carrier with the platen.

16. In a typewriting machine, in combination, a platen, a paper-feeler, a spring-closed split hub between the platen and its paper-feeler, and indicating means called into operation under the control of the said elements.

17. In a typewriting machine, in combination, a platen, a paper-feeler, a spring-closed split hub between the platen and the paper-feeler, and an index-carrier operated from the platen under the control of the said elements.

18. In a typewriting machine, in combination, a platen, a paper-feeler, toothed devices for operating said paper-feeler from the platen, and an index-carrier actuated to move with the platen under the control of said paper-feeler.

19. In a typewriting machine, in combination, a platen and its arbor, a paper-feeler, an index-carrier actuated to move with the platen under the control of said paper-feeler, and a part on the platen arbor connected to retract said paper-feeler from the paper-path upon backward actuation of the platen.

20. In a typewriting machine, in combination, a platen and its arbor, an index-carrier bearing indices, a paper-feeler, a part on the platen-arbor connected to actuate said paper-feeler toward the paper-path, and means for giving said carrier movement coördinated with that of the platen, under the control of said paper-feeler.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM J. NEIDIG.

Witnesses:

THEODORE HOEVELER,
JULIA HOEVELER.

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16. In a typewriting machine, in combination, a platen, a paper-feeler, a spring-closed split hub between the platen and its paper-feeler, and indicating means called into operation under the control of the said elements.

17. In a typewriting machine, in combination, a platen, a paper-feeler, a spring-closed split hub between the platen and the paper-feeler, and an index-carrier operated from the platen under the control of the said elements.

18. In a typewriting machine, in combination, a platen, a paper-feeler, toothed devices for operating said paper-feeler from the platen, and an index-carrier actuated to move with the platen under the control of said paper-feeler.

19. In a typewriting machine, in combination, a platen and its arbor, a paper-feeler, an index-carrier actuated to move with the platen under the control of said paper-feeler, and a part on the platen arbor connected to retract said paper-feeler from the paper-path upon backward actuation of the platen.

20. In a typewriting machine, in combination, a platen and its arbor, an index-carrier bearing indices, a paper-feeler, a part on the platen-arbor connected to actuate said paper-feeler toward the paper-path, and means for giving said carrier movement coördinated with that of the platen, under the control of said paper-feeler.

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WILLIAM J. NEIDIG.

Witnesses:

THEODORE HOEVELER,
JULIA HOEVELER.

Correction in Letters Patent No. 1,114,633.

It is hereby certified that in Letters Patent No. 1,114,633, granted October 20, 1914, upon the application of William J. Neidig, of Madison, Wisconsin, for an improvement in "Type-Writing Machines," an error appears in the printed specification requiring correction as follows: Page 6, line 6, for the word "its" read *the*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 10th day of November, A. D., 1914.

[SEAL.]

R. F. WHITEHEAD,
Acting Commissioner of Patents.

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