

1,053,928.

2 SHEETS—SHEET 1.



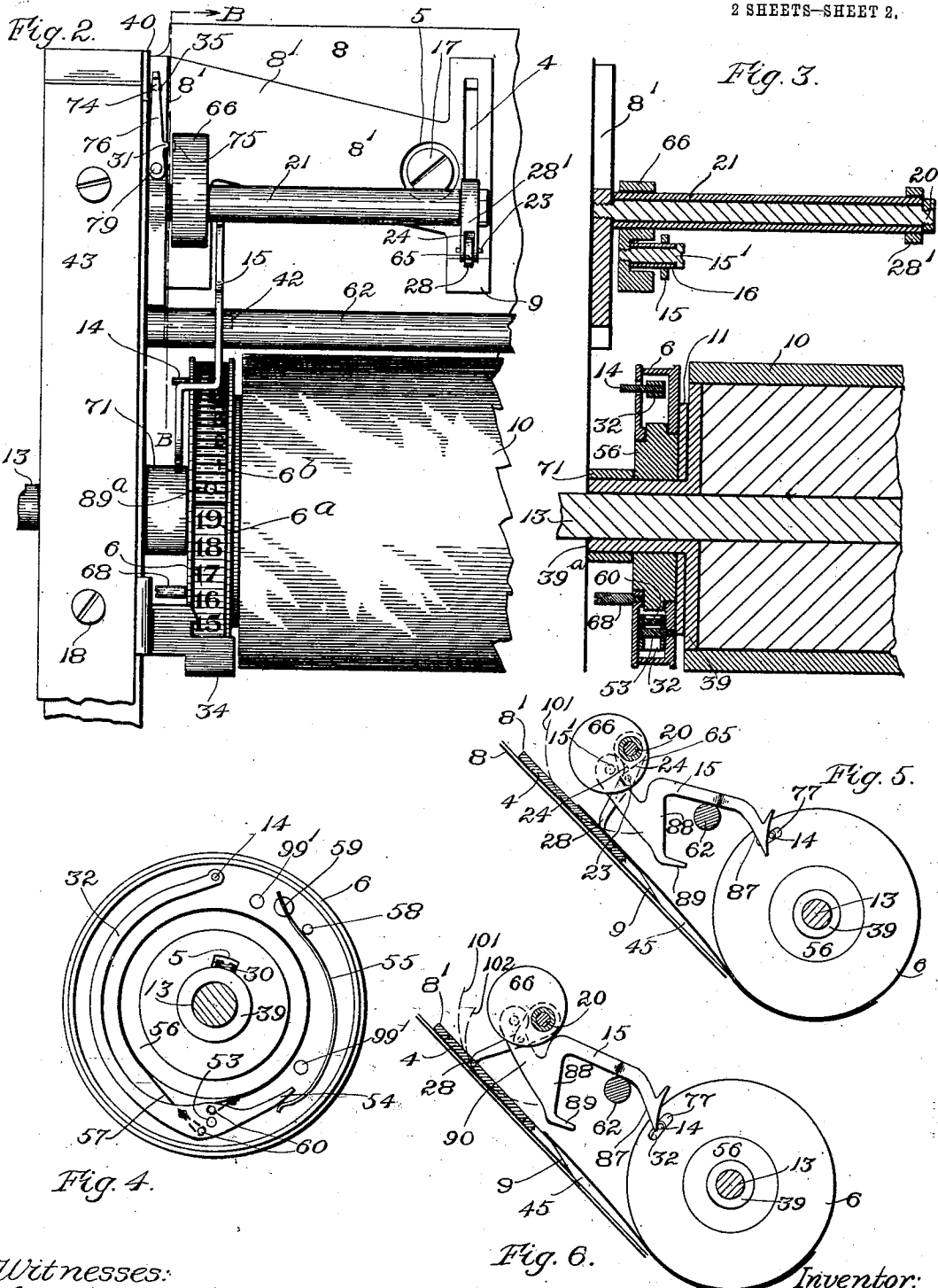
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W. J. NEIDIG.
TYPE WRITING MACHINE.
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1,053,928.

Patented Feb. 18, 1913.

2 SHEETS-SHEET 2.



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UNITED STATES PATENT OFFICE.

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TYPE-WRITING MACHINE.

1,053,928.

Specification of Letters Patent.

Patented Feb. 18, 1913.

Application filed April 9, 1912. Serial No. 689,560.

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.

10 Certain principles and features of my invention as described herein are included within the generic invention which is described and claimed in my co-pending application filed April 20, 1908, Serial No. 428,212.
15 The embodiments of my invention illustrated in said application, and herein, contain an operative member, preferably rotary, which is automatically given a constant starting position, and which at a predetermined sheet position is given movement constant with that of the sheet from such starting position, preferably through a connection with the platen, and through which various types of indicating means are called into
20 operation. The present embodiment is characterized by a special means adapted to effectively actuate such operative member from the platen, including a novel form of friction-clutch; a special form of stop for
25 detaining said member in starting position; a paper-feeler of special construction; means for indicating the sheet-position in case of a reverse-feed or backing-up movement of the sheet; means for placing the indicating mechanism in disuse, at will; and other special features.

The devices or mechanisms shown and described herein have for one of the leading special objects thereof the performance of
40 the function of indicating to the operator the distance to the bottom edge of the sheet, or to a point a known distance therefrom, during a plurality of line positions, and this automatically, irrespective of the length of
45 the sheet, and beginning considerably in advance of the completion of the sheet.

Others of the special objects of the illustrated devices or mechanisms are to supply the operator with a visual signal becoming
50 effective upon the approaching arrival of the predetermined page-end, and with a practicable and dependable signal, preferably audible, upon the completion of a line a predetermined distance from the end of
55 the sheet.

Still other objects of the present branch or division of the invention are indicated hereinafter. The features of this branch or division are not restricted necessarily in all cases to employment in the precise combinations and relationships herein shown and described, and some of them are adapted to be used for other sheet-position indicating purposes.

An important consideration upon which
65 the preferable embodiments of the general invention, are based, is that of so contriving and arranging the controlling means and the means for causing the operative member to turn in unison with the platen, that they
70 shall be practically instantaneous in action, so that the operative member actually shall be given movement simultaneous with that of the platen, from its constant starting position, when the sheet attains a constant
75 predetermined position, without being influenced by whether the sheet arrives at such position during a feed-movement but before the completion of such movement, or at the completion of the feed-movement.

The importance of the consideration just referred to can be explained as follows: Let it be supposed that an indicating mechanism be applied to a typewriting machine, the said mechanism having a sheet-controlled
85 controlling member theoretically given movement with the platen when the end of the sheet attains a distance of exactly 20 single line-spaces from the printing point; and for the sake of clearer exposition let it be supposed that the spacing
90 is by triple-line advances, and that at the end of the advancing movement immediately preceding the calling into action of the said controlling member the end of the
95 sheet is 20½ lines distant from the printing point. It is plain that unless the controlling member is entered into movement with the platen during the next advancing movement, that is to say when the sheet-end
100 passes the 20-line point, or before it again comes to rest, the member will not begin to move with the platen until the beginning of the next advancing movement, namely, three lines beyond the 20½ line point, or 17½
105 lines from the sheet-end. In other words, unless the said member enters into such movement with the platen during such advancing movement, it cannot begin movement when the end of the sheet attains a
110

distance of exactly 20 lines from the printing point. The uncertainty possible will be seen if we further suppose another sheet to have been shifted so that the end thereof attains a point one-half line nearer the printing point than before, at the end of a triple-line advance. In that case the sheet-end would stop after said advance at a point $19\frac{1}{2}$ lines distant from the printing point, instead of $20\frac{1}{4}$ lines: that is to say, theoretically the member would have been moved with the platen to the extent of one-fourth of a line-space at the end of the advance movement. But if it were not so moved, its subsequent advance with the platen will begin when the sheet-end is $19\frac{1}{2}$ single line-spaces distant from the printing point, and not $17\frac{1}{2}$ as before. Such variations from accuracy are not desirable in practice. If such a member is to control indicating means such as indices, or a locking means, or any kind of signaling agency, it is highly desirable that it should be under the control of operating means that will actually coördinate its position with that of the sheet-end under the circumstances of service, and not call it into action from its constant starting position in one case when the sheet-end is $19\frac{1}{2}$ single line-spaces distant from the printing point, and in another when it is $17\frac{1}{2}$ line-spaces distant.

My general invention therefore provides actuating, controlling and intermediate means, all of which are practically instantaneous in action, so that the controlling member actually is given movement with the platen from its constant starting position when the sheet-end attains a constant distance from the printing point, whether the sheet-end arrives at such constant distance in the midst of an advance movement, or at the end of one. My present branch or division of the general invention comprises novelties in construction directed toward the attainment of delicacy and power in all of the said means.

In the accompanying drawings, Figure 1 is an end view, partly broken away, of a typewriting machine showing the embodiment aforesaid of my present invention applied thereto, many of the usual parts of the machine being omitted; Fig. 2 is a top or plan view of portions of the same, but relatively enlarged, and with the index-carrier 6 partly turned in order to show the indices thereon more clearly; Fig. 3 is a view of parts of my mechanism in cross-section on the line A—A, Fig. 1; Fig. 4 is an end view of the index-carrier 6 showing the interior clutch-mechanism thereof, part of the incasing structure having been removed; and Figs. 5 and 6 are views of other details of the mechanism, partly in section on the line B—B, Fig. 2.

In the well-known typewriting machine

structure represented in my drawings, the usual key-levers 38 having the fulcrum 44 are actuated by the keys 59, and in turn actuate the type-bars 78, pivoted at 80, so that the types 73 are carried to the printing point. The end 12 of the well-known carriage frame is indicated, but with portions omitted and partly broken away. A portion of the usual platen frame 40 (Fig. 2) is shown, together with the platen arbor 13, platen 10, platen head 39 with sleeve 39^a (Fig. 3), and paper-table 8. These parts are all well-known in the art and need not be more fully described.

Referring first to my actuating means for the index-carrier 6, I use as a part thereof a friction-clutch mechanism embracing frictionally-engaging members, one of which is radially exterior of the other and either of which may be the driver. A highly effective form of clutch is described as follows: The core-wheel 56 is mounted upon the sleeve 39^a of the platen-head 39, so that an axially-extending seat or recess 5 (Fig. 4) fits over the usual set-screw 30 in the hub of the platen-head as over a key and insures unison rotation of the core-wheel with the platen. The washer 11 may be used if desired to space the parts slightly away from the end of the platen, but it forms no part of my invention. I use as a matter of convenience the sleeve 71 to maintain the core-wheel in lateral position. Upon the said core-wheel is placed the shell or drum 6, previously referred to from one of its functions as the index-carrier. For convenience in assembling I prefer to construct the said drum 6 with a rear wall heavy enough to support the pin 53. Upon pin 53 is journaled the lever 32. This lever is supplied at one end with the projection 14, at the other with the tail portion 54, and adjacent to its axis with the pins 60, and it is centrally channeled in the plane of its movement to admit of the free passage to the said pins of the ends of the friction-band 57. This band is adapted to conform to the periphery of the core-wheel 56 and is fastened at either end to one of the pins 60, conveniently by means of a riveted loop, the arrangement being such that when the lever 32 is moved in one direction the said band is tightened about the said core-wheel grippingly, and when the lever 32 is moved in the other direction the band is rendered more slack and the friction between it and the core-wheel is eased. The spring 55, fastened at one end in the cleft of the split post 59 on the inner wall of the drum 6 and held to its work by the post 58 also on the said wall, presses against the tail of the said lever 32 in such a way that the lever tends to move in the direction to tighten the band 57 about the said core-wheel 56. The peripheral portion of the drum 6 is

preferably troughed as shown. The face-plate of the drum, which is removable for convenience in assembling, is supplied with a slot 77 (Fig. 1) through which the projection 14 may freely play when the said lever is oscillated, and with a series of threaded holes 67, preferably placed at line-space intervals, into any one of which the projecting pin 68 may be screwed. The counter-sunk screws 99 entering tapped holes 99¹ in the rear wall hold the said face-plate in position.

Upon the paper-table 8 of the machine and adjacent to the end of the platen frame 40 is attached the superposed plate 8¹ by means of the large-headed screw 17, the said screw fitting a threaded hole already in the machine. As this threaded hole may vary slightly in position, I allow for adjustment by providing a hole in the plate 8¹ that is larger than the screw-shank, the large head of screw 17 covering such a hole whatever the adjustment. A counter-sink 5 for the screw-head is provided to facilitate the paper-movement, as in backing-up. The up-standing portion of plate 8¹ bears the laterally extending shaft or pin 20, upon which is journaled the sleeve 21 having fixedly attached thereto the lever-weight 66 and the paper-feeler butt 28¹, the latter being recessed or mortised at its end to receive the paper-feeler 28 journaled in the mortise upon the pin 23. The bevel 24 on the feeler-butt coöperates with the tail-lug 65 on the feeler to limit the relative movements of the two parts to a one-way flexion. The end of the feeler may be slightly rounded for the sake of a smoother action against the sheet. The lever-weight 66 is preferably given the form of a disk with its center of gravity eccentric to its axis; and it has a two-fold function, first, to return the parts connected therewith into operative position, and second, to act as a lever upon the paper-feeler 28 through the sleeve 21 and the feeler-butt 28¹ when the pin 15¹ is acted upon by the stop 15. The plate 8¹ is supplied with a slot 4 into which the feeler 28 has its path, and with the laterally extending safety stop 42 to prevent certain sliding parts (not shown) on rod 62 from being thrust against the stop 15. A downwardly extending portion of the said plate 8¹ is given the bevel 9 to serve as a guide for the backing-up bottom edge of the sheet, the side edges of said portion serving also as a safety provision to prevent the before named sliding parts from being thrust against the paper-feeler 28. The said parts are in the nature of paper-guides and are well-known in the art and form no part of my invention and are not shown.

The weight 66 bears the pin 15¹ upon which is journaled the bushing 16 having fixedly attached thereto the sliding stop 15,

a countersink provision permitting the said bushing to lie partly within the contour of the said weight. I use the bushing in order to secure as long a bearing as possible for the stop 15 so as to reduce side-play thereof. The stop 15 rests upon the cross-rod 62 of the machine and lies in the path of the projection 14; and it is so constructed that it will both move slidingly across the said rod in a pushing action upon pin 15¹ when pressed against by projection 14 and also rock upon the said rod as upon a fulcrum in a lever action upon pin 15¹ under the pressure of projection 14; and either of these modes of operation may be emphasized over the other by altering the form and proportion of the said stop. Provision is made for backing-up the projection 14 past the said stop by suitably sloping the throat portion 87 thereof so that the projection will lift the stop idly from the rod in such a movement. The staff portion 88 is given a sloping contour in order that when brought back against rod 62 by the weight 66 the stop will tend to assume the position shown in Fig. 1, and not lie away from rod 62 in a partly elevated inoperative position. The said staff portion of the stop serves also as a positioning check upon the return movement of the stop toward the platen after its release by projection 14. Provision is made against an excessive movement of weight 66 upward past its center of gravity, the reduced portion 90 of the stop coöperating with sleeve 21 to check any such movement. Provision is made against the accidental somersaulting of the stop, as for instance when projection 14 is sharply backed-up past it, or when the machine is carried in an inverted position from one place to another, by the addition of the safety underhang 89 to coöperate with the safety projection 42.

The action of the mechanism thus far described is as follows: The paper-sheet 45 is entered into the machine in ordinary manner along the paper-table 8; the weight 66 holding the paper-feeler 28 in its normal retracted position so as to permit the unobstructed entrance of the sheet, and also holding the stop 15 in its normal position in the path of the projection 14. The sheet is then advanced in the usual way through the instrumentality of the platen. As the platen is rotated, the drum 6 also rotates, under the action of the clutch-mechanism contained therein, and sooner or later brings the projection 14 against the stop 15. Further revolution of the platen will push the stop toward the paper-table, rock the weight 66, and through it bring the paper-feeler 28 against the sheet, as shown in Fig. 5. If the sheet were not present the feeler would continue its movement into slot 4 sufficiently far to permit the projection 14 to pass the

stop 15; but since the feeler cannot pass into the said slot because of the sheet, and the stop cannot pass out of the path of the projection 14 until the feeler does enter the slot, an additional revolving of the platen will not be participated in by the drum 6, for it will be detained by the stop. At the same time the detaining action of the stop will cause the lever 32 to be rocked upon its axis 53 against the action of the spring 55 until the friction-band 57 is slackened about the driving core-wheel 56, thus reducing the friction and therefore the force exerted upon the stop and connected paper-feeler. That is to say, the drum 6 is clutched with considerable firmness to revolve normally with the platen, and yet a touch upon the controlling projection 14 will stop it instantly and surely and smoothly in a position of rest. The clutching action of the friction-band may be further described as involving radial closure, as distinguished from axial closure, the frictional pressure being directed along radial lines rather than along lateral or axial lines. I do not regard it as essential that the pressure should be applied to a surrounding conformable part and directed inwardly upon the driving part, as disclosed in the present embodiment of my invention, nor that the clutching action should involve only radial closure. Various well-known types of friction-clutch could be used instead of the one shown.

The mechanism will remain in the position shown in Fig. 5 during the presence of the sheet over slot 4 in the path of the paper-feeler 28. Eventually however the end of the sheet will pass from under the said feeler, stop 15 will no longer act detainingly upon projection 14, lever 32 will be permitted to rock on its axis under the actuation of spring 55, the conformable band 57 will be tightened grippingly about the core-wheel 56, and the drum 6, now frictionally clutched to move with the platen and no longer detained, will advance coordinately with the sheet through the position shown in Fig. 6 and will move thereafter coordinately with the sheet until the sheet leaves the machine. As the said drum always begins its movement after release from the same angular position, it will always stop in a given angular position after a given angular movement from starting position, and as moreover it always begins its said movement when the end of the sheet is a constant distance from the printing point, since the point where the feeler-end meets the sheet is necessarily fixedly distant from the printing point, and as the sheet is advanced coordinately with the said drum during the said movement of the drum, the end of the sheet will always be a constant distance from the printing point at

the end of the said given angular movement of the drum. I place the stationary index 34, shown as clamped between the shield 43 and the platen frame 40 by the screw 18, adjacent to the said drum, and I supply the indicating portion of the said drum which is presented opposite the said stationary index in the constant starting position of the drum with an index 89^a that will indicate that position of the drum; I further supply the said drum on that portion thereof which is presented opposite the stationary index after an advance of the sheet and drum coordinately with each other, with an index that will indicate the new position of the sheet; and so on around the drum for every successive position of the sheet, at will. That is to say, if after the first movement of the released drum or index-carrier the end of the sheet is distant nineteen single lines from the printing point, I supply the indicating portion of the drum then in indicating position with the index 19, and in order to indicate when the end of the sheet is distant eighteen single lines, I supply the drum with the index 18, and so on down to the end of the sheet. In my drawings I show the indication by single-line progresses, the indices 6^a here being numerals in descending order. Other indication than by single line indication may be employed, and other units than the line unit. It is of course immaterial whether the stationary and movable indices come to relative rest exactly opposite one another, or whether the distance is given to the end of the sheet or to a point a fixed distance therefrom, or whether the indices in themselves signify distance-units at all. I prefer to use simple numerals indicating the decreasing distances to the end of the sheet and involving no mental calculation nor memorizing on the part of the operator. I also supply the drum or index-carrier 6 with a second series of indices 6^b, preferably distinguishable in appearance from the series 6^a hereinbefore described. The purpose of these indices is to indicate to the operator the extent of a given backing-up movement. Their action is described as follows: Suppose the drum 6 to stand in its detained position of rest as illustrated in Fig. 5, which is the position it will have during most of the progress of the sheet, the index 89^a thereon lying opposite the stationary index 34: if the platen were now to be turned backwardly the extent of one line-space, the drum 6 would move away from stop-detained position to the same extent, bringing a new indicating portion before the stationary index 34. I can supply this portion of the drum with the index 1; and I can supply it with the index 2 to indicate a backing-up movement of two line-spaces in extent; and so on around the drum, at will.

The indicating surface upon the drum 6 is further availed of to give the operator sign that the end of the sheet is near. I use for a stationary index 34 a shield-pointer 5 that conceals one portion of the drum from the operator, and I divide the indicating surface upon the drum into two differently appearing segments, one of which is visible to the operator during the detained 10 position of the drum, and the other of which is not visible but lies behind the shield-pointer in that position of the drum. In my drawings I show the first-named of these segments as bearing the indices 89^a and 6^b, 15 which may appear in red, and by preference I supply this segment with a ground of black, and the second of these segments which I cause to bear the indices 6^a I prefer to supply with a ground of white, al- 20 though these are not the only distinguishing means possible. When the sheet-end releases the drum and the white segment comes into view, the change from black to white attracts the operator's attention and 25 he knows that the end of the sheet is within a given distance of his printing point. It is of course not essential that the white segment should come into view at the very first feed-movement of the platen after the 30 release of the carrier to move therewith—the black segment may be extended under the shield-pointer to any required extent so that several feed-movements will intervene before the white segment comes into 35 view, and consequently this signal may be given when the sheet-end attains any required distance from the printing point. It is not essential that either portion of the drum be supplied with indices in addition 40 to such a signaling means, nor that such signaling means be provided in addition to either or both series of indices.

It is to be noted that the structure hereinbefore described is especially adapted to be 45 added to existing machines. Where the device is built into the machine many of the functions performed by the said added structure can be more conveniently performed by the structure of the machine 50 proper, as will be understood.

I provide the following indicating means for giving a signal, preferably an audible signal, when the end of the sheet attains a predetermined distance from the printing 55 point, and for rendering the machine inoperative, preferably through means preventing the actuation of the printing mechanism, at a predetermined page-end position.

The carriage frame 12 bears the laterally 60 extending pin 74, upon which is journaled the bell-lever 1 so as to move in a plane outside the path of the projection 14. The said bell-lever bears the pin 61, which is connected with the pin 63 on the lever 69 65 by means of the rod 64. The lever 69 is

journaled upon the laterally extending pin 37 on the end of the carriage frame 12, and a similar lever and pin will be understood as lying behind the one shown, mounted on a similar carriage-frame structure at the op- 70 posite end of the platen, the two levers 69 being integrally connected by the bail-rod 3. Against this bail-rod at a point between the ends 41 of the main frame of the machine rests the lever 70 fixedly mounted 75 on the shaft 2, which is journaled at either end in the said main frame 41 so as to rock thereon. Fixedly attached upon the shaft 2 is the lever 25 bearing the pin 33, which is connected with the pin 46 on the 80 lever 51 by means of the rod 36, the said lever 51 being fixedly attached to the shaft 48, which is journaled at each end in the main frame 41. This shaft 48 carries fixedly attached thereto near either end the two 85 levers 52, one thereof being shown and the other being understood to lie immediately behind the same, connected by the laterally extending bar 50 so as to form in effect a rocking bail-piece, and it carries also the 90 radially extending spring or wire 72 on which is attached the bell-hammer 26. In a position nearer or farther from this bell-hammer, so as to be struck as desired when the shaft 48 is rocked, is the bell 27, mounted 95 on the frame-extension 86 on the main frame 41. The usual key-levers 38 ranged one behind the other laterally across the machine are each supplied with the overhang 38¹, the parts being so stationed that when the 100 bail-piece 50 is rocked it will lie under the said overhang and prevent the actuation of the printing mechanism. A spring 47 attached at one end to the rod 36 and at the other to the pin 49 on the main frame 41 105 tends to hold the said parts in unlocked operative position against the stop 81 on frame 41. This portion of the mechanism operates as follows: The pin 68 having been placed in the desired screw-seat 67 and 110 the sheet having been advanced until the said pin has been brought around by the released drum 6 into contact with the lever 1, or adjacent thereto, such position being the position for writing the predetermined 115 last line upon that sheet, and moreover the said last line having been written, the usual abrupt spacing forward of the platen in advancing the sheet will cause pin 68, through lever 1, rod 64 and lever 69, to 120 rock the bail-rod 3 downwardly against lever 70, thereby turning shaft 2, and, through lever 25, rod 36 and lever 51, rocking shaft 48 and causing the bell-hammer 26 to descend sharply toward the bell 27 125 and strike thereon. The bell-stroke will indicate to the operator that he should remove his sheet, and he can do so without waste of time in trial of the printing mechanism to see whether it is inoperative. The 130

action of the above parts brings also the bail-bar 50 under the overhang 38¹ on the key-levers 38, thereby locking the printing mechanism against use, so that if the operator fails to notice the bell signal he will have further indication that the sheet should be removed. In case he desires to continue printing upon the sheet he has only to lift upon the link 64 by means of the handle 91, and the pin 63 will pass out of the vertical portion 92 of the slot in the said link into the horizontal portion 93, releasing the bail 3 and the parts actuated thereby and releasing the machine. In a backing-up movement of the pin 68 against the lever 1 the bail 3 lifts idly away from the lever 70, the bail 3 serving later as a weight to restore the lever 1 to operative position.

My invention is provided with means for holding it in disuse, as follows: The upstanding wall of the superposed part 8¹ bears thereon the pin 79, upon which is journaled the latch-lever 76 having a projection 31 adapted to enter the recess 75 in the weight 66 so as to lock the said weight against movement on its axis. The said latch-lever is preferably constructed of a resilient material, and it is supplied with the underhanging stud 74 adapted to enter the recess 35 in the said part 8¹ so as to hold the said latch-lever safely out of engagement with the said weight. If the operator desires to place the mechanism into temporary disuse he has only to shift the latch-lever from its position as shown in Fig. 2 until the projection 31 engages with the recess 75 in the weight, the stud 74 in this case resting against the edge of the part 8¹ and holding the latch-lever in locking position. The carrier will now be held in detained position until the parts are released, and the indicating mechanism, with the exception of the indices 6^b, will be rendered inoperative.

It is to be noted that the structure hereinbefore described provides for backward movement of the sheet at any time. If the platen is turned backwardly while the feeler is in contact with the sheet, as shown in Fig. 5, the resulting backward movement of the drum 6 will cause the projection 14 to move backwardly, relieving the stop 15, of pressure, whereupon the weight 66 will be enabled to retract the feeler from contact with the sheet, and the sheet however thin and irregular of surface can then be backed-up with as great freedom as though my device were not in use on the machine. And if the sheet be advanced to a point just beyond its release of the feeler, as shown in Fig. 6, and then fed backwardly, the bottom edge thereof will carry the feeler backwardly ahead of it, the axis 23, bevel 24 and tail 65 permitting the movement, and at the same time the weight 66 will move the

feeler-butt 28¹ toward the platen until the feeler 28 clears the sheet.

A mechanism such as I have described satisfies the objects of my invention in what I regard as the most perfect manner, but I do not confine myself to the exact forms or arrangement shown in all cases. It is to be noted also that although I show the paper-feeler 28 as intersecting the path of the paper-sheet at the paper-table, I do not limit myself to this construction.

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 shown and described in one or another of the said applications. Some of the said common principles and features are claimed broadly in my application filed April 20, 1908, aforesaid, and in my applications filed Dec. 15, 1909, Serial No. 533,309; April 25, 1910, Serial No. 557,330; and Mar. 30, 1912, Serial No. 687,463.

The branch of the general invention which is covered hereby is distinguished by the characteristic features specified in the following claims.

Having thus clearly explained the nature and objects of my invention and the manner of applying the same, I claim as new and desire to secure by Letters Patent—

1. In a typewriting machine, in combination, a platen, a series of indices, frictional driving means having spring-pressed radial closure for giving the said indices simultaneous movement with the platen, and sheet-controlled means for controlling the said movement.

2. In a typewriting machine, in combination, a platen, an index-carrier, frictional driving means having spring-pressed radial closure for giving the said carrier movement with the platen, and a sheet-controlled friction-opening member for controlling the said movement.

3. In a typewriting machine, in combination, a platen, an indicator, frictional driving means having spring-pressed radial closure for giving the said indicator simultaneous movement with the platen, and sheet-controlled means for controlling the said movement, including a friction-opening member and a controlling stop for the same.

4. In a typewriting machine, in combination, a platen an index-carrier supplied with indices, frictional driving means having spring-pressed radial closure for giving the index-carrier simultaneous movement with the platen, and means for controlling the

said movement, including a friction-opening member and a movable stop in the path of the same.

5 5. In a typewriting machine, in combination, a platen, a platen-connected detachable member, means rendered effective in the presence of the sheet for detaining the said member in a constant starting position, and a series of indices brought into indicating position by the said member when actuated
10 backwardly from sheet-controlled position.

6. In a typewriting machine, in combination, a platen, an operative member, indicating means called into operation through
15 the said member, frictional driving means having spring-pressed radial closure for giving the member movement with the platen, and sheet-controlled means for controlling the said movement.

20 7. In a typewriting machine, in combination, a platen, an operative member, indicating means called into operation through the said member, frictional driving means having spring-pressed radial closure for giving
25 the member movement with the platen, and sheet-controlled means for controlling the said movement.

8. In a typewriting machine, in combination, a platen, an operative member, indicating means called into operation through
30 the said member, radially-closed frictional driving means for giving the member movement with the platen, and a sheet-controlled friction-opening member for controlling the action of the said means.
35

9. In a typewriting machine, in combination, a platen, an operative member, indicating means called into operation through
40 the said member, frictional driving means having spring-pressed radial closure for giving the member movement with the platen, and a sheet-controlled friction-opening member for controlling the said movement.

10. In a typewriting machine, in combination, a platen, an operative member, indicating means called into operation through
45 the said member, frictional driving means having spring-pressed radial closure for giving the member movement with the platen, and a sheet-controlled stop for controlling the said movement.
50

11. In a typewriting machine, in combination, a platen, cooperating friction members, one of the same having a position
55 radially exterior to the other and one of the same rotating in unison with the platen and acting to drive the other, indicating means called into operation through the driven one of the said members, spring-
60 pressure means for causing the said members to engage, a friction-opening member adapted to act against the force of the said spring-pressure, and a paper-feeler connected to control the action of the last-named
65 member.

12. In a typewriting machine, in combination, a platen, a core-wheel revolving with the platen, a circumjacent conformable
band-member spring-pressed upon the core-wheel into frictional engagement therewith,
70 a friction-opening lever, a stop in the path of the said lever, a paper-feeler connected with the stop, and indicating means controlled by the paper-feeler through the said parts.

13. In a typewriting machine, in combination, a platen, a revoluble member, indicating means called into operation through
75 the said member, frictional driving means having spring-pressed radial closure for giving the member simultaneous movement with the platen, and a movable stop for controlling the said movement and itself automatically controlled.
80

14. In a typewriting machine, in combination, a platen, a driving member revolving with the platen, a driven member having
85 spring-pressed frictional closure thereon in radial direction, indicating means called into operation through the driven member, a friction-opening member, and a movable stop in the path of the last-named member.
90

15. In a typewriting machine, in combination, a platen, a core-wheel, a friction-band engaging with said core-wheel and one
95 thereof revolving with the platen, a lever for tightening and loosening the said band, a spring actuating on the lever, controlling means for the said lever, and indicating means operated through said core-wheel and
100 friction-band and controlled through the action of the said controlling means upon the said lever.

16. In combination, typewriter mechanism including a platen, an operative member,
105 means called into operation through the said member for rendering a part or parts of the typewriting mechanism inoperative, frictional driving means having spring-pressed radial closure for giving the member
110 movement, and sheet-controlled means for controlling the said movement.

17. In combination, typewriter mechanism including a platen, an operative member,
115 means controlled by the said member for rendering a part or parts of the typewriter mechanism inoperative, frictional driving means having spring-pressed radial closure for giving the said member movement, and a sheet-controlled friction-opening member
120 for controlling the action of the said means.

18. In a typewriting machine, in combination, a platen, an operative member having a projection thereon, printing instrumentalities, means controlled by the operative
125 member for locking the printing instrumentalities, frictional driving means for giving the said member simultaneous movement with the platen, and means for controlling the said movement, including a
130

movable stop in the path of the said projection.

19. In a typewriting machine, in combination, a platen, an operative member, printing instrumentalities, means called into operation through the operative member for locking the printing instrumentalities, frictional driving means for giving the member simultaneous movement with the platen, and means for controlling the said movement, including a friction-opening member and a movable stop for the latter member.

20. In combination, typewriter mechanism including a platen, a revoluble member, means controlled by the said member for rendering a part or parts of the typewriter mechanism inoperative, means for releasing the inoperative typewriter mechanism for further use, means for giving the said revoluble member simultaneous rotation with the platen but permitting detention thereof independently of the platen, and a sheet-controlled stop for detaining and releasing the said member.

21. In a typewriting machine, in combination, a platen, an operative member, means controlled by the said member for giving an audible signal, frictional driving means having spring-pressed radial closure for giving the said member movement, and sheet-controlled means for controlling the said movement.

22. In a typewriting machine, in combination, a platen, an operative member, a bell-striking means controlled by the said member, frictional driving means having spring-pressed radial closure for giving the member movement, and a sheet-controlled friction-opening member for controlling the action of the said means.

23. In a typewriting machine, in combination, a platen, a revoluble member, visual signaling means called into operation through the said member, frictional driving means having spring-pressed radial closure for giving the member movement with the platen, and sheet-controlled means for controlling the said movement.

24. In a typewriting machine, in combination, a platen, an operative member, visual signaling means called into operation through the said member, frictional driving means having spring-pressed radial closure for giving the member movement with the platen, and a sheet-controlled friction-opening member for controlling the said movement.

25. In a typewriting machine, in combination, a platen, an operative member, indicating means called into operation through the said member, sheet-controlled means for coördinating the position of the said member with the position of the sheet-end, including means for giving the member a constant starting position and means

for giving it simultaneous movement with the platen therefrom, and means for placing the above-named mechanism in disuse at will.

26. In a typewriting machine, in combination, a platen, a paper-feeler, a detachable part, and a push-stop in the path of the said part and adapted to change the position of the paper-feeler under the pressure thereof.

27. In a typewriting machine, in combination, a platen, a paper-feeler, a push-stop operative upon the said feeler and in turn controlled thereby, a detachable member moving coördinately with the platen and controlled by the said stop, and indicating means called into operation through the said member.

28. In a typewriting machine, in combination, a platen, a detachable member moving coördinately with the platen having a projection thereon, a slide-stop in the path of the projection, a paper-feeler connected to control the action of the said stop, and indicating means called into operation through the detachable member.

29. In a typewriting machine, in combination, a platen, a detachable member, moving coördinately with the platen, a lever-stop in the path of the said member, a fulcrum for the same, a paper-feeler controlling the said stop from a separate axis and in turn acted upon by it, and indicating means called into operation through the detachable member.

30. In a typewriting machine, in combination, a platen, and a knuckle-joint paper-feeler, consisting of a butt part having a mortise therein and a feeler part journaled within the mortise, the said mortised part having a stopping portion to limit the action of the feeler part thereon in one direction.

31. In a typewriting machine, in combination, a platen, a detachable member moving coördinately with the platen and having a projection in connection therewith, indicating means called into operation through the detachable member, an endwise movable push-stop in the path of the projection, and a paper-feeler connected to control the action of the said stop, the said parts being constructed to permit backing-up of the detachable member past its stop-controlled position.

32. In a typewriting machine, in combination, a platen, a detachable member moving coördinately with the platen and having a projection in connection therewith, indicating means called into operation through said detachable member, and a sheet-controlled movable stop in the path of the said projection, said stop yielding to permit backing-up of said projection, with means to limit the yielding movement of

said stop so as to prevent displacement thereof.

33. In a typewriting machine, in combination, a platen, a detachable member
5 moving coördinately with the platen and having a projection in connection therewith, indicating means called into operation through said member, a sliding stop in the
10 path of said projection and having a guide, the said stop constructed to give way from said guide when backed against by said pro-

jection and supplied with an underhanging portion to prevent displacement of said stop from said guide, and a paper-feeler connected to control the action of the said 15 stop.

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

WILLIAM J. NEIDIG.

Witnesses:

CHAS. S. HYER,

CHAS. F. RANDALL.

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