Feb. 6, 1934. J. Y. PAYTON 1,945,753

SIGNALING DEVICE FOR TYPEWRITERS

Filed July 27, 1931

Fig. 1.

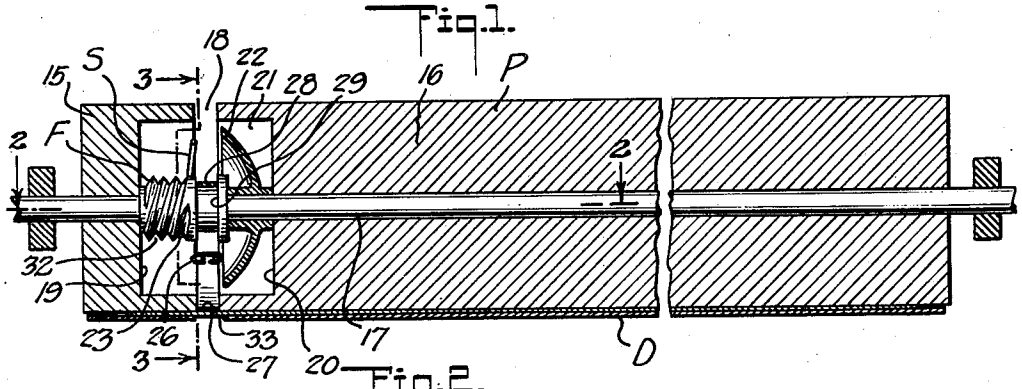


Fig. 2.

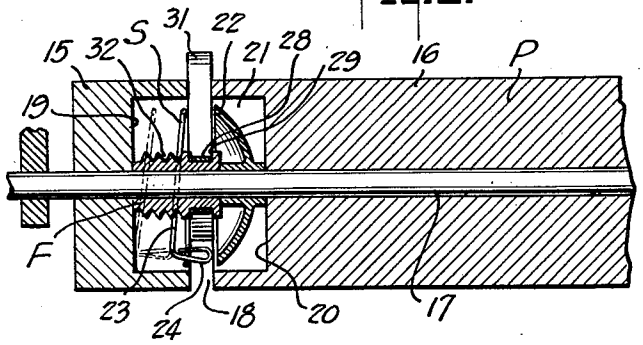


Fig. 3.

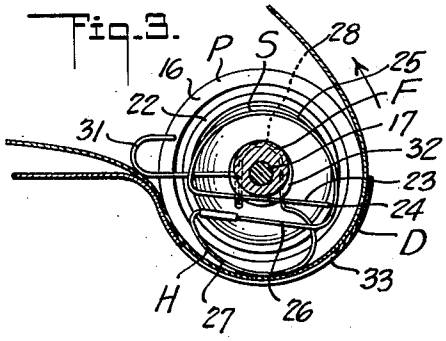


Fig. 4.

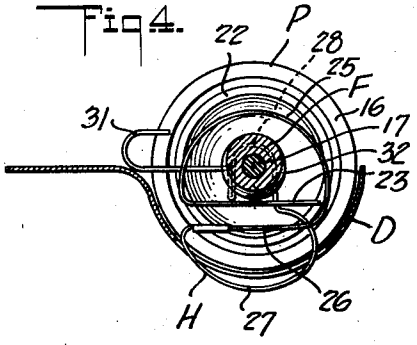
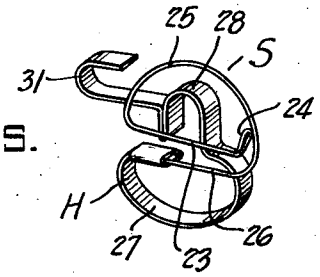


Fig. 5.



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Patented Feb. 6, 1934

1,945,753

UNITED STATES PATENT OFFICE

1,945,753

SIGNALING DEVICE FOR TYPEWRITERS

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Application July 27, 1931. Serial No. 553,409

15 Claims. (Cl. 197—189)

My invention relates to and has for a purpose the provision of a signaling device for typewriters to automatically indicate to the typist the proximity of the typing to the hidden lower edge of the sheet being typed, and in such relation thereto that the last line of the sheet may be safely typed without fear of any paper movement from its correct position; a neat and uniform lower margin attained for all the sheets; and the maintenance of full speed throughout the entire page without risk of running off the paper.

I will describe only one form of signaling device for typewriters embodying my invention and will then point out the novel features thereof in claims.

In the accompanying drawing,

Figure 1 is a view showing in vertical longitudinal section a typewriter platen and paper sheet deflector with one form of signaling device embodying my invention applied thereto;

Figure 2 is a fragmentary horizontal and longitudinal section taken on the line 2—2 of Figure 1 and looking in the direction of the arrows;

Figure 3 is a transverse sectional view taken on the line 3—3 of Figure 1 and illustrating a sheet of paper partially extended around the platen;

Figure 4 is a view similar to Figure 3 but with the sheet of paper removed from the platen;

Figure 5 is a perspective view of a striker unit embodied in my invention.

In carrying out my invention, I employ a typewriter platen P and a paper sheet deflector D, the platen differing from the conventional platen structure by being formed in two separate sections 15 and 16 fixed to a common shaft 17 with their confronting ends in spaced relation to provide an intervening annular slot 18. The confronting ends of the platen sections are provided with annular recesses 19 and 20 which coact to form an air chamber 21 in which is disposed the signaling mechanism embodied in my invention.

This mechanism comprises a bell 22 which is fixed upon the shaft 17 within the air chamber and is adapted to be sounded by a striker S. The striker is constructed from a single length of spring wire to provide a striker arm 23 terminating at one end in a laterally projecting striker head 24 and at its other end in an arched portion 25, which by means of a lineal portion 26 connects the striker to a paper rider H.

From the point of attachment of the striker to the rider, the latter extends in a downward swelling curve to provide a portion 27 which in the operation of the mechanism is adapted to be engaged by a sheet of paper extending around the platen. Then turning upward the portion 27 merges into a hook 28 which seats in an annular groove 29 provided in a feeding member F in the form of a sleeve fixed to the shaft 17 within the air chamber 21. From the hook extends an arm 31, Figure 3, which projects through the annular slot 18 and normally rests upon the paper table. The annular groove 29 confines the rider against displacement axially of the shaft and supports the rider with the striker head normally disposed in close proximity to the bell 22. The rider acted upon by gravity normally holds the striker arm radially outward so as to clear the striker arm from the outer periphery of the feeding member F which is provided with a spiral groove 32 adapted to receive the striker arm and feed the latter axially of the shaft in a direction away from the bell in response to rotation of the platen in a direction to advance a sheet of paper therewith.

The downward swelling portion 27 of the rider projects freely through the annular slot 18 and through a slot 33 in the deflector D so as to be disposed in the path of a sheet of paper when inserted between the platen and deflector. The location of the slots 18 and 33 along the length of the platen is such that the portion 27 of the rider will ride upon the paper sheet only, and within the limits of the left hand margin.

The operation of my invention is as follows: In the normal position of the mechanism, the rider H is urged by gravity to the lowered position shown in Figure 4 so that it is suspended from the feeding member F and is confined to a vertical movement only, by the co-action of the hook 28 of the rider, the annular groove 29 in the feeding member, and the arm 31, Figures 3 and 4. In this lowered position of the rider, its portion 27 projects through the slot 33 in the deflector D so as to be disposed in the path of a sheet of paper inserted beneath the arm 31, Figure 3, and between the platen and the deflector, while the striker arm 23 clears the outer periphery of the feeding member with the free end of the striker head 24 located in close proximity to the rim of the bell 22.

Upon engagement of the moving sheet of paper with the downward swelling portion 27 of the rider, the rider and the striker arm are moved upward as a unit to the elevated position shown in Figure 3, under the camming action of the leading edge of the paper against the portion 27

thus lifting the striker arm into engagement with the spiral groove 32 at the end of the latter nearest the bell 22. As the paper sheet is advanced by rotating the platen step by step during the typing operation, the spiral groove 32 will coact with the striker arm to feed the latter to the left as viewed in Figure 2, or away from the bell 22, thus drawing the striker arm laterally relative to the rider and placing the striker arm under stress or tension. When the bottom edge of the paper sheet reaches a location on the platen clear of the portion 27, the rider will be free to gravitate to a lowered position, as a result of which the striker arm will suddenly clear the spiral groove 32 and will strike the bell 22, thereby audibly signaling that the last line permissible is being typed.

The signal synchronizes with the movement of the line space lever. It is always heard at the beginning of the last permissible line if the conventional margin is desired. If it is not desired, the signal need not be heeded, but its warning will safeguard the operator from running off the paper.

Should the sheet of paper be exceptionally long, the striker arm may reach the left hand end of the spiral groove where further feeding of the arm will cease. However, the striker arm will not be released from its set position relative to the feeding member until the bottom edge of the paper clears the portion 27. It will be clear that the arm 31, Figures 3 and 4, prevents circumferential displacement of the rider during rotation of the platen to advance the paper sheet. The limited arc described by the arm 31, Figure 3, when a backward turn of the platen is made, is accompanied by no inconvenience whatever. And such temporary abnormal position of the rider is instantly righted when the direction of turning is changed.

It is manifest that the vertical movement of the rider to lowered and elevated positions is controlled directly by the paper sheet according as the latter is absent or present.

As the air chamber coincides with the margin of the paper, the type never falls upon it. The full solidity of the platen is thus preserved for every type impact.

It must not be forgotten that, even after the signal has sounded, the operator is free to turn back to any point on the page to make a needed correction.

By placing my signaling device within the platen, I economize space so pressingly needed for other devices in an up-to-date typewriter.

Although I have herein shown and described only one form of signaling device for typewriters embodying my invention, it is to be understood that various changes and modifications may be made therein without departing from the spirit of the invention and the spirit and scope of the appended claims.

I claim:

1. The combination with a typewriter platen, of a bell on the platen, a striker for the bell normally urged towards the bell, means engageable by the striker and operable in response to rotation of the platen in a direction to advance a sheet of paper with the platen, to feed the striker away from the bell so as to place the striker under stress, and means for urging the striker out of engagement with the feeding means and disposed for actuation by a sheet of paper extended around the platen, to maintain the striker in engagement with the feeding means, whereby when the urging means is cleared by the paper, the striker will be moved out of engagement with the feeding means and will be free to strike the bell.

2. The combination as embodied in claim 1 wherein the feeding means comprises a member rotatable with the platen and having its periphery spirally grooved to receive the striker.

3. The combination with a typewriter platen, of a member capable of producing sound when struck, a second member for striking the first member normally urged towards the latter, feeding means for the second member operable when engaged by the latter to feed the second member away from the first member in response to rotation of the platen in a direction to advance a sheet of paper extended around the platen, and means for urging the second member out of engagement with the feeding means and disposed for actuation by a sheet of paper extended around the platen, to maintain the second member in engagement with the feeding means, whereby when the urging means is cleared by the paper, the second member will be moved out of engagement with the feeding means and will be free to strike the first member.

4. The combination with a typewriter platen having an opening between its ends, of a member disposed in the opening and capable of producing sound when struck, a second member movably supported in the opening and normally urged towards the first member, means engageable by the second member to feed the latter away from the first member in response to rotation of the platen in a direction to advance a sheet of paper with the platen, and means in the opening, normally urged to project beyond the periphery of the platen for operation by a sheet of paper extended around the platen, to move the second member into engagement with the feeding means. and operable when cleared by the paper, to move the second member out of engagement with the feeding means so that the second member will be free to strike the first member.

5. The combination with a typewriter platen, of a member on the platen capable of producing sound when struck, a second member for striking the first member normally urged towards the latter, feeding means for the second member operable when engaged by the latter to feed the second member away from the first member in response to rotation of the platen in a direction to advance a sheet of paper extended around the platen, and means controlled by the paper, to maintain the second member in engagement with the feeding means until the last means is cleared by the bottom edge of the paper, upon which the second member will be free to move out of engagement with the feeding means and strike the first member.

6. In combination with a typewriter platen, a member capable of signaling when struck, a second member normally urged to strike the first means, means operable when engaged by the second member and the platen is rotated in a direction advancing a sheet of paper with the platen, to move the second member away from the first member, and paper controlled means operable until cleared by the bottom edge of a sheet of paper extended around the platen, to maintain the second member in engagement with the feeding means, whereby when the paper clears the last means the second member will be free to strike the first member.

7. In combination with a typewriter platen,

a signaling member, a member for activating the signaling member, normally urged in one direction to activate the signaling member, and movable in another direction against the urging tendency, means for moving the second member in the second mentioned direction in response to rotation of the platen when advancing a sheet of paper, and means including a rider traversed by the paper and operable when cleared by the bottom edge of the paper to free the second member from the last means so that the second member can move in the first mentioned direction and activate the signaling member.

8. In combination with a typewriter platen, a signaling member, a member for activating the signaling member, means operable in response to rotation of the platen when advancing a sheet of paper, to set the second member for its subsequent release and activation of the signaling member, and means traversed by the paper during movement thereof by the platen and operable when cleared by the bottom edge of the paper, to release the second member and permit the latter to activate the signaling member.

9. The combination with a typewriter platen, of a bell on the platen, a resiliently mounted striker for the bell, means engageable by the striker and operable in response to rotation of the platen in advancing a sheet of paper with the platen, to feed the striker away from the bell and thereby place the striker under stress, and means for urging the striker out of engagement with the feeding means and disposed for actuation by a sheet of paper extended around the platen, to maintain the striker in engagement with the feeding means until the bottom edge of the paper reaches a predetermined location upon which the striker will be moved out of engagement with the feeding means so as to be free to strike the bell.

10. In combination, a typewriter platen having means intermediate its ends defining an open air chamber therein, a bell in the air chamber, and means located wholly between the ends of the platen for sounding the bell when the bottom edge of a sheet of paper extended around the platen, reaches a predetermined location.

11. In combination, a typewriter platen divided intermediate its ends into two sections, a shaft to which the platen sections are secured with their confronting ends in spaced relation and constructed to co-act in providing an air chamber, a bell mounted on the shaft in the air chamber, and means for sounding the bell when the bottom edge of a sheet of paper extended around the platen, reaches a predetermined location.

12. In combination with a typewriter platen, a signalling member; means normally urged to activate the signaling member; means disposed to be traversed by a sheet of paper as advanced by the platen; means for moving the first means against its urging tendency as the second means is traversed by the paper under advancing movement of the platen; and means for releasing the first means from the last means when the second means is cleared by the bottom edge of the paper so that the first means will be free to activate the signaling member.

13. In combination with a typewriter platen, a signaling member; means normally urged to activate the signaling member; means disposed to be traversed by a sheet of paper as advanced by the platen; means for moving the first means against its urging tendency as the second means is traversed by the paper under advancing movement of the platen; and means for rendering the first means free to activate the signaling member when the bottom edge of the paper clears the second means.

14. In combination, a typewriter platen having a circumferential slot intermediate its ends, with the walls of the slot defining an air chamber; a signaling member in the air chamber; and means including a paper engaging member in said slot, for activating the signaling member when the bottom edge of a sheet of paper extended around the platen, reaches a predetermined position.

15. In combination, a typewriter platen divided between its ends into sections, the confronting walls of which are spaced apart and define an air chamber; a signaling member in the air chamber; and means for activating the signaling member when the bottom edge of a sheet of paper extended around the platen reaches a predetermined position.

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