



## UNITED STATES PATENT OFFICE

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## TYPEWRITER ATTACHMENT

Raymond Dow, Flushing, N. Y.

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6 Claims. (Cl. 197—187)

This invention relates to improved means adapted to be applied to typewriters, adding machines, billing machines and the like, so as to inform an operator when a portion of the sheet normally obscured from view is about to reach a predetermined position.

While not limited thereto, the invention has been illustrated as embodied in a typewriter attachment wherein it is particularly useful in informing the typist that the lower edge of a sheet is approaching a horizontal line of typing or that the right hand edge of the sheet in its travel with the carriage is approaching the substantially vertical line of action where the type faces strike the ribbon. Thus, the invention provides means for warning the operator not to continue typing too close to the bottom of a sheet, or too near to the right hand edge thereof.

When the invention is used in a typewriter to indicate that the lower end of a sheet is approaching, the spacing between the attachment and the normal plane of the ribbon is such that a signal will be given when the lower end of the sheet reaches a predetermined distance from the horizontal line being typed. And, when the attachment is used to indicate the approach of the right hand end of the sheet as it travels to the left with the movement of the carriage, the attachment will be appropriately located so as to give ample warning before the right hand edge reaches the substantial center line, where the type faces come into play.

This application is a continuation in part of application Serial No. 122,689, filed January 28, 1937 and allowed September 16, 1939.

The invention will be readily apparent from the following specification, when read in connection with the accompanying drawing and will be defined with particularity as required by the statute in the appended claims.

Referring to the drawing in detail,

Figure 1 represents in vertical cross sectional elevation so much of the typewriter as is necessary for a complete understanding of the invention,

Figure 2 is a similar view showing certain of the parts in the position in which the lower end of a sheet is in the act of imparting motion to the signalling means,

Figure 3 is a view similar to Figure 1 illustrating a modification,

Figures 4 and 5 are partial views in sectional elevation showing means for giving a signal that the right hand edge of the sheet is approaching the plane where the type strikes the sheet,

Figure 6 is a view similar to Figure 4 showing a spoon end on the signal arm to provide for a bottom marginal arm as well as a side margin indicator, and

Figure 7 is an end view of the device shown in Figure 6.

Referring in detail to the drawing, 10 is a conventional representation of part of the fixed frame of a typewriter, in which operates the usual slidable carriage 11, carrying a paper feed roll or platen 12, a guide plate 13 spaced from the platen, and guide rolls 14 and 15 secured to arms 16 and 17 carried by a rod 18.

In the normal operation of a typewriter it is well known that as the lower end of the sheet approaches typing position opposite the ribbon 19 and the line of action of the type bars 20, the said end of the sheet is either partly obscured or entirely hidden from view and difficulty is frequently experienced in determining when to remove the sheet, in order that the line typed near the bottom of the page will not come too close to the edge.

According to the present invention, I provide in combination with a mechanism for moving the sheet, a means which is effective to operate a signal, so as to inform the operator either when the lower end of the sheet reaches a predetermined position or when the right hand edge of the sheet is approaching the line of action where the type faces strike the sheet. In the embodiment of the invention as illustrated in Figures 1 to 3, this means includes a pivotally mounted signal operating member 21, pivotally mounted at 22 and having a finger 23 which in some cases may be provided with a roller or ball or spherical end 24 riding on the sheet S and extending through an interrupted portion 25 formed in the guide plate 13. The signal operating member includes a hammer 27, which is adapted to strike a bell 26 or to actuate any other suitable type of audible or visible signal. With such a mechanism, as the lower end of the sheet approaches a predetermined point, for example opposite the interrupted portion 25, it will spring downwardly as indicated as at S' in Figure 2. This springing of the lower end of the sheet into the interrupted portion of the guide plate will exert a quick or sharp blow on the finger and will thus move the signal operating member 21 from the full line position of Figure 1 to the full line position of Figure 2, thus striking the bell, whereupon the member 21 will return by gravity to the position of Figure 1.

In the modification illustrated in Figures 3

to 7, inclusive, the sheet S will normally be held spaced away from the lower portion of the platen 12 by a laterally extending stationary guide bar 28 mounted on the carriage or by a bulge in the sheet caused by its conforming to the shape of the guide plate 13 between the feed rolls and will thus normally hold the roller or spherical end 24 of the finger 23 a sufficient distance away from the platen so that when the lower end of the sheet reaches a point located a short distance from the guide bar 28, the finger will be no longer held away from the platen by the sheet and thus the weight of the hammer 27 will rock the operating member 21 to a position where it will strike a suitably located bell so as to give a signal.

In Figures 4 and 5, I have illustrated the manner in which the invention can be applied to a typewriter or similar device so as to give a signal after the sheet has travelled a predetermined lateral distance. In the case of a typewriter the arrangement will be such that the normal bulge of the sheet due to the space between the platen and the guide plate 13 (Figure 7) will hold the signal arm in spaced relation with the platen and as the right hand edge of the sheet reaches a point approximately an inch from the printing point, a signal will be given so as to inform the operator that the sheet is approaching a location at which a given word being typed should be finished. Thus, another word will not be started which would be apt to cause the written matter to extend beyond the margin of the sheet.

To these ends, I have illustrated in Figures 4 and 5, a laterally adjustable bracket B slidably mounted on a guide 29 mounted on a fixed portion 29A of the typewriter and adapted to be adjustably positioned by a suitable screw 30. Pivotaly mounted at 31' on the bracket, there is a signal operating member 31 having a hammer portion 32 adapted to strike signal bell 33. The member 31 at its opposite extremity has a finger 34 which normally rides on the face of the sheet S being typed. However, when in the transverse travel of the carriage, the right hand edge of the sheet reaches a point located at a predetermined distance from where the type faces normally strike the paper, the finger will ride off the right hand edge of the sheet and thus move from the full line position of Figure 4 to the dotted line position of the same figure, and thus cause the hammer 32 to strike the signal bell. The finger 34 at such time will come to rest against the surfaces of the platen 12 as indicated in Figure 5. Thus, as the platen is moved to the right the sheet will merely rock the finger 34 to the position of Figure 4 and thus properly position it to come into play, as the sheet is moved by the carriage for typing on the next line.

As illustrated in Figures 6 and 7, the end of the signal lever 34 may be spooned or rounded as at 40 so that it will ride up on the paper both at the right hand margin and at the lower margin thereof so that the lever 34 will serve the double purpose of an end margin indicator and a side margin indicator. This is also true of the ball or spherical end of the lever 23 and as shown in Figure 3, the guide strip 28 may be employed with the structure shown in Figures 6 and 7 so that the paper will be positively held away from the platen to provide for the actuating motion of the signal lever in warning the operator of the approach of the end of each line of writing or the approach of the bottom edge of the sheet S.

It will be also apparent that while the invention has been illustrated as applied to a typewriter, it is also applicable to an adding machine, cash register or other devices of like nature.

While I have described quite specifically the particular embodiment of the invention herein illustrated, it is to be understood that various modifications and substitutions of equivalents may be made by those skilled in the art without departing from the invention as described in the appended claims.

What I claim is:

1. In a writing machine, in combination, a fixed frame, a movable carriage in the frame including a paper carrying platen and front and rear paper feed rolls, a plate spaced from the platen for guiding paper about the under side of said platen and in spaced relation to said under side in an area between said feed rolls, and a signal means mounted on said frame comprising a pivoted actuating lever having one end adapted to rest against the outer surface of said paper where the latter is spaced from the platen and movable into the space between said paper and the platen when a side or end edge of the paper has reached a definite point in its travel.

2. In a writing machine, in combination, a fixed frame, a movable carriage in the frame including a paper carrying platen and feed rolls, means for guiding the paper away from the platen to provide a space between the under side of the platen and the paper, and a signal means mounted on the frame including a signal actuating lever having an end arranged to be held away from the platen by the paper at the point where the paper is spaced from the platen and adapted to move into said space when an edge of the paper has passed the end of the lever.

3. In a writing machine, in combination, a fixed frame, a movable carriage in the frame, including a paper carrying platen and feed rolls, means for guiding the paper away from the platen including a guide bar extending along the under side of the platen, to provide a space between the under side of the platen and the paper, and a signal means mounted on the frame including a signal actuating lever having an end arranged to be held away from the platen by engagement with the paper at the point where said paper is spaced from the platen and movable into said space when an edge of the paper has passed the end of the lever.

4. In a writing machine, in combination, a fixed frame, a movable carriage in the frame including a paper carrying platen and front and rear paper feed rolls, a plate spaced from the platen for guiding paper about the under side of said platen and in spaced relation to said under side in an area between said feed rolls, a signal means mounted on said frame comprising a pivoted actuating lever having one end adapted to rest against the outer surface of said paper where the latter is spaced from the platen and movable into the space between said platen and paper when a side or end edge of the paper has reached a definite point in its travel, and means for adjusting said signal means longitudinally of the platen.

5. In a writing machine, in combination, a fixed frame, a movable carriage in the frame including a paper carrying platen and feed rolls, means including a guide bar extending along the under side of the platen to cause the paper to be spaced from the lowermost surface of the platen, and a signal apparatus mounted on said

frame including a controlling lever having one end adapted to rest against the surface of the paper adjacent said guide bar and where said paper is spaced from the platen by the guide bar and movable from the spaced position toward the surface of the platen when an edge of the paper has passed out of contact with the lever to actuate said signal apparatus.

6. In a writing machine, in combination, a fixed frame, a movable carriage in the frame including a paper carrying platen and front and rear paper feed rolls, a plate spaced from the

platen for guiding paper about the under side of said platen and in spaced relation with said under side in an area between said feed rolls, and a signal means mounted on said frame comprising a pivoted actuating lever having a spooned end adapted to rest against the outer surface of the paper where the latter is spaced from the platen and movable into the space between said paper and the platen when a side or end edge of the paper has reached a definite point in its travel.

RAYMOND DOW.