June 5, 1956 H. J. DUKE 2,748,916

PAPER GUIDE FOR LISTING CALCULATORS

Filed Jan. 27, 1953 2 Sheets-Sheet 1

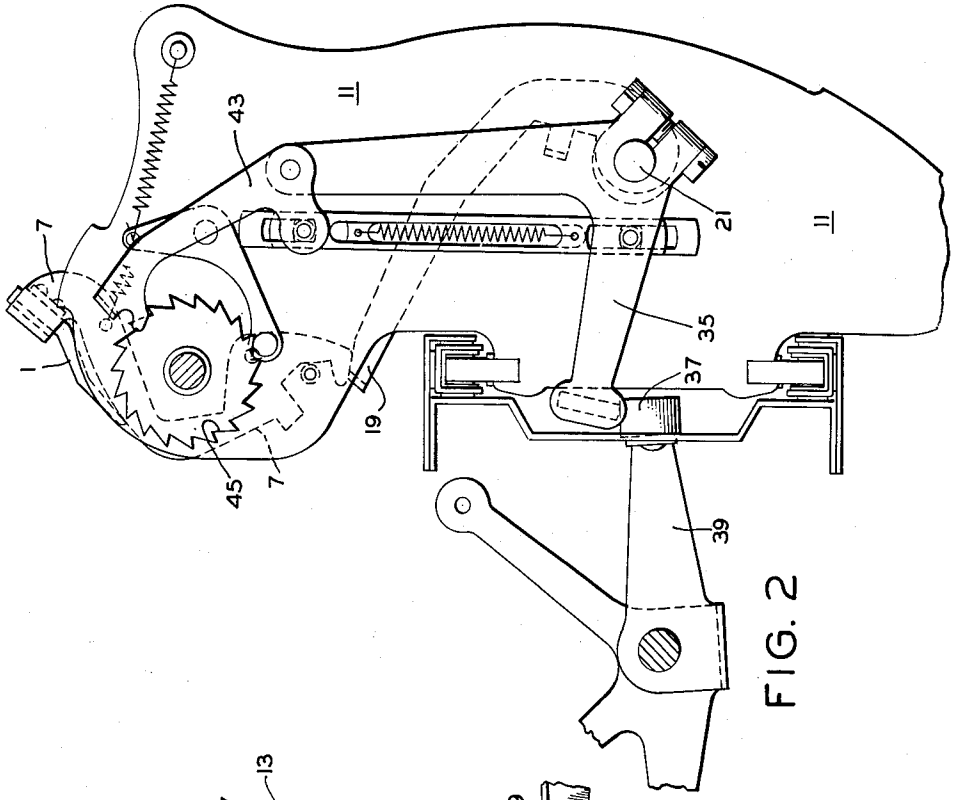



FIG. 2

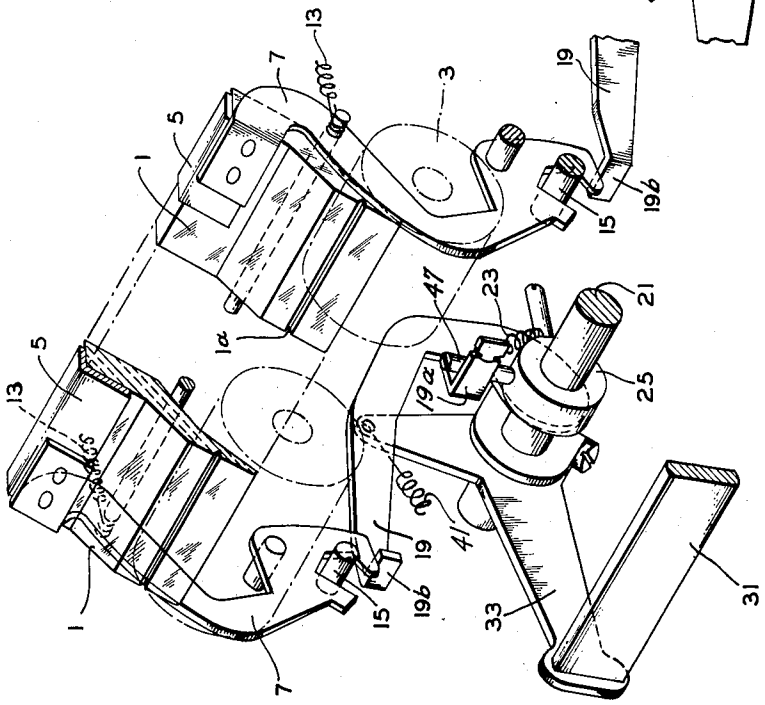



FIG. 1

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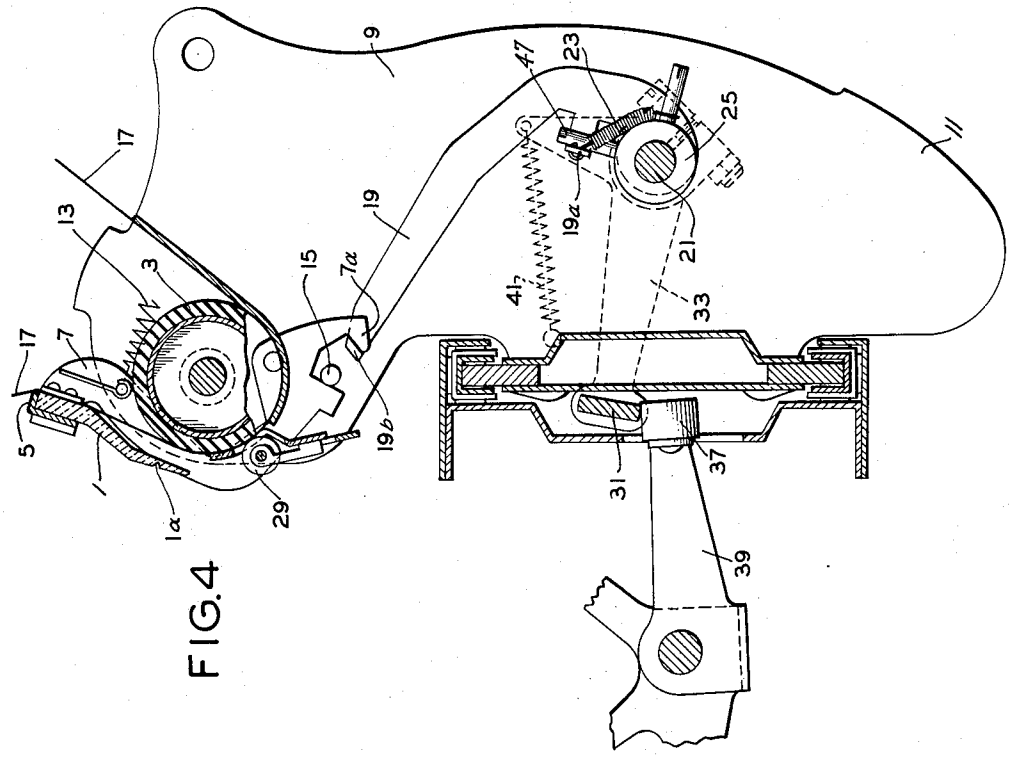



FIG. 4

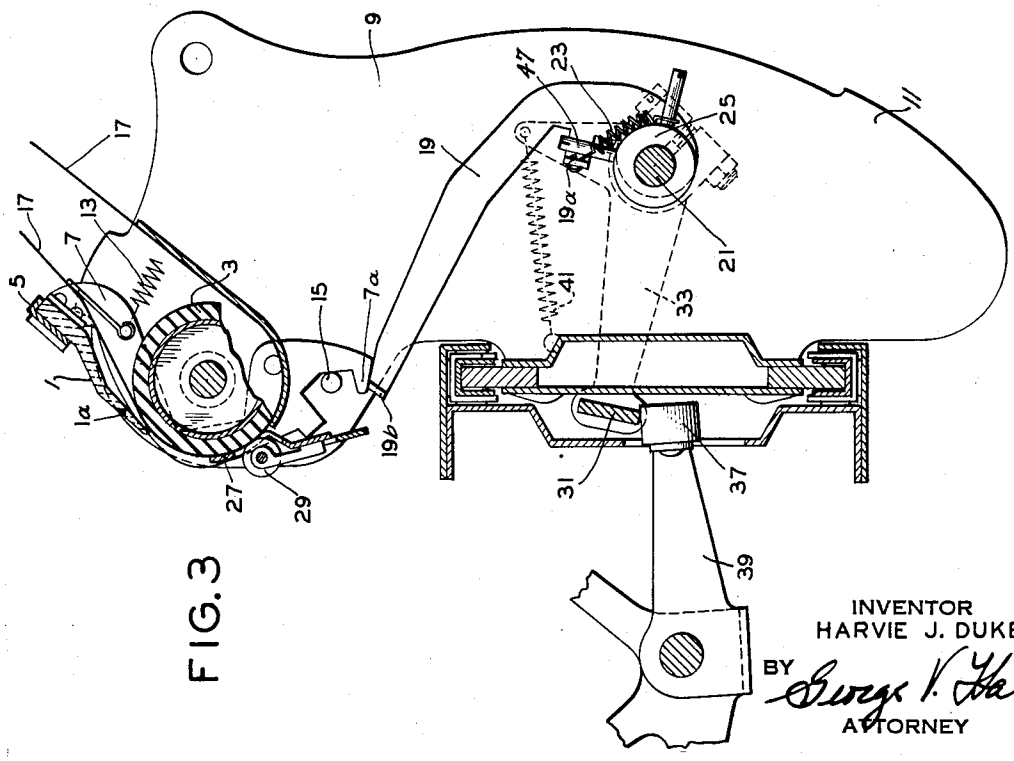



FIG. 3

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# PAPER GUIDE FOR LISTING CALCULATORS

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Application January 27, 1953, Serial No. 333,563

4 Claims. (Cl. 197—127)

The invention relates to an improved combination line finder and paper guide to facilitate the positioning of a work sheet or paper tape upon the printing platen of a listing calculator.

The line finder and paper guide of this invention comprises a transparent strip, preferably of plastic material, extending the length of the platen and normally positioned with its lower edge adjacent the platen above the printing line. The line finder and paper guide is manually adjustable forwardly and downwardly of the platen to bring a scoring mark thereon into position to indicate the printing line and to permit a work sheet or paper tape to be fed thereunder to the proper position. The line finder and guide is latched in its manually adjusted position, thereby relieving the operator of the necessity of holding it while adjusting the work sheet or tape to proper position. Upon initial operation of the machine, the line finder and guide is automatically released and spring restored to normal position, out of the path of movement of the type bars, to hold the paper against the platen for the printing operation. Thereafter, removal of a work sheet will automatically move the line finder and guide to its downward and forward latched position to permit the insertion of another work sheet. The invention, however, will best be understood from the following description with reference to the accompanying drawings in which:

Fig. 1 is a fragmentary perspective view of the line finder and paper guide with associated parts;

Fig. 2 is a right side elevation of the platen carriage and the platen feed devices;

Fig. 3 is a vertical section through the carriage showing the line finder and paper guide in normal position; and,

Fig. 4 is a view similar to Fig. 3 showing the line finder and guide adjusted to position to indicate the printing line and to permit the insertion of a work sheet or paper tape.

The improved line finder and paper guide has been disclosed as associated with a printing platen mounted in the shiftable carriage of a listing calculator such as, for example, disclosed in Patent No. 2,323,205, issued to Loring P. Crosman on June 29, 1943. It will be obvious, however, that the line finder and guide is equally adaptable for operation in conjunction with a non-shiftable printing platen.

The line finder and paper guide comprises a transparent plastic strip 1 extending the length of the rotatable printing platen 3. An angle reenforcing metal strip 5 is suitably secured at the top and front of plastic strip 1. The upper arm of a downwardly extending supporting lever 7 is rigidly bolted to each end of the plastic strip 1 and angle strip 5. Levers 7 are pivotally mounted on the inner faces of the end plates 9 and 11 respectively of the carriage and normally a spring 13 attached to the upper arm of each lever 7 urges the line finder and guide clockwise to the position of Figs. 1 and 3 with the lower arm of each lever 7 in engagement with a stop pin 15. When in normal position, the lower knife edge of plastic strip 1



is positioned a slight distance forwardly from platen 3 to hold the paper, such as a work sheet 17, snugly against the platen for a printing operation as shown in Fig. 3 and above the printing line out of the path of movement of the type bars (not shown).

A forwardly extending latch arm 19 is freely mounted on platen feed bail shaft 21 adjacent the inner faces of each of carriage end plates 9 and 11. Each latch arm 19 is biased clockwise by a spring 23 which is attached at one end to a lug 19*a* of arm 19 and at its other end to a collar 25 which is fast on shaft 21. When the parts are in normal position, a lug 19*b* at the forward free end of each latch arm 19 engages the underside of a nose 7*a* at the lower end of each supporting arm 7.

To insert a work sheet or tape into the machine, the operator first manually moves the line finder and guide counterclockwise to the position shown in Fig. 4. This will bring plastic strip 1 forwardly and downwardly out of the platen to position the scoring mark 1*a* to indicate the printing line and to provide room for passage of the paper between the strip and the platen. When moved to this position the nose 7*a* of each lever 7 will be brought to the rear of lug 19*b* of the associated latch arm 19. Therefore, arms 19 will be permitted clockwise movement by springs 23 to position lugs 19*b* above the associated noses 7*a*, thereby latching the line finder and guide in counterclockwise position as shown in Fig. 4. The paper is inserted at the rear of platen 3 which is rotated by the usual twirler knob (not shown) to feed the paper to proper position between the platen and lower paper guide 27, pressure rollers 29 and plastic strip 1. Upon initial operation of the machine, the line finder and guide is automatically released and restored by springs 13 from the position shown in Fig. 4 to that shown in Fig. 3 as follows.

The platen feed bail 31 is supported at its ends respectively by cranks 33 and 35 which are fast on shaft 21. A roller 37 at the end of one arm of a lever 39 engages the underside of bail 31 and normally holds it in the clockwise position shown in Figs. 3 and 4 against the tension of a spring 41 which is attached to one arm of crank 33. Upon operation of the machine, before the printing operation, lever 39 is rocked clockwise from the position shown in Figs. 3 and 4 and after the printing operation the lever is restored counterclockwise, which operation line spaces the platen. This operation of lever 39 may be effected as disclosed in Patent No. 1,946,572 issued on February 13, 1934 to Loring P. Crosman. Upon clockwise movement of lever 39, spring 41 will be effective to rock crank 33, bail 31, crank 35, shaft 21 and collars 25 counterclockwise. This counterclockwise movement will move a platen feed pawl 43 (Fig. 2) idly above ratchet wheel 45 and into position to engage the ratchet wheel upon movement of the parts to normal. Each collar 25 has a pin 47 positioned to the rear of lug 19*a* of the associated latch arm 19. Therefore, upon counterclockwise movement of collars 25, the pins 47 will be moved into engagement with the associated lugs 19*a*, thereby rocking the latch arms 19 counterclockwise to move lugs 19*b* from above the noses 7*a* of the supporting levers 7. The line finder and guide will, therefore, be released and springs 13 will move it from the position shown in Fig. 4 to the position shown in Fig. 3 to hold the paper snugly against platen 3 for the printing operation. After the printing operation, lever 39 is rocked counterclockwise as heretofore noted, thereby rocking bail 31 and cranks 33 and 35 clockwise to the normal position shown in Figs. 3 and 4. This operation will result in feed pawl 43 (Fig. 2) engaging a tooth of ratchet wheel 45 thereby line spacing the platen.

From the inspection of Fig. 4, it will be seen that, upon removal from the machine, the paper will be brought

into engagement with the upper edge of plastic strip 1, and as it is pulled upwardly the line finder and guide will be rocked from the position shown in Fig. 3 to the position shown in Fig. 4, in which position it will be latched thereby permitting insertion of another work sheet or paper tape. It will be seen, therefore, that except for the initial manual adjustment of the line finder and guide, it is automatically moved to position to permit the insertion of the paper and upon initial operation of the machine it is automatically restored to hold the paper in proper position for the printing operation.

I claim:

1. In a listing calculator, the combination with a platen; of a movable paper guide automatically adjustable forwardly from a position adjacent said platen in response to removal of a work sheet from the machine, spring means for urging said guide toward its position adjacent said platen, a latch for holding said guide against the urge of said spring means upon movement to its forward position, and means operable upon operation of the machine for releasing said latch.

2. In a listing calculator, the combination with a platen; of a movable paper guide and line finder automatically adjustable from a position adjacent said platen to a position to indicate a printing line in response to removal of a work sheet from the machine, spring means for urging said guide toward its position adjacent said platen, a latch for holding said guide against the urge of said spring means upon movement to its line indicating position, and means operable upon operation of the machine for releasing said latch.



3. In a listing calculator, the combination with a platen; of a paper guide and line finder extending longitudinally of said platen, a lever attached at each end of said guide and pivotally mounted to permit movement of said guide to a position adjacent said platen, and to permit movement forwardly and downwardly to a position to indicate a printing line automatically in response to removal of a work sheet from the machine, spring means for urging said guide to its position adjacent said platen, latching means for holding said guide against the tension of said spring means upon movement to its forward and downward position, and means operable upon operation of the machine for releasing said latch.

4. The invention according to claim 3 wherein the latching means includes a shoulder on one of said levers and a pivotally mounted arm having a lug adapted to engage said shoulder.

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