

Aug. 30, 1966

J. J. KRAKUSKY

3,270,134

AUTOMATIC CARRIAGE RETURN AND LINE FEED MECHANISM

Filed Dec. 7, 1962

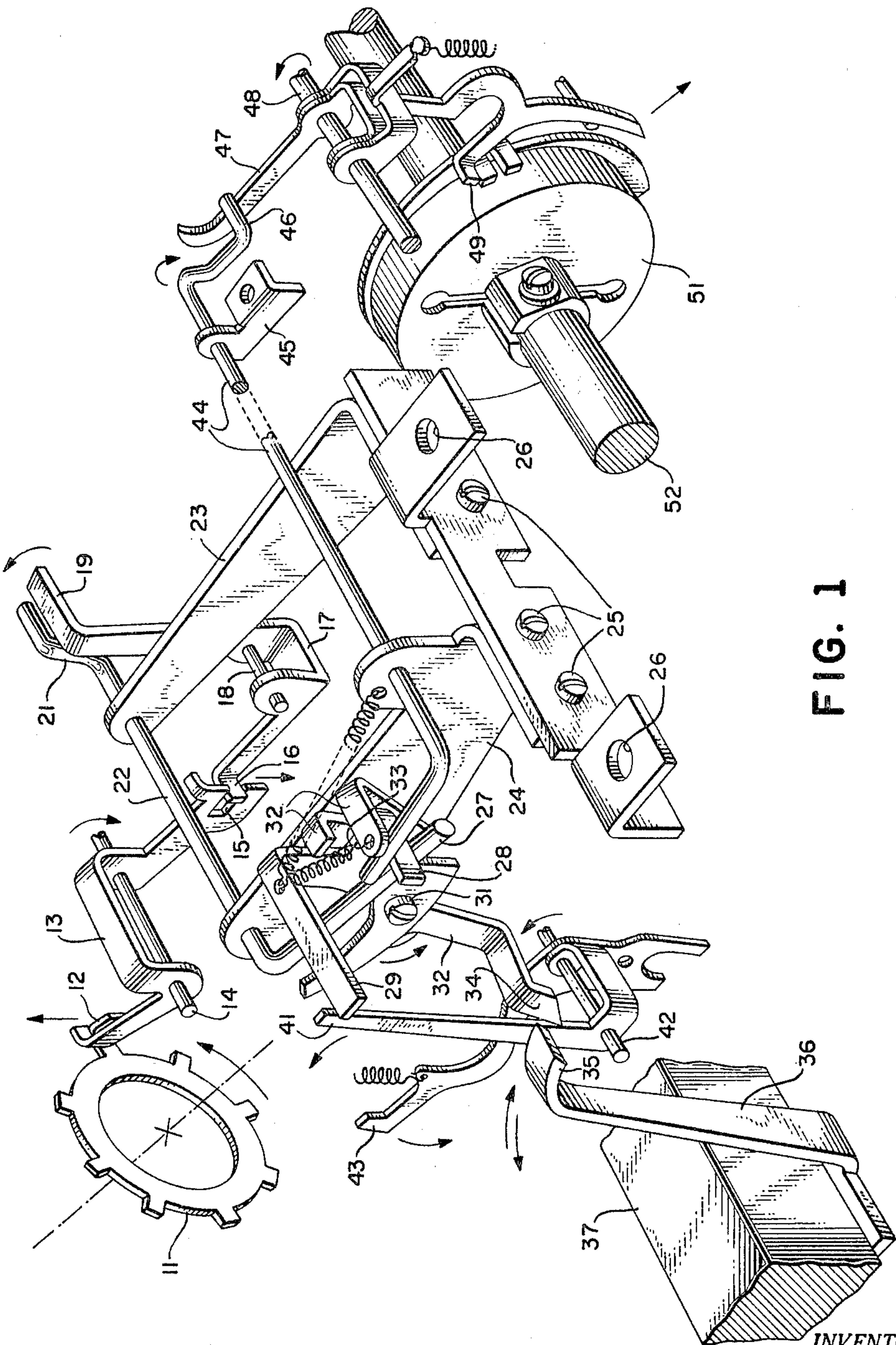


FIG. 1

INVENTOR.
JAMES J. KRAKUSKY
BY *R. H. Henderson*
ATTORNEY

1

3,270,134

AUTOMATIC CARRIAGE RETURN AND LINE FEED MECHANISM

James J. Krakusky, Ridgewood, N.Y., assignor to The
Western Union Telegraph Company, New York, N.Y.,

a corporation of New York

Filed Dec. 7, 1962, Ser. No. 242,985

6 Claims. (Cl. 178—25)

This invention relates to the printing telegraph art generally, and more particularly to an improved carriage return and line feed mechanism for the page printer.

As pointed out in my application for "Autolineation Device," Serial No. 179,534, filed March 12, 1962, now Patent No. 3,200,197, issued August 10, 1965, page printers usually require the receipt of an appropriate transmitted function signal to cause them to undertake carriage return and line feed functions, although portions of a message will be lost if these transmission signals are garbled, dropped out, or even deleted, as is done by some transmitting equipment.

Although means have been known for causing automatic carriage return and line feed, my above-mentioned application discloses a simple accessory for achieving this effect without danger of strike-overs, without the use of expensive auxiliary attachments having primary utility irrelevant to this purpose, and which is uniquely usable on selective calling circuits.

Such equipment, as well as that later to be described, is applicable to the general type of page printer shown and described in U.S. Patent No. 2,505,729.

As disclosed in the above-mentioned application in terms which later will be defined with regard to the instant drawings for the benefit of those not completely familiar with this complex art, that invention contemplated the provision of an automatic carriage return feature to a telegraphic page printer, which would become operative instantaneously when the typewritten matter had just filled out a typed line, to provide carriage return and line feed to the receiving printer. This was to be done despite the absence either by chance or design of the customary transmitted function signals for these functions.

As there further disclosed, the terminal line motion employed to latch the carriage return lever into a position providing for a complete carriage return function is equally employed to retract the spacing feed pawls from the ratchet on the spacing drum. Since these same spacing feed pawls are required to rotate the said spacing drum far enough to insure a carriage return function before being so retracted, the correct latching of the carriage return lever into position for the carriage return function and the operation of the line feed clutch to insure automatic line feed, are found to be dependent upon the rotational momentum of the spacing drum for successful operation.

It is not to be understood from this that any malfunction or difficulties in practical operation of the so-equipped printer are encountered under ordinary conditions of use. Rather, it is intended to point out that the principle of operation employed in the above-described model is such as to require that the specific mechanism employed in a given instance be designed with both the particular operating conditions of a given telegraph system, and the specific geometry and kinematics of the involved printer, carefully taken into account in order that both the rotational speed and the rotational inertia of the drum involved in operating the spacing feed pawls may be accounted for in establishing its correct momentum. It is in view of these limitations on versatility in prior devices that the present invention is to be regarded.

It is therefore an object of the instant invention to pro-

2

vide in a printing telegraph, simplified automatic carriage return and line feed means.

It is another object of the invention to provide such a device which is operable without loss of characters at presently standard printing speeds.

It is a further object of the invention to provide such a device which is operable without loss of characters at any required speed.

It is a further object to provide such a device which is adapted to installation on a printer without modification thereof.

It is a still further object of the invention to provide such a device having simplified installation adjustments.

It is a still further object of the invention to provide such a device operating on the principle of employing only positively interlinked parts having no ballistic motion.

These objects I accomplish by means which will be more readily understood by reference to the drawing depicting an illustrative example of the invention wherein:

FIG. 1 is an isometric view of the invention.

Turning now to the drawing, there is seen at the left a space suppression ring 11 fixed to the machine (not shown) and rotating according to the line spacing thereof, which actuates by means of its elongated and bent-over lug 12, the spacing transfer bail 13, to rotate it on its fixed bearing rod 14 in the direction of the arrow. A notch 15 in this bail engages the bent-over tail 16 of the spacing cutout bail 17, which bail is journaled on a stud 18 in a (fixed) spacing mechanism bracket not shown. Rotary motion of the space suppression ring 11 beyond a predetermined point, as caused by its attachment to the spacing drum not shown, is thus communicated to the arm 19 of the spacing cutout bail 17. By means of a crank portion 21 bent onto the end of positioning rod 22, the arm 19 is enabled to rotate rod 22 in its mounting brackets 23 and 24, which are held in alignment by the screws 25 and fastened to a fixed portion of the machine through the mounting screw holes 26. Rotation of rod 22 lifts the tail 27 thereof to lift the lug 28 on the carriage-return-line-feed lever 29, pivoted to rotate on shoulder screw 31.

The carriage-return-line-feed actuating lever 32, being pivoted on the same shoulder screw 31 and linked to member 29 by the spring 33, rotates with it, carrying its tail 34 into the rocking path of travel of the bent-over end 35 of the carriage-return-line-feed actuating bail 36 on the rocker shaft 37.

All of the above-described action occurs prior to the actual printing of the last character on a given line. After such printing has occurred, actuating bail 36 travels to the left, and although engaging tail 34 by means of end 35, causes only extension of spring 33 so that lug 28 is not actuated. On its return, however, end 35 engages tail 34 to rotate lug 28, and thereby the carriage-return-line feed lever 29, which in turn moves carriage-return lever 41, pivoted on shaft 42, to cause a carriage return operation by consequent motion of its opposite extremity 43.

Lug 28, upon such return motion of end 35, is elevated, to rotate the bent-over end of line feed trip rod 44, which is journaled in mounting brackets 24 and 45, to depress its opposite crank end 46.

Existing line feed clutch trip lever 47 is thereby rotated about its fixed pivot 48 to release its interfering dog portion 49 from the line feed clutch 51 on the main shaft 52 of the printer, and cause upward feeding of the record sheet.

It is to be noted that in the operation of the mechanism here described, the carriage-return-line-feed operation takes place without dependence upon any ballistic or "throwing" motion of the spacing feed pawls, which is

dependent upon rapid or precise timing. It is therefore substantially independent of operational speed of the printer within practical limits, and requires neither precise design for this feature, nor accurate adjustment upon installation to insure operability for this reason. Moreover, once installed on a printer, the instant device may continue to be used without adjustment or modification, and at full efficiency, even though the printer be placed in a service employing a different speed of operation.

Although this invention has been described in terms of a specific illustrative example thereof, it will be apparent that various elaborations and modifications thereof will occur to those skilled in the art, and it is therefore intended that the invention shall be limited only by the appended claims.

What is claimed is:

1. In a teletypewriter having a linewise advanceable record sheet on a returnable carriage, and provided with a space suppression ring lug engageable with a spacing cutout transfer bail to move a spacing cutout bail, and further provided with a line feed clutch trip lever, a carriage-return lever, and an actuating bail, positioning rod means having a tail engageable for rotation by the spacing cutout bail, carriage return-line feed lever means mounted for engagement with said positioning rod means resiliently returnable and having a portion adapted for engagement with the carriage return lever, carriage return line-feed actuating lever means mounted coaxially with said last-named element engageable thereby for movement into the path of travel of the actuating bail said carriage return line-feed actuating lever means having a first tail portion thereon operative to effect carriage return lever rotation by rotating said carriage return-line feed lever means upon actuating bail engagement, said carriage return line feed actuating lever means having a second tail portion thereon, and line feed trip rod means rotatably mounted for line feed clutch trip lever engagement and having a crank portion located for engagement with and rotation by said second tail portion.

2. Teletypewriter mechanical autolineation means comprising rotatably mounted rocker means having a protrusion engageable for rocker means cocking by partial rocker means rotation upon spacing termination and a further protrusion engageable for rocker means actuation motion upon first character reception subsequent to cocking, means mounted for engagement with said rocker means and comprising space suppression activity sensitive means to cock said rocker means and rotatably mounted means to translate rocker means actuation motion into carriage return function and line feed function initiation.

3. Teletypewriter autolineation means comprising rotatably mounted rocker means having a protrusion engageable for rocker means cocking by partial rocker means rotation upon spacing termination and a further protrusion engageable for rocker means actuation motion upon first character reception subsequent to cocking, means mounted for engagement with said rocker means and comprising space suppression activity sensitive means

to cock said rocker means and rotatably mounted means to translate rocker means actuation motion into carriage return function and line feed function initiation.

4. Autolineation means comprising rockable lever means having an extensible finger, linkage means mounted for engagement with said lever means and adapted to extend said finger upon occurrence of a space suppression condition, actuating means mounted for rocking said lever means upon character signal response next following finger extension and means effective to initiate carriage return and line feed functions from lever means rocking.

5. Automatic carriage return and line feed means for a page printer of the type having such functions normally activated by the receipt of specific function signals and which has spacing cutout means adapted to interrupt printing without stopping the oscillation of the rocker shaft upon completion of a line of type until after the receipt of such signals which comprises an arm on the rocker shaft, lever means rotatably mounted having an actuating tail portion, said actuating tail portion being normally spring urged out of the path of travel of said arm on said rocker shaft, linkage means actuated by said spacing cutout means and mounted for lever means engagement to rotate said actuating tail portion into the path of travel of said arm on said rocker shaft for lever means activation thereby, protruding means on said lever means operative to initiate carriage return upon lever means activation and crank means mounted for engagement with and rotation by said lever means to effect carriage return upon lever means activation consequent to spacing cutout at end-of-line.

6. Automatic carriage return and line feed means for a page printer of the type having such functions normally activated by the receipt of specific function signals and which has spacing cutout means adapted to interrupt printing without stopping the rocker shaft upon completion of a line of type until after the receipt of such signals which comprises a rocker shaft lever, coaxially rotatably mounted and spring linked actuating cam means and driving cam means, said driving cam means having a tail portion adapted upon cocking to engage the said rocker shaft lever for cam driving upon rocker shaft motion in one direction and to slide over the said rocker shaft lever without cam driving by distention of said spring linkage upon rocker shaft motion in the other direction, said actuating cam means comprising members for line feed triggering and carriage return actuation and a pair of actuating members to cock the driving cam and trigger the line feed.

References Cited by the Examiner

UNITED STATES PATENTS

2,824,169 2/1958 Anderson ----- 178—25

NEIL C. READ, *Primary Examiner*.

ROBERT H. ROSE, *Examiner*.

A. J. DUNN, T. A. ROBINSON, *Assistant Examiners*.