July 10, 1945. W. J. PASINSKI 2,380,258

CASH REGISTER

Original Filed Feb. 12, 1940 2 Sheets-Sheet 1

Fig. 1.

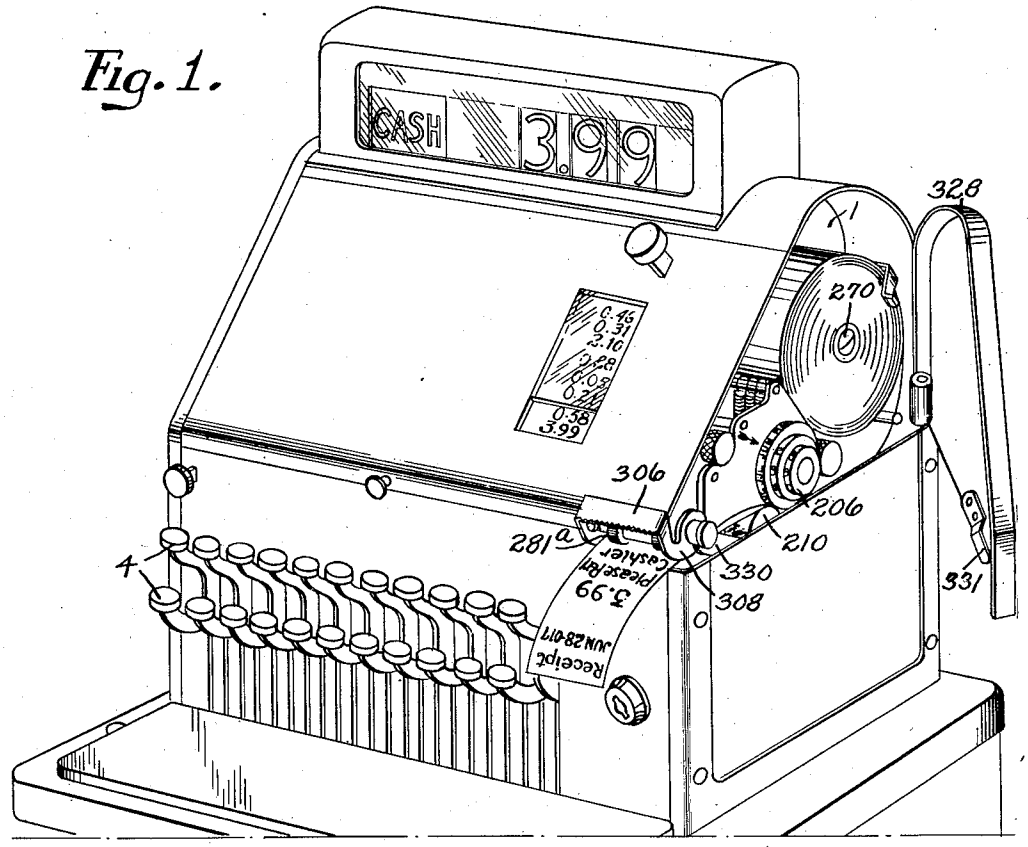


Fig. 6.

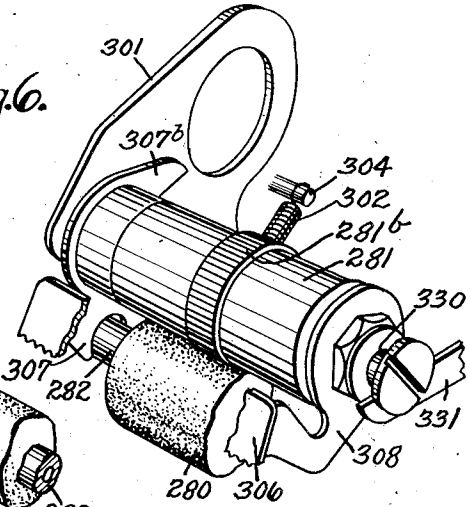
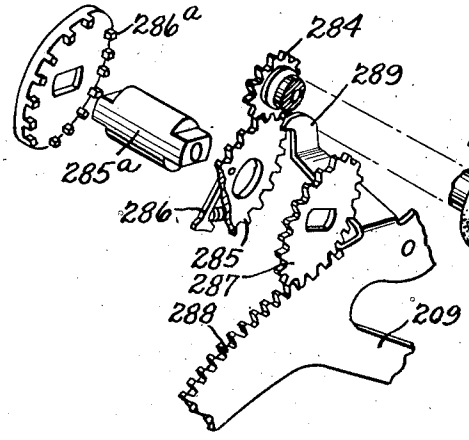


Fig. 5.



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Fig.3.

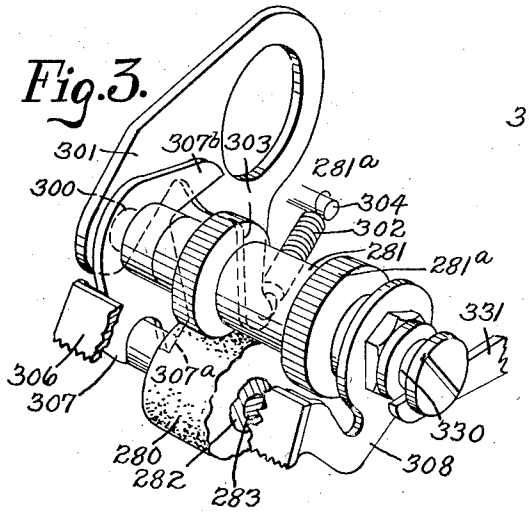


Fig.4.

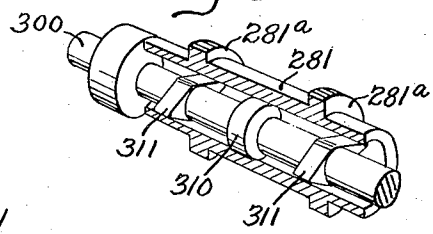
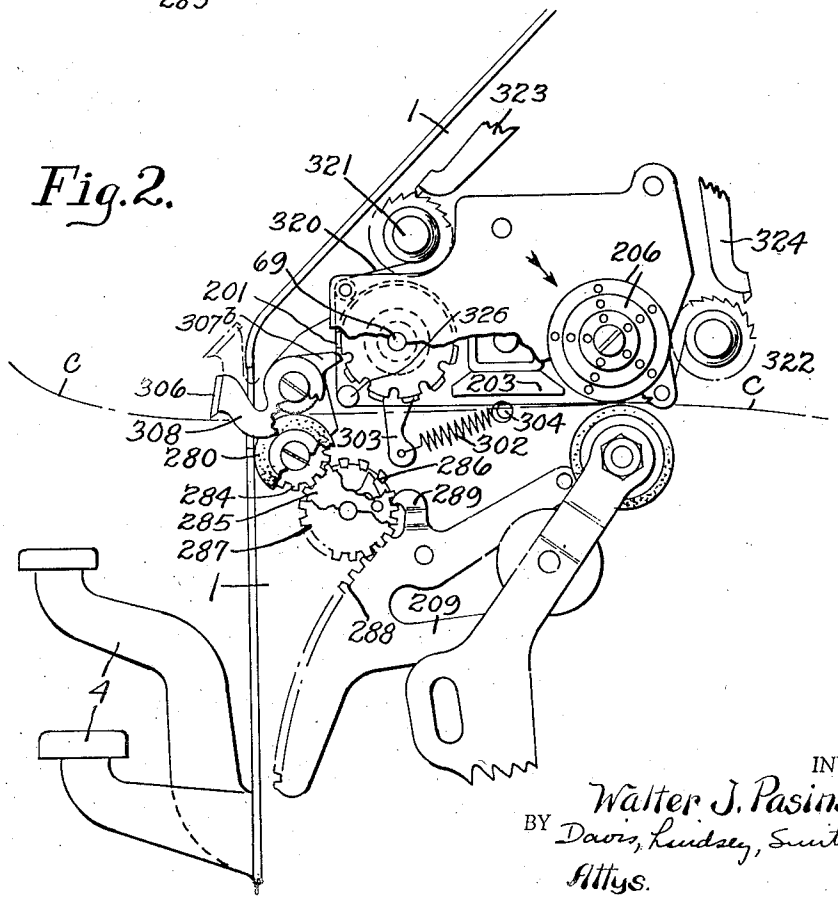


Fig.2.



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UNITED STATES PATENT OFFICE

2,380,258

CASH REGISTER

Walter J. Pasinski, Howell, Mich., assignor to Burroughs Adding Machine Company, Detroit, Mich., a corporation of Michigan

Original application February 12, 1940, Serial No. 318,501. Divided and this application December 30, 1943, Serial No. 516,154

6 Claims. (Cl. 164—84.5)

This invention relates to check-strip feed means, particularly for cash registers.

An object of the invention is to provide an improved check-strip feed means, particularly for cash registers.

A further object is to provide a check-strip feed means comprising a pair of cooperating feed rolls separable by movement of a tear-off blade from operative to inoperative position to facilitate the insertion of a new check-strip.

A further object is to provide a check-strip feed means in which a means acting to separate the feed rolls upon movement of the tear-off blade from operative to inoperative position normally prevents the tear-off blade from moving when the check-strip is torn off against it and also acts to hold the feed rolls engaged while the tear-off blade is in its operative position.

A further object is to provide a check-strip feed means having a cover latch for the cover, a tear-off blade and a feed roll movable from an operative to an inoperative position to permit side insertion of a check-strip, wherein such elements are so associated that the latch will be operated to release the cover and the feed roll moved to its inoperative position when the tear-off blade is moved to inoperative position. A further object of the invention is to proivde a check-strip feed means which will avoid jamming of the check-strip. A further object is to provide a check-strip feed means which will provide easy accessibility of the check-strip and permit of very easy insertion of a new check-strip supply.

Further objects and features of the invention will be apparent from the following description and the accompanying drawings, in which—

Figure 1 is a perspective view of a cash register embodying the invention, shown with the cover of the check-issuing mechanism unlatched and swung open;

Fig. 2 is a partial right-side elevation of a portion of the check-printing and issuing mechanism of Fig. 1;

Fig. 3 is a perspective view of the feed rolls and feed roll mounting means;

Fig. 4 is a detail perspective of the mounting of one of the feed rolls;

Fig. 5 is an expanded perspective showing the means to drive the feed rolls; and

Fig. 6 is a perspective similar to Fig. 4 but showing a modified form of feed roll.

The invention is illustrated as applied to a "Burroughs" key operated cash register, the general construction of which is well known and disclosed in prior patents such as my prior Patents Nos. 2,070,059 and 2,070,060. The check-printing and issuing mechanism of the present machine is disclosed in detail in my copending application Serial No. 318,501, filed February 12, 1940, of which the present application is a division.

The check-printing andi ssuing mechanism includes a plurality of lines of type wheels and electros or fixed data printing plates such as 201 and 203. The line of amount printing type wheels 201 are indexed by the amount differential mechanism of the machine in the manner and by the means disclosed in the above-mentioned parent application, and a group of date printing type wheels may be indexed manually through the manually rotatable dials 206. A roller platen 210 is movable fore and aft below the lines of type in the manner and by the means disclosed in said parent application to effect printing impressions on a check-strip C positioned between the roller platen and type, the impressions being inked by an ink ribbon 320 fed across the type faces and above the check-strip C between ink ribbon spools 321 and 322 operated by feed pawls 323 and 324. The check-strip is drawn from a supply roll R and fed through the printing pass between the roller platen and type faces and, after being printed, is projected through an opening in the machine case by means of a pair of feed rolls 280 and 281 which pull the strip past the type and platen as distinguished from pushing it. The lower feed roll 280, which is the driven roll, is carried by a sleeve 282 (Figs. 3 and 5) journaled on a stationary shaft 283, fixed to the side plate 1. The sleeve 282 carries a gear 284 meshing with a gear 285 journaled on a bushing 285^a. The gear 285 supports a spring-urged pawl 286 positioned to engage the teeth of a ratchet wheel 286_a which is mounted on the bushing 285^a to rotate with it. Also mounted on the bushing 285^a to rotate with it is another gear 287 meshing with the teeth 288 of the sector-like end of lever 209 which, as disclosed in the parent appiication, is rocked clockwise (upwardly and rearwardly) by the downstroke of the amount keys and returns counterclockwise in the return stroke of the keys in each check-printing operation. When the lever 209 is rocked clockwise, it rotates the gear 287, the bushing 285^a and the ratchet wheel 286^a counterclockwise. During this movement, the teeth on the ratchet wheel 286^a pass pawl 286. However, when the lever 209 is moved counterclockwise, the gear 287, bushing 285^a and ratchet wheel 286^a are moved clockwise, whereupon one of the teeth

of the ratchet wheel 286a engages the pawl 286 and rotates the gear 287 clockwise to thereby rotate the gear 284 and the feed roll 280 in a counterclockwise direction. As disclosed in the parent application, the roller platen 210 completes its forward printing movement while the lever 209 moves clockwise (Fig. 2) and the counterclockwise movement of the lever 209 and thus the rotation of the feed rolls 280 and 281, do not begin until the roller platen is retracted downwardly away from the type preparatory to its return rearwardly to its normal position of Fig. 2.

In order to prevent the feed rolls from being rotated while the check is being torn off, a finger 289 on the sectorlike upper end of lever 209 engages the teeth of the gear 285 to lock the roll against rotation while the machine is at rest. This finger also prevents overthrow of the feed rolls as it acts to stop their rotation when the parts return to normal, at which time the check strip has been fed the proper amount to permit the check to be torn off.

The upper feed roll 281 is in the nature of a pressure roll. It is journaled on a shaft 300 (Fig. 3) fixed in an arm 301 pivoted on the outermost one of a plurality of concentric type wheel indexing sleeves surrounding shaft 69. The arm 301 is urged counterclockwise in Fig. 3 by a fairly strong spring 302 having one of its ends attached to a finger 303 of the arm 301 and its other end attached to a pin 304 projecting from the side plate 1. The spring 302 urges the upper feed roll 281 into contact with the lower roll 280 so that when the latter is rotated the check strip will be fed forward. The upper feed roll 281 may be moved upward to separate it from the lower roll 280 to permit easy insertion of a new check-strip by swinging the arm 301 upward against the tension of spring 302.

A tear-off blade 306 is provided against which the check-strip is jerked upward to tear off the checks. This tear-off blade should also be movable out of the way to permit easy insertion of the check-strip. In the present invention, the operator can move both the upper feed roll and the tear-off blade by simply grasping the tear-off blade, which projects slightly through the casing of the machine as shown in Fig. 2, and moving it upward. However, since the check-strip is torn off against the blade 306 by an upward jerk, provision must be made to prevent the tear-off blade from being moved upward when the check is torn off.

Referring to Fig. 3, the tear-off blade 306 is carried by a yoke having two arms 307 and 308 pivoted on the upper feed roll shaft 300. The lower end of the left arm 307 has a forked end normally positioned astride the sleeve 282 of the lower feed roll 280, which sleeve cannot move bodily and which is locked against rotation at the time the check is torn off by the projection 289 that engages gear 287 meshing with gear 284 on the sleeve. The rear portion 307a of this forked end is cam-shaped and so proportioned that a substantial upward pull is required on the tear-off blade 306 before the cam portion 307a can be caused to move on the roller 282. This resistance is sufficent to prevent the tear-off blade from being moved upward when a check is torn off. But, if the operator pulls upward on said blade with his finger, he can raise it. As the tear-off blade is moved upward, the cam projection 307a, acting on the sleeve 282, forces the arm 301 upward about its pivot. This moves the shaft 300 upward and carries the rear end of yoke 306—307—308 upward. The projection 307a is carried upward also, and it moves to a position where it passes the sleeve 282, thereby permitting the tear-off blade to be swung upward about the shaft 300 to the dot-dash position of Fig. 2. Thus, while the upper feed roll is moved upward sufficiently to separate it from the lower roll, the tear-off blade may be moved farther to put it entirely out of the way and to accomplish another result presently to be explained. After the cam portion 307a has passed the sleeve 282, the upper feed roll and the tear-off blade are prevented from moving back to normal under the urge of spring 302 by the engagement of the projection 307a with the top of the sleeve 282, but the operator can return these parts to normal by pressing downward firmly on the tear-off blade.

The side arms 307 and 308 forming the yoke supporting the tear-off blade 306 are bent downward as shown in Figs. 2 and 5, to form side guides for the check-strip. This is best shown in Fig. 2 where it will be observed that the side of the arm 308 is below the line of the check-strip. The extra movement of the tear-off blade heretofore described enables these side arms to be moved high enough to put them above the line of the check-strip so that they will not interfere with the side insertion of the strip. Thus, it will be seen that a combination side guide, tear-off blade, and feed roll unit has been provided that provides for efficient feeding of the check-strip and which permits all of the parts to be moved by gripping the tear-off blade. And the tear-off blade constitutes a releasable cam lock for holding the parts in normal as well as separated position.

This same unit also performs an additional function, namely that of locking and unlocking the side cover that encloses the receipt printer. Referring to Fig. 1, the upper part of the right-hand side panel of the machine is provided with a hinged portion 328 which swings outward about a pivot at the rear. Fixed to the inner forward side of this cover is a finger or keeper 331 which, when the cover is closed, is directly under a slot 330 (Figs. 1 and 5) formed in the outer end of the upper feed roll shaft 300. When the upper feed roll is in normal position, this slot is over the keeper 331 and the side cover 328 is locked closed. When the tear-off blade is grasped and pulled upward, which cams the feed roll shaft 300 upward, said shaft moves to a position to free the keeper 331 and thus unlock the side panel cover. This makes it unnecessary for the operator to manipulate a lock or a latch to open the casing to obtain access to the receipt printer. He has no occasion to get at the receipt printer except when he desires to replace the supply roll or adjust the strip and, for both of these operations, the upper feed roll should be separated from the lower one and the tear-off blade should be in its upper position. Consequently, when he moves these parts to the position they should occupy, the side cover is automatically unlocked and he can swing it open. The tear-off blade thus locks and unlocks the side panel as well as acting as a means for moving the upper feed roll to its positions and releasably latching the roll in its positions. The rear end of the arm 307 also has a rearward projection 307b adapted to engage a cross rod and ribbon guide member 326 to prevent excessive clockwise (Fig. 2) movement of the member 306, 307, 308.

The upper feed roll 281 is mounted in a novel manner to promote a straight and uniform pull

on the check-strip. Referring to Fig. 4, the shaft **300** is provided with a centrally located rib **310** having a larger diameter than the main portion of the shaft. The bore of the upper roll **281** has a diameter substantially equal to the diameter of this rib. Toward each of its ends, the shaft **300** is provided with ribs **311** of more or less elliptical form having a diameter in a horizontal direction substantially equal to that of the central rib but a considerably reduced diameter in a vertical direction. This mounting permits the ends of the feed roll **281** to rock up and down slightly relative to shaft **300** but does not permit them to move appreciably backward and forward relative to said shaft. In other words, the upper roll can rock slightly about rib **310** in a vertical plane through the longitudinal axis of shaft **300** but cannot move appreciably in a horizontal plane through said axis. The knurled or gripping portions of the feed roll are in the form of two knurled outer ribs **281a** positioned toward the outer ends of the feed roll **281**. The upper feed roll may adjust itself so that the pressure of the two ribs on the check-strip is equalized to thus cause the same pull to be exerted on the two sides of the strip, thereby tending to pull the strip straight forward.

Another form of construction for the upper feed roll is shown in Fig. 6. In this form the feed roll **281** is simply journaled on the shaft **300** without any special mounting. A single knurled outside rib **281b** is centrally located on the feed roll so as to exert a center pull on the strip. It has been found that this center pull not only tends to pull the strip straight forward, but it tends to bring it back into proper alignment between the side guides **307** and **308** when the check has been skewed slightly by tearing off a check in an incorrect manner. Also, this construction avoids the extra cost of a special mounting.

The check-strip feed mechanism not only makes the check-strip more accessible than in prior constructions, but it also eliminates some of the causes of the jamming of the strip encountered in prior machines. At the time of inserting a new check-strip supply, the feed rolls, the side guides **307** and **308**, and the tear-off blade **306** are in an elevated position where they do not interfere with the side insertion. All the operator has to do is to put a supply roll R on the stud **270** and then pull a small part of the check-strip off and insert it in position from the side over the platen roller and between the feed rolls, after which he closes the cover, pulls the tear-off blade down, and the machine is ready for operation.

The construction also tends to prevent jamming because the check-strip is moved by a pulling action as distinguished from pushing and the only guides for it are the two side guides adjacent the feed rolls. Also, in the modification, the feed rolls exert a center pull on the strip so that, if the check is skewed slightly at the front end by having been torn off wrong, it need not ordinarily be straightened out because the center pull tends to automatically pull the strip back to proper position and the incipient jamming is automatically corrected as the skewed check-strip is automatically straightened out by the feeding mechanism itself. If a jam should occur for some extraordinary reason, the check-strip is easily accessible and can be quickly straightened out by jerking up the tear-off blade, swinging open the cover, and adjusting the strip which is in a freely accessible position.

While the form of construction herein illustrated and described is well suited to the purposes of the invention, it will be apparent to those skilled in the art that the form of construction is susceptible of various modifications within the scope of the appended claims.

I claim:

1. The combination in a cash register having a check issuing mechanism; of a pair of feed rolls for feeding a check-strip, one of said rolls being movable relative to the other to separate them to permit side insertion of said check-strip, and a tear-off blade movable from an operative to an inoperative position where it is out of the path of said check-strip, said tear-off blade having means associated with it normally preventing it from moving when the check-strip is torn off against it, said means also acting to hold said feed rolls engaged and, when said tear-off blade is forcibly moved toward its inoperative position, acting to separate said feed rolls and to then free said blade to permit it to be moved to its inoperative position where said means then acts to releasably hold said blade and said feed roll against return to normal.

2. The combination in a cash register having a check issuing mechanism; of a pair of feed rolls for feeding a check-strip, one of said rolls being movable relative to the other to separate them to permit side insertion of said check-strip, and a tear-off blade movable from an operative to an inoperative position where it is out of the path of said check-strip, said tear-off blade having cam means associated with it acting against a stationary element of said machine to normally prevent said tear-off blade from moving when the check-strip is torn off against it, said cam means also acting to hold said feed rolls engaged and, when said tear-off blade is forcibly moved toward its inoperative position, acting to separate said feed rolls and to then free said blade to permit it to be moved to its inoperative position where said cam means then acts in conjunction with said stationary element to releasably hold said blade and said feed roll against return to normal.

3. The combination in a cash register having a check issuing mechanism; of a pair of feed rolls for feeding a check-strip, one of said rolls being movable relative to the other to separate them to permit side insertion of said check-strip, a tear-off blade movable from an operative to an inoperative position where it is out of the path of said check-strip, and side guides for said check-strip adjacent said feed rolls operatively connected to move with said tear-off blade, said tear-off blade having means associated with it normally preventing it from moving when the check-strip is torn off against it, said means also acting to hold said feed rolls engaged and, when said tear-off blade is forcibly moved toward its inoperative position, acting to separate said feed rolls and to then free said blade to permit it and said side guides to be moved to inoperative position where said means then acts to releasably hold said blade, side guides, and said feed roll against return to normal.

4. The combination in a cash register having a check issuing mechanism; of a pair of feed rolls for feeding a check-strip, one of said rolls being movable relative to the other to separate them to permit side insertion of said check-strip, and a tear-off blade in the form of a bail movable from an operative to an inoperative position where it is out of the path of said check-strip, the side

arms of said bail being formed as side guides for said check-strip, said tear-off blade having means associated with it normally preventing it from moving when the check-strip is torn off against it, said means also acting to hold said feed rolls engaged and, when said tear-off blade is forcibly moved toward its inoperative position, acting to separate said feed rolls and to then free said blade to permit it and said side arms to be moved to an inoperative position where said means then acts to releasably hold said blade and said feed roll against return to normal.

5. The combination in a cash register having a check issuing mechanism; of a check-strip feeding means including a feed roll movable to an inoperative position to permit side insertion of a check-strip, a tear-off blade for the check-strip movable from an operative to an inoperative position, a cover for said check issuing mechanism, and a latch for said cover, said tear-off blade, feed roll and latch being associated so that when said tear-off blade is pulled upward to its inoperative position, said feed roll will be moved to its inoperative position and said latch will be operated to release said cover.

6. The combination in a cash register having a check issuing mechanism; of a check-strip feeding means including a feed roll movable to an inoperative position to permit side insertion of a check-strip, a tear-off blade for the check-strip movable from an operative to an inoperative position, a pair of side guides for said check-strip adjacent said feeding means, a cover for said check issuing mechanism, and a latch for said cover, said tear-off blade, side guides, feed roll and latch being associated so that, when said tear-off blade is pulled upward to its inoperative position, said feed roll will be moved to its inoperative position, said side guides will be moved above the line of the check-strip, and said cover will be unlatched.

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