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E. WAGNER

2,203,115

CASH REGISTER

Original Filed Sept. 5, 1935

FIG. 1

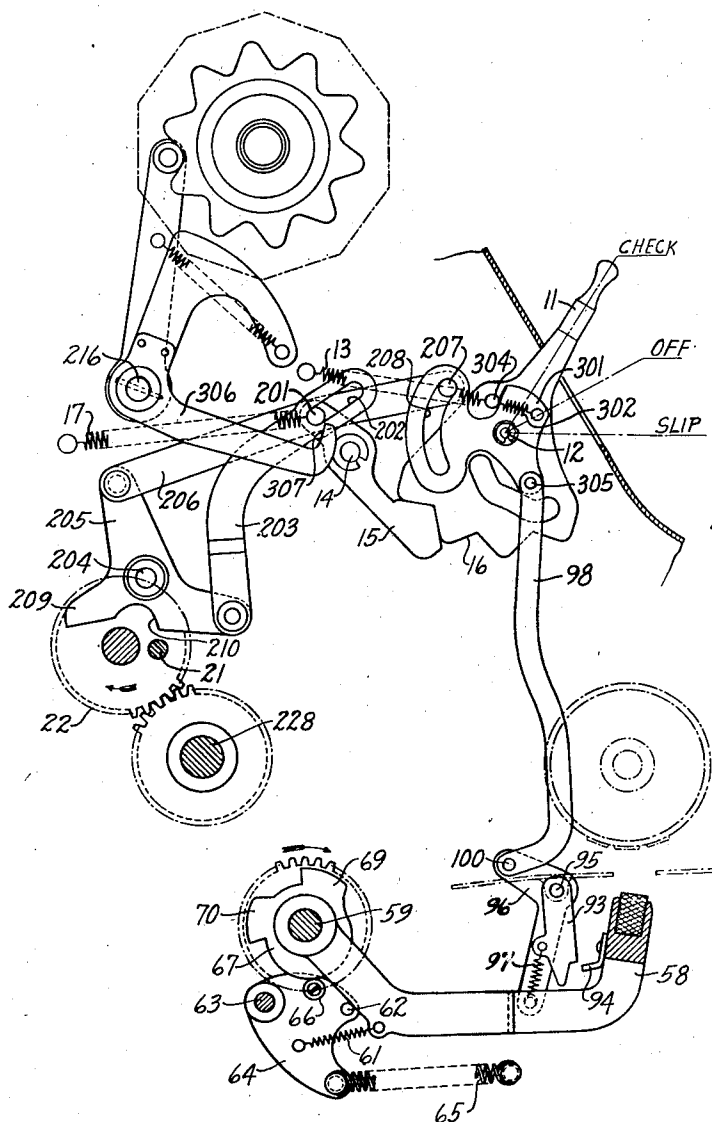
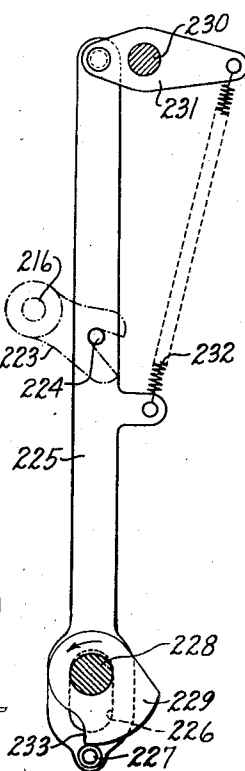


FIG. 2



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CASH REGISTER

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8 Claims. (Cl. 101-66)

This invention relates to improvements in the impression controlling mechanisms for cash registers and accounting machines of the type illustrated and described in Letters Patent of the United States No. 751,611, issued February 9, 1904, to Thomas Carroll, U. S. Patent No. 1,594,167, issued July 27, 1926, to Frederick L. Fuller, and the more recent U. S. Patent No. 2,080,519, patented May 18, 1937, by Kurt Vogelgesang and Erich Wagner, and is a division of United States application of Friedrich W. F. Berger and Erich Wagner, Serial No. 39,211, filed Sept. 5, 1935.

The present machine is provided with a single line of type wheels and a single impression hammer for either making two identical imprints, one upon the main portion and one upon the stub portion of an insertable slip, or for making one impression upon an issuing check, when no slip is printed upon.

Obviously, with this type of printing mechanism, it is impossible to print upon the check and the receipt at the same time, therefore, it is necessary to control the printing mechanism in some way to obtain the desired results. Inasmuch as the impression hammer makes two impression strokes each machine operation, it is necessary to disable one stroke of said hammer in check printing operations so that only one imprint will be made upon the check.

Therefore, broadly, it is an object of this invention to provide mechanism to control a single impression means to make two imprints on an insertable slip, or one imprint on an issuing check.

Another object is the provision of means to automatically disable the impression mechanism after one imprint has been made on an issuing check.

Still another object of this invention is to supply mechanism to lock the manipulative member that controls the functioning of the impression mechanism against displacement during machine operations.

A further object is to provide means to automatically return the impression control member to a certain position at the end of each machine operation.

With these and incidental objects in view, the invention includes certain novel features of construction and combinations of parts, the essential elements of which are set forth in appended claims and a preferred form or embodiment of which is hereinafter described with reference to the drawing which accompanies and forms a part of this specification.

In the drawing:

Fig. 1 is a side elevation, as observed from the left of the machine, showing the impression mechanism and the manipulative member for controlling same.

Fig. 2 is a detail view of a portion of the mechanism that moves the lock, for the manipulative impression control member, to and from effective position during machine operation.

GENERAL DESCRIPTION

The printing mechanism of the machine embodying the instant invention consists of a single impression hammer and a single line of type wheels arranged to print either upon an issuing check or an insertable slip. As the impression mechanism makes two working strokes each machine operation, and as only one imprint is made upon the check, it is necessary to provide mechanism for controlling the impression mechanism so that the second stroke of the printing hammer will be disabled, in check printing operations, so that only one imprint will be made upon the issuing check.

This controlling mechanism includes a manipulative member movable to three positions, namely, an "off" position, a "check printing" position, and a "slip printing" position. The settable member remains normally in "check printing" position and is automatically returned from any other position to this position near the end of each machine operation.

In the present machine, an auxiliary member, which is connected to the manipulative control member and adapted to normally move in unison therewith, but movable relatively thereto, operates a blocking member for controlling the printing movement of the hammer. When the manipulative member is in "check printing" position, the impression hammer blocking means is ineffective, until after the hammer has completed its first printing stroke, whereupon mechanism, which functions automatically, moves the auxiliary control member relatively to the manipulative member to render the blocking means effective to prevent the second impression stroke of the hammer. This results in a check being issued having only one print thereon. Near the end of machine operation the auxiliary member is returned to normal position.

When the manipulative impression control member is in "off" position the hammer blocking means is rendered effective to prevent printing movement of the hammer during machine operation. When the manipulative control member is in "slip printing" position the hammer block-

ing means is rendered ineffective so that the hammer will make two printing strokes during machine operation. In slip printing operations, the first stroke of the hammer prints a record upon the main portion of the insertable slip, after which the slip feeding mechanism functions to feed said slip a short distance forwardly, and the second stroke of the hammer prints a duplicate record upon the stub portion of said slip.

In order to prevent the manipulative impression control member from being inadvertently or intentionally moved during machine operation mechanism is provided to lock said member against displacement at the beginning of machine operation and retain said member so locked until near the end of machine operation.

As the present invention is directed particularly to the manipulative impression control member and mechanism associated therewith, it is believed that a disclosure of the check and slip feeding mechanisms and the feeler mechanism, for controlling the operation of the impression mechanism in slip operations, is unnecessary in this specification. However, reference may be had to the U. S. Patent No. 2,080,519, referred to at the beginning of this specification, for a full disclosure of these mechanisms.

DETAILED DESCRIPTION

Referring to Fig. 1, the functioning of the impression mechanism of the machine embodying the instant invention is controlled by a settable lever 11, free on a fixed stud 12, and a fingerpiece of which extends through a slot in a cabinet 500, which encloses the mechanism of the machine. The lever 11 has three positions, namely, "check printing" "off" and "slip printing." Three V-shaped notches 16, in a segmental portion of the lever 11, corresponding to the three positions of said lever, in cooperation with the angular nose of an alining and locking pawl 15, free on a fixed stud 14 and urged into communication with said notches by a spring 17, retains said lever 11 in any of its positions against the action of a spring 13 which is tensioned to urge said lever 11 to its "check printing" position. The pawl 15 carries a stud 201 which extends through a slot 202 in a link 203, the lower end of which link is pivotally connected to one arm of a bell crank 205 loose on a stationary stud 204. Another arm of the bell crank 205 has pivotally connected thereto one end of a link 206, the other end of which carries a stud 207, which engages a concentric slot 208 in an auxiliary control member 301 free on the stud 12 and urged counter-clockwise by a spring 302 into contact with a stud 304 in the lever 11.

A link 98 connects the member 301 to a bell crank 96, free on a fixed stud 95 and connected by a spring 97 to a hammer locking pawl 93 also free on the stud 95. A locking shoulder of the pawl 93 cooperates with a locking lug 94 on an impression hammer 58, free on a shaft 59 journaled in the framework of the machine. A spring 61 normally maintains a surface of the hammer 58 in contact with a stud 62 in a hammer operating plate 64 free on a fixed stud 63. A spring 65 urges the plate 64 counter-clockwise to maintain a roller 66, carried thereby, in contact with the periphery of a hammer operating cam 67 integral with a gear and driven thereby one clockwise revolution each machine operation.

Clockwise rotation of the cam 67 causes a node 69 thereon, in cooperation with the roller 66, to rock the plate 64 clockwise, against the action

of the spring 65, which movement of said plate, by means of the spring 61, cocks the printing hammer 58. When the abrupt edge of the node 69 moves beyond the roller 66 the spring 65 returns the plate 64 and the hammer 58 counter-clockwise until such movement of said plate is terminated by the roller 66 striking a low portion of the periphery of the cam 67. The momentum of the hammer 58 is sufficient to carry it on, independently of the plate 64 and against the action of the spring 61, to make an imprint upon the record material. The spring 61 prevents rebounding of the hammer 58 after the printing stroke has been completed, thereby preventing a blurring of the record. Continued clockwise movement of the cam 67 causes another hammer operating node 70 thereon to impart a second printing stroke to the hammer 58.

When the lever 11 is in "check printing" position, as shown in Fig. 1, the auxiliary member 301 positions the hammer locking pawl 93 out of the path of the lug 94 so that the first printing stroke of the hammer 58 will print a record upon the check material. Prior to the second stroke of the hammer 58, a stud 21 (Fig. 1) in a gear 22, which is driven one clockwise revolution each machine operation, engages a foot-shaped extension 209 of the bell crank 205 to rock said bell crank clockwise. Clockwise movement of the bell crank 205, by means of the link 206 and the stud 207 in cooperation with the slot 208, rocks the auxiliary member 301 clockwise independently of the lever 11. Clockwise movement of the member 301, by means of the link 98 and the bell crank 96, rocks the locking shoulder of the pawl 93 into the path of the lug 94 to obstruct the secured printing stroke of the hammer 58 so that only one imprint will be made upon the check material. When the stud 21 moves beyond the surface of the extension 209 the spring 302 returns the auxiliary member 301 counter-clockwise to normal position to move the pawl 93 out of the path of the lug 94.

Moving the impression control member 11 to "off" position causes the auxiliary member 301 to move the locking shoulder of the pawl 93 into the path of the lug 94 to block the hammer 58 against printing movement. When the lever 11 is in "off" position, the stud 21, in cooperation with the extension 209, rocks the bell crank 205, causing the stud 207 and the link 206 to ride idly in the concentric slot 208. Continued movement of the stud 21 causes said stud, in cooperation with a surface 210 on the bell crank 205, to rock said bell crank counter-clockwise. Counter-clockwise movement, of the bell crank 205, by means of the link 203, in cooperation with the stud 201, rocks the locking pawl 15 out of engagement with the retaining notch 16, corresponding to the "off" position, to permit the spring 13 to return the lever 11 and the member 301 to "check printing" position.

Moving the impression control lever 11 to "slip printing" position moves the pivot point 305 for the link 98 beyond "dead center," which by means of said link 98 positions the bell crank 96 and the pawl 93 exactly the same as when the lever 11 is in "check printing" position, to retain the locking shoulder on said pawl 93 out of the path of the lug 94 so that the hammer 58 is free to make two printing strokes to print a record upon the main portion and the stub of the insertable slip.

Control lever locking mechanism

In order to prevent displacement of the impression control lever 11 during machine operation and consequent mal-operation of the machine, means is provided for locking said lever in set position during machine operation. Such means will now be described.

Fast on a shaft 228, (Fig. 2) journaled in the framework of the machine, is a plate cam 229, the periphery of which cooperates with a roller 227 in the lower end of a pitman 225, the upper end of which is pivotally connected to one arm of a lever 231, free on a shaft 230. A spring 232, tensioned between one arm of the lever 231 and an extension of the pitman 225, urges said lever clockwise and said pitman upwardly to maintain the roller 227 in contact with the periphery of the cam 229. The pitman 225 carries a stud 224 which engages a notch in an arm 223 secured on a shaft 216 journaled in the framework of the machine. Also secured on the shaft 216 (Fig. 1) is an arm 306 having a hook-shaped extension 307 adapted to cooperate with the stud 201 in the locking pawl 15.

The shaft 228 (Fig. 2) makes one counter-clockwise revolution each machine operation which movement, at the beginning of machine operation, moves an abrupt surface 233 of the cam 229 beyond the roller 227, permitting the spring 232 to shift the pitman 225 upwardly until such movement is terminated by the roller 227 contacting the low concentric portion of the periphery of the cam 229. Upward movement of the pitman 225, by means of the stud 224, rocks the arm 223, the shaft 216, and the arm 306 (Fig. 1) counter-clockwise to move the hook-shaped projection 307 into the path of the stud 201 to lock the pawl 15 against clockwise movement, which in turn locks the lever 11 in set position. Near the end of machine operation, and after the second printing stroke of the hammer 58 has been completed, the high portion of the cam 229 shifts the pitman 225 downwardly to rock the hook 307 out of the path of the stud 201, and immediately thereafter the stud 21 (Fig. 1) in cooperation with the surface 210 rocks the bell crank 205 counter-clockwise, in the manner explained previously herein, to disengage the locking pawl 15 to permit the lever 11 to be spring-returned to "check printing" position.

It is believed that a thorough understanding of the mechanism embodying this invention will have been obtained from a perusal of the foregoing specification, and for this reason no statement of operation has been included herein.

While the form of mechanism herein shown and described is admirably adapted to fulfill the objects primarily stated, it is to be understood that it is not intended to confine the invention to the one form or embodiment herein disclosed, for it is susceptible of embodiment in various forms, all coming within the scope of the claims which follow.

What is claimed is:

1. In a machine of the class described, the combination of a printing platen; a cam having a plurality of lobes to actuate the printing platen a plurality of times during each machine operation; a manipulative control member normally in a home position and settable to a plurality of positions; an auxiliary control member mounted adjacent the manipulative member; means for moving the auxiliary member with the manipulative member when the manipulative member is

moved to its settable positions; means operable, during an operation in which said manipulative member is in its home position, for shifting the auxiliary member independently of the manipulative member; a locking member; and connections between the auxiliary member and the locking member to move the locking member into contact with the printing platen to disable the printing platen when one of said lobes is effective.

2. In a machine of the class described, having printing platen, the combination of a manipulative member settable to various positions; an auxiliary control element movable by and in unison with the manipulative member; a blocking element settable by the auxiliary member to block operation of the platen when the auxiliary member is in a certain position; and means operated during the machine operation to move the auxiliary element relatively to the manipulative member to block operation of the printing platen.

3. In a machine of the character described, having printing platen, the combination of a manipulative member settable to various positions; an auxiliary element adapted to move in unison with the manipulative member; a blocking member to block operation of the printing platen; and means, effective during an operation in which the manipulative member is in a certain position, to move the auxiliary element independently of said manipulative member to move the blocking member to block operation of the printing platen.

4. In a machine of the class described, having printing platen, the combination of a manipulative member; an auxiliary element adjacent the manipulative member; a control element movable thereby to control the printing platen; a machine-operated driving member; and means, including a lever and a link, to connect the driving member to the auxiliary element to cause said auxiliary element to be moved independently of the manipulative member, when said manipulative member is in a certain position, to exercise certain control over the printing platen.

5. In a machine of the class described, the combination with printing mechanism including a printing hammer and means to impart two printing strokes to said hammer each machine operation, of a manipulative member movable to various positions; an auxiliary element adjacent the manipulative member; a blocking member connected to the auxiliary element and movable thereby to control the printing strokes of the hammer; and machine-operated means, effective when the manipulative member is in a certain position, to move the auxiliary element and the blocking member independently of said manipulative member to prevent the second impression stroke of the hammer.

6. In a machine of the class described, having printing mechanism including a printing hammer and means to impart two printing strokes to said hammer each machine operation, the combination of a manipulative member normally in a home position and settable to a plurality of positions; an auxiliary element adjacent the manipulative member; blocking means, operated by the auxiliary element, to engage the hammer to control the printing strokes of the hammer; means to move the auxiliary element and blocking means in unison with the manipulative member, when said manipulative member is moved to its settable positions, to control the printing strokes of the hammer; and a machine-operated means ef-

fective in an operation in which the manipulative member is in its home position, to move the auxiliary element and the blocking means independently of said manipulative member to prevent the second impression stroke of the hammer.

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7. In a machine of the class described, having printing mechanism, including a printing hammer and means to impart two printing strokes to said hammer each machine operation, the combination of a manipulative member normally in a home position and movable to an "off" position; an auxiliary element connected to the manipulative member and movable thereby to "off" position; blocking means operated by the auxiliary element to engage the hammer to prevent the printing strokes of the hammer, when said element is in "off" position; and means, operated during an operation of the machine in which the manipulative member is in home position, to move the auxiliary element to "off" position and thereby move the blocking means into effective position, independently of said manipulative

member, to prevent the second printing stroke of the hammer.

8. In a machine of the class described, having printing mechanism including a printing hammer and means to impart two printing strokes to said hammer each machine operation, the combination of a manipulative member normally in a home position and movable to an "off" position; an auxiliary element adjacent the manipulative member; means to connect the auxiliary element to the manipulative member so that said element may be moved to "off" position by said member; means operated by the auxiliary element to retain the hammer against printing movement, when said auxiliary element is in "off" position; a power source having a fixed cycle of movement each machine operation; means, driven by the power source and effective during operations in which the manipulative member is in home position, to move the auxiliary element to "off" position, independently of said manipulative member, to retain the hammer against its second printing movement.
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