

Dec. 6, 1927.

R. A. CHRISTIAN ET AL

1,652,091

CASH REGISTER

Filed Feb. 26, 1925

2 Sheets-Sheet 1

FIG. 1

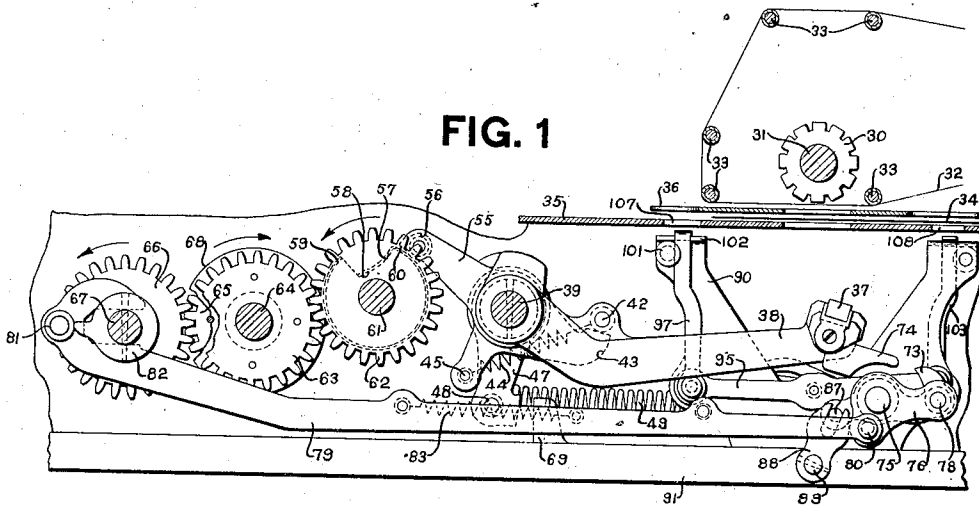
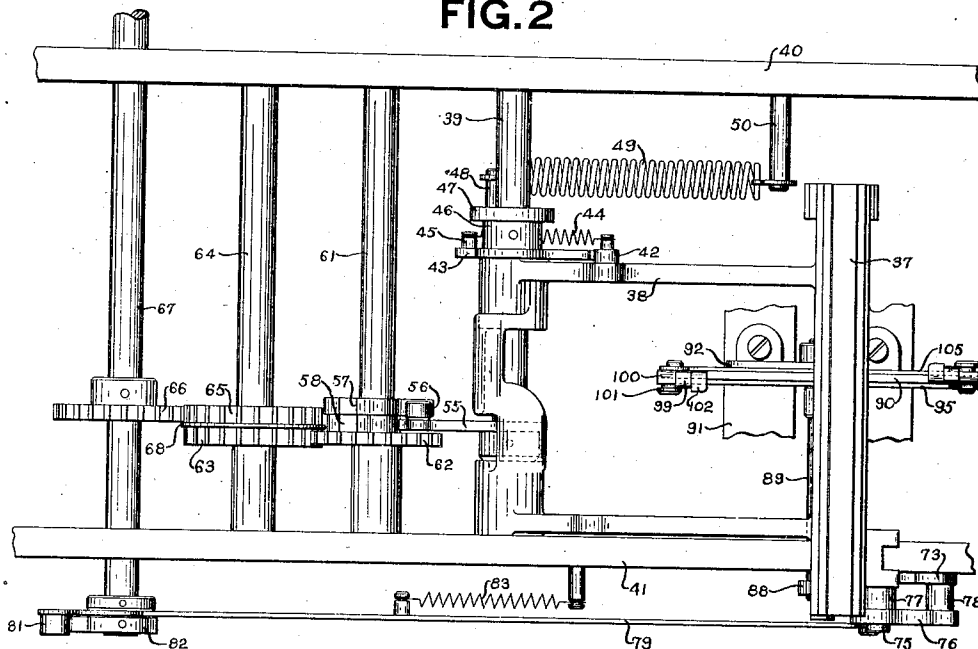


FIG. 2



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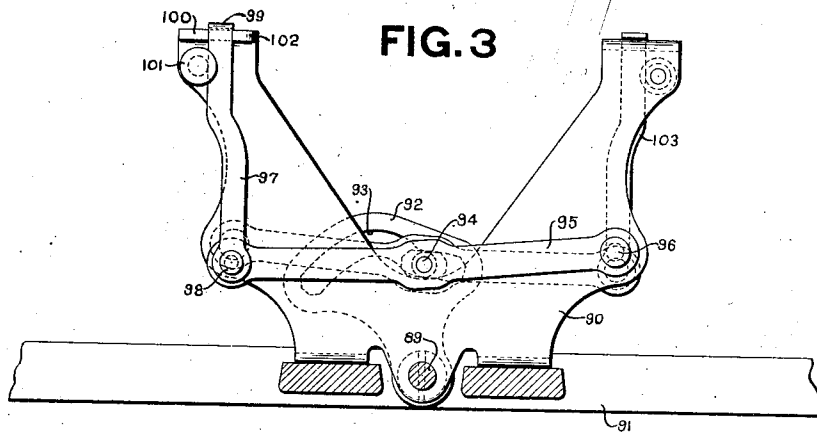
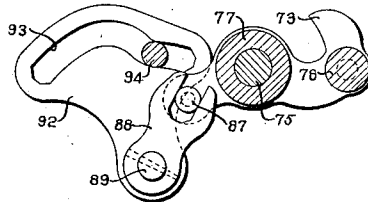
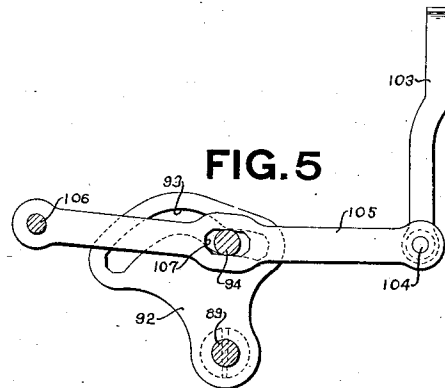


FIG. 4



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UNITED STATES PATENT OFFICE.

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CASH REGISTER.

Application filed February 26, 1925. Serial No. 11,772.

This invention relates to printing mechanism adapted for use with cash registers and like machines.

The principal object of this invention is to provide means under control of record material whereby an impression hammer is permitted to operate when the record material is in position to receive an impression on any part thereof, and to prevent operation of the impression hammer when no record material is in position to receive an impression.

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

Of said figures:

Fig. 1 is a partial view of the printer showing the impression hammer control mechanism.

Fig. 2 is a top plan view of the mechanism shown in Fig. 1.

Fig. 3 is an enlarged detail view of the slip feeler mechanism.

Fig. 4 is an enlarged detail view of a portion of the impression hammer control mechanism.

Fig. 5 is an enlarged detail view of a portion of the slip feeler mechanism.

General description.

The printing mechanism disclosed comprises printing elements adapted to make legible impressions upon an inserted slip. These impressions may be made at a point near either end of the slip.

An impression hammer is operated to make the necessary number of impressions when a slip is in its proper place in the machine, and when there is no slip in the machine, a latch member will automatically engage the impression hammer and prevent its operation.

Specifically described, the printing mechanism comprises type wheels, one of which is shown at 30 mounted upon a shaft 31. These type wheels are differentially positioned by any suitable registering mechanism. An inking ribbon 32, passing around guide rollers

33, is provided for making a legible impression upon an inserted slip 34, which is placed upon a table 35 and under guide plate 36. Only enough of the inking ribbon is shown to clearly illustrate the method of inking the type. The ribbon may be operated by any of the well known standard feeding devices.

An impression platen 37 is mounted in an impression hammer 38, which is freely mounted upon a rod 39, supported in the printer frames 40 and 41. One arm of the impression hammer carries a laterally extending pin 42, which is normally held in engagement with an arm 43 by spring 44 attached to the pin 42 and to a pin 45 projecting laterally from the arm 43. The arm 43 is fastened to a hub 46, which is pinned to the rod 39. Also secured to the hub 46 is an arm 47 carrying a pin 48 to which one end of a spring 49 is connected. The other end of the spring is attached to a pin 50 supported in the printer frame 40.

There is also fastened to the rod 39, an arm 55 carrying a roller 56, which cooperates with a cam 57, to give an oscillating motion to the rod 39. The spring 49 will cause the roller 56 to engage with the cam 57 at all times, so that the impression hammer 38 will be operated first in a counter-clockwise direction by the spring 49 and then clockwise by the cam 57, to be returned to normal position, as shown in Fig. 1.

The cam 57 which operates the impression hammer 38, is fastened to a companion cam 58, which is slightly smaller than the cam 57. The cam 58 is in the plane of the arm 55 but normally is not in engagement with the arm, as the roller 56 is in engagement with the cam 57. As the cam rotates, the roller 56 continues in engagement with the cam until a point 59 is reached, when, as the roller disengages from the concentric part of the cam, the arm 55 is allowed to move a slight distance in a counter-clockwise direction until the end 60 of the arm engages the cam 58. The arm 55 continues in engagement with the cam 58 until the end 60 of the arm 55 reaches the point 59, when the arm 55 moves from the high point 59 of the cam to the low point, allowing the spring 49 to rock the rod 39 counter-clockwise until the arm 47 engages a stop lug 69. The momentum of the impression ham-

mer is sufficient to overcome the tension of the spring and carry it against the type wheel to make an impression upon the inserted slip.

5 Cams 57 and 58 both rotate in the direction of the arrow, and are fastened to a gear 62, which is freely mounted upon the rod 61. This gear meshes with a gear 63, which is freely mounted on a rod 64, and is pinned to a companion gear 65, which is in mesh with a driving gear 66, pinned to the driving shaft 67. The gears 63 and 65 are maintained in their lateral positions on the rod 64 by a plate 68, which is fastened between the two gears and cooperates with gears 62 and 66.

When the machine is operated without a sales slip 34 in proper position, it is desirable to automatically disable the impression hammer 38, so that the impression block 37 will not come into contact with the ribbon 32. To accomplish this the latch member 73 is moved to a position over the projection 74, extending out from the impression hammer. As the hammer is released by the cam 57, the spring 49 will move the impression hammer a slight distance until the projection 74 engages the latch 73. The latch member 73 is freely mounted upon a pin 75, and is fastened to a bell crank arm 76 by a hub 77 and a pin 78.

The bell crank arm 76 is given an oscillating motion at each operation of the machine by a pitman 79, which is pivoted to the bell crank arm 76 at the point 80. The forward end of the pitman 79 carries a roller 81, which engages the cam fastened to the driving shaft 67. As the roller 81 leaves the high part of the cam 82, a spring 83, attached to a pin mounted in the pitman and to a pin projecting from the printer frame, will cause the pitman to move toward the rear and move the bell crank lever 76 counter-clockwise, placing the latch member 73 over the projection 74 of the impression hammer 38.

The latch member 73 has a laterally extending pin 87, engaging a bifurcated arm 88 fastened to a rod 89, one end of which is supported in the printer base 91, and the other end in a bracket 90 fastened to the base of the machine. There is also fastened to the rod 89 a plate 92, provided with a cam slot 93 engaging a pin 94 on an arm 95 pivoted at 96 to the bracket 90. Arm 95 supports a slip feeler member 97, pivoted to the arm at a point 98, the upper end of the feeler member having an ear 99 normally engaging a flange 100 formed on the bracket 90. The feeler member is guided in a vertical movement by a stud 101, secured in the bracket 90 and an extension 102 on the flange 100. There is a second slip feeler member 103, pivoted at 104 to an arm 105, which is pivoted at a point 106, to the

bracket 90. The arm 105 has an opening 107, through which the pin 94 passes to raise and lower the arm 105 in unison with the arm 95 as the pin 94 is raised and lowered by the cam slot 93 as the plate 92 is rocked by the spring 83 and cam 82. The slip feeler member 103 is guided in its vertical movement in the same manner as the slip feeler member 97, previously described.

As the rod 89 is rocked during each operation of the machine, the cam plate 92 will raise the slip feeler members 97 and 103 through openings 107 and 108 in the table 35, and if a slip 34 has been placed in the machine, as shown in Fig. 1, the slip feeler member 103 will come into contact with the slip and prevent further upward movement of the feeler members. When the slip feeler member engages the slip, the cam 92 will be stopped in its rocking movement by the pin 94. The stopping of the cam plate 92 will also stop the latch member 73 in its counter-clockwise movement and prevent it from moving over the projection 74 to disable the impression hammer 38. If there is no slip 34 in the position shown in Fig. 1, the slip feeler members 103 and 97 will be permitted to move their entire distance upward by the cam member 92 and allow the latch member 73 to move to a position over the projection 74 of the impression hammer 38, and disable the hammer, as previously described. Referring to Fig. 1 it may be seen that only the slip feeler member 103 can engage the slip 34. The other slip feeler member 97 does not come into contact with a slip placed in the position as shown, but when a slip is placed in the position to print on the opposite end of the slip, the feeler member 97 will engage the slip, and the feeler member 103 will not engage the slip. In this case the slip feeler member 97, will control the latch member 73 and not the slip feeler 103, as previously described.

It may be seen that with a construction such as disclosed in these drawings, that it is possible to print on either end of an inserted sales slip, and control the impression hammer disabling device.

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 of 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 type carriers, impression means, means for preventing an operation of said impression means, and means involving two feelers positioned on opposite sides of said type carriers either one of said feelers

adapted to cooperate with record material in printing position to prevent said preventing means from functioning.

2. In a machine of the class described, the combination of printing elements, a table adapted to receive insertable record material in various positions relative to said printing elements to receive legible impressions, an impression hammer, means for operating said impression hammer, a latch member adapted to engage said impression hammer to prevent operation thereof, and a plurality of members adapted to disable said latch member when any one of said members engages with said record material.

3. In a machine of the class described, the combination of a type member, an impression hammer for taking impressions from said type member on inserted record material, operating means for said impression hammer, a plurality of feeler members adapted to be moved into engagement with said record material, pivoted arms supporting said feeler members, a cam member for operating said arms, a latch member adapted to engage said impression hammer to prevent its operation, and means intermediate of said latch member and said cam member to prevent said latch member from engaging said impression hammer when any one of said feeler members engages said record material.

4. In a machine of the class described, the combination of a type member, an impression hammer for taking impressions from

said type member on inserted record material, operating means for said impression hammer, a plurality of feeler members adapted to be moved into engagement with said record material, pivoted arms supporting said feeler members, a cam member for operating said arms, a latch member adapted to engage said impression hammer to prevent its operation, and means intermediate of said feeler members and said latch member to prevent the latch from disabling said impression hammer when said record material is in a position to be engaged by one of said feeler members.

5. In a machine of the class described, the combination of printing means, a table adapted to receive insertable record material in various positions relative to said printing means, feeler members arranged so that one member will engage said record material when in one position and another member will engage said record material when in a different position, an impression hammer, operating means for said impression hammer, a latch member adapted to engage said impression hammer to prevent its operation, and means intermediate of said feeler members and said latch member to prevent said latch member from engaging said impression hammer when either of said feeler members engages said record material.

In testimony whereof we affix our signatures.

RAYMOND A. CHRISTIAN.
EARL GATES.