Nov. 29, 1938. W. F. MULLER 2,138,793

ELECTRICAL REPEATING PRINTING MACHINE

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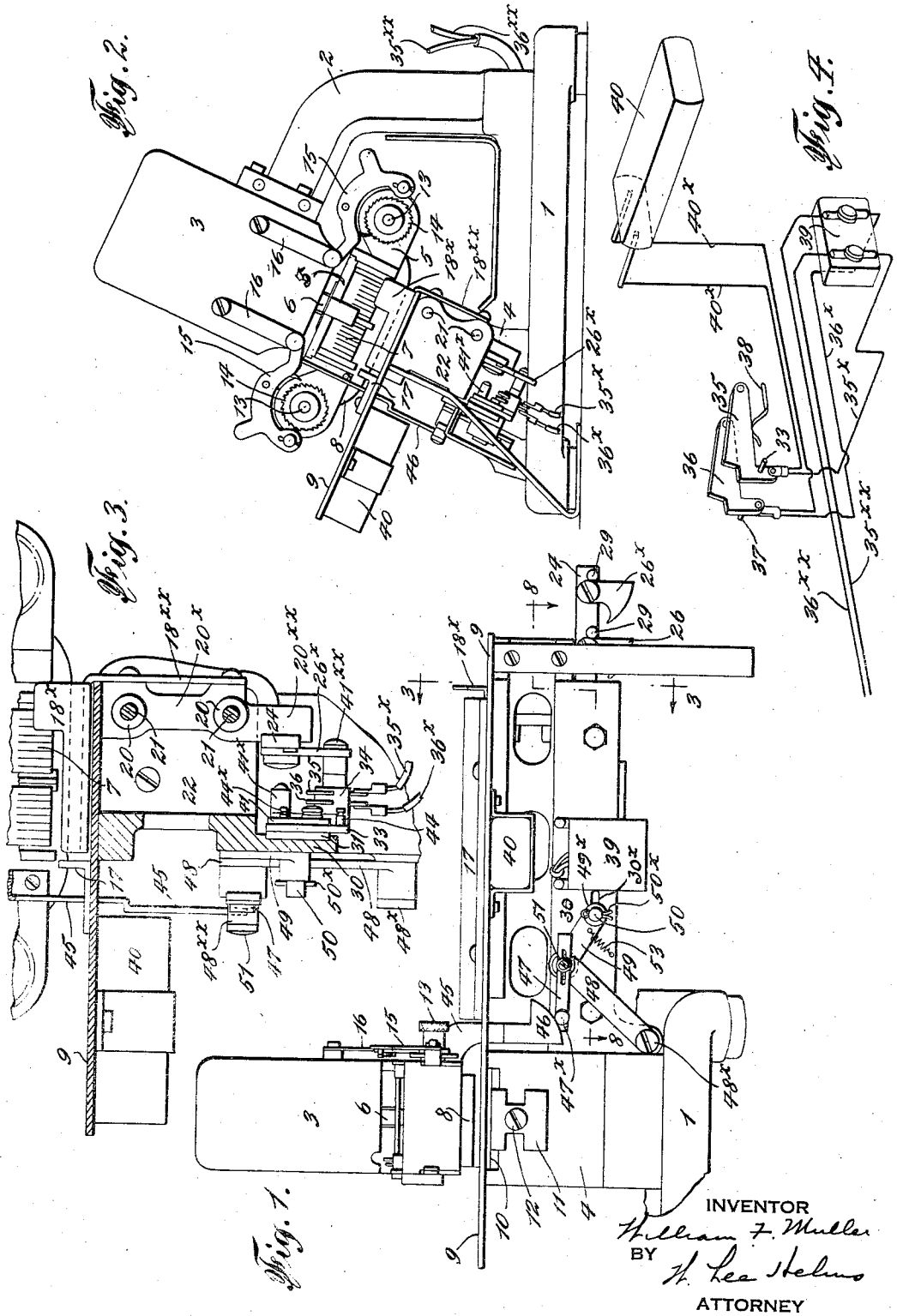


Fig. 2.

Fig. 4.

Fig. 3.

Fig. 1.

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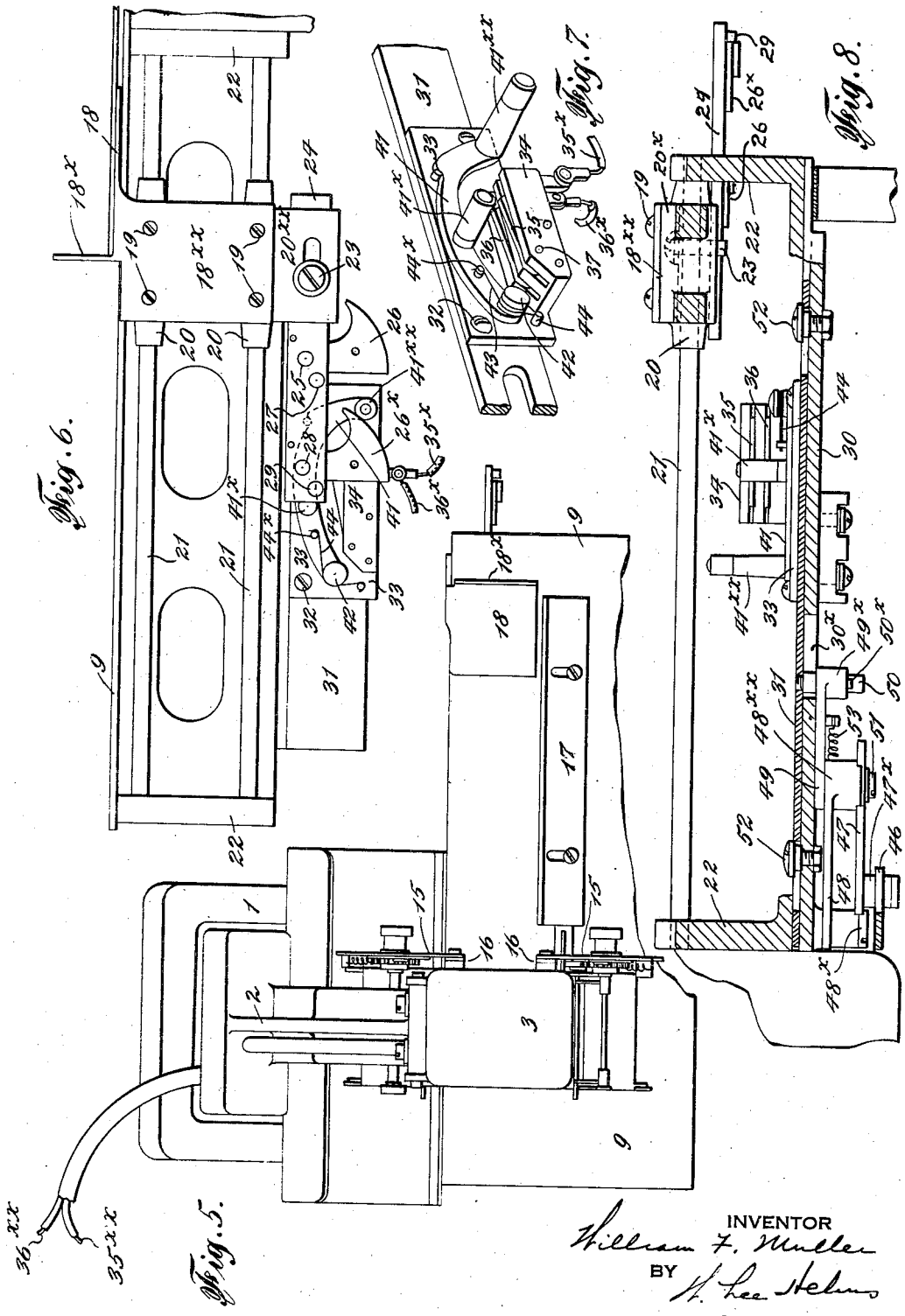


Fig. 5.

Fig. 6.

Fig. 7.

Fig. 8.

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UNITED STATES PATENT OFFICE

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ELECTRICAL REPEATING PRINTING MACHINE

William F. Muller, Brooklyn, N. Y., assignor to William A. Force, III, New York, N. Y.

Application May 2, 1938, Serial No. 205,453

8 Claims. (Cl. 101—318)

The object of the present invention is to provide a printing or endorsing machine having feed mechanism for the articles, such, for example, as price tickets, associated with electrical controlling means for the printing head in such manner that as the price ticket is moved in relation to the printing head the latter is caused to have a plurality of active or "repeat" movements.

The invention will be described with reference to the accompanying drawings, in which:—

Figure 1 is a view in front elevation of an embodiment of the invention.

Figure 2 is a view of the embodiment in side elevation.

Figure 3 is an enlarged fragmentary elevation, partly in section, showing more particularly members underlying the feed table and certain electrical connections, taken on the line 3—3, Figure 1.

Figure 4 is a wiring diagram in perspective including the primary switch elements.

Figure 5 is a plan view of the machine, partly broken away.

Figure 6 is an enlarged side elevation, showing the feed table, the feed slide and certain of the repeat switch throwing and switch elements.

Figure 7 is a perspective view showing the switch elements.

Figure 8 is an enlarged horizontal section on the line 8—8, Figure 1.

Referring to the drawings, the printing machine, except for the improvements now to be described, may be constructed substantially in accordance with the structure illustrated and described in my application for patent filed May 20, 1933, Serial No. 672,058, now Patent No. 2,084,044.

The machine comprises a base 1 from which rises a standard 2, the latter having bolted thereto the top casing 3. Base 1 also supports the bottom casing 4. The top casing supporting a printing carriage, generally indicated at 5. Within the casing 3 is a suitable supporting member for the printing carriage, the supporting member being a shaft 6 which may be connected to the core of a solenoid or other electrical reciprocating member for shaft 6, the reciprocations moving the printing members generally indicated at 7 downwardly into contact with a ribbon 8 to transfer the impression from the ribbon to a price ticket or the like, supported on a table 9.

The table may be formed with an aperture for reception of a platen 10 and the platen may be carried by a base member 11 secured to casing 4 by a screw 12.

The ribbon may be carried upon spools on shafts 13 and these shafts may carry ratchet wheels 14 in register with the pawls of pawl arms 15 which, in turn, are carried by links 16 pivoted to upper casing 3. Each pawl arm may be moved into neutral or active position, and when in active position, one of the ratchet wheels will be given intermittent movements in the reciprocation of the printing carriage to impart corresponding movement to the ribbon.

The specific form of the printing carriage and electrical means for reciprocating the same, form no part of the present invention and hence do not require detailed illustration or description.

Extending longitudinally of table 9 on the upper face thereof, is an adjustable side guide 17 for the price tickets or other articles to be printed, and slidably movable relatively to the top of the table is a manual feed slide 18 for said articles, the slide having an upwardly projected finger grip 18*x*. The manual feed slide is formed with a depending plate 18*xx* secured by screws 19 to a bracket 20*x* having parallel sleeves 20, the sleeves being received upon horizontal rods 21 carried by bracket plates 22 supported below table 9.

The sleeve-carrying bracket 20*x* is formed with a depending extension 20*xx* formed with a horizontal elongated slot receiving a stud screw 23 by means of which a bracket arm 24 is adjustably held in position.

Depending from bracket arm 24 and pivoted thereto at 25, is a swinging cam 26, the rear of which is adapted to engage a stop stud 27. Bracket arm 24 also carries a second swinging cam 26*x* pivoted upon the bracket arm at 28 and adapted to engage a rear stop stud 29.

Secured to bracket plates 22 is a longitudinal supporting member 30 against which abuts a reciprocatory arm 31 to which is secured by screws 32 a bracket plate 33 which carries a support 34 having two vertical channelways, each of which receives a contact member, the contact members being indicated at 35 and 36, respectively.

Each contact member is pivoted by pivot pins 37 and normally held above the top edge of support 34 by means of a spring 38 (Figure 4), two separate springs being employed.

Support 34 is made of insulating material, and to contact 35 is connected a wire 35*x* leading to junction box 39, being there electrically connected to a wire 35*xx* leading to a suitable source

of electrical power. To contact 36 is connected a wire 36*x* leading to junction box 39, and is there electrically connected to a wire 36*xx* leading to a ground connection. The circuit also includes a condenser 40, the connecting wires being indicated at 40*x*.

It will be understood that to the junction box will be connected the wires leading to the electrical means for actuating the printing frame, and that when the contacts 35 and 36 are bridged, the circuit through such means will be completed.

The immediate bridging member for the contacts 35, 36, is a finger 41*x* on an arm 41 pivoted to plate 33 by pivot stud 42. Finger 41*x* is normally held out of engagement with contacts 35, 36, by a spring 43 encircling stud 42, one end of the spring being held by a fixed pin 44 on plate 33 and the other end engaging the pin 44*x* on arm 41. At its free end, arm 41 is provided with a lateral extension 41*xx* carrying at its end a roller. Arm extension 41*xx* lies in the path of the cams 26, 26*x*, so that when the manual feed slide 8 is moved toward arm 41 cam 26 will first engage arm 44*x* and will thereby cause a bridging of the contacts, followed by a second bridging of the contacts by cam 26*x*. In such bridging actuation of cams 26 and 26*x*, they are held firmly by stop pins 27 and 29. On the reverse action of the manual feed slide however, the cams will in succession strike member 41*xx* and will swing idly until they pass freely over said member without affecting the position of the bridging member 41*x*.

It is desired that the action of the printing carriage by a single downward and rapid and reverse movement be effected without any possibility of over-printing or double impression printing with corresponding blurring. To this end, the apparatus provides means for automatic circuit opening which acts during a downward printing movement of the frame. There is secured to the printing carriage, or to one of the reciprocatory members connected to shaft 6, a depending arm 45 carrying a cam 46. Cam 46 is adapted to engage a stud 47*x* on a bar 47, adapted to operate a toggle-lever for reciprocatory member 31. The end of link 48 of the toggle-lever is pivoted at 48*x* to the casing base and the second link 49 at its outer end is formed with an apertured boss 49*x* receiving a screw stud 50 projecting through a clearance slot at 30*x* in member 30 (Figure 8) and carried by member 31, and stud 50 may receive a cotter pin 51*x*. The two links are mutually connected by a pivot screw stud 51 carried by link 49 and entering the aperture of a hub 48*xx* formed at one end of link 48.

Bar 47 is rigidly, but adjustably, carried by the toggle-lever. To this end, hub 48*xx* is cut at its end with a channelway to receive the bar, and screw stud 51 is passed through an elongated slot in bar 47 providing adjustment. When screw stud 51 is screwed down firmly the bar is held against longitudinal movement and also against any pivotal movement.

The contact-carrying member 31, which is given movement by the toggle-lever, may be supported by headed studs 52 passing through slots therein and threaded in member 30.

In the operation of the apparatus, a price-card, ticket, or any other sheet requiring repeat stamping is in front of the finger piece 18*x* of the feed slide 18, and the slide moved under the printing frame. Cam 26 will engage member 41*xx* and bridging finger 41*x* will be brought downward to bridge contacts 35, 36. This will complete a circuit (not shown) through the electrical device for reciprocating the printing carriage, and immediately, or at the instant of printing, cam 46 will operate the toggle-lever to quickly shift member 31 and to carry the cam rearwardly of arm 41*xx*, followed by a quick return of member 31 under the influence of a spring 53 which engages the toggle-lever. In this quick return of member 31, arm 41*xx* will merely give an idle swinging movement to the cam. Ordinarily, however, the continued manual movement of the feed slide will have carried the cam away from arm 41*xx*. In the repeat action, due to the engagement of the second cam, 26, with arm 41*xx*, the cam 46 and toggle-lever will cause the same quick reciprocating action of member 31 as that described with respect to the initial printing movement of the carriage.

Having described my invention, what I claim and desire to secure by Letters Patent, is as follows:

1. In an electrical repeating printing machine in combination with a reciprocable printing head, electrically operated means for reciprocating the head, and a feed slide for moving a sheet into register with the printing head, of an electrical circuit leading to said means for reciprocating the printing head, a circuit closing device for said circuit and in the path of movement of said feed slide, and means carried by the feed slide and adapted to actuate said circuit closing device a plurality of times in a unidirectional movement of the slide to effect plural reciprocation of the printing head.

2. In an electrical repeating printing machine in combination with a reciprocable printing head, electrically operated means for reciprocating the head, and a feed slide for moving a sheet into register with the printing head, of an electrical circuit leading to said means for reciprocating the printing head, a circuit closing device for said circuit and in the path of movement of said feed slide, means carried by the feed slide and adapted to actuate said circuit closing device a plurality of times in a unidirectional movement of the slide to effect plural reciprocation of the printing head, and means operatively connected with the printing head and adapted to effect an opening of the circuit upon each reciprocation of the printing head.

3. In an electrical repeating printing machine in combination with a reciprocable printing head, electrically operated means for reciprocating the head, and a feed slide for moving a sheet into register with the printing head, of an electrical circuit leading to said means for reciprocating the printing head, a circuit closing device for said circuit and in the path of movement of said feed slide, means carried by the feed slide and adapted to act upon the circuit closing device a plurality of times in a unidirectional movement of the slide, and means operatively connected with the printing head and adapted to move the circuit closing device to neutral position relatively to the actuating means carried by the feed slide upon each reciprocation of the printing head.

4. In an electrical repeating printing machine in combination with a reciprocable printing head, electrically operated means for reciprocating the head, and a feed slide for moving a sheet into register with the printing head, of an electrical circuit leading to said means for reciprocating the printing head, a circuit closing device for said circuit and including spaced contacts, a movable arm adapted to bridge said contacts, and a plu-

rality of spaced cam members carried by the slide adapted to successively actuate the bridging member in a unidirectional movement of the slide, thereby effecting plural reciprocation of the printing head.

5. A device constructed in accordance with claim 4, in combination with means for adjusting the position of the cams relatively to the slide for changing the time of action of the printing head relatively to a unidirectional movement of the slide.

6. In an electrical repeating printing machine in combination with a reciprocable printing head, electrically operated means for reciprocating the head, and a feed slide for moving a sheet into register with the printing head, of an electrical circuit leading to said means for reciprocating the printing head, a circuit closing device for said circuit and comprising spaced contacts, a movable carrier for said contacts, a bridging device on said carrier and normally out of register with the contacts, a plurality of actuators for said bridging device carried by the slide and adapted to act in succession, and means for bodily moving the contact members relatively to the slide at the end of each active movement of the printing head.

7. An electrical repeating printing machine constructed in accordance with claim 6, in which the means for moving the contacts relatively to the slide comprises a lever device, and a depending arm carried by the printing head and adapted to actuate said lever device during each active movement of the printing head.

8. In an electrical repeating printing machine in combination with a reciprocable printing head, electrically operated means for reciprocating the head, and a feed slide for moving a sheet into register with the printing head, of an electrical circuit leading to said means for reciprocating the printing head, circuit closing means for said circuit and including spaced contacts, and means for bringing said contacts into electrical connection, including a plurality of cams pivotally carried by the slide, means for rigidly holding the cams in an active movement of the slide and permitting free swinging movement of the cams in a return movement of the slide, and means for adjusting the position of the cams relatively to the slide.

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