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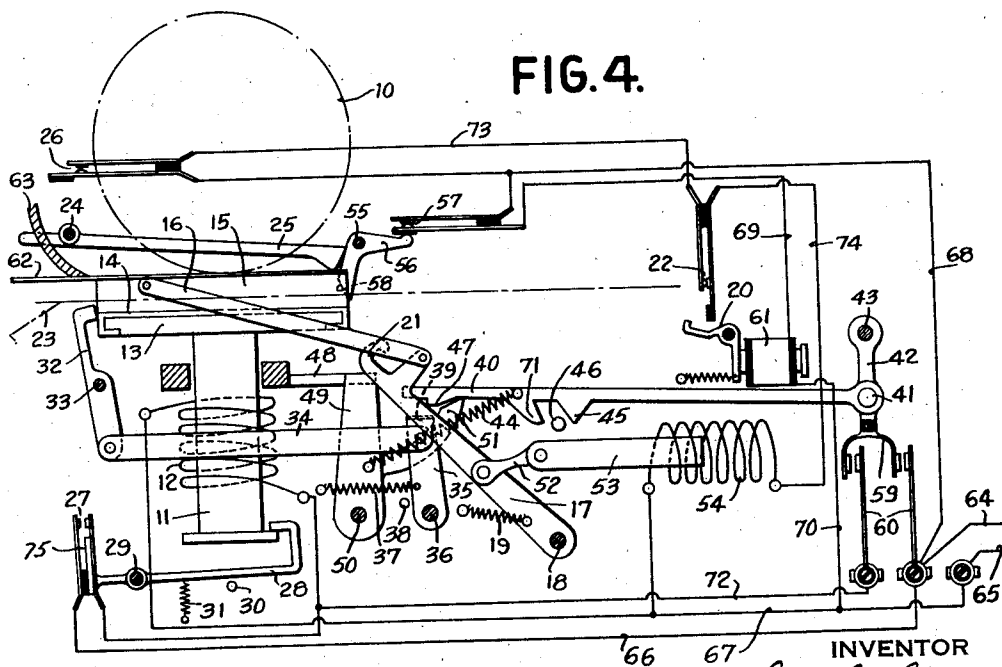
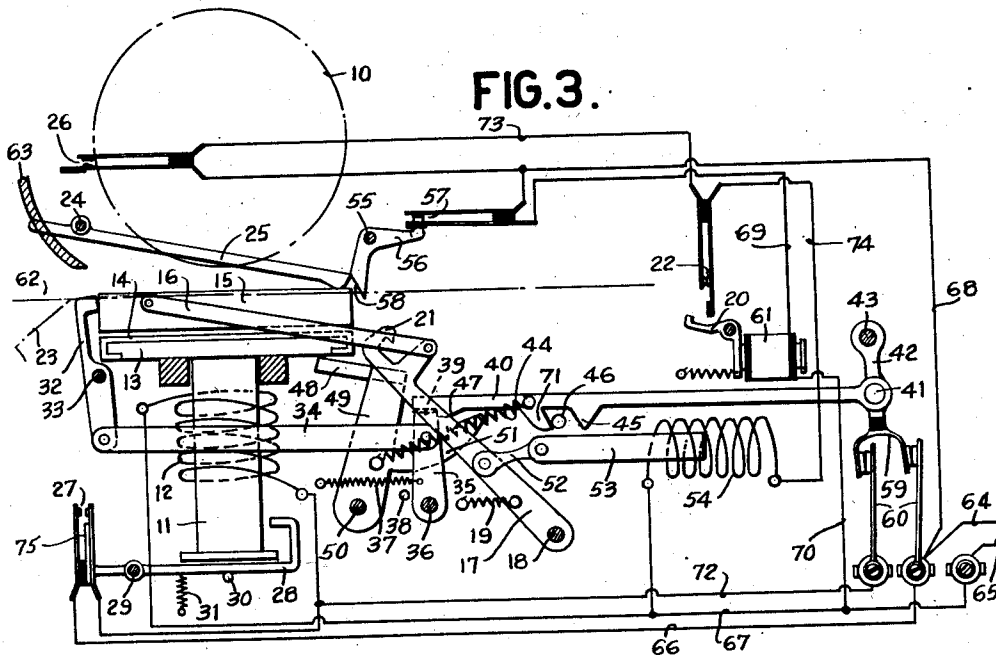
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PRINTING MACHINE

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2,019,897

PRINTING MACHINE

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12 Claims. (Cl. 101—318)

This invention relates to printing machines in general, more particularly to means for inking printing members such as typewheels, electrotypes, and the like.

5 The broad object is to provide a novel and improved inking mechanism for printing wheels, electrotypes, and the like.

Another broad object is to provide an inking mechanism which is operated and/or controlled by electricity.

10 A specific object is to provide an improved inking mechanism suitable for use in electric time stamps and the like which mechanism renders inking ribbons unnecessary.

15 Another specific object is to provide an improved inking mechanism for time stamps and the like, which mechanism is electrically controlled and/or operated.

20 Still another specific object is to provide an inking mechanism for time stamps and the like the operation of which mechanism is initiated by the insertion of the paper to be stamped or imprinted.

25 A further specific object is to provide a time stamp or like printing machine which is completely electrically controlled and operated through the insertion of the paper or document to be imprinted, both the impression device and the inking mechanism being electrically controlled and operated.

30 Various other objects, advantages, and features of the invention will be specifically pointed out in the following description and claims or will be apparent after a study of the description, claims, and the accompanying drawings.

In the drawings:

Fig. 1 is a diagrammatic view showing the normal condition of the parts and circuits.

40 Fig. 2 is a similar view showing the condition of the parts and circuits while the printing members are being inked.

Fig. 3 is a similar view showing the condition of the parts and circuits after the printing members have been inked and the impression is about to be taken from the printing members.

45 Fig. 4 shows the condition of the parts and circuits at the time the impression is being taken and restoration of the parts to normal position is about to take place.

50 The present invention is adapted for general use in various types of printing machines but for convenience in description will be described herein as incorporated in a time stamp like, for instance, the one disclosed in Letters Patent No. 1,798,583 granted to L. C. Bishop and A. L.

Sprecker. It will be understood that the embodiment of the invention and its setting described herein are illustrative only and the invention is not limited to such embodiment or setting.

The numeral 10 designates generally a printing member or instrumentality which may be a time printing type wheel provided with character types as in the above patent. Coacting with the printing member 10 is a plunger 11 actuable by a solenoid having a coil 12. The solenoid may be like the one described in the above patent or any other suitable form may be used. The end of plunger 11 nearest the printing member 10 has a table 13 on the upper surface of which may be removably secured an ink pad 14 of ink retaining material. When the coil 12 of the solenoid is energized, the plunger 11 is drawn upwardly to force the pad 14 against the faces of the character type on the printing member 10 thereby inking said character types in readiness for a subsequent impression of the character types on the paper or document to be stamped. Slidably mounted in the time stamp framework (not shown) is an impression member or platen 15 adapted to be moved forward from the position of Fig. 1 to the position of Fig. 3. The face of the platen 15 may be of resilient material such as rubber or cork in order to ensure a clear sharp imprint of the character types on a paper or document inserted between platen 15 and the printing member 10 and pressed against the latter by said platen when operated.

Pivoted to platen 15 is a link 16 which is also pivoted to an arm 17. The latter is pivoted at 18 to the main framework of the time stamp. Normally a spring 19 tends to rock arm 17 in a counterclockwise direction and move the platen 15 to the left (Fig. 3) to the position shown in said figure. Such operation is normally restrained, however, by a latch 20 which engages a hook-shaped lug 21 in the upper end of arm 17. In the normal position of the parts in Fig. 1, the lug 21 presses upon an insulating button on one of a pair of contacts 22 in such fashion as to hold said contacts open. As usual in time stamps, a paper table is provided and designated 23 in the drawings which table has an opening to permit the platen 15 to move upwardly against the printing member 10 as in Fig. 4 but prevents contact of the document or paper to be stamped with the ink pad 14 and also serves as a guide for the insertion of the paper or document.

Pivotally mounted at 24 is a lever 25 whose upper end normally holds contacts 26 in closed condition and whose lower end normally occurs

pies a position to the left of contacts 27. The latter are normally open and are rigidly mounted on a gooseneck lever 28 pivoted at 29. The curved end of lever 28 overlies a projecting part of the plunger 11 and normally is held against a stop pin 30 by means of a light spring 31 as in Fig. 1.

A trip lever 32 is pivotally mounted at 33 and extends upwardly into the path of movement of platen 15 and to one side of plate 13. A link 34 is pivoted to the lower end of lever 32 and connects the latter with an arm 35 pivoted at 36 and a light spring 37 normally holds arm 35 against a stop pin 38 in Fig. 1. The arm 35 has a bent-over lug 39 upon which rests a link 40 pivoted at 41 to an arm 42. The latter is pivoted at 43 to the framework. The link 40 is normally held in the position of Fig. 1 by a spring 44 anchored to a pin on said link, which spring holds a lug 45 in link 40 against a stop pin 46. A second lug 47 in link 40, when the parts are in the position of Fig. 1, occupies a position slightly to the right of the lug 39 and in the path of movement of the latter.

An armature 48 is secured to an arm 49 pivoted at 50 to which arm is anchored the spring 44, the armature 48 being adapted to be attracted by the energization of winding 12 to move from the normal positions of Figs. 1 and 3 to the positions of Figs. 2 and 4. The arm has a curved tail or lug 51 which underlies the link 40 and is adapted, when the armature is attracted toward winding 12, to lift the link 40 a distance sufficient to permit lug 47 to clear lug 39 as in Figs. 2 and 4.

A link 52 pivoted to arm 17 connects the latter to the plunger 53 of a solenoid having winding 54. It will be obvious that energization of winding 54 will cause the restoration of arm 17 to the position of Fig. 1 after each operation of said arm. Pivoted to the framework at 55 is a bell-crank 56, the horizontal arm of which (Fig. 1) is adapted to close normally open contacts 57, and whose vertical arm is provided with a cam surface 58 adapted to be engaged by the lower end of lever 25 as in Fig. 3. Secured to arm 42 is a double contact member 59 adapted, when the link 40 is moved to the right, as in Fig. 3, to bridge and thus electrically connect two contacts 60. The latch 20 may be released by means of an electromagnet 61 cooperating with an armature secured to one arm of said latch.

The general details of construction having been described briefly, the operation of the machine will now be explained.

A document or paper to be stamped, designated 62 in the drawings, is pushed against the lever 25 at a point above the card table 23 and below an overhanging part of the casing of the stamp, a fragment of which casing is designated 63 in the drawings, the casing being, as usual, arranged to provide an open slot or similar opening to permit insertion of the paper 62 between the printing member 10 and ink pad 14. Pressure of the paper 62 against lever 25 causes the latter to be rocked slightly counterclockwise thus closing contacts 27.

A circuit is then established from one line wire 64 of the current supply line 64, 65, over wire 66, contacts 27, the winding 12, and wire 67, to the other wire 65 of the current supply line.

Energization of winding 12 causes plunger 11 to move upwardly to the position of Fig. 2 inking the type faces of printing member 10. During this movement of plunger 11, the gooseneck lever 28 is rocked in a counterclockwise direction by plunger 11, thus moving contacts 27 downwardly

to the position of Fig. 2, freeing said contacts from the influence of lever 25. As a result, contacts 27 open, deenergizing winding 12, which will occur about the end of the upward stroke of plunger 11, and the latter drops by gravity to the normal position of Figs. 1 and 3. During the upward movement of plunger 11, the paper 62 is being held against lever 25 with the result that the latter eventually moves to the right of the normal position of contacts 27.

As plunger 11 drops back to its normal position, the lever 25 will be rocked counterclockwise a further distance due to the constant pressure of paper 62 on said lever and eventually, when the pad 14 and its support ceases to obstruct the passage of said paper over table 23 and underneath printing element 10, the lever 25 and paper 62 will move to the position of Fig. 3. The lever 25, in moving from the position of Fig. 2 to that of Fig. 3, will eventually engage the cam surface 58 in bell crank 56 and rock the latter to close contacts 57 as in Fig. 3. At this time, closure of contacts 57 establishes a circuit from line wire 64, through wire 68, contacts 57, wire 69, the winding of magnet 61, wire 70, and wire 67, to line wire 65. Energization of magnet 61 releases latch 20 allowing spring 19 to move arm 17, link 16, and platen 15 to the position of Fig. 3. During this movement of platen 15, the latter will strike the upper end of lever 32, rocking said lever in a counterclockwise direction, and forcing link 34 to the right (Fig. 3) thus rocking arm 35 in a clockwise direction. Such movement of arm 35 causes lug 39 to engage lug 47 and force link 40 to the right, rocking arm 42 in a counterclockwise direction until a lug 71 in link 40 strikes stop 46. The movement of arm 42 causes double contact 59 to bridge contacts 60 thus closing a circuit as follows:

Line wire 64 contacts 59, 60, wire 72, winding 12, and wire 67, to line wire 65. As a result, the plunger 11 is again drawn upwardly moving platen 15 and the paper 62 (which now overlies the platen) upwardly and pressing the paper 62, against the previously inked type faces.

Energization of winding 12 causes armature 48 to be attracted, rocking arm 49 in a counterclockwise direction thus raising link 40 to the position of Fig. 4 due to the action of lug 51, whereupon spring 44 draws link 40 to the position of Fig. 4 where lug 47 overlies lug 39, this permitting contacts 59, 60 to break the circuit through winding 12. As a result of opening contacts 59, 60 the plunger 11 and platen 15 drop to the position of Fig. 3 permitting withdrawal of the now imprinted paper 62. Such movement of paper 62 allows lever 25 to swing to the position of Fig. 1, the lower end of said lever wiping past contacts 27 without closing them but merely depressing the left end of gooseneck lever 28 slightly, the right-hand contact 27 being of stiff metal or having a stiff support strap 75 as shown to prevent said contact from being flexed to the left while permitting the contact to be flexed to the right a slight amount as usual in the type of construction illustrated.

Return of lever 25 to the position of Fig. 1 also causes contacts 26 to reclose establishing a circuit as follows:

Line wire 64, wire 68, contacts 26, wire 73, 70 contacts 22 (permitted to reclose when arm 17 was released), wire 74, winding 54, and wire 67, to line wire 65. Energization of winding 54 draws plunger 53, link 52, arm 17, link 16, and platen 15 to the right until latch 20 reengages 75

the lug 21 and the latter opens contacts 22 thus breaking the circuit through winding 54. The movement of platen 15 to the right allows lever 32 to rock back to the position of Fig. 1 thus causing lug 39 in arm 35 to move to position slightly to the left of lug 47 and allow the link 40 to again assume the position of Fig. 1. The parts, having been restored to the normal position of Fig. 1, the time stamp is in readiness for another operation.

It will be noted that the mechanical construction is very simple and that, since all parts are operated and/or controlled by electricity by means of interlocked circuits, the operation of the mechanism is extremely rapid and very reliable.

While there has been shown and described and pointed out the fundamental novel features of the invention as applied to a single modification, it will be understood that various omissions and substitutions and changes in the form and details of the device illustrated in its operation may be made by those skilled in the art without departing from the spirit of the invention. It is the intention therefore to be limited only as indicated by the scope of the following claims.

I claim:

1. A printing mechanism comprising a printing element, a pad for charging the printing element with ink, means for moving the pad to ink charging position, means controlled by movement toward printing position of the sheet to be imprinted for initiating operation of the moving means whereby to charge the printing element with ink, a platen adapted to be interposed between the moving means and printing element, and means controlled by further movement of the sheet toward printing position for interposing the platen and operating the moving means.

2. A printing mechanism comprising a printing element, means for inking the printing element, operating means therefor, a platen normally out of operative relation with said operating means but movable into operating relation with the operating means and means controlled by movement of a sheet to be imprinted for moving the platen into operative relation with the operating means and initiating an operation of the latter.

3. A printing mechanism comprising a printing instrumentality, means controlled by a preliminary movement of a sheet to be imprinted for charging the printing instrumentality with ink, and means controlled by a further movement of said sheet for taking an impression from said instrumentality.

4. A printing mechanism comprising a printing instrumentality, an inking pad for charging said instrumentality with ink, a solenoid for operating said pad, a control circuit for said solenoid including means operated by a preliminary movement of the sheet to be imprinted for energizing the solenoid, impression means adapted to be operated by said solenoid but normally out of operative relation thereto, releasable means for bringing the impression means into operative relation with said solenoid including a second control circuit having means responsive to a second movement of said sheet for rendering said second circuit operative to release the releasable means, and means controlled by the impression means when brought into operative relation with said solenoid for initiating a second operation of the latter.

5. A printing mechanism comprising a printing instrumentality, inking means therefor, impression taking means, a control circuit for the inking means, a control circuit for the impression taking means, and means controlled by two increments of movement of a sheet to be imprinted for rendering the ink control and impression control circuits effective in succession.

6. A time stamp comprising a printing member, means for taking an impression from said member, means for operating the impression taking means, said impression taking means and operating means being normally out of operative relation with each other, and a device controlled by movement of a sheet to be imprinted for first bringing the impression means into cooperative relation with the operating means and initiating an operation of the latter.

7. A printing mechanism comprising a printing instrumentality, means for inking said instrumentality, an electromechanical device for operating the inking means including a control circuit for said device, and means in said control circuit and operated by a movement of a sheet to be imprinted for rendering the electromechanical device operative.

8. A printing mechanism comprising a printing element, an impression device, means for moving said device in front of the printing element in readiness to take an impression from said element, means for operating said device to take an impression, and means controlled by movement of a sheet to be stamped toward printing position for initiating operation of both the moving means and operating means.

9. A printing mechanism comprising a printing instrumentality such as a type wheel, an inking pad adapted to charge the printing instrumentality with ink, means controlled by a movement of a sheet to be imprinted toward printing position for operating said pad to ink said instrumentality, an impression member, and means controlled by a further movement of said sheet for operating the impression member.

10. A printing mechanism comprising a printing element, an inking device spaced from the printing element to provide a space for the insertion of a sheet to be imprinted, a trip lever at one end of said space in position to be operated by the initial movement of a sheet inserted in said space, means controlled by said trip lever for operating the inking device to ink said element, an impression member movable into said space wherein said impression member cooperates with the operating means and confronts the printing element, a second trip lever at the opposite end of said space to the first trip lever, said second trip lever being operated by the sheet to be stamped when said sheet confronts the printing element; means controlled by said second trip lever for moving the impression member into said space, and means for causing an operation of the operating means when the impression member cooperates with the latter.

11. Printing mechanism comprising a printing device, inking means and impression taking means for said device, a pair of trip spaced levers successively engageable by movement of a record sheet to a position in front of the printing element, means for operating the inking means and impression means, and means controlled by the trip levers for causing the operating means to operate the inking means and impression means in succession.

12. In a printing mechanism, a printing mem-

ber; an ink pad spaced from said member to provide a passage for the insertion of a sheet to be imprinted in front of said member, said ink pad being movable against said member to ink the latter; a solenoid for operating said pad to ink the member, a trip lever in the path of movement of a sheet to be imprinted and responsive to the initial movement of insertion of said sheet in said passage, a control circuit for the solenoid and operated by the trip lever, and means operated by said solenoid for interrupting said circuit when the pad inks the printing element whereby to permit withdrawal of the ink pad from inking position and permit movement of the sheet in front of the printing member.

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