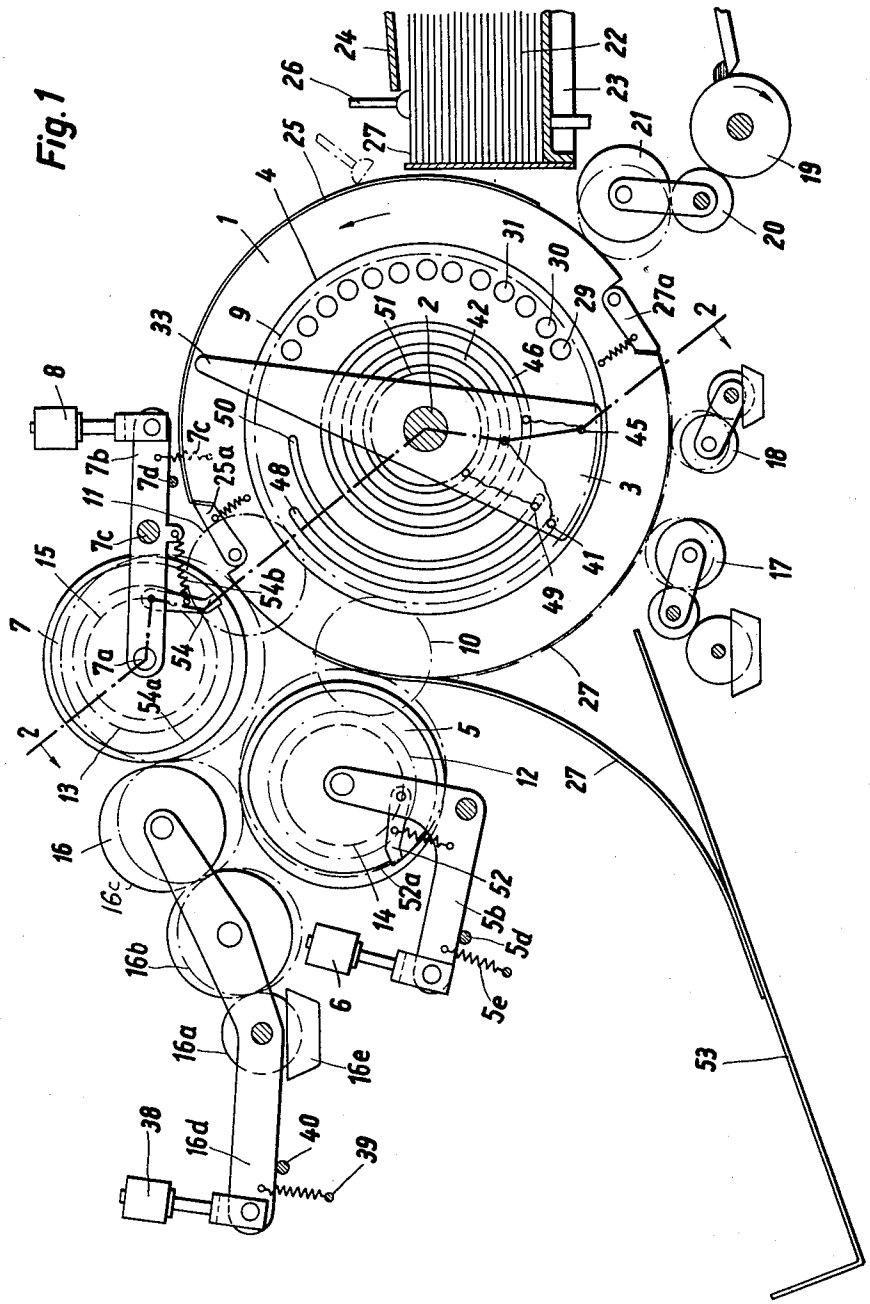
Nov. 3, 1964 W. RITZERFELD ETAL 3,155,035

ROTARY OFFSET PRINTING MACHINE FOR SELECTIVE PRINTING

Filed Nov. 8, 1962 3 Sheets-Sheet 1

Fig. 1



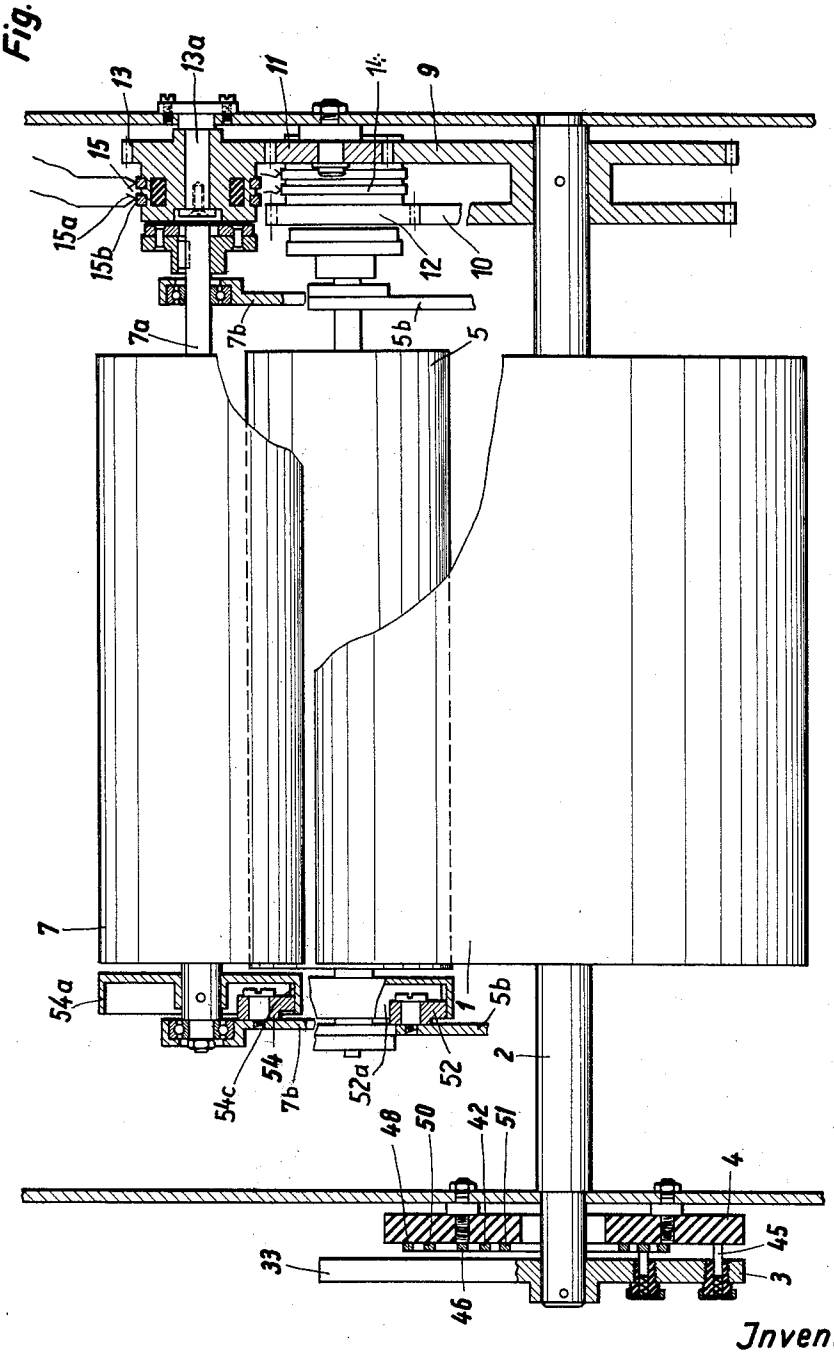
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ROTARY OFFSET PRINTING MACHINE FOR SELECTIVE PRINTING

Filed Nov. 8, 1962 3 Sheets-Sheet 2

Fig. 2



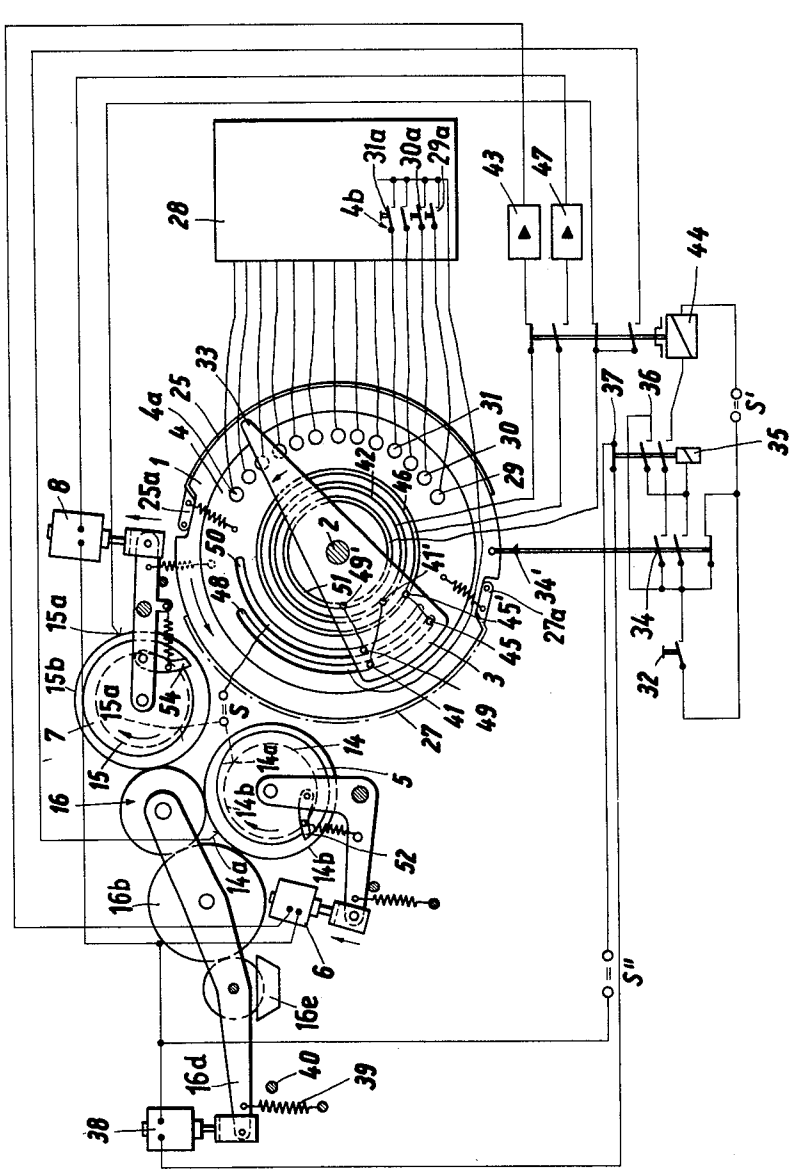
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ROTARY OFFSET PRINTING MACHINE FOR SELECTIVE PRINTING

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Fig. 3



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ROTARY OFFSET PRINTING MACHINE FOR SELECTIVE PRINTING

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18 Claims. (Cl. 101—142)

The present invention relates to an offset printing machine for selective printing of sections of a printing form.

It is one object of the present invention to provide an offset printing machine permitting very fast printing of copy sheets.

It is another object of the present invention to provide an offset printing machine in which simultaneous transfer from the printing form to an offset roller, and printing on a copy sheet by another offset roller is achieved.

Another object of the invention is to provide an offset printing machine with two alternately operating offset rollers.

Another object of the invention is to provide an offset printing machine in which selected lines or sections of the printing form are transferred to one or two offset rollers in adjacent positions, and then printed by the offset rollers on successive copy sheets.

Another object of the invention is to use one main cylinder for the support of a printing form and of a copy sheet.

Offset printing machines are known in which the copy sheet is separated from the offset roller in order to obtain selective printing. These constructions have the disadvantage that the copy sheet sometimes adheres to the offset roller due to the adhesive consistency of heavy offset ink.

It is another object of the invention to overcome this disadvantage of known offset printing machines.

In accordance with the present invention, an offset cylinder receives a copy of selected lines of the printing form, and produces imprints of the copy on a copy sheet mounted on the main cylinder which also carries the printing form.

One embodiment of the present invention comprises a rotary main cylinder on which first and second holding means hold a printing form and a copy sheet. At least one of said rollers, and preferably two offset rollers, cooperate with the main cylinder. Control means are provided for moving the offset roller, or the offset rollers, in timed relation with the rotation of the main cylinder between inoperative and operative positions cooperating with the main cylinder. The arrangement is such that the offset rollers first cooperate in the operative position of the main cylinder to receive a copy of the printing form and then cooperate in the operative position with the main cylinder to make a corresponding imprint on the copy sheets.

When two offset rollers are provided, they are alternately operated to receive copies of the printing form, and to imprint successive copy sheets, one copy sheet being fed to the holding means on the main cylinder during each revolution of the main cylinder.

In the preferred embodiment of the invention, only selected sections of the printing form are copied alternately on two offset rollers, and each offset roller is held at

a standstill while undesired sections or lines of the printing form pass the respective offset roller. Consequently, the copies of the selected lines appear on the offset rollers in adjacent positions, so that the imprints made on the copy sheets show the selected lines in adjacent positions.

The control means by which the operations are initiated in timed relation with the rotation of the main cylinder, include electromagnetic means for moving the offset rollers between inoperative and operative positions, and coupling means for returning each offset roller to its initial position after it has been turned by the main cylinder during the transfer of a copy of the printing form to the respective offset roller. Such return is necessary, since each offset roller must be in its initial position when the printing on the copy sheet is started by moving the respective offset roller again to its operative position. During a single revolution of the main cylinder, one offset roller which has previously received a copy of selective lines of the printing form, prints on the copy sheets, whereupon the same offset roller is moved to and from an operative position cooperating with the main cylinder for receiving copies of the previously selected lines of the printing form so that it assumes an angular position out of phase with the position of the main cylinder, while the other offset roller is returned in synchronism with the main cylinder to its initial position. During two consecutive revolutions, the offset rollers alternate to perform the above described operations.

The control means include control switches, and relays with contacts, and a series of contact buttons respectively associated with sections of the printing form and successively engaged by rotary contacts which rotate in synchronism with the main cylinder. The contact buttons are respectively connected to manually operate selector switches which are combined in a keyboard. In the preferred embodiment first control means are provided for moving the offset rollers in timed relation with the rotation of the main cylinder and with each other between an inoperative position, and an operative position in which the respective offset roller is turned in one direction while receiving a copy of the printing form, preferably in the form of selected lines of the printing form. Second control means are provided for rotating each offset roller independently of the respective other offset roller in the opposite direction so that the offset rollers are alternately returned in the inoperative positions thereof to the initial position thereof after receiving the copy of the printing form. Thereupon, the first control means move the offset rollers in the initial position alternately to the operative positions to make corresponding imprints on successive copy sheets which are fed after each revolution of the main cylinder to the holding means on the main cylinder.

The novel features which are considered as characteristic for the invention are set forth in particular in the appended claims. The invention itself, however, both as to its construction and its method of operation together with additional objects and advantages thereof, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawing, in which:

FIG. 1 is a fragmentary schematic side elevation of an offset printing machine according to one embodiment of the invention, the side walls being omitted for the sake of clarity;

FIG. 2 is a fragmentary schematic cross sectional view taken on line 2—2 in FIG. 1, with some of the parts omitted for the sake of clarity;

FIG. 3 is a fragmentary diagrammatic side view of the embodiment of FIG. 1 and illustrating the electric circuit of the machine.

A main printing cylinder 1 is driven by a shaft 2 which also carries a control member 3 which has three pairs of slide contacts 41, 41', 45, 45' and 49, 49' moving along circular paths during rotation of shafts 2 with main cylinder 1. A stationary contact member 4 has a series of slide contacts 4*a* arranged along a circular line and positioned so that slide contacts 45 and 41 successively engage the stationary contact 4*a*. The first, second and fourth stationary contacts are respectively indicated by the reference numeral 29, 30 and 31.

Each stationary contact 4*a* is connected to a manually operated selector switch 4*b* at which only switches 29*a*, 30*a* and 31*a* are shown. Switches 4*b* form a keyboard 28.

The stationary contact member 4 carries three circular stationary slide contacts 51, 42 and 46 which are in sliding engagement with the moving slide contacts 49', 41' and 45' during rotation of the main cylinder 1 with rotary contact member 3. Two part-circular stationary slide contacts 50 and 48 respectively cooperate with slide contact 49, and with a pair of slide contacts 41 and 45 on control member 3. One end portion 33 of control member 3 engages during each rotation of the main cylinder 1 a part 34' of a multiple switch 34 so that the same is shifted. A first spring loaded holding means 25*a* is mounted on the periphery of the main cylinder 1 to hold an offset printing form 25 on a first part of the periphery of the main cylinder 1. A second holding means 27*a* holds a copy sheet 27 on another peripheral portion of the main cylinder 1. The angular positions of the holding means and of the printing form and copy sheet on main cylinder 1 are in a predetermined relationship with the angular position of the control member 3, and the slide contacts thereon.

A washing device 16 includes 3 rollers 16*a*, 16*b* and 16*c* mounted on a lever 16*d*, rollers 16*a* receiving a liquid from a container 16E, and roller 16*c* cooperating with the surfaces of two offset rollers 5 and 7 for washing the same when the electromagnetic means 38 is energized. When electromagnetic means 38 is de-energized, a spring 39 pulls lever 16*d* to the inoperative position shown in FIG. 1 in which lever 16*d* abuts a stop 40, while washing roller 16*c* is retracted from the offset rollers 5 and 7.

In the counterclockwise direction of rotation of main cylinder 1, a moistening device 17, a preliminary moistening device 18, and an inking device are arranged. The inking device includes an inking roller 21, a transfer roller 20, and a doctor roller 19.

On a supporting table 23 which is biased to move upwardly, a stack 22 of copy sheets 27 is arranged, which are automatically fed in a conventional manner by a suction element 26 to the holding means 27 during rotation of the main cylinder 1. A stationary table 24 is used for inserting a printing form 25 into the holding means 25*a*.

As best seen in FIG. 2, shaft 2, which is driven by a motor, not shown, is connected by gears 9, 11 and 13 to a shaft portion 13*a* which can be coupled by an electromagnetic coupling means 15 to the shaft 7*a* of the offset roller 7. Offset roller 5 is driven in the same manner if the electromagnetic coupling 14 is energized. Coupling 14 is secured to a gear 12 meshing with a gear 10 driven from gear 9 on shaft 2.

As best seen from FIGS. 2 and 3, slide brushes 15*a* cooperate with slide rings 15*b* to supply the coupling 15 with electric current from a source S. Brushes 14*a* cooperate with slide rings 14*b* on coupling 14, one of the bushes 14*a* being connected to the source of voltage S.

Shaft 7*a* of offset roller 7 is mounted on a supporting lever means 7*b* which is turnable on a pivot means 7*c*. Lever means 7*b* are operated by an electromagnetic means 8, and are loaded by a spring 7*c* to abut a stop 7*d*.

Shaft means 5*a* of offset roller 5 is supported by a lever means 5*b* which is turnable about a pivot 5*c* and is operated by an electromagnetic means 14 against the action of a spring 5*c* which urges lever means 5*d* to a position abutting stop 5*d*.

When electromagnetic means 8 is energized, offset roller 7 is moved to an operative position cooperating with the periphery of main cylinder 1, and when electromagnetic means 6 is energized, offset roller 5 is moved to an operative position cooperating with the periphery of the main cylinder 1.

A drum 54*a* is mounted on shaft 7*a* for rotation with offset roller 7, as best seen in FIG. 2. A stop pawl 54 is mounted on lever means 7*b*, and cooperates with the inner surface of drum 54*a*. A spring 54*b* acts on pawl 54 and urges the same against the inner surface of drum 54*a* so that the same is braked, and stopped when pawl 54 engages a shoulder 54*c* in the position shown in FIGS. 1 and 2. The construction of the offset roller 5 corresponds to the above described construction, and a spring loaded pawl 52 cooperates with the inner surface of a drum 52*a*. Referring again to the diagram shown in FIG. 3, it will be seen that the source of voltage S is connected to the part-circular slide ring 50, and that the part-circular slide ring 48 is connected to the manually operated selector switches 4*b*.

Slide ring 51 is connected to two contacts, and slide rings 42 and 46 are connected to the other two contacts of a control relay 44. The contacts of relay 44 are also connected to two amplifiers 43 and 47 and to brushes 14*a* and 14*b*. Control relay 44 is of the switch-over type so that its contacts are shifted, and remain in the shifted position whenever the relay 44 is energized. Amplifier 43 is connected to the electromagnetic means 6 of the offset roller 5, and amplifier 47 is connected to electromagnetic means 8 of the offset roller 7.

Control switch 34, which is actuated by portion 33 of control arm 3, has three contacts connected in series with the main switch 32. Two of the contacts are connected in series with two contacts of another control relay 35, and a third contact is connected to a source of voltage S'. The first contact of control relay 35 is connected to the winding of control relay 44, and a second contact 36 is a holding contact. A third contact 37 is connected to the electromagnetic means 38 which operates in a washing device. A source of voltage S'' is provided in this circuit. The above described offset printing machine is capable of producing on the copy sheet adjacent imprints of sections of the printing form which are spaced on the printing form from each other. For example if one line of the printing form is omitted, the preceding and following lines will appear in directly successive order without an intermediate space on the copy sheet.

Operation

It is assumed that the first two lines and the fourth line of the printed form are to be printed. The keys of the manually operated switches 29*a*, 30*a* and 31*a* are operated to close, while all other switches 4*b* of the keyboard remain open. Only the operated switches are shown in FIG. 3 for the sake of clarity and simplicity.

Main cylinder 1 is continuously rotated in direction of the arrow in counterclockwise direction. The main switch 32 may be closed by the operator in any position of the main cylinder, but the operations are started in a desired angular position of the main cylinder when the projection 33 of control arm 3 engages portion 34' of the control switch 34. Relay 35 is energized, and shifts its contacts so that the holding contact 36 holds relay 35 in an energized position together with its con-

tacts after portion 33 has passed beyond the actuating portion 34'.

Contact 37 is opened, and interrupts the circuit of electromagnetic means 38 so that the washing device 16 is retracted and rendered inoperative by the spring 39. The washing device 16 is now in the position illustrated in solid lines in FIG. 1.

During the continued rotation of main cylinder 1, slide contact 45 passes over stationary contacts 29, 30, 31, but has no effect since its connection over slide ring 46 to amplifier 47 is interrupted by an open contact of control relay 44.

Slide contact 41 follows and successively engages the contacts 4*a*, starting with contacts 29 and 30. Since the contact of control relay 44 connected to amplifier 43 and slide ring 42 is closed, a circuit is established over contacts 41', 41 and the closed switches 29*a*, 30*a* and 31*a*, but not over the switch associated with the third contact 4*a* which had remained open, since it was not selected by the operator.

As long as contact 41 engages contact 29, electromagnetic means 6 of offset roller 5 is energized, so that the offset roller 5 is moved to its operative condition shown in dash and dot lines in FIG. 1 in which it cooperates with the periphery of the main cylinder 1. The same rocking movement is performed by lever 5*b* whenever contact 41 engages a contact 4*a* connected to a closed manually operated contact 4*b*, in the present instance the contacts 30 and 31. As a result, the offset roller 5 is in a turned position displaced an angle corresponding to three lines of the printing form, and carries copies of lines 1, 2 and 4 of the printing form of mirror script adjacent each other. Since offset roller 5 is retracted while the third line of the printing form passes the region of the offset roller 5, offset roller 5 does not turn during passage of the third line, so that the fourth line is copied adjacent the second line on offset roller 5.

In order to prevent an angular movement of offset roller 5 due to inertia during passage of the third line of the printing form, pawl 52 slides on drum 52*a*, and thereby exerts a braking action.

Control arm 3 assumes again a position in which it engages portion 34' of control switch 34 so that control relay 44 is energized and shifts its contacts. The circuit of amplifier 47 is closed, and the circuit of amplifier 43 is open.

Slide contact 45 engages the part-circular stationary contact 48 so that the circuit of electromagnetic means 8 of offset roller 7 is closed through slide contact 45', slide ring 46 and amplifier 47. Offset roller 7 is moved by lever 7*b* to its operative position shown in dash and dot lines in FIG. 1 and contacts the periphery of main cylinder 1. Offset roller 7 turns as long as slide contact 45 engages stationary contact 48 which dimensioned to cause one full revolution of offset roller 7. However, no imprint is made on the copy sheet 27 which is engaged by offset roller 7, since no copy was previously transferred from the printing form to offset roller 7.

The circuit of offset roller 5 is not closed when slide contact 41 engages stationary contact 48, since the corresponding contact of relay 44 in the circuit of amplifier 43 and electromagnetic means 6 was opened when relay 44 was energized. Slide contact 49 engages stationary part-circular contact 50 simultaneously with the engagement of stationary contact 48 by slide contact 45 which is due to the fact that contacts 49 and 45 are angularly displaced the same distance as the ends of stationary contact 48 and 50.

As has been explained above, one half of the electromagnetic coupling means 14 is continuously driven by the gear train 9, 10, 12 from shaft 2 of main cylinder 1. The engagement of contacts 49 and 50 connects brushes 14*a* to the source of voltage so that the electromagnetic coupling means 14 assumes its coupling position. Consequently, offset roller 5 is driven from the main shaft 2, and due to the arrangement of the gear train, offset roller 5 is rotated in the direction opposite to its previous rotation, and consequently returned to its initial position in which pawl 52 engages a shoulder on drum 52*a*. The length of stationary contact 50 is selected so that the electromagnetic coupling 14 is disconnected and disengaged when offset roller 5 arrives again in its initial position which is predetermined in relation to the angular position of main cylinder 1 with printing form 25 and copy sheet 27.

Slide contact 45 engages stationary contacts 29, 30, 31 successively during further rotation of the main cylinder 1 since amplifier 47 is connected into the corresponding circuit by the closed contact of control relay 44, electromagnetic means 8 is again energized to move offset roller 7 to the operative position engaging the printing form 25 when contact 45 engages contacts 29, 30 and 31 whereby a copy of the three selected lines of the printing form is transferred to offset roller 7 in adjacent positions. While contact 45 passes over the third contact 4*a*, offset roller 7 is at a standstill, and braked by pawl 54.

Control portion 33 of control arm 3 again engages portion 34' and switch 34 is shifted momentarily. Control relay 44 is energized, and shifts its contact back to the position of FIG. 3 so that the contact associated with amplifier 43 is closed, and the contact associated with amplifier 47 is opened.

When slide contact 41 engages again stationary contact 48, electromagnetic means 6 is energized through amplifier 43, and shifts lever 6*b* so that offset roller 5 is moved to its operative position engaging the copy sheet 27 and producing an imprint on the same. When the copy sheet has passed beyond the region of offset roller 5, holding means 27*a* is opened automatically by a conventional construction, and the copy sheet 27 is ejected onto a receiving table 53, as shown in FIG. 1.

A new copy sheet 27 is fed by suction element 26 from stack 22 into the holding means 27*a* when the same passes suction element 26 in its raised operative position shown in dash and dot lines in FIG. 1. The feeding and ejection of the copy sheet is carried out by conventional apparatus which is not an object of the present invention.

When slide contact 49 engages stationary contest 50, brushes 15*a* are connected to the circuit by a closed contact of control relay 44, and the driven half of coupling 15 is energized, and attracts the other half which is mounted for sliding movement in axial direction of shaft 7a, as best seen in FIG. 2. Consequently, offset roller 7 is driven through the gear train 9, 11, 13 from shaft 2 and the arrangement is such that offset roller 7 is returned to its initial position whereupon slide contact 49 passes beyond stationary contact 50 to de-energized coupling 15 when offset roller 7 is stopped by pawl 54 engaging shoulder 54*c* of drum 54*a*, as shown in FIG. 2.

Offset roller 5 has made a complete revolution while producing the imprint on copy sheet 27, and is again in its initial position.

Consequently, when slide contact 41 engages again contacts 29, 30 and 31, offset roller 5 can again receive a copy of lines 1, 2 and 4.

Portion 33 of control arm 3 again operates control switch 34, relay 44 shifts its contacts so that the circuit of amplifier 47 is closed and electronmagnetic means 8 is actuated when contact 45 engages contact 48. Offset roller 7 makes an imprint of lines 1, 2 and 4 on the new copy sheet 27, while offset roller 5 which has in the meantime received copies of lines 1, 2 and 4, is turned by the again energized electromagnetic coupling 14 in counterclockwise direction to its initial position.

In this summer, continuous rotation of the main cylinder 1 will simultaneously cause transfer of the copy of a selected text of the printing form to one or the other

offset roller, and printing by the respective other offset roller on the copy sheets.

When as many copies as desired are printed, main switch 32 is switched off, however, the started printing operation is completed and continued until portion 33 of control arm 3 again operates control switch 34. Relay 35 is de-energized, and electromagnetic means 38 is energized by the closing contact 37 whereby the washing device 16 becomes operative to clean the offset rollers 5 and 7 in the position shown in FIG. 3.

In a simplified construction of the present invention in which it is not intended to make on the copy sheet adjacent imprints of lines which are spaced by the printing form, the offset cylinders 5 and 7 need not be braked, and it is not necessary to return the offset cylinders to the initial positions by electromagnetic coupling means. In this modified construction, the offset cylinders are simply driven by gear trains in synchronism with the main cylinder.

It wil be understood that each of the elements described above or two or more together, may also find a useful application in other types of printing machines differing from the types described above.

While the invention has been illustrated and described as embodied in an offset printing machine provided with two alternately operating offset rollers and having a main cylinder carrying a printing form and a copy sheet, it is not intended to be limited to the details shown, since various modifications and structural changes may be made without departing in any way from the spirit of the present invention.

Without further analysis the foregoing will so fully reveal the gist of the present invention that others can by applying current knowledge readily adapt it for various applications without omitting features that, from the standpoint or prior art, fairly constitute essential characterisics of the generic or specific aspects of this invention and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the following claims.

What is claimed and desired to be secured by Letters Patent is:

1. An offset printing machine, comprising, in combination, rotary main cylinder means; first and second holding means mounted spaced from each other on said main cylinder means for holding a printing form having a plurality of text sections, and a copy sheet in circumferentially spaced positions on the periphery of said main cylinder means; at least one offset roller mounted for movement between an inoperative position, and an operative position cooperating with said main cylinder means; operating means for moving said offset roller between said positions; and control means connected to said operating means for moving said offset roller in timed relation with the rotation of said main cylinder means between said inoperative and operative positions and including selector means having a plurality of manually operated selector elements respectively correlated with said text sections for selecting a plurality of said text sections irrespective of the spacing and positions of said text sections of the printing form for printing so that said offset roller is moved by said operating means to said operative position only when a selected section of the printing form is located opposite said offset roller whereby the latter receives copies of selected sections of said printing form, and then cooperates in said operative position with said main cylinder means to make a corresponding imprint on the copy sheet.

2. An offset printing machine, comprising, in combination, rotary main cylinder means; first and second holding means mounted spaced from each other on said main cylinder means for holding a printing form and a copy sheet in circumferentially spaced positions on the periphery of said main cylinder means; at least one offset roller mounted for movement between an inoperative position, and an operative position cooperating with said main cylinder means; operating means for moving said offset roller between said positions; first control means connected to said operating means for moving said offset roller and timed relation with the rotation of said main cylinder means at least during each revolution of said main cylinder means between said inoperative and operative positions and including selector means for controlling said operating means to hold said offset roller in said operative position only during turning of said main cylinder means through a selected angle so that said offset roller, when moved a first time to said operative position, is turned by said main cylinder means through an angle less than 180° in one direction from an initial position to an angularly displaced position while receiving a copy of a selected part of the printing form; and second control means including means for rotating said offset roller in the opposite direction, said second control means operating in timed relation with the rotation of said main cylinder means so that said offset roller is returned in said inoperative position to said initial position after receiving said copy, whereupon said first control means move said offset roller in said initial position a second time to said operative position to make an imprint on said copy sheet corresponding to said copy.

3. An offset printing machine, comprising, in combination, rotary main cylinder means; first and second holding means mounted spaced from each other on said main cylinder means for holding a printing form and a copy sheet in circumferentially spaced position on the periphery of said main cylinder means; at least one offset roller mounted for movement between an inoperative position, and an operative position cooperating with said main cylinder means; first electrical control means for moving said offset roller in timed relation with the rotation of said main cylinder means between said inoperative and operative positions and including selector means for having a plurality of manually operated selector switches correlated with sections or lines of the printing form for selecting sections or lines of the printing form for printing so that said offset roller cooperates during one part of each revolution of said main cylinder means in said operative position with said main cylinder means only when a selected section of said printing form is located opposite said offset roller and is in said inoperative position when passed by non-selected sections of the printing form whereby said offset roller receives adjacent copies of spaced selected section of the printing form and turns in one direction from an initial position to an angularly displaced position while receiving a copy of the printing form; and second control means including means for rotating said offset roller in the opposite direction, said second control means operating in timed relation with the rotation of said main cylinder means so that said offset roller is returned in said inoperative position to said initial position after receiving said copy, whereupon said first control means move said offset roller in said initial position to said operative position to make an imprint on said copy sheet corresponding to said copy.

4. An offset printing machine, comprising, in combination, rotary main cylinder means including a rotary control member; first and second holding means mounted spaced from each other on said main cylinder means for holding a printing form and a copy sheet in circumferentially spaced position on the periphery of said main cylinder means; at least one offset roller mounted for movement between an inoperative position, and an operative position cooperating with said main cylinder means; first control means including switch means controlled by said control member and electro-magnetic means controlled by said switch means for moving said offset roller in timed relation with the rotation of said main cylinder means between said inoperative and operative positions and including selector means having manually operated selector switches connected into the circuit of said elec-

tro-magnetic means for selecting sections or lines of the printing form for printing so that said offset roller cooperates in said operative position with said main cylinder means only when a selected section of said printing form is located opposite said offset roller and is in said inoperative position when passed by non-selected sections of the printing form whereby said offset roller receives adjacent copies of spaced selected section of the printing form and turns in one direction from an initial position to an angularly displaced position while receiving a copy of the printing form; and second control means including electro-magnet coupling means controlled by said switch means for connecting said offset roller with said main cylinder means for rotating said offset roller in the opposite direction, said second control means operating in timed relation with the rotation of said main cylinder means so that said offset roller is returned in said inoperative position to said initial position after receiving said copy, whereupon said first control means move said offset roller in said initial position to said operative position to make an imprint on said copy sheet corresponding to said copy.

5. An offset printing machine as set forth in claim 4 wherein said switch means include slide contacts on said control member, stationary contacts extending along circles and engaged by said slide contacts, a control switch having a plurality of contacts and operated by said control member once during each revolution of said main cylinder means, and relay means connected to and controlled by said contacts of said control switch and having relay contacts connected to said stationary contacts.

6. An offset printing machine as set forth in claim 5 wherein said selector switches are arranged in a key board and are respectively correlated with lines of the printing form; said first control means including a series of stationary contact buttons arranged spaced along a circle and successively engaged by said slide contacts during rotation of said control member, said contact buttons being respectively connected with said selector switches.

7. An offset printing machine comprising, in combination, main cylinder means; first and second holding means mounted spaced from each other on said main cylinder means for holding a printing form and a copy sheet in circumferentially spaced positions on the periphery of said main cylinder means; a first offset roller; first operating means for moving said first offset roller between an inoperative position, and an operative position cooperating with said main cylinder means; a second offset roller; second operating means for moving said second offset roller between an inoperative position, and an operative position cooperating with said main cylinder means; control means connected to said operating means for moving said offset rollers in timed relation with the rotation of said main cylinder means and with each other between said inoperative and operative positions so that said offset rollers alternately cooperate in said operative position with said main cylinder means during successive revolutions of said main cylinder means to receive copies of said printing form, and to make corresponding imprints on successive copy sheets; and means for removing the printed copy sheet from, and for supplying a new copy sheet to said second holding means and operating in timed relation with said main cylinder means so that copy sheets printed by said first offset roller are removed, and so that said second offset roller prints on a new copy sheet.

8. An offset printing machine comprising, in combination, main cylinder means; first and second holding means mounted spaced from each other on said main cylinder means for holding a printing form and a copy sheet in circumferentially spaced positions on the periphery of said main cylinder means; a first offset roller; first operating means for moving said first offset roller between an inoperative position, and an operative position cooperating with said main cylinder means; a second offset roller; second operating means for moving said second offset

roller between an inoperative position, and an operative position cooperating with said main cylinder means; first control means connected to said operating means for moving said offset rollers in timed relation with the rotation of said main cylinder means and with each other between said inoperative positions and said operative positions in which operative positions said offset rollers are turned in one direction from initial positions to angularly displaced positions by said main cylinder means while receiving a copy of the printing form during first parts of two successive revolutions of said main cylinder means, respectively; and second control means including means for rotating each of said offset rollers independently of the respective other offset roller in the opposite direction, said second control means operating in timed relation with the rotation of said main cylinder means so that said offset rollers are returned in said inoperative positions to said initial positions during the second parts of said two successive revolutions of said main cylinder means, respectively, said first control means actuating said first and second operating means during said second parts of said two successive revolutions, respectively, to move said offset rollers in said initial position alternately during said two successive revolutions to said operative positions so that each offset roller makes corresponding imprints on successive copy sheet while the respective other offset roller is turned back to said initial position; and means for removing the printed copy sheet from, and for supplying a new copy sheet to said second holding means and operating in timed relation with said main cylinder means so that copy sheets printed by said first offset roller are removed, and so that said second offset roller prints on a new copy sheet.

9. An offset printing machine comprising, in combination, main cylinder means; first and second holding means mounted spaced from each other on said main cylinder means for holding a printing form and a copy sheet in circumferentially spaced positions on the periphery of said main cylinder means; a first offset roller; first operating means for moving said first offset roller between an inoperative position, and an operative position cooperating with said main cylinder means; a second offset roller; second operating means for moving said second offset roller between an inoperative position, and an operative position cooperating with said main cylinder means; first electric control means connected to said operating means for moving said offset rollers in timed relation with the rotation of said main cylinder means and with each other during one part of two successive revolutions of said main cylinder means, respectively, between said inoperative positions and said operative positions in which operative positions said offset rollers are turned in one direction by said main cylinder means while receiving a copy of the printing form, said first control means having a plurality of manually operated selector switches correlated with section or lines of the printing form including selector means for selecting sections or lines of the printing form for printing so that said offset rollers move to said operative positions cooperating with said main cylinder means when a selected section of said printing form is located opposite the respective offset roller and are in said inoperative positions when passed by non-selected sections of the printing form whereby said offset rollers receive adjacent copies of spaced selected sections of the printing form and turn in said one direction from initial positions to angularly displaced positions; second control means including means for rotating each of said offset rollers independently of the respective other offset roller in the opposite direction, said second control means operating in timed relation with the rotation of said main cylinder means so that said offset rollers are alternately returned in said inoperative positions to said initial positions after receiving said copy, said first control means being controlled by said main cylinder means during other parts of the respective successive revolutions to move said

offset rollers in said initial position alternately to said operative positions to make corresponding imprints on successive copy sheets; and means for removing the printed copy sheet from, and for supplying a new copy sheet to said second holding means and operating in timed relation with said main cylinder means so that copy sheets printed by said first offset roller are removed, and so that said second offset roller prints on a new copy sheet.

10. An offset printing machine comprising, in combination, main cylinder means; first and second holding means mounted spaced from each other on said main cylinder means for holding a printing form and a copy sheet in circumferentially spaced positions on the periphery of said main cylinder means; a first offset roller; first operating means including a rotary control member for moving said first offset roller between an inoperative position, and an operative position cooperating with said main cylinder means; a second offset roller; second operating means including an electro-magnetic means for moving said second offset roller between an inoperative position, and an operative position cooperating with said main cylinder means; first control means including switch means controlled by said control member and connected to said operating means for moving said offset rollers in timed relation with the rotation of said main cylinder means and with each other between said inoperative positions and said operative positions in which operative positions said offset rollers are turned in one direction by said main cylinder means while receiving a copy of the printing form, said first control means including selector means having manually operated selector switches connected into the circuit of said electro-magnetic means for selecting sections or lines of the printing form for printing so that said offset rollers move to said operative positions cooperating with said main cylinder means when a selected section of said printing form is located opposite the respective offset roller and are in said inoperative positions when passed by non-selected sections of the printing form whereby said offset rollers receive adjacent copies of spaced selected sections of the printing form and turn in said one direction from initial positions to angularly displaced positions; and second control means including electro-magnetic coupling means controlled by said switch means for connecting said offset rollers with said main cylinder means for rotating each of said offset rollers independently of the respective other offset roller in the opposite direction, said second control means operating in timed relation with the rotation of said main cylinder means so that said offset rollers are alternately returned in said inoperative positions to said initial positions after receiving said copy, whereupon said first control means move said offset rollers in said initial position alternately to said operative positions to make corresponding imprints on successive copy sheets.

11. An offset printing machine as set forth in claim 10 wherein said switch means include slide contacts on said control member, stationary contacts extending along circles and engaged by said slide contacts during rotation of said main cylinder means, a control switch having a plurality of contacts and operated by said control member once during each revolution of said main cylinder means, and relay means connected to and controlled by said contacts of said control switch and having relay contacts connected to said stationary contacts.

12. An offset printing machine as set forth in claim 11 wherein said selector switches are arranged in a keyboard and are respectively correlated with sections or lines of the printing form; said first control means including a series of stationary contact buttons respectively correlated with sections of the printing form and arranged spaced along a circle so that said contact buttons are successively engaged by said slide contacts during rotation of said control member, said contact buttons being respectively connected with said selector switches.

13. An offset printing machine as set forth in claim 12 wherein some of said stationary contacts are slide rings respectively connected to said relay contacts, and other stationary contacts are part-circular, said slide contacts on said control member including pairs of inter-connected contacts respectively engaging a slide ring and a part-circular stationary contact, said part-circular stationary contacts having such a length that said coupling means are de-energized when the respective offset roller has returned to its initial position after rotation in said opposite direction.

14. An offset printing machine as set forth in claim 10 and including a main switch in series with said switch means for connecting said electromagnetic coupling means and said electro-magnetic means to a source of voltage; and a continuously rotating drive shaft for rotating said main cylinder means when the circuit is interrupted by said main switch; and wherein the circumferential extension of said main cylinder means is an integer multiple of the circumferential extension of each of said offset rollers

15. An offset printing machine comprising, in combination, main cylinder means; first and second holding means mounted spaced from each other on said main cylinder means for holding a printing form and a copy sheet in circumferentially spaced positions on the periphery of said main cylinder means; a first offset roller; first operating means for moving said first offset roller between an inoperative position, and an operative position cooperating with said main cylinder means; a second offset roller; second operating means for moving said second offset roller between an inoperative position, and an operative position cooperating with said main cylinder means; first control means connected to said operating means for moving said offset rollers in timed relation with the rotation of said main cylinder means and with each other between said inoperative positions and said operative positions in which operative positions said offset rollers are turned in one direction from initial positions to angularly displaced positions by said main cylinder means while receiving a copy of the printing form; second control means including means for rotating each of said offset rollers independently of the respective other offset roller in the opposite direction, said second control means operating in timed relation with the rotation of said main cylinder means so that said offset rollers are alternately returned in said inoperative positions to said initial positions after receiving said copy, whereupon said first control means move said offset rollers in said initial position alternately to said operative positions to make corresponding imprints on successive copy sheets; and means connected to said main cylinder means for rotation therewith for actuating said first and second control means once during each revolution of said main cylinder means and including third control means for connecting said first and second control means to said first operating means during each first revolution, and to said second control means during each second revolution of each pair of successive revolutions of said main cylinder means to effect alternate copy receiving and printing operations of said first and second offset rollers during successive revolutions of said main cylinder means.

16. An offset printing machine as set forth in claim 9 and including brake means for braking each of said offset rollers in said inoperative position so that said offset rollers are at a standstill while a non-selected section of the printing form passes the respective offset roller.

17. An offset printing machine as set forth in claim 16 wherein said brake means includes a drum having a braking surface formed with a shoulder, said drum being connected to one of said offset rollers for rotation, and a stationary pawl frictionally engaging said braking surface, and engaging said shoulder in said initial position of said offset roller to stop the same.

18. An offset printing machine as set forth in claim 10 and including a washing device, said washing device comprising a movable support shiftable between an in-

operative position and a washing position, spring means urging said support to said inoperative position, a washing roller mounted on said support and being in contact with said offset rollers in said inoperative position of the same when said support is in said washing position, and an electro-magnetic means for moving said support to said washing position; a relay having a relay contact connected in series with said last-mentioned electro-magnetic means and a holding contact, said last-mentioned relay being connected to said switch means to open said relay contact when said switch means is operated by said control member so that said support of said washing device moves to said inoperative position when a printing operation is started.

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