July 15, 1941. C. A. MEISEL 2,248,926

PRINTING PRESS

Filed Jan. 3, 1940 2 Sheets-Sheet 1

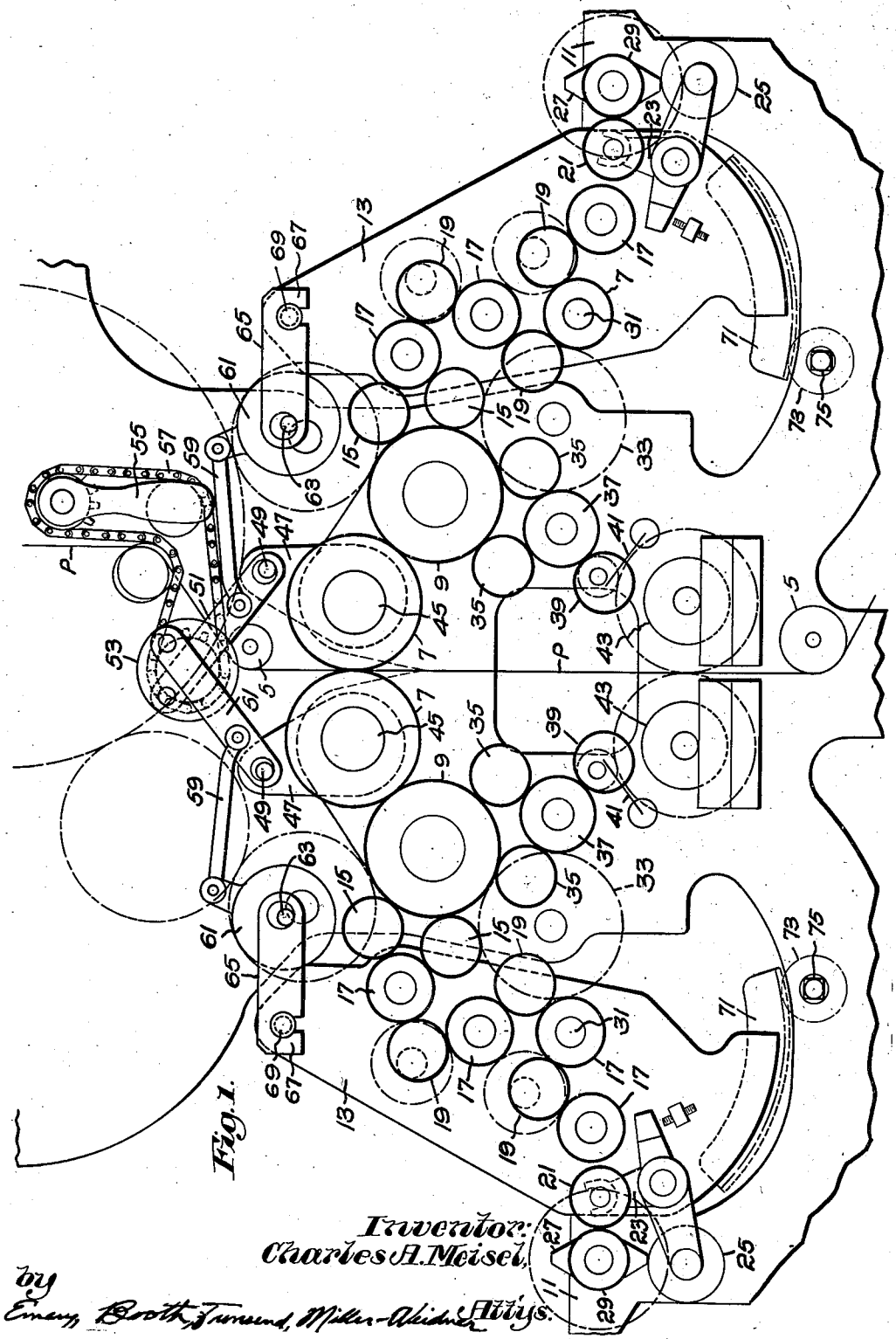


Fig. 1.

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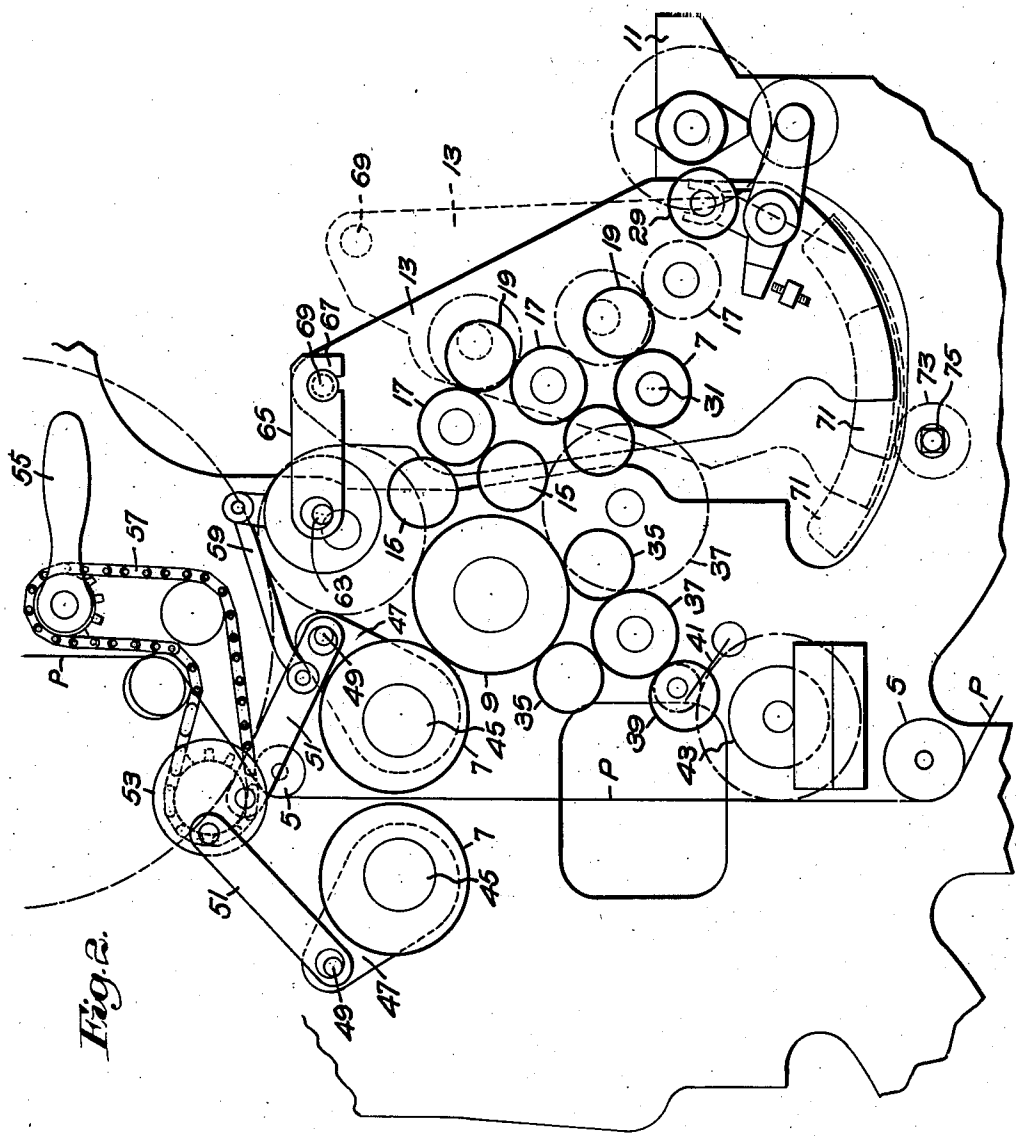


Fig. 2.

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Patented July 15, 1941

2,248,926

UNITED STATES PATENT OFFICE

2,248,926

PRINTING PRESS

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Application January 3, 1940, Serial No. 312,233

9 Claims. (Cl. 101—247)

This invention relates to printing presses and the object is to provide an improved construction therefor whereby the printing operation may be interrupted with facility but in such manner that when work is resumed the quality of the work is not impaired on account of the interruption and also to provide an arrangement facilitating access to the various parts.

My invention will be well understood by reference to the following description of an illustrative embodiment thereof in the form of a perfecting press of the rotary wet offset type illustrated in the accompanying drawings, wherein—

Fig. 1 is a diagram, corresponding to a fragmentary side elevation and indicating such essential elements of the press as are required to be shown to render the subject matter clear to those skilled in the art; and

Fig. 2 is a similar partial diagram showing the parts in a different position of adjustment.

In the diagrammatic drawing I have illustrated a single perfecting couple as utilized in a multi-couple, multi-color press, the other couples being of substantially similar construction. In the diagram I have shown the various cylinders in full lines superposed on outlines of the supporting framework, omitting the details of mechanical construction which may be of any suitable form and readily supplied by skilled workers in the art. Various cylinders are geared together at their ends, as will be well understood, and when, as is usually the case, the pitch diameter of a gear is the same as the diameter of a cylinder, I have not attempted to show them separately. Pitch lines of various intermediate gears are indicated by dot and dash lines.

Referring now to Fig. 1 of the drawings, the press here shown is of the web type and the web of paper P is fed in a vertical plane over suitable guide rolls 5 between a pair of opposed blanket cylinders 7 with which cooperate plate cylinders 9, these constituting the printing mechanism proper. The plate cylinders receive ink from laterally disposed fountains 11 through inking mechanisms organized on sub-frames 13. Herein these inking mechanisms comprise inking rolls 15 cooperating with the forms on the plate cylinders 9 and located adjacent the upper end and the inner side of the frames 13. These receive ink through a series of alternating vibrator rolls 17, which are transversely reciprocated in well known manner, and distributing rolls 19. Adjacent the outer and lower end of the frame 13 the ink is delivered to the set of rolls just referred to from the fountain 11. Herein a swinging ductor roller 21 is mounted on the frame 13 on a bell crank 23 carrying a cam follower 25 cooperating with a cam 27 on the shaft of fountain roll 29. The ductor roller in the normal position of the parts alternately contacts the fountain roll and the adjacent vibrator roll.

Each frame 13 is pivoted on a center 31 to swing in the manner of a lever of the first class so that when moved from the position shown in Fig. 1 to the full line position of Fig. 2 the inking rolls 15 are separated from the plate cylinders 9 and the ductor roller 21 so moved that it does not make contact with the fountain roll 29, thus interrupting the supply of ink to the form and also preventing the feeding of surplus ink to the inking mechanism when it is no longer being consumed by the printing operation. A driven gear on the center 31, not illustrated as such in the drawings because its pitch diameter is the same as the diameter of the vibrator roll mounted on the same center, meshes with a gear 33 on the main frame of the machine and forming a part of the main train of gears of the press. The pair of gears just referred to is therefore constantly in mesh whatever the position of the frame 13 about its center 31 and therefore, even when the ink supply is interrupted, as in the position of the parts shown in Fig. 2, the various rolls of the inking mechanism on the frame 13 are continuously in motion, working over the ink. If printing is resumed and the frame 13 moved back to the position of Fig. 1, the printing operation can go on as if there had been no interruption in so far as the quantity and distribution of the ink is concerned.

Water may be supplied to the plate cylinders 9 by means of water form rolls 35 cooperating with vibrator rolls 37 to which water is supplied by means of the ductor rollers 39 swinging on arms 41 to contact alternately the vibrator rolls and water fountain rolls 43. Any suitable means, not illustrated, may be provided for interrupting the supply of water to the plate cylinders when desired.

The arrangement of the press is such that the subframes 13 carrying the inking mechanism are rocked to the full line position shown in Fig. 2 when the blanket cylinders are tripped. Herein the blanket cylinders are mounted on eccentric bearings 45 having arms 47 to which are linked by a wrist pin connection 49 (herein shown as embodying an eccentric for purposes of adjustment) links 51 which in the normal position of the parts cross, as shown in Fig. 1, and extend respectively to the further side of a rotatable disc

53. The arrangement is such that in the position of the parts shown in Fig. 1 the radii of the disc extending to the points of connection of the links 51 therewith are substantially coincident or coplanar with the axes of the arms or links 51. There is thus provided a toggle mechanism which in Fig. 1 is on or slightly beyond dead center, locking the blanket cylinders in their operative position. An operating handle 55 working through a sprocket chain 57 serves to turn the disc 53, breaking the toggles to the position shown in Fig. 1 and tripping the cylinders.

To the arm 51 of each toggle is connected a rod 59 acting to turn a disc 61 pivoted on the side frame of the machine and having eccentrically mounted thereon (herein by an eccentric connection 63 providing for adjustment) a link or connecting rod 65 having a hooked end 67 engaging a stud on the upper end of the frame 13. Thus when the cylinders are tripped, the connecting rod 65 moves outwardly, moving the frame 13 about the center 31 to the full line position of Fig. 2 and separating, as already described, the inking rolls 15 from the plate cylinder and the ductor roll 21 from the fountain roll 29.

If the hook 67 is released, the frame 13 may be swung outwardly to the position shown in dotted lines in Fig. 2, thereby exposing the rolls at the inner side thereof, permitting ready access to the same for changing them or for other work thereon. I have herein shown the lower end of the frame 13 as provided with an arcuate rack or segment 71 meshing with a normally idle pinion on the main frame of the press. A crank handle may be fitted to the squared end of the pinion shaft, and when the hooked link 65 is released, rotation of the pinion will swing the frame 13 to and from the dotted line position of Fig. 2.

I am aware that the invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and I therefore desire the present embodiment to be considered in all respects as illustrative and not restrictive; reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

I claim:

1. In a printing press a printing mechanism proper including a form cylinder, an ink fountain, an intermediate frame including inking rolls to cooperate with the form cylinder, a roll normally receiving ink from the fountain and intermediate rolls for working the ink and delivering it from said roll receiving the same to said inking rolls, means for moving the frame to separate the inking rolls from the form and the ink-receiving roll from the fountain, and means for continuously driving the rolls on said frame irrespective of the position of the latter.

2. In a printing press a printing mechanism proper including a form cylinder, an ink fountain, an intermediate frame including inking rolls to cooperate with the form cylinder, a roll normally receiving ink from the fountain and intermediate rolls for working the ink and delivering it from said roll receiving the same to said inking rolls, said frame being pivoted at a point between the inking rolls and the ink-receiving roll, means for swinging the frame about its pivot to separate the inking rolls from the form and the ink-receiving roll from the fountain, and means for continuously driving the rolls on said frame irrespective of the position of the latter.

3. In a printing press a printing mechanism proper including a form cylinder, an ink fountain, an intermediate frame including inking rolls to cooperate with the form cylinder, a roll normally receiving ink from the fountain and intermediate rolls for working the ink and delivering it from said roll receiving the same to said inking rolls, the frame being pivoted between the inking rolls and the ink-receiving rolls in the manner of a lever of the first class, means including a transmission gear at the pivotal center for driving the rolls on the frame, reversibly actuable means for rocking the frame to and fro through a fixed traverse to separate the inking rolls from the form and the ink-receiving roll from the fountain and to return the same into cooperation therewith, said reversibly actuable means being readily disconnectable from the frame and the frame being then free to be swung further to facilitate access to the part carried thereby.

4. In a printing press a printing mechanism proper including a form cylinder, an ink fountain, an intermediate frame including inking rolls to cooperate with the form cylinder, a roll normally receiving ink from the fountain and intermediate rolls for working the ink and delivering it from said roll receiving the same to said inking rolls, means for tripping the impression, a train interposed between said tripping means and the frame effective when the impression is tripped to move the frame to separate the inking rolls from the form and the ink-receiving roll from the fountain, and means for continuously driving the rolls on said frame irrespective of the position of the latter.

5. In a printing press a printing mechanism proper including a form cylinder, an ink fountain, an intermediate frame including inking rolls to cooperate with the form cylinder, a roll normally receiving ink from the fountain and intermediate rolls for working the ink and delivering it from said roll receiving the same to said inking rolls, reversibly actuable means for moving the frame through a fixed traverse to separate the inking rolls from the form and the ink-receiving roll from the fountain and to return the same into cooperation therewith, and means for continuously driving the rolls on the frame irrespective of the position of the latter, said reversibly actuable means being readily disconnectable from the frame and the frame then being free to be moved further from the cooperating parts to facilitate access to the parts carried thereby.

6. In a rotary printing press a printing mechanism proper and an inking mechanism therefor comprising inking rolls for cooperation with a form incorporated in said printing mechanism, said inking mechanism being mounted on a movable frame to permit the inking rolls to be separated from the form, said printing mechanism including a cylinder for direct contact with the paper mounted on movable bearings, a toggle mechanism cooperating with the bearings to trip the impression when the toggle is broken, a link extending from the arm of the toggle, and means actuated by the link for moving the frame to separate the inking rolls from the form when the impression is tripped.

7. In a rotary printing press a printing mechanism proper and an inking mechanism therefor comprising inking rolls for cooperation with a form incorporated in said printing mechanism, said inking mechanism being mounted on a

movable frame to permit the inking rolls to be separated from the form, said printing mechanism including a cylinder for direct contact with the paper mounted on eccentric bearings, a train for moving the bearings including a lever and a toggle which when broken serves to trip the impression, and means directly connected to the elements of said train for moving the frame to separate the inking rolls from the form when the impression is tripped.

8. In a perfecting press a pair of opposed printing cylinders for printing on opposite sides of the paper, eccentrically mounted bearings for the cylinders, arms extending from the bearings, links connected to the arm, a single crank disc to which the arms are connected in such manner that when the cylinders are in printing position the radii of said disc through the points of connection of said arms substantially coincide with the axes of the arms respectively, and means for turning the disc.

9. In a perfecting press a pair of opposed printing cylinders for printing on opposite sides of the paper, eccentrically mounted bearings for the cylinders, arms extending from the bearings, links connected to the arm, a single crank disc to which the arms are connected in such manner that when the cylinders are in printing position the radii of said disc through the points of connection of said arms substantially coincide with the axes of the arms respectively, and means for turning the disc, laterally disposed, movably mounted frames carrying inking rolls, and means directly connected to the above described train which actuates said bearings for moving the frame to separate the inking rolls from the form when the impression is tripped.

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