

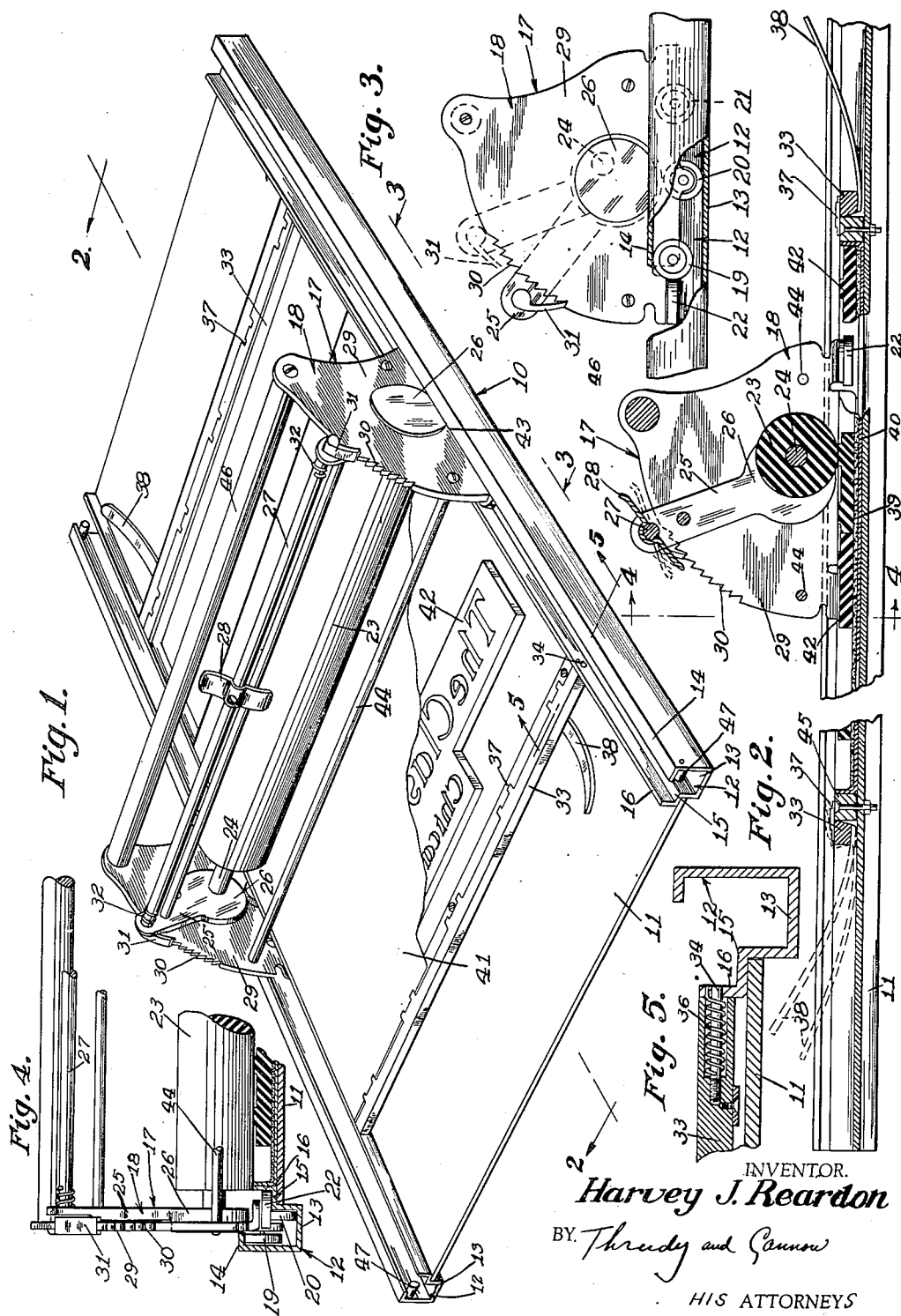
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H. J. REARDON

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PRINTING PRESS

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PRINTING PRESS

Harvey J. Reardon, Chicago, Ill.

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3 Claims. (Cl. 101—269)

This invention relates to printing presses.

It is an object of this invention to provide an improved printing press which is relatively simple and inexpensive in construction and efficient in use.

Heretofore in the art of printing with hand printing presses, such as, proof presses and the like, of the bed and cylinder type, it has been the customary practice, when printing from one direction or one end of the bed only, to place a protective or dummy sheet of paper or the like over the inked printing faces of the type when moving the printing carriage back to its initial position after the printing operation. The purpose of placing this dummy sheet over the type is to prevent the pressure cylinder or impression-transmitting roller of the carriage from coming into contact with the inked faces of the printing type, during the return movement of the carriage into its initial position, since the contact or engagement of the pressure cylinder with the inked printing faces of the type would eventually result in the impression roller becoming smeared with ink and thereby in turn cause the impression roll to smear the impression-receiving paper sheets or the like over which the pressure cylinder is moved during subsequent printing operations. This is an inefficient practice, both from the standpoint of the time and labor involved to the operator and also because of the fact that it necessitates the use of these protective or dummy blank sheets; and, moreover, since such sheets are thrown away after use, the practice is also wasteful from the standpoint of the cost of these sheets.

It is therefore an object of the present invention to provide an improved hand-printing press of the bed and cylinder type which is so constructed that in use it overcomes the foregoing and other objectionable features of the prior art hand printing presses of the bed and cylinder type.

Another object of the present invention is to provide a hand printing press of the bed and cylinder type which includes an impression-transmitting roll or pressure cylinder which may readily be raised, relative to its carriage and the bed plate of the press, and latched in raised position, so that the carriage may be run back over the inked type to its initial position without causing the pressure cylinder to engage the inked faces of the type.

An additional object of the invention is to provide a hand printing press of the character herein described and including a carriage hav-

ing embodied therein a pressure cylinder or impression roll which may be raised up and down relative to the bed of the press, means for raising and lowering the pressure cylinder relative to the bed plate and carriage, and novel means for latching the pressure cylinder in either raised or lowered position.

A further object of the invention is to provide the combination, in a hand printing press, of: a bed having substantially parallel trackways; a carriage movable over the bed including a pressure cylinder or impression-transmitting roll; said carriage including means engaging with said trackways to guide the carriage as it is moved over the bed while at the same time permitting a slight up and down movement to the carriage during the printing operation; said carriage including pivotal means for raising the pressure cylinder or impression-transmitting roller up and down in a vertical plane relative to the bed and the carriage itself; and the carriage also including a novel latching device for latching the pressure cylinder or impression roll in either raised or lowered position.

Applicant is aware of the fact that heretofore in the prior art various devices have been used on hand printing presses for adjusting the pressure cylinder up and down relative to the bed plate and carriage, and for varying the pressure of the pressure cylinder on the type during the printing operation, but insofar as he is aware applicant is the first to provide a hand printing press in which the pressure cylinder may be readily moved or pivoted up and down relative to the carriage and the bed plate by a single, readily performed, manual operation, and latched in either raised or lowered position by the latching device hereinafter described and shown in the drawing of this application.

A further object of the invention, therefore, is to provide the printing press hereinafter described and claimed and comprising, in general, in a hand printing press, the combination of: a bed having substantially parallel trackways; and a carriage movable over the bed and including an impression-transmitting roll or pressure cylinder; said carriage including means cooperating with said trackways to guide the carriage and to permit a limited up and down movement to the carriage as it is moved over the bed during the printing operation; said carriage also including pivotal means eccentrically mounted upon said carriage relative to the mounting of said pressure cylinder but movable with said pressure cylinder for raising and lowering the

said pressure cylinder relative to the bed and to the carriage itself; said carriage also including novel means cooperating with said pivotal pressure cylinder raising means for latching said pressure cylinder in either raised or lowered position and against movement relative to the carriage itself during the printing operation.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawing, showing the preferred form of construction and in which:

Fig. 1 is a perspective view illustrating a preferred form of the new printing press;

Fig. 2 is a longitudinal sectional view of the same on line 2—2 in Fig. 1;

Fig. 3 is a fragmentary elevational view on line 3—3 in Fig. 1 showing a part of the outside wall of one trackway broken away to illustrate the manner in which the anti-friction guide rollers of the carriage are arranged in the parallel trackways which are formed along the marginal edges of the bed plate;

Fig. 4 is a detail view on line 4—4 in Fig. 2, partly in section and partly in elevation; and

Fig. 5 is a sectional detail view on line 5—5 in Fig. 1.

A preferred form of the new hand printing press is shown in the drawing, is therein generally indicated at 10, and comprises a bed or bed plate 11 having substantially parallel trackways in the form of channels or grooves 12 formed therein along the marginal edges thereof. Each of the trackways 12 includes a bottom horizontal wall 13, a top horizontal wall 14, an intermediate horizontal wall 15, and a vertical wall 16, the walls 16 being arranged between the top and bottom walls 14 and 13 respectively of the trackways 12; and the intermediate horizontal walls 15 and the vertical walls 16 being offset to one side of the walls 14 and 13 of the trackways, as shown in Figs. 4 and 5.

Movable over the bed or bed plate 10 is an impression roll or pressure cylinder carriage, which is generally indicated at 17 and includes a supporting frame 18. The frame 18 of the carriage 17 includes spaced vertical end walls 29 and carried by each of these end walls 29 of the carriage at the bottom thereof is a set of four anti-friction guiding rollers numbered 19, 20, 21 and 22. The rollers 19 and 21 of each set of guide rollers are vertical guide rollers and bear against the horizontal top walls 14 of the trackways 12 during the printing operation, that is, when an impression-receiving paper or cardboard sheet or the like, indicated at 41 in the drawing, is arranged upon the printing type 42; the carriage 17 ordinarily riding upon the vertical rollers 20 when idle and these rollers 20 bearing against or resting upon the bottom horizontal walls 13 of the trackways 12; the horizontal rollers 22 bearing against the vertical walls 16 of the trackways 12 and preventing lateral or shifting movement of the carriage.

The carriage 17 includes a handle bar 46 and an impression-transmitting roll or pressure cylinder 23, the pressure cylinder 23 being mounted upon a horizontal shaft 24 and the end portions of the shaft 24 being rotatably journaled in substantially circular or disc-like bearing portions 26 of the carriage 17; the disc-like bearing portions 26 of the yoke members or arms 25 themselves

being rotatably journaled in substantially circular cut-out openings 43 which are formed in the end walls 29 of the carriage frame 18, as shown in Fig. 1; it being noted that the shaft 24 which supports the pressure cylinder 23 is eccentrically mounted in the disc-like bearing portions 26 of the yoke members 25, relative to the mountings of said members 25, for reasons to appear hereinafter.

Extending between and having its end portions rotatably journaled in the yoke or supporting members 25, in the upper end portions of the latter, is a horizontal shaft 27 and arranged upon this shaft 27 between the ends of the latter is a handle or finger grip member 28 which may be of any suitable shape or design.

Formed on the upper edge of each of the end walls 29 of the carriage frame 18 is a ratchet or rack of teeth 30 and arranged upon the end portions of the shaft 27 and normally disposed in engagement with the teeth 30 are latch dogs 31. These latch dogs 31 are urged into latching engagement with the teeth 31 and the shaft 27 is urged (counterclockwise, Figs. 1, 2, and 3) by means of springs 32 which are arranged upon the end portions of the shaft 27.

Arranged upon the bed plate 11 between the ends thereof are spaced relatively stationary clamping bars or members 45 and relatively movable clamping members or bars, 33; each of the movable clamping bars or members 33 having at its ends trunnions 34; these trunnions 34 being rotatably journaled in the vertical walls 16 of the trackways 12, as shown in Fig. 5. Each of the clamping bars 33 includes a plurality of spaced clamping fingers 37 and each of the clamping bars or members 33 is urged, by springs 36, in a direction to engage the clamping fingers 37 thereof with the corresponding relatively stationary clamping member or bar 45, the springs 36 being arranged upon the trunnions 34. Attached to and projecting from each clamping member or bar 33, from the edge thereof opposite the edge from which the clamping teeth 37 project, is an upwardly curved release arm or handle member 38.

Arranged upon the carriage 17, one on each side thereof and adjacent the bottom of the same, is a horizontal rod 44.

While printing type may be held upon the bed plate 11 in any customary or known manner, in one of the preferred uses of the new printing press there is arranged upon the bed plate 11 a pan or chase 40 in which is arranged a layer or bed 39 of gelatin or other resilient adhesive material, and held by this layer or bed of adhesive material 39, are rubber printing type 42, the combination of the rubber printing type 42 and resilient or gelatin bed 39 forming the subject matter of United States Patent No. 1,964,236 granted to Lourde J. Welch June 26, 1934.

Operation

In the use of the new printing press, the carriage 17 is moved to one end of the bed plate 11, whereupon one of the rods 44 engages the adjacent handle 38 and thereby pivots the corresponding clamping bar 33 so as to raise the clamping fingers 37 of the latter up out of engagement with the corresponding clamping bar 45, whereupon an impression-transmitting sheet of paper, cardboard or the like, is arranged upon the printing type 42 and one end thereof is projected under the raised clamping bar 33; the springs 36 then urging the raised clamping mem-

ber 33 in a direction to engage the clamping fingers 37 thereof with the end portion of the sheet 41 laid thereunder, thus binding the end portion of the sheet 41 against the corresponding relatively stationary clamping bar 45 and thereby holding the sheet 41 in position for the printing operation, which is accomplished as follows:

The carriage 17 is normally disposed, in its initial position, adjacent one end of the bed plate 11, against the stop members 47, (Fig. 1), and is moved over the bed plate 11 (left to right, Fig. 1) and over the impression-receiving sheet 41 with the pressure cylinder 23 disposed in the position in which it is shown in full lines in Figs. 1 and 2 of the drawing, or dotted line position, Fig. 3; the pressure cylinder 23 being held in this position and being prevented from being raised upwardly, as it passes over the sheet 41, by the engagement of the latch dogs 31 with the teeth 30. As the carriage 17 is moved over the bed plate and over the impression-receiving sheet 41 to effect the printing operation, the carriage 17 climbs slightly as it moves onto the sheet 41, due to the thickness of the latter, thereby causing the guide rollers 20 to ride up slightly off the bottom horizontal walls 13 of the trackways 12 and thereby causing the vertical rollers 19 to engage the top horizontal walls 14 of the trackways; the carriage 18 being prevented from shifting laterally by the engagement of the horizontal guide rollers 22 with the vertical walls 16 of the trackways 12. During this slight climbing movement of the carriage 17 the impression-transmitting roller or pressure cylinder 23 is prevented from being lifted up, relative to its carriage 17, and the pressure cylinder 23 and its supporting shaft 24 are prevented from rotating, (counterclockwise, Figs. 1, 2 and 3) by the engagement of the latch dogs 31 with the latch teeth 30.

After the printing operation has been completed upon the sheet 41, and the carriage is disposed adjacent the free end of the sheet 41 (to the right of the same as seen in Fig. 1), if the operator desires to return the carriage 17 to its initial position and print by moving the carriage 17 across the bed 11 only in one direction, he may press down the handle 38 of the clamping bar 33 which is holding the sheet 41 and withdraw the printed sheet 41 from off the type 42 and bed 11; and then move the carriage 17 back to its initial position (from right to left, Fig. 1), by pressing downwardly upon the handle or finger grip 28 so as to rotate the shaft or handle bar 27 and its handle 28 and the latch dogs 31 which are carried by the shaft 27 (clockwise, Figs. 2 and 3) thereby raising the latch dogs 31 up out of engagement with the latch teeth 30; whereupon the operator may press down the handle bar or shaft 27 (counterclockwise, Figs. 2 and 3), thereby rotating the yoke members or arms 25—26, shaft 24, and pressure cylinder 23 (counterclockwise, Figs. 1, 2 and 3), thereby raising the pressure cylinder 23 up above, and out of engagement with, the inked printing faces of the type 42, it being noted that during this movement of the yokes 25—26 and the shaft 24 and the pressure cylinder 23, the pressure cylinder 23 is pivoted at the center of the disc-like portions 26 of the yokes 25, rather than at the center of the shaft 24, the bearing portions 26 of the arms 25 rotating in the bearing openings 43 provided therefor in the end walls 29 of the carriage frame 18. Thus the pressure cylinder 23 is prevented from becoming smeared with ink during the re-

turn movement of the carriage to its initial position without the use of dummy or protective sheets or the like placed upon the type 42, which has been the customary practice in the prior art. In this manner the new printing press facilitates the printing operating and renders the same considerably more economical from the standpoint of time, labor and material than are the hand printing presses of the prior art.

As the carriage is returned to its initial position (from right to left, Fig. 1) it passes over the corresponding clamping bars 33 and 45 and during this movement one of the horizontal bars 44, which are arranged on the carriage 17, engages the upturned trip or release handle 38 of the corresponding clamping bar 33 and thereby pivots the said clamping bar 33 and its attached clamping fingers 37 up out of engagement with the adjacent fixed clamping bar 45, so that the end portion of another sheet 41 may be placed between the upraised fingers 37 of the raised clamping bar 33, in printing position, whereupon when the carriage 17 may again be moved over the bed 11 (left to right, Fig. 1). When member 44 is moved out of engagement with the handle 38 the springs 36 urge the clamping bar 33 in a direction to engage its fingers 37 with the end portion of the sheet 41 laid thereunder, thereby binding the end portion of the sheet 41 between the clamping fingers 37 and the corresponding fixed clamping bar 45.

After the operator has returned the carriage to its initial position, he may raise the handle bar or shaft 27 and its attached latch dogs 31 up into the position in which these parts are shown in full lines in Figs. 1 and 2, and in dotted lines in Fig. 3, whereupon the springs 32 urge the shaft 27 and latch dogs 31 carried thereby (counterclockwise, Figs. 1, 2 and 3), thus forcing the latch dogs 31 into latching engagement with the teeth 30 and thereby holding the pressure cylinder 23 in its lowered position, as shown in Fig. 2, ready for the next printing operation.

It is to be noted that if the operator so desires he may print from both ends of the bed plate 11, rather than from only one end, thereby eliminating the idle return movement of the carriage 17 and also the operation of raising and lowering the pressure cylinder 23. However, once the type 42 have been set up and centered for a particular size of paper, cardboard or like sheet 41, it is usually found more convenient and quicker to print from only one end of the bed plate 11.

When operating from both ends of the bed plate 11, it is not necessary to raise the pressure cylinder 23 in order to run the same over the clamping bars 33 and 45 nor is it necessary to manipulate the handle 38 to raise the clamping bars 33 since this latter operation may be accomplished by the engagement of the carriage rods 44 with the handles 38.

It will be noted that the means 25—26—27, etc., for raising and lowering the pressure cylinder 23 cooperates with the means 36—31 for latching the pressure cylinder 23 in either raised or lowered position so that the operation of raising or lowering the pressure cylinder 23 and latching the same in raised or lowered position may be effected by the single operation of the shaft 27. This is one of the novel features of the new press.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation

and modification, without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims. Thus, for example, other means than that shown may be employed for latching the pressure cylinder 23 in either raised or lowered position and the same are considered within the scope of the present invention and the appended claims.

Having thus described my invention what I claim as new and desire to protect by Letters Patent is:

15 1. In a hand printing press, of the bed and cylinder type, the combination of: a bed; a carriage movable over said bed; said carriage including the following parts: a supporting frame including upright end walls and an impression roll or pressure cylinder carried thereby; bearings rotatably journaled in the said end walls of said frame and having said impression roll eccentrically journaled therein, for raising and lowering said impression roll relative to both
20 the said bed and the carriage itself; a row of teeth carried by at least one of the said end walls of said frame; a shaft extending between the said end walls of said frame and having end portions rotatably journaled in said bearings; a latch member carried by said shaft and cooperating with said teeth to latch said impression roll in either raised or lowered position; and a handle carried by said shaft for moving the same in a direction to move the said latch member carried
25 thereby out of latching engagement with said teeth.

2. In a hand printing press, of the bed and cylinder type, the combination of: a bed; a pair of clamping members arranged upon said bed adjacent one end of the latter and another pair of clamping members arranged upon said bed adjacent the other end of the same; each of said pairs of clamping members including a relatively stationary clamping member and a relatively
30 movable clamping member; a carriage movable over said bed and including a supporting frame and a pressure cylinder or impression-transmitting roll journaled in said frame; and means normally urging each of said movable clamping members into clamping engagement with the corre-

sponding one of said stationary clamping members; said carriage including a rod carried by said frame and extending parallel to said pressure cylinder at one side of the latter and engageable with one of said movable clamping members for moving the same out of clamping engagement with the corresponding one of said stationary clamping members; said carriage including another rod carried by said frame and extending parallel to the said pressure cylinder on the opposite side of the frame from said first-named rod and engageable with the other of said movable clamping members for moving the latter out of clamping engagement with the other one of said stationary clamping members against the action of said urging means.

3. In a hand printing press, of the bed and cylinder type, the combination of: a bed; a pair of clamping members arranged upon said bed adjacent one end of the latter and another pair of clamping members arranged upon said bed adjacent the other end of the same; each of said pairs of clamping members including a relatively stationary clamping member and a relatively movable clamping member; each of said movable clamping members having an upwardly extending portion; a carriage movable over said bed and including a supporting frame and a pressure cylinder or impression-transmitting roll journaled in said frame; and means normally urging each of said movable clamping members into clamping engagement with the corresponding one of said stationary clamping members; said carriage including a rod carried by said frame and extending parallel to the axis of said pressure cylinder at one side of the latter and engageable with the said upwardly extending portion of one of said movable clamping members for moving the same out of clamping engagement with the corresponding one of said stationary clamping members; said carriage including another rod carried by said frame and extending parallel to the axis of said pressure cylinder on the opposite side of the same from said first-named rod and engageable with the said upwardly extending portion of the other of said movable clamping members for moving the latter out of clamping engagement with the other one of said stationary clamping members against the action of said urging means.

HARVEY J. REARDON.