

Sept. 2 , 1924.

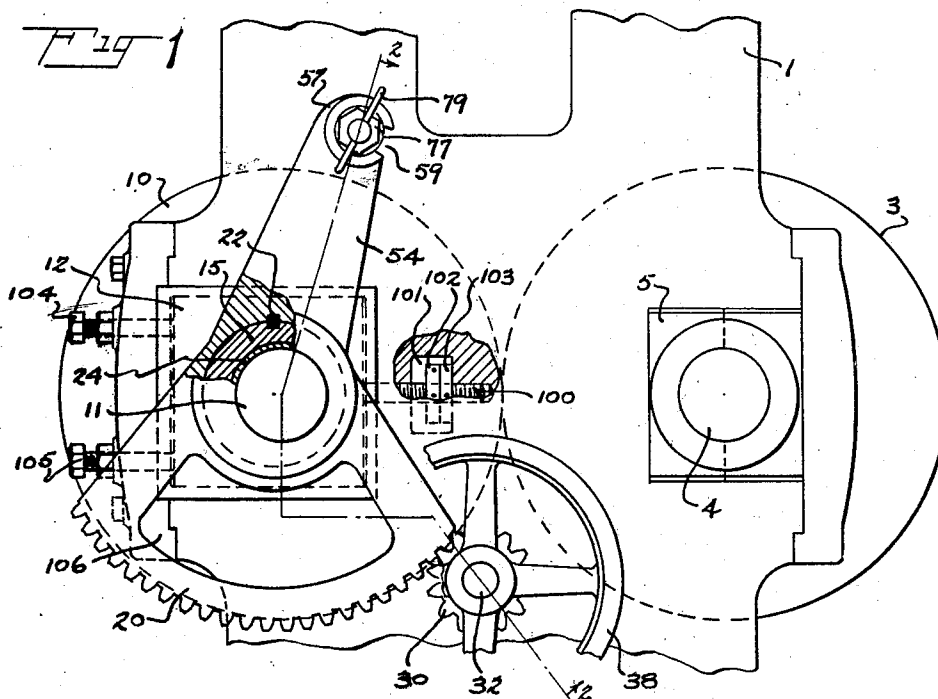
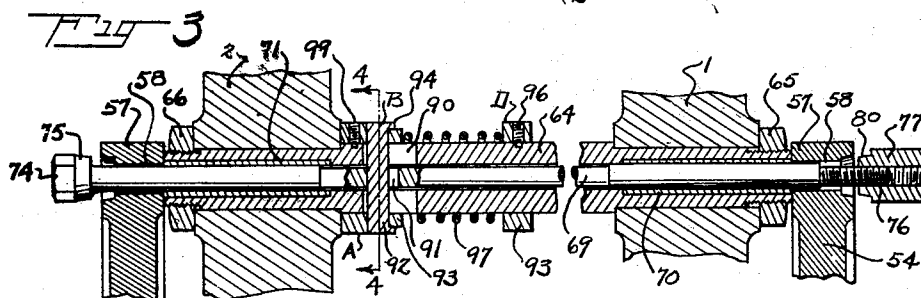
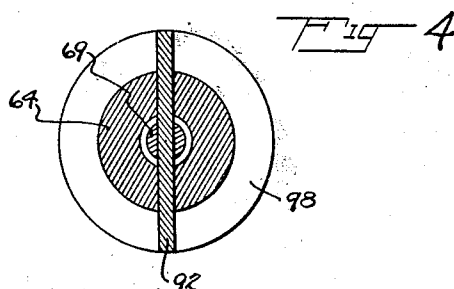
R. C. SEYMOUR

1,507,436

PRINTING PRESS

Filed Aug. 30, 1923

2. Sheets-Sheet 1



R.C. Seymour INVENTOR
BY John D. Morgan ATTORNEY

Sept. 2, 1924.

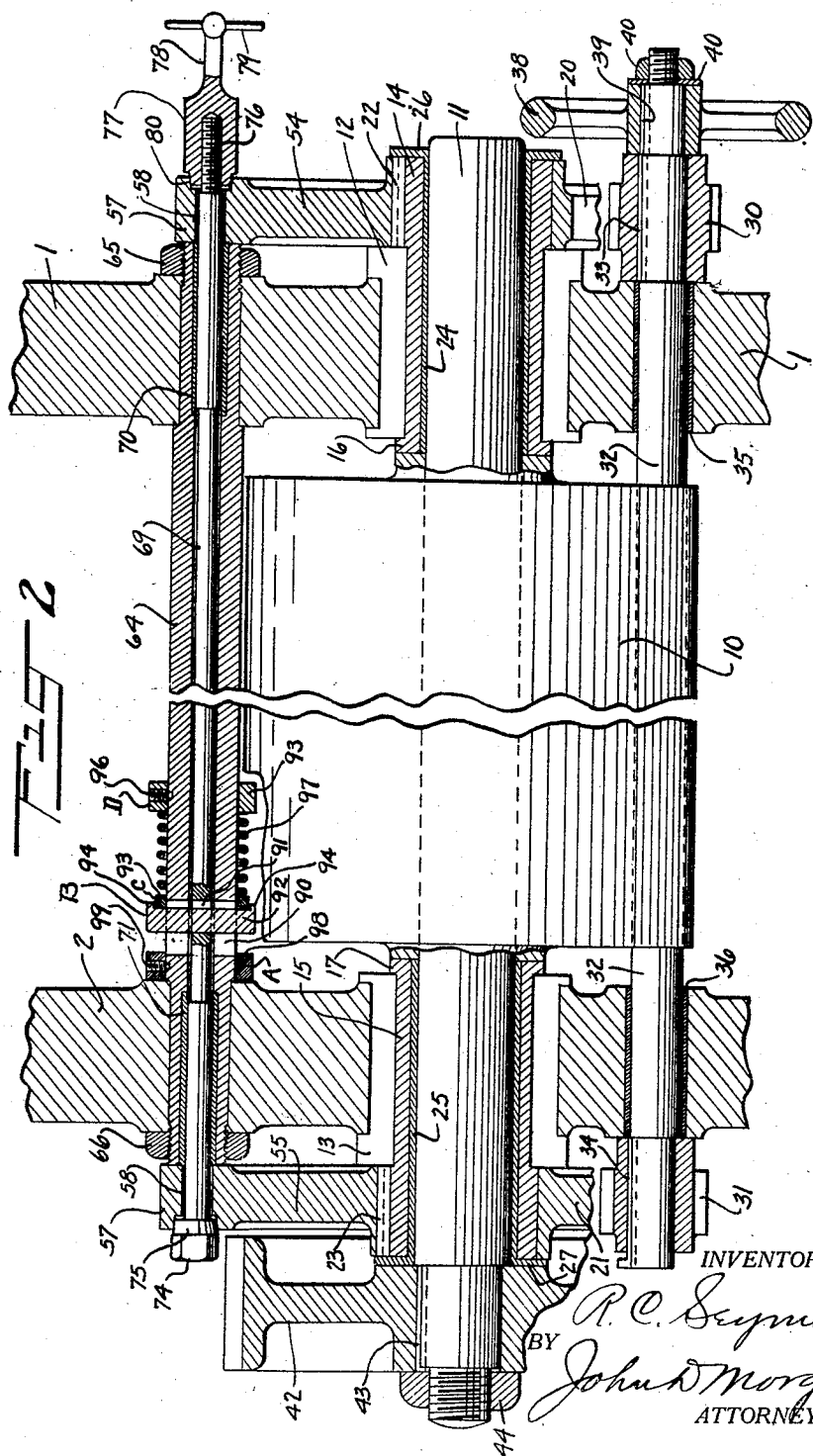
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2 Sheets-Sheet 2



INVENTOR

BY

ATTORNEY

Patented Sept. 2, 1924.

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UNITED STATES PATENT OFFICE.

RALPH C. SEYMOUR, OF SHORT HILLS, NEW JERSEY.

PRINTING PRESS.

Application filed August 30, 1923. Serial No. 660,142.

To all whom it may concern:

Be it known that I, RALPH C. SEYMOUR, a citizen of the United States, residing at Short Hills, in the county of Union and State of New Jersey, have made certain new and useful Improvements in Printing Presses, of which the following is a specification.

The invention relates to printing presses and more particularly to impression effecting and controlling mechanism for rotary presses.

Objects and advantages of the invention will be set forth in part hereinafter and in part will be obvious herefrom, or may be learned by practice with the invention, the same being realized and attained by means of the instrumentalities and combinations pointed out in the appended claims.

The invention consists in the novel parts, constructions, arrangements, combinations and improvements herein shown and described.

The accompanying drawings, referred to herein and constituting a part hereof, illustrate one embodiment of the invention, and together with the description, serve to explain the principles of the invention.

Fig. 1 is a fragmentary elevation, with parts broken away and parts in section, of a mechanism embodying the invention.

Fig. 2 is a fragmentary, transverse, vertical section, taken substantially on the line 2-2 of Fig. 1;

Fig. 3 is a detached fragmentary detail showing the impression-locking device in its inoperative or clamping position; and

Fig. 4 is a vertical detail section on line 4-4 of Fig. 3 looking in the direction of the arrows.

The invention is directed more especially to means for regulating and for throwing or moving on and off the impression in a rotary printing couple mechanism, and to a simple, effective and accurate mechanism of the kind described which is operated by a single attendant from one side of the press, but which has impression effecting and controlling and locking mechanism on both sides of the press to insure uniform action.

Other features and advantages of the invention will be primarily referred to in connection with the following detailed description of the invention.

Referring now in detail to the embodiment of the invention, illustrated by way of

example in the accompanying drawings, the general frame of a printing press is shown, having the usual upright parallel side frames 1 and 2. The form cylinder 3 is journaled between these frames in a suitable manner, its shaft 4 being shown journaled in journal boxes 5, these parts being only generally shown.

Cooperating with the form cylinder is an impression cylinder 10, having its shaft 11 journaled in bearings in the press frames 1 and 2. As embodied, split journal boxes 12 and 13 are provided for the shaft at either end thereof and within these journal boxes are bushings 14 and 15, having flanges 16 and 17 at their respective inner ends upon which abuts shoulders upon the shaft 11. The shaft 11 of the impression cylinder is journaled eccentrically in these bushings to effect the movement of the cylinder to and from impression.

Fixed to the bushings 14 and 15, respectively, at the outer ends and exteriorly thereof, are geared sectors 20 and 21. The bushings and sectors are connected together by suitable means, such as keys 21 and 22. Friction sleeve 24 and 25 are preferably provided encircling the shaft 11 within the bushings 14 and 15, and preferably having flanges 26 and 27 on the external faces of the respective bearings.

The embodied form of means for operating the sectors comprises pinions 30 and 31, fixed respectively on the opposite ends of a shaft 32, extending across the press and journaled at either side in the press frames 1 and 2. The pinions and their shaft are fixed together by suitable means such as keys 33 and 34, and friction sleeves 35 and 36 are provided about the shaft at its bearings in the press frame. A hand wheel 38 is fixed on one end of shaft 32 by suitable means, such as a key 39, and is held in place by a nut and washer 40, screw-threaded on the end of the shaft.

The printing couple is rotated by any suitable gearing, one gear wheel 42 being shown in Fig. 2, this wheel being fastened to the reduced end of the shaft 11 by a key 43, a nut 44 being screw-threaded on to the end of the shaft.

Means are provided for firmly clamping or locking the impression cylinder in impression position, and as embodied two arms 54 and 55 are formed integral with the respective sectors and extending upwardly

therefrom. Each of these arms at the upper end thereof is provided with a boss 57 which has a central cylindrical aperture 58 and a transverse side aperture 59, to receive and
 5 cooperate with the locking device on the press frame about to be described. Each of these bosses is conoidally beveled about the cylindrical opening 58, on the exterior
 10 action of the clamping or locking device.

Referring now to the embodied form of the cooperating clamping device on the press frame, a cross member 64 is centrally longitudinally cylindrically apertured, and is
 15 fitted into and supported by similarly shaped apertures in the press frame members 1 and 2. The member 64 is shouldered at and abuts against inner finished faces on the frame pieces 1 and 2. The members 64
 20 extend out beyond the frame pieces 1 and 2 at either side of the press, and such protruding portions are externally screw-threaded, and nuts 65 and 66 are screwed thereon to firmly hold the device in place.

Mounted within the central longitudinal cylindrical aperture in the member 64, and projecting therethrough and extending therefrom at either end, is a rod 69, which is centrally preferably of reduced diameter,
 30 and is journaled in the member 64 at either end thereof with interposed sleeves 70 and 71.

The rod 69 at one end thereof (left-hand end in Fig. 2), is provided with a head 74, having at its inner end a conoidal clamping
 35 or locking surface 75, adapted to cooperate with the conoidal locking surfaces on bosses 57. At its opposite end the rod 69 is reduced, this reduced portion having a screw-thread
 40 76. A head 77 is internally screw-threaded and is screwed on to the screw-thread 76. The head 77 is provided at its outer end with a neck 78 terminating in a hand-bar 79. At its inner end the head 77 is provided with
 45 a conoidal bearing or clamping surface 80, which cooperates with the corresponding portion of the boss 57, in the end of the arm 54.

I make my clamping or locking device fool proof so that no inattention or mistake
 50 by the attendant can result in damage to the parts of the locking device. Any suitable form of mechanism for accomplishing this may be employed.

In the embodiment of my invention illustrated, but to which my invention is not to be limited, I slot the member 64 providing it with the slots 90, 90, Figs. 2 and 3. The longitudinally movable rod 69 is also provided with a slot 91 within which is mounted
 60 the sliding key 92 which also slides in the slots 90, 90 in the member 64. A loose collar 93 is mounted to slide on the exterior of the member 64 and cooperates with the
 65 sliding key 92 and the fingers 94, 94, on said

sliding key. On the member 64 is mounted a fixed collar 95 held in position by the set screw 96. Between this fixed collar 95 and the loose sliding collar 92, I mount a coiled
 70 spring 97 which normally presses the loose collar 93, sliding key 92 and rod 69 to the left of Fig. 2, bringing the locking or clamping mechanism into the position shown in Fig. 3. I may also mount a second fixed
 75 collar 98 on the exterior of the member 64 by means of a set screw 99.

This fool proof locking or clamping mechanism insures that the longitudinally movable rod 69 will be moved to the left of Fig. 2, and into the position shown in Fig.
 80 3, by the action of the spring 97 and disengage the conoidal locking or clamping part 75 from the arm 55, before the attendant can disengage the conoidal locking or clamping part 80, on the head 77, from the
 85 other arm 54 by unscrewing the head 77. The sliding key 92 extending through the slots 90, 90 in the fixed member 64 prevents the rod 69 from rotating when the head 77 is rotated by the hand-turning-bar 79.

Impression-regulating means are preferably provided cooperating with the foregoing mechanism, and as embodied a screw rod 100 is screw-threaded into the press
 90 frame members 1 and 2 respectively, one end of this screw rod being adapted to abut against the journal box 12 or 13, at that end of the impression cylinder shaft 11. In an opening 101 in the frame, nuts 102 and 103 are screw-threaded on screw rod 100, and
 100 may be turned to position the screw rod to regulate the impression as desired, and then may be locked in such position.

I also preferably employ screws 104 and 105 extending through the cap 106 and adapted to bear upon the journal boxes 12 or 13 and hold said journal boxes in any
 105 adjusted position determined by the adjusting screw 100, and nuts 102 and 103.

The manner of operation of the previously described mechanism is substantially as follows:—

In the operation of the device it may be assumed to be in the position of Figs. 1 and 2, with the journal boxes 12 and 13 pressing
 115 against the corresponding positioning screw 100, and with the locking or clamping device for the arms 54 and 55 clamped or locked as shown in Fig. 2. In throwing off the impression, the attendant unscrews the
 120 head 77, and, as he does so the spring 97 through the sliding collar 93 and sliding key 94 moves the rod 69 to the left of Fig. 2 and disengages the conoidal clamping surface 75 from the boss 55, see Fig. 3. Then, after the locking mechanism has been first released on the opposite side from the attendant, further unscrewing of the head 77 will
 125 disengage the conoidal locking surface 80, on the head 77, from the boss 54, as shown
 130

in Fig. 3. The hand wheel 38 is then rotated in the clockwise direction in Fig. 1, and the consequent rotation of bushings 14 and 15 will throw off the impression, and
 5 will move cylinder 10 away from cylinder 3 by reason of the eccentric mounting in the bushings of the shaft 11.

When it is desired to bring cylinder 10 back to impression position, hand-wheel 38
 10 is rotated in the opposite direction, bringing the journal boxes 12 and 13 up against their positioning screws 100, which accurately determine the impression. At the same time the bosses 57 on the respective arms 54 pass
 15 into operative relation with the clamping devices on rod 69, the rod passing into the openings 59. The operator then turns the head 77 which causes the rod 69 to move to the right of Fig. 2 and causes the locking
 20 surfaces 75 to engage with the boss 57. At the same time this places the spring 97 under tension. Further rotation of the head 77 will cause the locking surfaces 80 to be firmly held to the boss 57 on the arm 54,
 25 which will then firmly secure the parts in position.

The invention in its broader aspects is not limited to the specific mechanisms shown and described but departure may be made
 30 therefrom within the scope of the accompanying claims without departing from the principles of the invention and without sacrificing its chief advantages.

What I claim is:—

35 1. A printing press including in combination a form cylinder and impression cylinder constituting a printing couple, and means for throwing on and off the impression, and means for locking the cylinders at im-
 40 pression comprising clamping devices at either side of the press and actuating means therefor operable from one side of the press.

2. A printing press including in combination a form cylinder and impression cylinder
 45 constituting a printing couple, means for throwing on and off the impression, and means for locking the cylinders at impression comprising clamping devices at either side of the press and actuating means therefor
 50 comprising a connection across the press therebetween and operable from one side of the press.

3. A printing press including in combination a form cylinder and impression cylinder
 55 constituting a printing couple, means for throwing on and off the impression, and means for locking the cylinders at impression comprising clamping devices at either side of the press and actuating means therefor comprising a longitudinally slidable
 60 connection across the press therebetween and operable from one side of the press.

4. A printing press including in combination a form cylinder and impression cylinder
 65 constituting a printing couple, means for

throwing on and off the impression, and means for locking the cylinders at impression comprising clamping devices at either side of the press and actuating means there-
 70 for comprising a connection across the press therebetween and a screw-threaded clamping member operable from one side of the press.

5. A printing press including in combination a form cylinder and impression cylinder
 75 constituting a printing couple, means for throwing on and off the impression, and means for locking the cylinders at impression comprising clamping devices at either side of the press and actuating means there-
 80 for comprising a longitudinally slidable connection across the press therebetween and a screw-threaded clamping member operable from one side of the press.

6. A printing press including in combination a form cylinder and impression cylinder
 85 constituting a printing couple, means for throwing on and off the impression, and means for locking the cylinders at impression comprising clamping devices at either side of the press and actuating means there-
 90 for, a rod extending across between the clamping devices, and means operating on the rod for effecting the clamping action.

7. A printing press including in combination a form cylinder and impression cylinder
 95 constituting a printing couple, means for throwing on and off the impression, means for locking the cylinders at impression comprising clamping devices at either side of the press and actuating means there-
 100 for, a rod extending across between the clamping devices and screw-threaded means operating on the rod for effecting the clamp-
 105 ing action.

8. A printing press including in combination a form cylinder and impression cylinder
 110 constituting a printing couple, means for throwing on and off the impression, means for locking the cylinders at impression comprising clamping devices at either side of the press and actuating means therefor, a longitudinally slidable rod extending
 115 across between the clamping devices and means operating on the rod for effecting the clamping action.

9. A printing press including in combination a form cylinder and impression cylinder
 120 constituting a printing couple, means for throwing on and off the impression, means for locking the cylinders at impression comprising clamping devices at either side of the press and actuating means therefor, a longitudinally slidable rod extending
 125 across between the clamping devices and screw-threaded means operating on the rod for effecting the clamping action.

10. A printing press including in combination a form cylinder and impression cylinder
 130 constituting a printing couple, means

for throwing on and off the impression, movable means cooperating with a cylinder shaft to throw on and off the impression, means for clamping said movable means in impression position including clamping devices at either side of the press and actuating means therefor operable from one side of the press.

11. A printing press including in combination a form cylinder and impression cylinder constituting a printing couple, means for throwing on and off the impression, movable means cooperating with a cylinder shaft to throw on and off the impression, means for clamping said movable means in impression position including clamping devices at either side of the press and actuating means therefor comprising a rod extending across the press and means for longitudinally moving the rod to effect the clamping action.

12. A printing press including in combination a form cylinder and impression cylinder constituting a printing couple, means for throwing on and off the impression, movable means cooperating with a cylinder shaft to throw on and off the impression, means for clamping said movable means in impression position including clamping devices at either side of the press and actuating means therefor comprising a rod extending across the press and screw-threaded means for longitudinally moving the rod to effect the clamping action.

13. A printing press including in combination a form cylinder and impression cylinder constituting a printing couple, means for throwing on and off the impression, and fool proof locking means to lock the cylinders at impression, said fool proof locking means operating at both sides of the press but operated at one side of the press.

14. A printing press including in combination a form cylinder and impression cylinder constituting a printing couple, means for throwing on and off the impression, means for locking the cylinders at impression comprising clamping devices at either side of the press and actuating means therefor operable from one side of the press, and means to insure that the clamping devices on one side of the press will be released momentarily before those on the other side.

15. A printing press including in combination a form cylinder and impression cylinder constituting a printing couple, means for throwing on and off the impression, means for locking the cylinders at impression comprising clamping devices at either side of the press, actuating means therefor operable from one side of the press, and automatic means to insure that the clamping devices on one side of the press will be

released momentarily before those on the other side.

16. A printing press including in combination a form cylinder and impression cylinder constituting a printing couple, means for throwing on and off the impression, means for locking the cylinders at impression comprising clamping devices at either side of the press, actuating means therefor operable from one side of the press, and means to insure that the clamping devices on the side opposite from the attendant will be released before those on the other side.

17. A printing press including in combination a form cylinder and impression cylinder constituting a printing couple, means for throwing on and off the impression, means for locking the cylinders at impression comprising clamping devices at either side of the press, actuating means therefor operable from one side of the press, and automatic means to insure that the clamping devices on the side opposite from the attendant will be released before those on the other side.

18. A printing press including in combination a form cylinder and impression cylinder constituting a printing couple, means for throwing on and off the impression, means for locking the cylinders at impression comprising clamping devices at either side of the press and actuating means therefor operable from one side of the press, and spring means to insure that the clamping devices on one side of the press will be released before those on the other side.

19. A printing press including in combination a form cylinder and impression cylinder constituting a printing couple, means for throwing on and off the impression, movable means cooperating with a cylinder shaft to throw on and off the impression, means for clamping said movable means in impression position including clamping devices at either side of the press and actuating means therefor comprising a rod extending across the press, screw-threaded means for longitudinally moving the rod to effect the clamping action, and a sliding key mounted in the rod and means to yieldingly press it and the rod in one direction to release one of the clamping devices.

20. A printing press including in combination a form cylinder and impression cylinder constituting a printing couple, means for throwing on and off the impression, holding devices at either side of the press for holding the cylinders at impression contact, and actuating means for said holding devices operable from one side of the press.

In testimony whereof, I have signed my name to this specification.

RALPH C. SEYMOUR.