

Oct. 27, 1936.

H. M. BARBER

2,058,759

ROTARY PRINTING PRESS

Filed Feb. 16, 1935

2 Sheets-Sheet 1

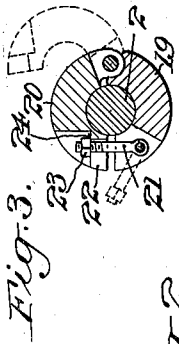


Fig. 2

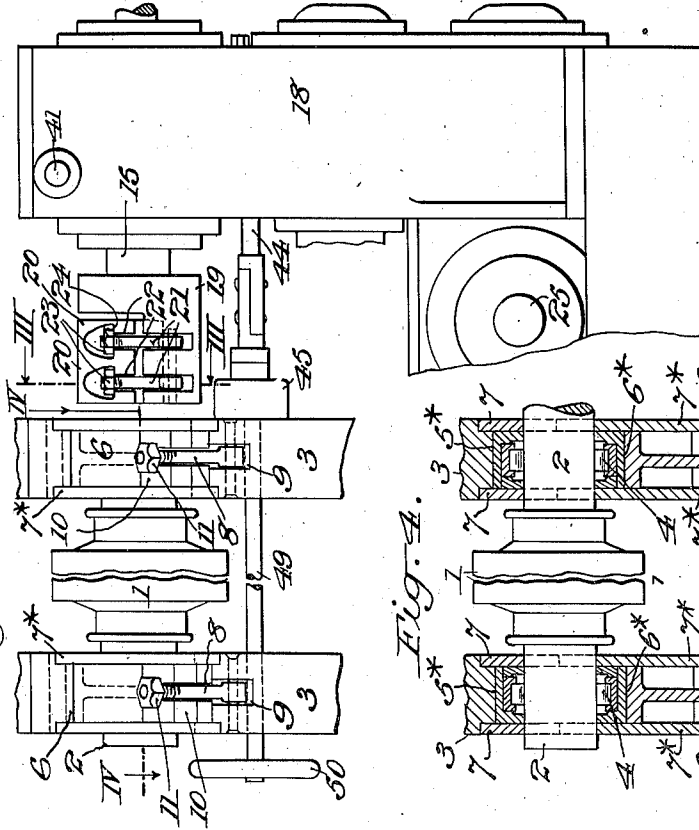


Fig. 4.

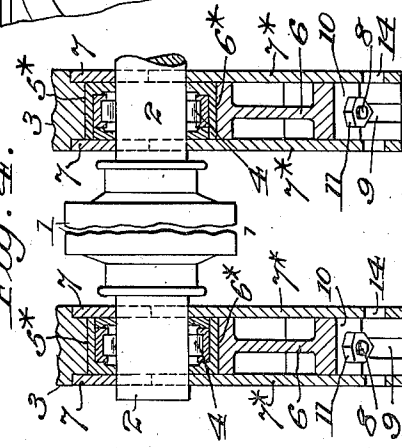
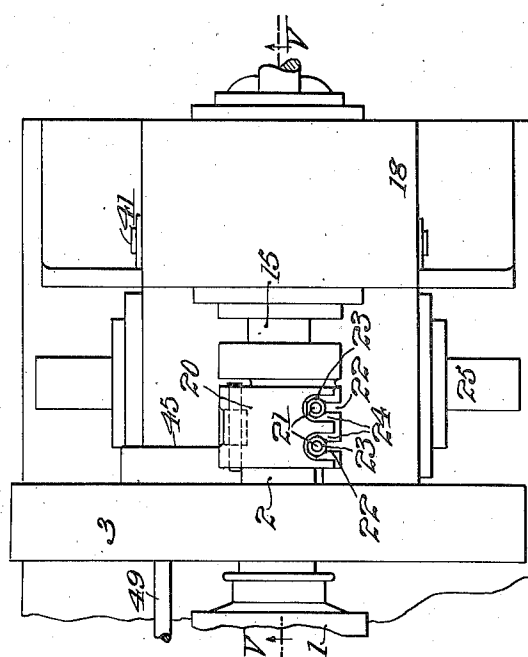


Fig. 1.



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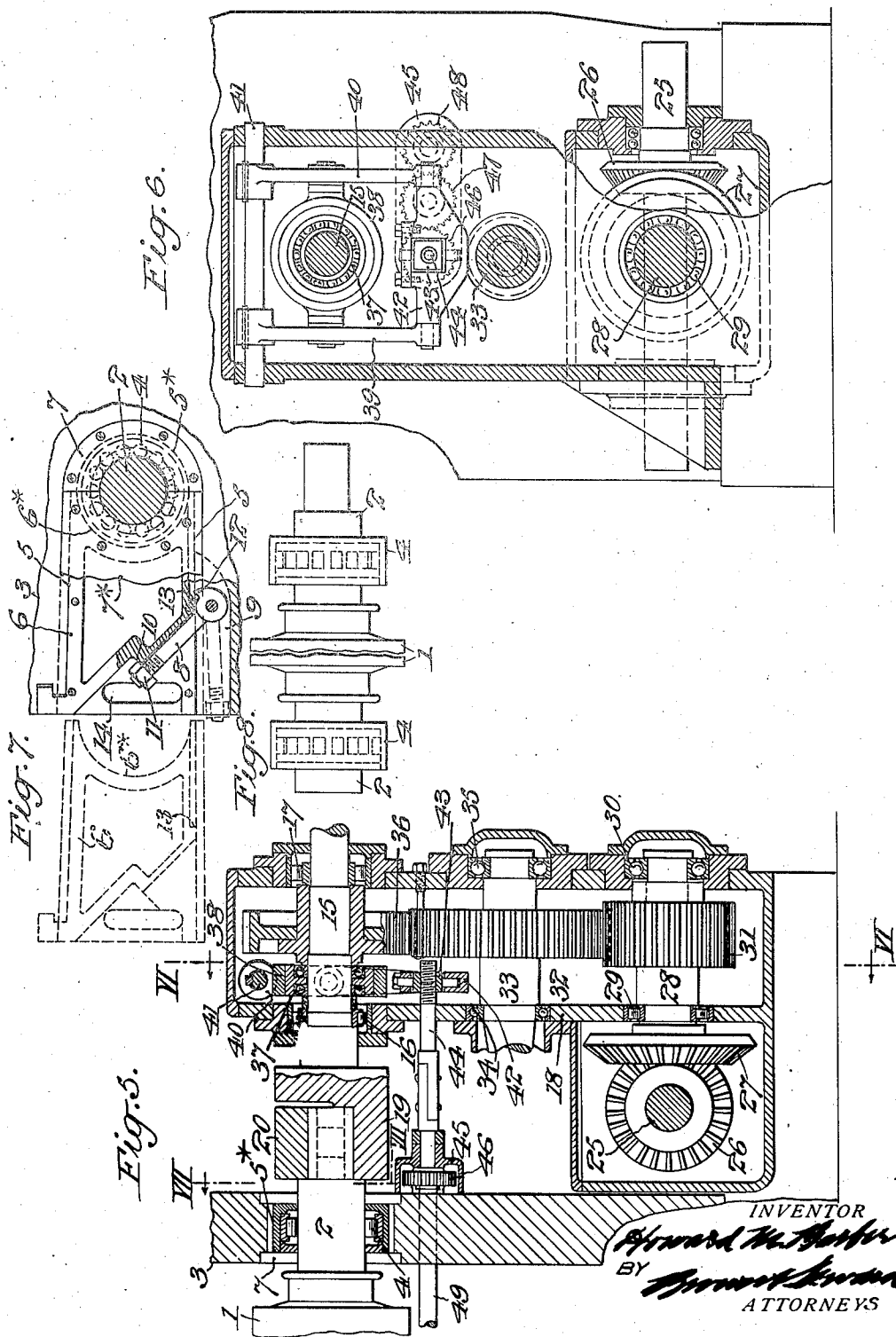
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2 Sheets-Sheet 2



UNITED STATES PATENT OFFICE

2,058,759

ROTARY PRINTING PRESS

Howard M. Barber, Pawcatuck, Conn., assignor
to C. B. Cottrell & Sons Company, Westerly,
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Application February 16, 1935, Serial No. 6,804

5 Claims. (Cl. 101—153)

In rotary intaglio printing presses the printing surface of the form cylinder has a very limited life and it is therefore necessary to remove and replace the form cylinder frequently. This operation requires a considerable amount of time and also requires the disconnection and reconnection of some of the driving gears and the removal and replacement thereof.

In rotary intaglio printing presses it is also necessary to shift the form cylinder endwise to bring the form into proper register.

One object of my invention is to provide novel means whereby the form cylinder and its shaft may be easily removed from and replaced in the press frame without disturbing the drive therefor.

Another object is to provide simple and effective means for imparting an endwise movement to the form cylinder to bring it into proper register.

My invention generally comprises removable locking members for the form cylinder shaft, and a shaft extension removably coupled to one end of the form cylinder shaft whereby the cylinder and its shaft may be easily removed from and replaced in the frame by uncoupling the shaft from the shaft extension and removing the shaft locking members.

My invention also comprises manually operated means connected to the shaft extension for adjusting the form cylinder endwise into proper register.

A practical embodiment of my invention is represented in the accompanying drawings, in which

Fig. 1 represents a detail top plan view of a rotary intaglio printing press at the side from which the form cylinder is driven;

Fig. 2 represents a detail front view;

Fig. 3 represents a vertical transverse section taken in the plane of the line III—III of Fig. 2, looking in the direction of the arrows;

Fig. 4 represents a detail horizontal section taken in the plane of the line IV—IV of Fig. 2, looking in the direction of the arrows;

Fig. 5 represents a vertical section taken in the plane of the line V—V of Fig. 1, looking in the direction of the arrows;

Fig. 6 represents a vertical transverse section taken in the plane of the line VI—VI of Fig. 5, looking in the direction of the arrows;

Fig. 7 represents a detail vertical transverse section taken in the plane of the line VII—VII of Fig. 5, looking in the direction of the arrows; and

Fig. 8 represents a detail side view showing the form cylinder, the form cylinder shaft and its roller bearings removed from the printing press.

The removable form cylinder 1 of the printing press has its shaft 2 rotatably mounted in the press side frames 3, for endwise movement.

Roller bearing units 4 are provided for the form cylinder shaft 2 beyond the ends of the form cylinder, which roller bearing units may be removed from the shaft by an endwise movement when the shaft is removed from the press side frames.

Each roller bearing unit is removably housed partly in the semi-cylindrical end 5* of a recess 5 in the side frame and partly in the semi-cylindrical recess 6* in the removable locking member 6. Side plates 7 secured to the side frame in alignment with the side plates 7* of the removable locking member 6 serve to prevent endwise movement of the roller bearing unit 4 when in its operative position.

The means for securing the removable locking member 6 in position comprises a swinging screw bolt 8 pivoted to the side frame 3 in a recess 9 opening into the recess 5. This screw bolt 8 is fitted to swing upwardly into position over a seat 10 provided on the removable locking member 6. A nut 11 on the bolt 8 serves to lock the bolt to the removable locking member.

Means are provided for positively moving the locking member 6 from its operative position when it is desired to remove the locking member from the side frame 3. This means comprises a lug 12 on the pivoted head of the swinging bolt 8, which lug is arranged to engage an abutment 13 on the removable locking member 6 after the nut has been unscrewed and as the bolt is being swung downwardly to its released position.

To facilitate the entire removal of the locking member 6 from its recess 5, the locking member may be provided with hand holes 14 in its side plates 7*.

The drive for the form cylinder includes a shaft extension 15 which is mounted for endwise movement in roller bearings 16, 17 carried by the side walls of a gear housing 18. This shaft extension 15 is removably coupled to one end of the form cylinder shaft 2 as by providing a coupling comprising a half socket 19 forming a part of the shaft extension, and a half socket 20 hinged to the half socket 19. These two half sockets are arranged in position to receive and clamp between them the reduced end of the said form cylinder shaft 2. Two swinging bolt 21 are pivoted in the half socket 19 in position to swing into slots 22 in the half socket 20, nuts 23 being provided for engaging shoulders 24 on the said half socket 20.

The shaft extension 15 and thereby the form

cylinder shaft 2, when coupled thereto, may be driven through the following gearing located in the housing 18:

A drive shaft 25 has a bevel gear 26 which meshes with a bevel gear 27 fast on a shaft 28 rotatably mounted in roller bearings 29, 30 in the sides of the housing 18. This shaft 28 is provided with a gear 31 which meshes with a gear 32 carried by a shaft 33 mounted in suitable roller bearings 34, 35 in the sides of the housing 18. The gear 32 on the shaft 33 meshes with a gear 36 fast on the shaft extension 15.

Means on the opposite side of the press is connected to the shaft extension 15 for moving the form cylinder 1 endwise into proper register either while the press is running or is at rest, which means in the present instance is constructed, arranged and operated as follows:

A roller bearing 37 is interposed between the shaft extension 15 and a ring 38, which ring is pivoted to the depending yoke arms 39, 40 of a rock lever pivoted in the housing by a rock shaft 41. The lower ends of these yoke arms 39, 40 carry a yoke 42 in which a nut 43 is mounted with a slight "play". A screw shaft 44 has its screw thread end engaged with the nut 43, which screw shaft is suitably mounted to rotate in the inner wall of the gear housing 18 and the outer wall of a gear casing 45, in which casing the said screw shaft is operatively connected through a train of gears 46, 47, 48 with the adjacent end of a cross shaft 49 leading to the opposite side of the press where the cross shaft 49 is provided with a hand wheel 50 for manipulating it.

From the above description it will be seen that when it is desired to remove the form cylinder for replacement or for any other reason, the locking members 6 are unlocked and removed from the press frame. Also, the half socket 20 of the coupling between the form cylinder shaft 2 and shaft extension 15 is unlocked and swung out of the way. This will permit the free removal of the form cylinder, its shaft and the roller bearings carried by the shaft from the press frame, without disturbing in any way the form cylinder driving mechanism. It will be understood that the roller bearings 4 may be removed from the form cylinder shaft and replaced on the shaft of the form cylinder which is to be inserted into the printing press.

It will furthermore be seen that I have provided a novel manually operated means connected to the shaft extension for easily and accurately adjusting the position of the form cylinder endwise for proper register when the form cylinder

shaft 2 and the shaft extension are coupled together. This endwise adjustment of the form cylinder may be accomplished whether the press be running or at rest.

It is evident that various changes may be resorted to in the construction, form and arrangement of the several parts without departing from the spirit and scope of my invention, and hence I do not intend to be limited to the particular embodiment herein shown and described, but

What I claim is:

1. In a rotary printing press, a frame, a form cylinder, a form cylinder shaft, a shaft extension, a drive located at one side of the frame and connected to the shaft extension, and manually operated means located at the other side of the frame and connected to the shaft extension for imparting endwise movement to the form cylinder.

2. In a rotary printing press, a frame, a form cylinder, a form cylinder shaft, a shaft extension, a drive connected to the shaft extension, means for removably coupling the shaft to the shaft extension, and manually operated means connected to the shaft extension for imparting endwise movement to the form cylinder.

3. In a rotary printing press, a frame, a form cylinder, a form cylinder shaft, a shaft extension, a drive located at one side of the frame and connected to the shaft extension, means for removably coupling the shaft to the shaft extension, and manually operated means located at the other side of the frame and connected to the shaft extension for imparting endwise movement to the form cylinder.

4. In a rotary printing press, a frame, a form cylinder, a form cylinder shaft, a shaft extension, a drive connected to the shaft extension, means for removably coupling the shaft to the shaft extension, means for releasably mounting the form cylinder shaft in the frame, and manually operated means connected to the shaft extension for imparting endwise movement to the form cylinder.

5. In a rotary printing press, a frame, a form cylinder, a form cylinder shaft, a shaft extension, a drive located at one side of the frame and connected to the shaft extension, means for removably coupling the shaft to the shaft extension, means for releasably mounting the shaft in the frame, and manually operated means located at the other side of the frame and connected to the shaft extension for imparting endwise movement to the form cylinder.

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